APPENDIX R GROUNDWATER TECHNICAL MEMORANDA

Memorandum

Environmental Resources Management

915 118th Ave. SE
Suite 130
Bellevue, WA 98005
(425) 462-8591
(425) 455-3573 (fax)

To: Donna Ortiz De Anaya/Washington State Department of Ecology

From: Michael F. Mendes/ERM-West, Inc.
Erik Ipsen, PE/ERM-West, Inc.

CC: Ron Timm/Washington State Department of Ecology
Shawn Carter Lilley/Glacier Northwest
John J. Oldham/Reichhold
John Bjorkman/K&L Gates
Claudia Powers/Ater Wynne
Carolyn Kossik/CH2M HILL
Laura Tesch/ERM-West, Inc.

Date: 5 August 2010

Subject: Spring 2010 Groundwater Sampling Results
Glacier Northwest, Inc. – Reichhold, Inc. Site
Seattle, Washington

ERM-West, Inc. (ERM) has prepared this Spring 2010 Groundwater Sampling Results Memorandum on behalf of Glacier Northwest, Inc. and Reichhold, Inc., for the Glacier-Reichhold site located at 5900 West Marginal Way SW, Seattle, Washington (the "Site"). **Figure 1** provides a Site location map. This memorandum presents the groundwater sampling objectives, scope, and results of the Spring 2010 groundwater sampling event.

SPRING 2010 GROUNDWATER SAMPLING OBJECTIVES

In April 2010, ERM completed a comprehensive round of groundwater sampling at the Site. The objectives of the Spring 2010 groundwater sampling event were to:

- Assess current Site groundwater conditions and the status of remedial actions completed to date; and
- Evaluate concentrations of Site constituents of primary concern, as well as other key constituents in groundwater.

The sections below describe the monitoring well sampling activities completed in Spring 2010 and the analytical and field data results.

GROUNDWATER SAMPLING ACTIVITIES

On 26 April 2010, prior to initiating groundwater sampling activities, ERM

personnel collected water level measurements from existing Site monitoring wells and from the Lower Duwamish Waterway measuring point at the Site.

Groundwater samples were collected from 27 April through 30 April 2010 from 26 existing monitoring wells. The locations of the monitoring wells sampled, and the parameters analyzed, are summarized on **Figure 2** and **Table 1**, respectively. The monitoring wells were purged and sampled in accordance with the Groundwater Sampling and Analysis Plan (SAP) using low-flow sampling methods (ERM 2010).

Quality assurance/quality control samples were collected as prescribed in the SAP (ERM 2010) and included blind duplicate samples from MW-1S, MW-14, and MW-21.

Confirmation Sampling

On 2 June 2010, monitoring wells MW-4S, MW-7S, and MW-13 were re-sampled. The purpose of the re-sampling was to confirm the April 2010 results of pentachlorophenol (PCP) in MW-4S because the April 2010 analytical results were inconsistent with historical PCP results from that well. These results were reviewed with the analytical laboratory which reported that there were no errors in detection limits, errors in reported concentration units, or potential laboratory cross-contamination of the samples. The groundwater sampling field staff did not report any differences during the sample collection or in the field documentation. Based on the results of this cross-checking, and the fact that the PCP concentrations appeared to be anomalous, the re-sampling event was conducted. To assess potential laboratory procedure issues, a duplicate sample was collected during the re-sampling and sent to a second laboratory for analysis. During re-sampling, each well was purged using low-flow methods, as described in the SAP (ERM 2010). Groundwater samples were collected for the following parameters:

- Phenol, PCP, and chlorinated phenol breakdown products (2-chlorophenol; 2,4-dichlorophenol; 2,4,5-trichlorophenol; 2,4,6-trichlorophenol; and 2,3,4,6-tetrachlorophenol) by USEPA Method 8270C;
- Ferrous iron and sulfide using field test kits provided by Hach Company; and
- Field measurements for temperature, pH, oxidation reduction potential (ORP), specific conductivity, dissolved oxygen field measurements, and turbidity using a flow-through cell.

The samples were delivered to Pace Analytical Laboratory and the split samples were delivered to ALS Laboratory Group in Everett, Washington. Results of the groundwater sampling and re-sampling are presented below.

RESULTS

Groundwater Elevations

Groundwater elevations were measured on 26 April 2010, prior to initiating groundwater sampling activities. **Table 2** provides groundwater elevations for the monitoring wells as recorded on the collection dates. Approximate shallow aquifer groundwater elevation contours for April 2010 are shown on **Figure 3**. Based on these measurements, at the time the water levels were collected in April 2010, Site groundwater flow direction was generally to the south with an approximate average gradient of 0.009. In general, the April 2010 groundwater flow direction was consistent with previous quarterly monitoring events.

Field Results

Field parameters were measured during well purging in accordance with the SAP (ERM 2010). Final field parameter values were collected after the parameters had stabilized and are presented in **Table 3**. As required in the SAP, turbidity in all wells was less than 10 nephelometric turbidity units (NTUs) prior to groundwater sample collection. The following observations were made regarding water quality parameters in shallow wells after these parameters stabilized during purging:

- Groundwater temperatures ranged from 10.47 to 14.59 degrees Celsius.
- Groundwater pH values ranged from 5.4 to 6.8 and a Site average of 6.3.
- Dissolved oxygen ranged from 0.16 to 1.95 milligrams per Liter (mg/L).
- ORP values ranged from -181.0 millivolts (mV) to 172.2 mV and averaged -82 mV, indicative of a reducing groundwater geochemistry environment.
- Salinity generally ranged from 0.44 to 0.66 parts per trillion (ppt) in shallow wells, with a maximum of 1.01 ppt in MW-27.
- Turbidity ranged from 0.44 to 8.22 NTUs prior to groundwater sampling.
- Conductivity ranged from 190 to 1,497 micro siemens per centimeter (µS/cm).
- Field-measured ferrous iron concentrations ranged from non-detect to 16.8 mg/L.

- Sulfide concentrations ranged from non-detect to 0.96 mg/L and were generally less than 0.30 mg/L.

Field measurement values for the deep aquifer wells were within the range of values reported for shallow wells, with the following exceptions:

- Conductivity was greater in the deep wells (1,012 to 1,901 µS/cm); and
- Salinity was reported at 0.66 to 1.31 ppt, slightly greater than the general range of values reported for the shallow wells.

Analytical Results

This section presents the analytical results for the Spring 2010 groundwater monitoring event. The analytical laboratory reports are provided in **Attachment A** and the analytical results are summarized in **Table 4**. Primary constituents detected in one or more groundwater samples are summarized in **Table 5** and on **Figures 4** and **5**.

Selected Preliminary Screening Levels

The detected groundwater constituents have been screened against the preliminary screening levels summarized below. Except where noted, the screening levels were obtained from the Washington State Department of Ecology's online CLARC website (Ecology 2004).

Groundwater screening levels include the following:

- Method B screening levels for carcinogenic and non-carcinogenic risk (Method B); and
- Method C screening levels for carcinogenic and non-carcinogenic risk (Method C).

Groundwater concentrations are screened against the surface water standards presented below for comparison purposes only. Surface water screening levels include the following:

- Water Quality Criteria for chronic exposure of aquatic life (SW-AL) from the Washington Administrative Code (WAC) 173-201A Water Quality Standards For Surface Waters of The State of Washington; and
- Water Quality Criteria for human health in marine environments (SW-HH) from the Federal Clean Water Act (WAC not established).

Arsenic screening levels for Method B, Method C, and SW-HH (0.058, 0.58, and 0.14 micrograms per Liter [µg/L], respectively) are less than background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM 2009). Therefore, these three screening levels are not considered applicable for assessing arsenic impacts in groundwater at the Site.

These generic screening levels are provided for purposes of preliminary data screening only. Due to the current and foreseeable future industrial use of the Site, screening levels based on unrestricted land use (e.g., Method B) are not considered directly applicable to the Site. References to these unrestricted land-use values are provided for comparison purposes only.

Data Validation

ERM assessed the quality of the data and applied any necessary qualifiers per the *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004). The data assessment review memorandums for the April 2010 and June 2010 re-sampling are included in **Attachment B**. Based on the data quality evaluation, the analytical results for groundwater samples collected as part of the Spring 2010 sampling are valid and usable with standard data qualifiers as noted in the associated data review packages and as noted in data summary **Tables 4** and **5 (Attachment B)**.

Analytical Results

Of the primary constituents analyzed, concentrations of PCP, total and dissolved arsenic, total and dissolved copper, and total and dissolved zinc were greater than at least one of the preliminary screening levels in one or more monitoring wells. Further discussion of PCP and total and dissolved arsenic detected at concentrations greater than the preliminary screening levels are detailed below.

Pentachlorophenol

Samples from all 26 monitoring wells were analyzed for PCP in April 2010. PCP was not detected in 22 of the 26 monitoring wells. In the four shallow wells where PCP was detected, concentrations ranged from 3.8 µg/L in MW-16 to 648 µg/L in MW-4S. PCP detections are compared to preliminary screening levels in **Table 5** and in **Figure 4.** Consistent with previous monitoring events, PCP was not detected in any of the deep wells.

The wells with the highest detections during the April sampling event were MW-4S (648 µg/L), located in the north-central portion of the Site, and MW-13

(88.6 µg/L), located near the eastern boundary of the Site. The results from MW-4S were inconsistent with historical concentrations in that well which have ranged from non-detect to 2.1 µg/L between November 1998 and March 2009. Given this anomalous result, well MW-4S was re-sampled in June 2010 along with MW-7S and MW-13 which also had PCP detections. The re-sampling event included the collection of confirmation and split samples at all three wells.

The re-sampling results are presented in **Tables 4** and **5,** and in **Figure 4**. For well MW-4S, the concentrations reported in the confirmation sample (141 µg/L) and split sample (140 µg/L) were less than the primary sample (648 µg/L). For MW-7S, the primary sample (11.8 µg/L) contained PCP concentrations that were slightly lower than the confirmation (21.2 µg/L) or split (23 µg/L) samples collected in June 2010. Well MW-13 contained a slightly greater PCP concentration in the primary (88.6 µg/L) than in the confirmation (53.2 µg/L) or split (46 µg/L) samples.

Concentrations of PCP in each pair of confirmation and split samples showed very good correlation indicating that the laboratory does not have a significant impact on data values. However, the re-sampling concentrations did show variability as compared to the April 2010 results. The PCP concentration in the confirmation sample collected at MW-4S in June 2010 was nearly 80 percent less than the April 2010 sample. In MW-7S and MW-13, PCP concentrations in the primary samples were similar to the confirmation and split samples. The next semi-annual sampling event in October 2010 will provide further data at MW-4S to review with the historical data points from this well.

Arsenic

Samples from all 26 monitoring wells were analyzed for total and dissolved arsenic in April 2010. Total and dissolved arsenic was detected in all 23 shallow and three deep wells (**Table 5**). Arsenic detections are compared to preliminary screening levels in **Figure 5**.

For shallow wells, total arsenic concentrations ranged from 0.36 µg/L (MW-24) to 3,640 µg/L (MW-14) and dissolved concentrations ranged from 0.32 µg/L (MW-24) to 3,380 µg/L (MW-21). All detections exceeded the Method B and SW-HH screening levels (which are below typical background concentrations for the region). All detections of total and dissolved arsenic, except for MW-24, exceeded the Method C screening level. The SW-AL screening level was exceeded by total and dissolved arsenic concentrations in 13 and 12 wells, respectively.

Total arsenic concentrations in the deep wells (MW-1D, MW-2D, and MW-3D) ranged from 11.5 µg/L (MW-1D) to 31.1 µg/L (MW-3D), and dissolved concentrations ranged from 9.8 µg/L (MW-1D) to 31.1 µg/L (MW-3D). All total and dissolved concentrations exceeded the Method B, Method C, and SW-HH screening levels, but not the SW-AL screening level.

SUMMARY AND CONCLUSIONS

This section provides a summary and conclusions of results for the Spring 2010 sampling event.

- Site groundwater flow direction was generally to the south with an approximate average gradient of 0.009 in April 2010. Groundwater flow direction was consistent with previous quarterly monitoring events.
- Field geochemistry parameters were collected during groundwater purging at each well. In general, groundwater geochemistry across the Site in Spring 2010 was consistent with previous sampling events (slightly acidic and reducing with an average pH of 6.3 and an average ORP of -82 mV).
- Groundwater samples were collected from 26 monitoring wells in April 2010.
- PCP was not detected in 22 of the 26 monitoring wells. Monitoring wells MW-4S, MW-7S, and MW-13 were re-sampled for PCP in June 2010 due to an outlier concentration of PCP in MW-4S. The PCP concentration in the confirmation and split samples collected at each well in June 2010 were similar; however, the concentrations did show variability as compared to the April 2010 results. The PCP concentration in the confirmation sample collected at MW-4S in June 2010 was nearly 80 percent less than the April 2010 sample. In MW-7S and MW-13, PCP concentrations in the primary samples were similar to the confirmation and split samples.
- Total and dissolved arsenic were detected in all 23 shallow and three deep wells. All total and dissolved arsenic detections exceeded the Method B and SW-HH screening levels (which are below typical regional background concentrations). All detections of total and dissolved arsenic, except for MW-24, exceeded the Method C screening level. The SW-AL screening level was exceeded by total and dissolved arsenic concentrations in 13 and 12 wells, respectively.
- In general, concentrations of the constituents of primary concern (PCP, total/dissolved arsenic) detected in the March 2009 baseline sampling event are consistent with the Spring 2010 sampling event (ERM 2009).

References

ENSR/AECOM. 2009. *Draft Feasibility Study, Lower Duwamish Waterway, Seattle, Washington*.

Environmental Resources Management (ERM). 2009. *Draft Summary of Existing Information and Data Gaps Report*. October 2009.

ERM. 2010. *Groundwater Sampling and Analysis Plan*. April 2010.

United States Environmental Protection Agency (USEPA). 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*.

Washington State Department of Ecology (Ecology). 2004. *Cleanup Levels and Risk Calculation (CLARC)*. Online Posting. Accessed June 2010. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx. Updated 22 April 2010.

Figures

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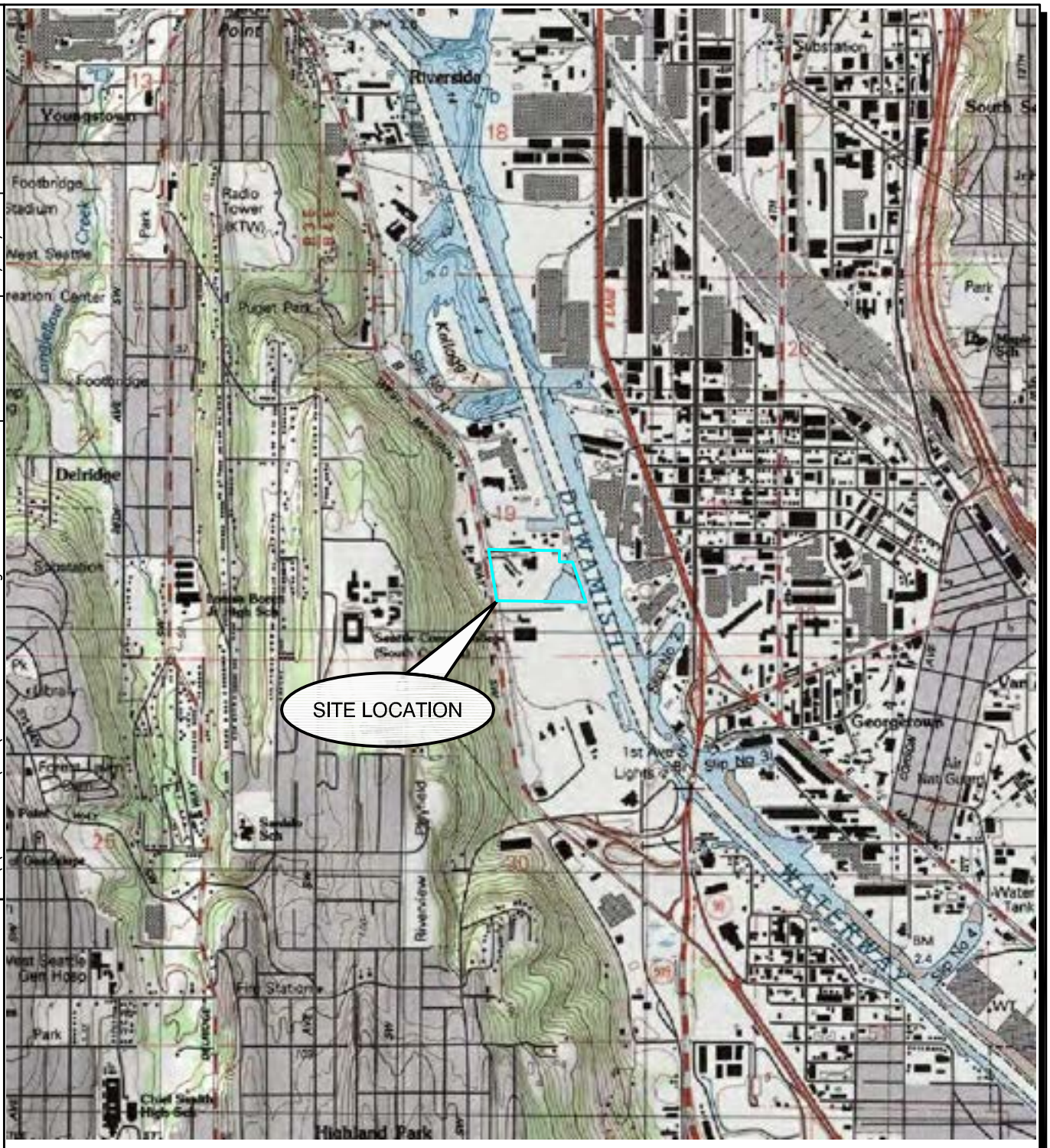

SCALE 1: 24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Seattle South E, WA
Version: 1983; Current: 1978

Figure 1
Site Location Map
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington

ERM 04/10

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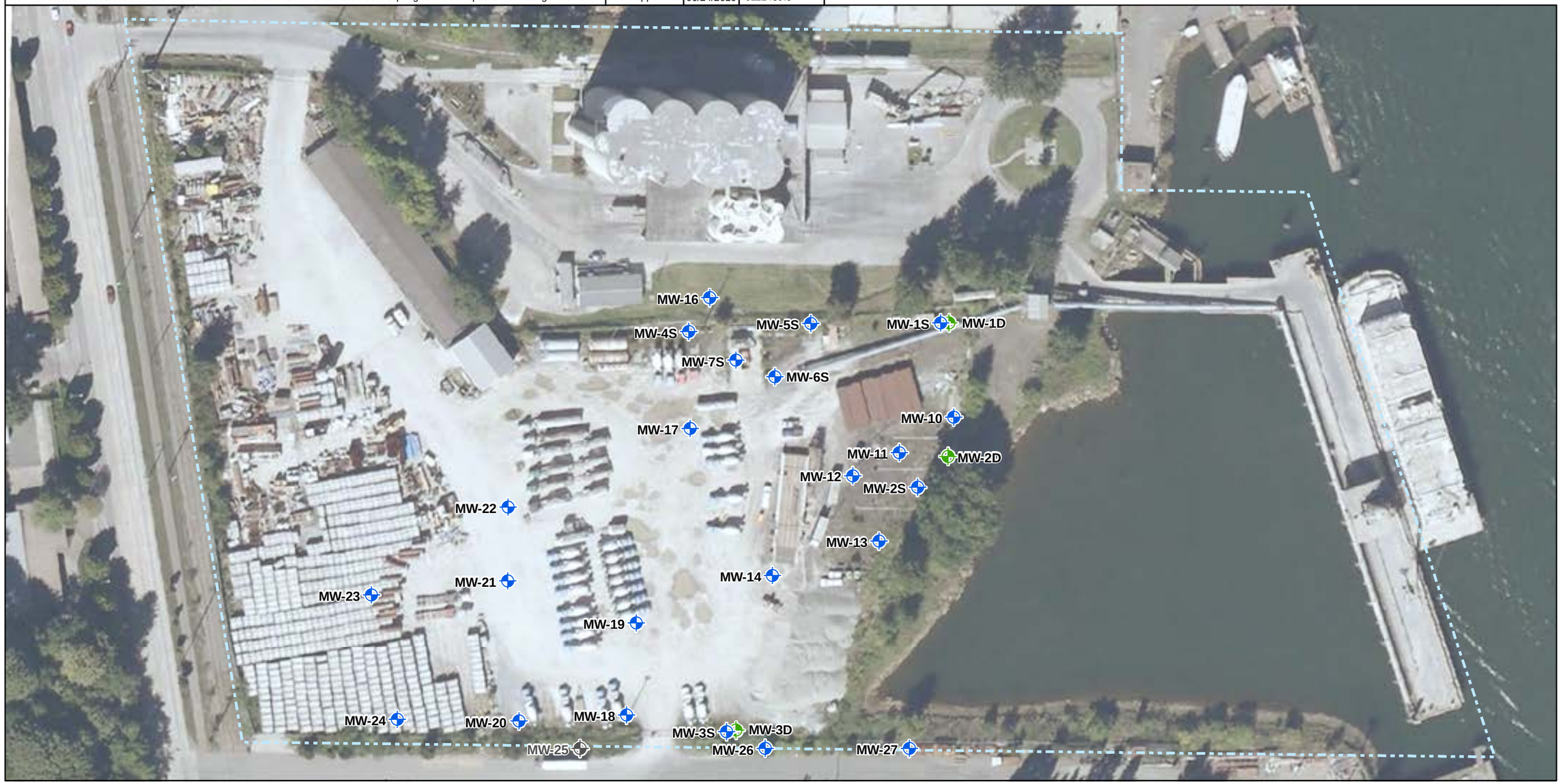

- Shallow Monitoring Well Sampled during Spring 2010
- Deep Monitoring Well Sampled during Spring 2010
- Monitoring Well Not Sampled during Spring 2010
- Site Boundary

N

0 50 100 200 Feet

FIGURE 2
Existing Monitoring Well Network
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 06/10

Project No. 0112489.02
Date: 06/16/10
Drawn By: R.Olson
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LEGEND
- Shallow Monitoring Well
- Deep Monitoring Well (Not Used for Contouring
- DOCK Water Elevation Measurement of Bay Water; Time in Parentheses
- Property Line
- Sewer Line
- 9.81 Ground Water Elevation, Feet Above Mean Sea Level. Data Collected 26 April 2010.
- * Datum Not Used for Contouring
- NS Not Sampled
- 9.0 Equal Lines of Ground Water Elevations; Dashed Where Inferred
- Approximate Ground Water Flow Direction

San. Sewer Easement
Property Boundary Line
Rail Silo
Tanks
Truck Wash
Additional Parking
Storage Silos
Exit
Deed line
Paved
Parking
Maintenance Building
Load-out Silos
Existing Office
Approximate Location of Existing DSI Storm Outfall
Property Boundary Line
Exist Conc [55' x 500'
EXISTING DITCH
DOCK
3.05 (07:21)
DRY (10:21)
Existing Storm Outfall
Existing Transfer Tower
Line of Mean High Water (El 7.82 NAVD88)
Bay
10,000 Ton -
WEST MARGINAL WAY
Existing Aggregates
Property Boundary
Access to West Marginal Way
City of Seattle Storm Outfall Easement
Truck Entrance
Former City of Seattle SPU 48" Storm Sewer Outfall Discharge Location
Approximate Location of Existing Port of Seattle T115 Storm Outfall
City of Seattle Storm Outfall Easement

MW-16 11.61
MW-4S 11.64
MW-5S 11.38
MW-7S 11.52
MW-6S 11.39
MW-17 11.34
MW-1S 10.85
MW-1D 4.75*
MW-10 10.69
MW-11 10.75
MW-2D 3.47*
MW-12 11.01
MW-2S 10.48
MW-22 10.83
MW-13 10.50
MW-14 10.33
MW-23 10.38
MW-21 10.27
MW-19 9.81
MW-24 8.71
MW-20 9.02
MW-25
MW-18 8.83
MW-3D 3.76*
MW-3S 8.73
MW-26 8.40
MW-27 4.77

11.50 11.00 10.50 11.00 10.00 9.50 9.00 8.50 8.00 7.50 7.00 6.50 6.00 5.50 5.00

N
0 50 100
FEET

Figure 3
Shallow Groundwater Contour Map
26 April 2010
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington
ERM 06/10

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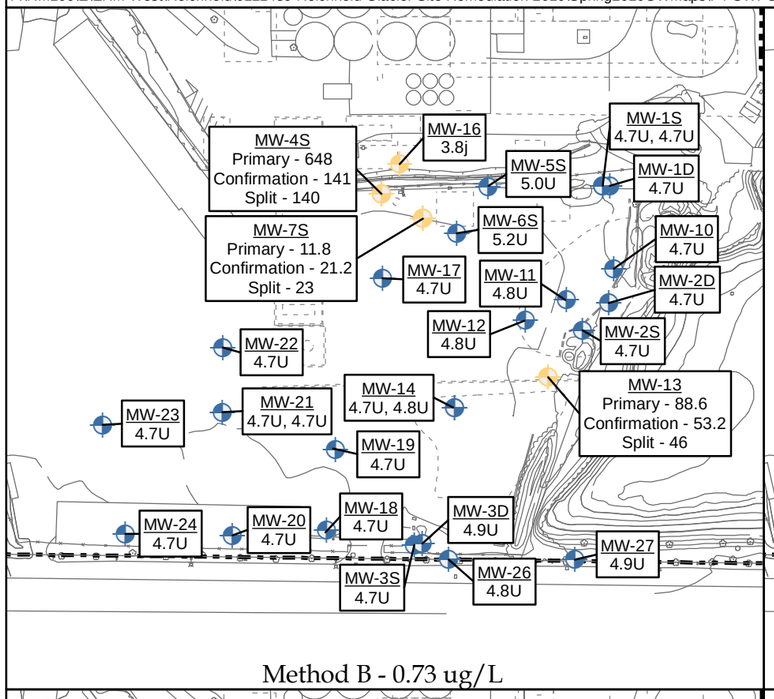
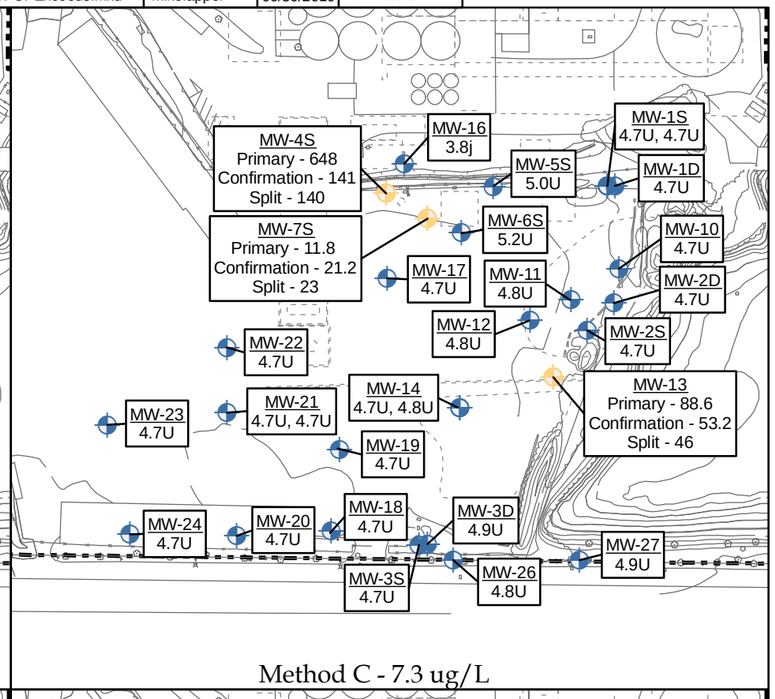
mike.appel

Date:
06/30/2010

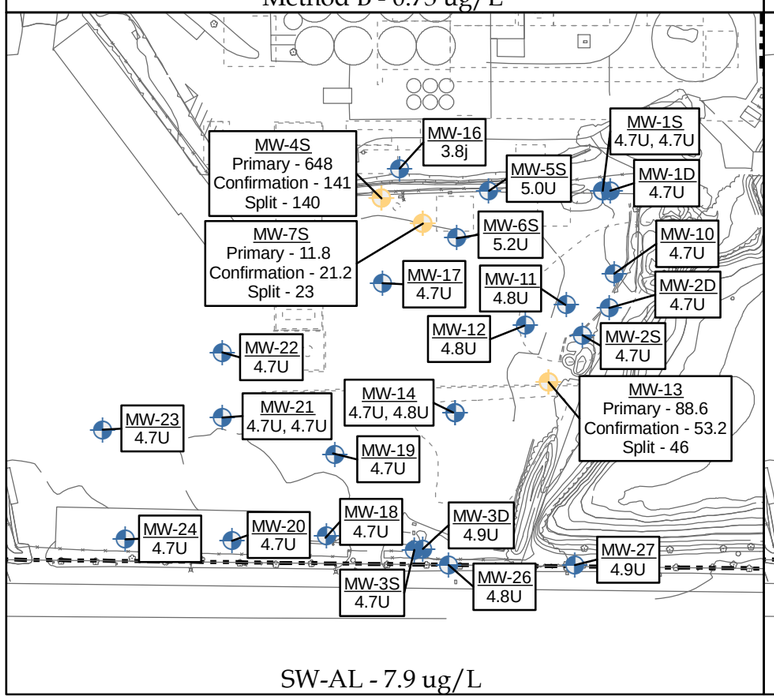
Project Number:
0112489.5



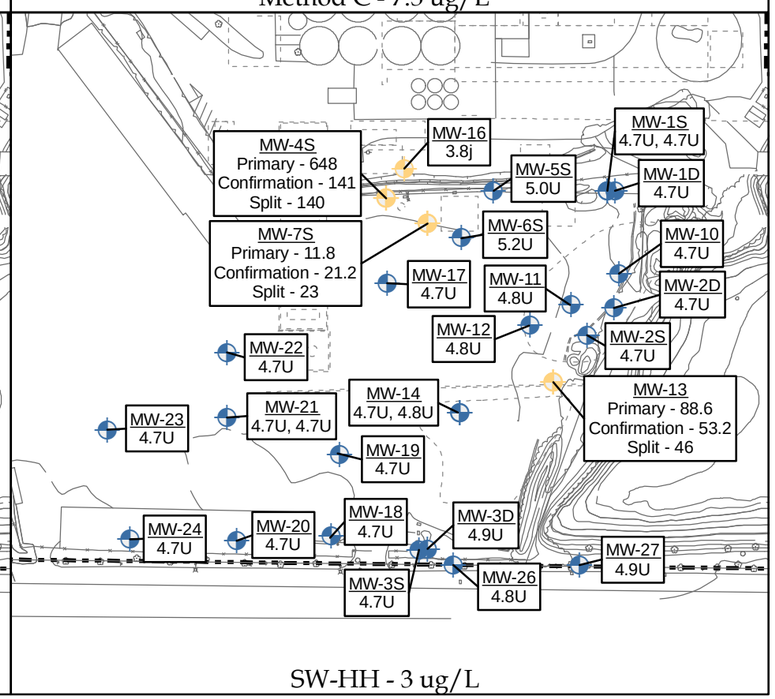
Method B - 0.73 ug/L



Method C - 7.3 ug/L



SW-AL - 7.9 ug/L



SW-HH - 3 ug/L

Legend

- Sample Result Exceeds the Pentachlorophenol Screening Level
- Sample Result Does not Exceed the Pentachlorophenol Screening Level

Notes:
All results in micrograms per liter.
48.3 , 25.8 - Primary Sample, Field Duplicate Sample
If the primary, field duplicate, confirmation, or split sample concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Spring 2010 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC)
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established)
Primary samples collected April 2010.
Confirmation and split samples collected June 2010.

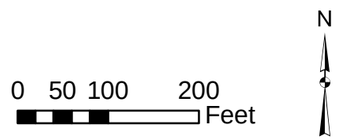


FIGURE 4
Screening Level Exceedences
Pentachlorophenol in Groundwater
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 06/10

File:
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mike.appel

Date:
06/30/2010

Project Number:
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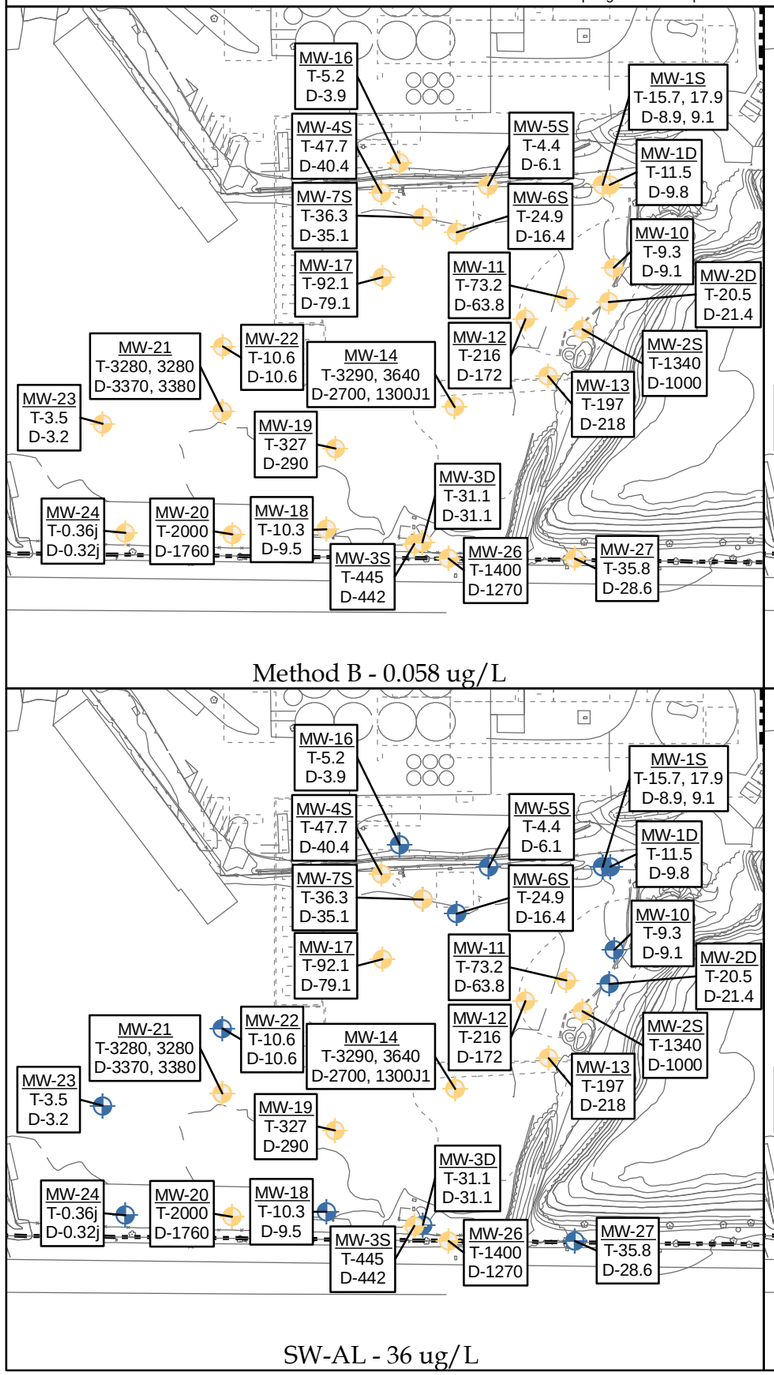

Legend

- Sample Result Exceeds the Arsenic Screening Level
- Sample Result Did Not Exceed the Arsenic Screening Level

Notes:
All results in micrograms per liter.
25.8, 20.7 - Primary Sample Result, Field Duplicate Result.
T- Total metal concentration.
D - Dissolved metal concentration.
If either the total or dissolved concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Spring 2010 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC).
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established).
*Arsenic screening levels for Method B, Method C, and SW-HH are less than anthropogenic background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM, 2009).
Samples collected April 2010.

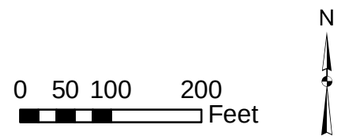

FIGURE 5
Screening Level Exceedences
Arsenic in Groundwater
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

Tables

Table 1

Baseline Groundwater Sampling Parameters
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Sample Name	Location	Sample Date	Formalde-hyde	Phenol/ Chlorinated Phenols	Metals												Anions Cl, SO_4, NO_3, PO_4	TOX	TOC	TSS	Hardness	Alkalinity	Field Measurements
					As*	Ca	K	Mg	Na	Al*	Fe*	Mn*	Cr*	Cu*	Ag*	Zn*							
USEPA Method			8315A	USEPA 8270C Phenol	6010B/6020												EPA 300.0/SM 4500	9020	9060	SM 2450 D	SM 2340D	SM 2320B	Various
MW-01S-042710	MW-1S	4/27/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-01D-042710	MW-1D	4/27/2010	X	X	X								X	X	X	X				X			X
MW-02S-042710	MW-2S	4/27/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-02D-042710	MW-2D	4/27/2010	X	X	X								X	X	X	X				X			X
MW-03S-042810	MW-3S	4/28/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-03D-042810	MW-3D	4/28/2010	X	X	X								X	X	X	X				X			X
MW-04S-042710	MW-4S	4/27/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-04S-060210-C	MW-4S (conf)	6/2/2010		X																			
MW-04S-060210-S	MW-4S (split)	6/2/2010		X																			
MW-05S-042910	MW-5S	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-06S-042910	MW-6S	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-07S-042710	MW-7S	4/27/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-07S-060210-C	MW-7S (conf)	6/2/2010		X																			
MW-07S-060210-S	MW-7S (split)	6/2/2010		X																			
MW-10-042810	MW-10	4/28/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-11-043010	MW-11	4/30/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-12-043010	MW-12	4/30/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-13-042810	MW-13	4/28/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-13-060210-C	MW-13 (conf)	6/2/2010		X																			
MW-13-060210-S	MW-13 (split)	6/2/2010		X																			
MW-14-042910	MW-14	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-16-042910	MW-16	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-17-042710	MW-17	4/27/2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-18-042910	MW-18	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-19-043010	MW-19	4/30/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-20-042810	MW-20	4/28/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-21-042810	MW-21	4/28/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-22-042810	MW-22	4/28/2010		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-23-042810	MW-23	4/28/2010		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-24-042810	MW-24	4/28/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-26-042910	MW-26	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X
MW-27-042910	MW-27	4/29/2010		X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X

Table 1

Baseline Groundwater Sampling Parameters
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Sample Name	Location	Sample Date	Formalde-hyde	Phenol/ Chlorinated Phenols	Metals												Anions Cl, SO_4, NO_3, PO_4	TOX	TOC	TSS	Hardness	Alkalinity	Field Measurements
					As*	Ca	K	Mg	Na	Al*	Fe*	Mn*	Cr*	Cu*	Ag*	Zn*							
USEPA Method			8315A	USEPA 8270C Phenol	6010B/6020												EPA 300.0/SM 4500	9020	9060	SM 2450 D	SM 2340D	SM 2320B	Various
DUP-042710	MW-1S (dup)	4/27/2010		X	X								X	X	X	X							
DUP-042910	MW-14 (dup)	4/29/2010		X	X																		
DUP-042810	MW-21 (dup)	4/28/2010		X	X																		
MS/MSD	MW-14	4/29/2010		X	X																		
MS/MSD	MW-22	4/28/2010		X	X																		
Total			11	32	26	23	23	23	23	23	23	23	13	13	13	13	23	23	23	26	23	23	26

Notes:
- Field measurements include: ferrous iron, sulfide, dissolved oxygen, temperature, pH, oxidation reduction potential, specific conductivity, and turbidity.
- Monitoring Well MW-25 is not located on the Reichhold-Glacier site and therefore will not be sampled at this time.

* = Collect total (unfiltered) and dissolved (filtered) metals samples
USEPA = United States Environmental Protection Agency
SM = Standard Method
TOX = Total Organic Halides
TOC = Total Organic Carbon
TSS = Total Suspended Solids
dup = Duplicate sample
conf = Confirmation sample analyzed by Pace Analytical
split = Split sample analyzed by ALS Group

Abbreviations

Al	Aluminum	K	Potassium
As	Arsenic	Mg	Magnesium
Ag	Silver	Mn	Manganese
Ca	Calcium	Na	Sodium
Cl	Chlorine	NO_3	Nitrate
Cr	Chromium	PO_4	Phosphate
Cu	Copper	SO_4	Sulfate
Fe	Iron	Zn	Zinc

Table 2

Groundwater Level Measurements
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-amsl*	Groundwater Elevation *ft-amsl*
MW-01S	17.69	204056.54384	1267772.56387	3/23/2009	8:28	6.49	11.20
				6/25/2009	10:06	8.52	9.17
				10/7/2009	9:21	9.37	8.32
				1/28/2010	9:41	6.24	11.45
				4/26/2010	7:44	6.84	10.85
MW-01D	17.16	204056.58750	1267780.48417	3/23/2009	8:30	12.02	5.14
				6/25/2009	10:37	13.22	3.94
				10/7/2009	9:22	11.15	6.01
				1/28/2010	9:37	10.48	6.68
				4/26/2010	7:38	12.43	4.73
MW-02S	17.42	203897.54374	1267750.17664	3/23/2009	8:32	6.82	10.60
				6/25/2009	11:03	8.39	9.03
				10/7/2009	10:42	9.26	8.16
				1/28/2010	10:44	6.41	11.01
				4/26/2010	8:51	6.94	10.48
MW-02D	17.43	203927.36169	1267779.32250	3/23/2009	8:36	12.43	5.00
				6/25/2009	11:01	14.70	2.73
				10/7/2009	10:46	11.71	5.72
				1/28/2010	10:29	10.68	6.75
				4/26/2010	8:18	13.96	3.47
MW-03S	19.62	203661.20996	1267565.26400	3/23/2009	8:50	10.71	8.91
				6/25/2009	11:19	11.22	8.40
				10/7/2009	11:03	12.20	7.42
				1/28/2010	12:31	9.84	9.78
				4/26/2010	10:09	10.89	8.73
MW-03D	19.51	203662.55602	1267574.28418	3/23/2009	8:52	14.23	5.28
				6/25/2009	11:22	15.21	4.30
				10/7/2009	11:03	14.20	5.31
				1/28/2010	12:34	12.49	7.02
				4/26/2010	10:13	15.75	3.76
MW-04S	18.81	204047.96657	1267528.70925	3/23/2009	8:16	7.09	11.72
				6/25/2009	10:21	9.09	9.72
				10/7/2009	9:04	9.86	8.95
				1/28/2010	10:04	6.64	12.17
				4/26/2010	8:06	7.17	11.64

Table 2

Groundwater Level Measurements
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-amsl*	Groundwater Elevation *ft-amsl*
MW-05S	18.42	204055.92275	1267646.61849	3/23/2009	8:25	6.87	11.55
				6/25/2009	10:11	8.93	9.49
				10/7/2009	9:16	9.71	8.71
				1/28/2010	9:47	6.57	11.85
				4/26/2010	7:47	7.04	11.38
MW-06S	18.50	204004.58908	1267611.92486	3/23/2009	8:23	6.98	11.52
				6/25/2009	10:15	8.90	9.60
				10/7/2009	9:12	9.73	8.77
				1/28/2010	9:58	6.60	11.90
				4/26/2010	8:01	7.11	11.39
MW-07S	18.50	204020.49534	1267574.41961	3/23/2009	8:18	6.90	11.60
				6/25/2009	10:18	8.81	9.69
				10/7/2009	9:09	9.64	8.86
				1/28/2010	9:54	6.47	12.03
				4/26/2010	7:56	6.98	11.52
MW-10	15.51	203965.45545	1267785.06206	3/23/2009	8:33	4.74	10.77
				6/25/2009	10:56	6.49	9.02
				10/7/2009	10:37	7.33	8.18
				1/28/2010	10:38	4.32	11.19
				4/26/2010	8:31	4.82	10.69
MW-11	15.34	203931.25080	1267732.36107	3/23/2009	8:40	4.49	10.85
				6/25/2009	10:47	6.19	9.15
				10/7/2009	10:29	7.05	8.29
				1/28/2010	10:21	3.47	11.87
				4/26/2010	8:39	4.59	10.75
MW-12	15.92	203908.83835	1267687.31078	3/23/2009	8:05	4.84	11.08
				6/25/2009	10:33	6.39	9.53
				10/7/2009	10:26	7.36	8.56
				1/28/2010	10:55	4.35	11.57
				4/26/2010	8:59	4.91	11.01
MW-13	15.95	203845.60548	1267712.70978	3/23/2009	8:44	5.43	10.52
				6/25/2009	11:07	6.67	9.28
				10/7/2009	10:46	7.64	8.31
				1/28/2010	11:27	4.62	11.33
				4/26/2010	8:56	5.45	10.50

Table 2

Groundwater Level Measurements
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-amsl*	Groundwater Elevation *ft-amsl*
MW-14	16.38	203812.11685	1267609.88790	3/23/2009	8:48	6.09	10.29
				6/25/2009	11:14	7.08	9.30
				10/7/2009	10:51	8.07	8.31
				1/28/2010	11:10	5.40	10.98
				4/26/2010	9:04	6.05	10.33
MW-16	13.80	204080.65296	1267549.20703	3/23/2009	9:51	2.09	11.71
				6/25/2009	9:54	4.08	9.72
				10/7/2009	9:34	4.82	8.98
				1/28/2010	9:25	1.64	12.16
				4/26/2010	7:28	2.19	11.61
MW-17	16.24	203954.60493	1267530.00292	3/23/2009	7:59	4.92	11.32
				6/25/2009	10:27	6.53	9.71
				10/7/2009	8:57	7.42	8.82
				1/28/2010	10:12	4.40	11.84
				4/26/2010	9:14	4.90	11.34
MW-18	17.21	203677.06233	1267468.56680	3/23/2009	8:56	6.97	10.24
				6/25/2009	11:27	8.71	8.50
				10/7/2009	11:11	9.72	7.49
				1/28/2010	12:26	7.41	9.80
				4/26/2010	10:05	8.38	8.83
MW-19	16.84	203766.18777	1267478.08281	3/23/2009	9:01	7.04	9.80
				6/25/2009	12:17	7.75	9.09
				10/7/2009	10:56	8.73	8.11
				1/28/2010	12:40	6.26	10.58
				4/26/2010	9:43	7.03	9.81
MW-20	17.46	203671.59840	1267364.59998	3/23/2009	9:05	8.21	9.25
				6/25/2009	11:55	8.75	8.71
				10/7/2009	11:19	9.84	7.62
				1/28/2010	12:18	7.37	10.09
				4/26/2010	9:58	8.44	9.02
MW-21	17.22	203807.20569	1267353.70698	3/23/2009	9:15	7.04	10.18
				6/25/2009	11:33	7.78	9.44
				10/7/2009	11:45	8.75	8.47
				1/28/2010	12:01	6.25	10.97
				4/26/2010	9:35	6.95	10.27

Table 2

Groundwater Level Measurements
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-amsl*	Groundwater Elevation *ft-amsl*
MW-22	16.79	203878.42265	1267354.09852	3/23/2009	9:22	6.11	10.68
				6/25/2009	12:03	7.12	9.67
				10/7/2009	8:45	8.04	8.75
				1/28/2010	11:41	5.39	11.40
				4/26/2010	9:21	5.96	10.83
MW-23	16.72	203793.38141	1267222.11951	3/23/2009	9:40	6.41	10.31
				6/25/2009	11:45	7.10	9.62
				10/7/2009	11:38	8.13	8.59
				1/28/2010	11:49	5.65	11.07
				4/26/2010	9:28	6.34	10.38
MW-24	16.78	203673.20066	1267247.14526	3/23/2009	9:09	7.87	8.91
				6/25/2009	11:39	8.42	8.37
				10/7/2009	11:31	9.50	7.28
				1/28/2010	12:12	7.05	9.73
				4/26/2010	9:51	8.07	8.71
MW-26	16.62	203644.99716	1267602.70357	3/23/2009	10:03	8.01	8.61
				6/25/2009	12:37	8.50	8.13
				10/7/2009	10:16	9.45	7.17
				1/28/2010	13:02	7.15	9.47
				4/26/2010	10:39	8.22	8.40
MW-27	16.58	203644.72154	1267742.00960	3/23/2009	10:12	11.54	5.04
				6/25/2009	12:44	11.26	5.32
				10/7/2009	10:10	12.12	4.46
				1/28/2010	12:58	10.15	6.43
				4/26/2010	10:35	11.81	4.77

Notes:
ft-amsl = feet above mean sea level

Table 3

Field Parameter Values
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location	Sample Date	Sample Time	Depth to Water (ft btoc)	Ferrous Iron (mg/L)	Sulfide (mg/L)	Temperature (°C)	pH	EC (µS/cm)	D.O. (mg/L)	Redox Potential (mV)	Salinity (ppt)	Turbidity (ntu)	Color and Odor
MW-1D	4/27/2010	17:41	10.35	2.51	0.13	12.44	6.35	1176	0.51	-87.3	0.79	5.91	Medium brown, slight organic odor
MW-2D	4/27/2010	16:32	11.03	9.60 a	0.01	12.06	6.05	1901	0.47	-70.3	1.31	6.73	Light yellow, no odor
MW-3D	4/28/2010	17:43	14.01	1.63	0.18	13.01	5.95	1012	0.43	-130.2	0.66	2.58	Light yellow, slight sulfur odor
MW-1S	4/27/2010	9:27	6.63	2.99	0.00	10.98	6.65	617	0.54	-128.7	0.42	2.24	Clear
MW-2S	4/27/2010	11:05	6.99	2.86	0.17	11.55	6.27	700	0.45	-147.6	0.49	0.97	Clear, sulfur odor
MW-3S	4/28/2010	11:58	11.00	1.40	0.04	13.02	6.16	414	0.16	-125.8	0.27	3.77	Clear, slight sulfur odor
MW-4S	4/27/2010	14:52	6.44	0.04	0.00	11.83	6.50	333	1.06	-52.1	0.22	3.47	Clear, no odor
MW-4S	6/2/2010	13:42	6.52	0.57	0.00	13.66	6.81	302	0.93	-19.0	0.14	7.48	Clear, no odor
MW-5S	4/29/2010	15:54	6.29	0.00	0.00	12.01	6.01	266	0.33	100.7	0.17	0.44	Clear, no odor
MW-6S	4/29/2010	12:13	6.46	0.98	0.02	12.45	6.51	442	0.26	-86.1	0.29	1.64	Clear, no odor
MW-7S	4/27/2010	13:43	6.69	2.44 a	0.14	11.15	6.26	738	0.41	-151.9	0.50	1.89	Clear, sulfur odor
MW-7S	6/2/2010	14:50	6.73	2.05	0.01	13.27	6.46	640	0.57	-161.6	0.31	0.77	Clear, sulfur odor
MW-10	4/28/2010	8:13	6.05	0.95	0.55	10.66	6.66	392	0.34	-181.0	0.26	1.02	Slight odor
MW-11	4/30/2010	7:36	4.29	0.00	0.15	11.51	6.65	244	1.95	150.6	0.16	1.42	Clear, no odor
MW-12	4/30/2010	8:23	4.55	0.34	0.00	11.20	5.41	190	0.60	172.2	0.12	3.18	Clear, no odor
MW-13	4/28/2010	13:03	5.73	0.70	0.01	14.59	6.20	1048	0.37	-1.5	0.66	3.39	Clear, no odor
MW-13	6/2/2010	15:48	6.15	1.35	0.01	13.88	6.41	951	0.36	-116.1	0.47	1.41	Clear, sulfur odor
MW-14	4/29/2010	10:37	6.08	1.98	0.02	11.68	6.46	581	0.36	-94.7	0.38	8.22	Clear, slight musty odor
MW-16	4/29/2010	15:01	1.18	2.19	0.96 a	12.57	6.41	698	0.20	-148.7	0.45	6.33	Clear, strong sulfur odor
MW-17	4/27/2010	12:13	4.80	3.00 b	0.36	11.85	6.30	349	0.27	-141.3	0.23	1.2	Clear, slight sulfur odor
MW-18	4/29/2010	9:21	8.41	1.66	0.06	11.30	6.54	601	0.27	-91.4	0.40	1.28	Clear, no odor
MW-19	4/30/2010	9:20	7.12	11.22 a	0.06	11.58	6.20	356	0.30	-122.2	0.23	3.96	Clear, slight sulfur odor
MW-20	4/28/2010	16:42	8.50	16.80 a	0.11	11.96	6.00	693	0.55	-136.6	0.46	7.40	Light yellow, slight metallic odor
MW-21	4/28/2010	15:33	7.07	12.15 a	0.13	11.20	5.88	516	0.20	-129.1	0.34	1.23	Light yellow, sulfur odor
MW-22	4/28/2010	9:31	6.04	2.08	0.09	11.71	6.20	575	0.27	-157.4	0.38	2.36	Clear, slight sulfur odor
MW-23	4/28/2010	10:50	6.46	1.30	0.00	11.40	5.98	883	0.30	-75.7	0.60	1.50	Clear, metallic odor
MW-24	4/28/2010	14:32	7.05	2.53	0.24	10.47	5.76	657	0.27	-136.7	0.45	0.76	Clear, strong sulfur odor
MW-26	4/29/2010	13:56	8.48	2.17	0.16	12.88	6.52	559	0.28	N/A	0.36	1.03	Clear, musty odor
MW-27	4/29/2010	13:07	11.41	6.20 a	0.02	12.44	6.45	1497	0.28	-51.7	1.01	2.22	Clear, no odor

Notes:

a = Reported concentration measured from a dilution. Field dilutions may include slight decrease in sample accuracy.
b = Value based on visual inspection of digested sample.
°C = degrees Celsius
D.O. = dissolved oxygen
EC = electrical conductivity
ft btoc = feet below top of casing
mg/L = milligrams per liter
N/A = data not collected
mV = millivolts
ntu = nephelometric turbidity units
ppt = parts per trillion
µS/cm = microsiemens per centimeter

Table 4

Groundwater Data Summary Table
April 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Arsenic D ug/L	Arsenic T ug/L	Aluminum D ug/L	Aluminum T ug/L	Iron D ug/L	Iron T ug/L	Manganese D ug/L	Manganese T ug/L	Potassium T ug/L	Calcium T ug/L	Magnesium T ug/L	Silver D ug/L	Silver T ug/L	Sodium T ug/L	Chromium D ug/L	Chromium T ug/L	Copper D ug/L	Copper T ug/L	Zinc D ug/L	Zinc T ug/L
MW-1S	4/27/2010	MW-01S-042710	8.9	15.7	500 U	500 U	2920	3780	59.2	66.3	6160	86200	3530 j	0.5 U	0.072 J	17500	0.5 U	0.47 j	0.7	2.1	26.9	37.1
MW-1S (dup)	4/27/2010	DUP-042710	9.1	17.9	na	na	na	na	na	na	na	na	na	0.5 U	0.15 J	na	0.5 U	0.75	0.6	3	26.7	37.5
MW-1D	4/27/2010	MW-01D-042710	9.8	11.5	na	na	na	na	na	na	na	na	na	0.5 U	2.5 UJ	na	27	35.2	5.3	17.1	3.5 j	25 U
MW-2S	4/27/2010	MW-02S-042710	1000	1340	500 U	500 U	4350	5320	95.2	109	5840	66200	3930 j	0.5 U	0.5 UJ	51600	0.5 U	0.73	0.31 j	0.49 j	5 U	3.2 j
MW-2D	4/27/2010	MW-02D-042710	21.4	20.5	na	na	na	na	na	na	na	na	na	0.5 U	0.5 UJ		5.5	6.6	0.25 j	1.3	2.8 j	5 U
MW-3S	4/28/2010	MW-03S-042810	442	445	500 U	500 U	14900	15500	240	244	7760	21700	6780	0.5 U	0.5 UJ	19200	0.62	0.64	0.5 U	2	3.1 j	5 U
MW-3D	4/28/2010	MW-03D-042810	31.1	31.1	na	na	na	na	na	na	na	na	na	0.5 U	0.5 UJ		3.3	3.7	0.5 U	0.5 U	5 U	5 U
MW-4S	4/27/2010	MW-04S-042710	40.4	47.7	38.3 j	110 j	104	323	6.5 j	9.1 j	2200 j	24600	1260 j	0.5 U	0.5 UJ	29100	0.26 j	0.44 j	3.2	5.5	6.3	6.8
MW-4S	6/2/2010	MW-04S-060210-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S	6/2/2010	MW-04S-060210-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-5S	4/29/2010	MW-05S-042910	6.1	4.4	51.8 j	500 U	29.6 j	24.2 j	22.2	14.6 j	1090 j	32700	3050 j	na	na	7710	na	na	na	na	na	na
MW-6S	4/29/2010	MW-06S-042910	16.4	24.9	500 U	500 U	1060	1150	26.8	26.6	12000	45400	4500 j	na	na	23500	na	na	na	na	na	na
MW-7S	4/27/2010	MW-07S-042710	35.1	36.3	500 U	500 U	4940	5340	228	226	4760 j	97000	6900	0.5 UJ	0.5 UJ	22300	0.41 j	0.56	0.71	0.56	2.6 j	5
MW-7S	6/2/2010	MW-07S-060210-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	6/2/2010	MW-07S-060210-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-10	4/28/2010	MW-10-042810	9.1	9.3	500 U	500 U	428	470	35.8	38.1	2240 j	56600	1630 j	0.5 U	0.5 UJ	6340	0.57	0.38 j	0.44 j	0.97	2.8 j	5 U
MW-11	4/30/2010	MW-11-043010	63.8	73.2	500 U	500 U	100 U	41 j	0.55 j	7.7 j	1120 j	38400	1340 j	na	na	11700	na	na	na	na	na	na
MW-12	4/30/2010	MW-12-043010	172	216	47.3 j	78.7 j	662	847	24.1	23.9	2850 j	15700	1330 j	na	na	33600	na	na	na	na	na	na
MW-13	4/28/2010	MW-13-042810	218	197	500 U	500 U	803	857	211	217	3820 j	146000	6470	0.5 U	0.39 J	17800	2.8	2.9	11.1	48.7	113	110
MW-13	6/2/2010	MW-13-060210-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	6/2/2010	MW-13-060210-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	4/29/2010	MW-14-042910	2700	3290	500 U	500 U	14300	15200	430	456	8260	46300	9220	na	na	45400	na	na	na	na	na	na
MW-14 (dup)	4/29/2010	DUP-042910	1300 J1	3640	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-16	4/29/2010	MW-16-042910	3.9	5.2	500 U	500 U	3160	3160	639	639	5710	113000	5600	na	na	7140	na	na	na	na	na	na
MW-17	4/27/2010	MW-17-042710	79.1	92.1	500 U	500 U	3620	3940	178	193	4220 j	36300	3570 j	0.5 U	0.5 UJ	13800	0.5 U	0.31 j	0.5 U	0.5 U	1.8 j	2.7 j
MW-18	4/29/2010	MW-18-042910	9.5	10.3	500 U	500 U	1480	1570	60.4	60.2	1470 j	101000	4980 j	na	na	16400	na	na	na	na	na	na
MW-19	4/30/2010	MW-19-043010	290	327	500 U	500 U	10900	12100	422	441	9760	32400	10000	na	na	24600	na	na	na	na	na	na
MW-20	4/28/2010	MW-20-042810	1760	2000	500 U	500 U	21300	21600	875	868	14800	36800	24100	na	na	26600	na	na	na	na	na	na
MW-21	4/28/2010	MW-21-042810	3370	3280	500 U	500 U	13400	13200	390	382	9510	32900	11100	na	na	27200	na	na	na	na	na	na
MW-21 (dup)	4/28/2010	DUP-042810	3380	3280	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	4/28/2010	MW-22-042810	10.6	10.6	500 U	500 U	11000	11400	367	379	9780	47500	11100	0.5 U	0.5 UJ	29600	0.5 U	0.28 j	0.5 U	0.29 j	2.2 j	5 U
MW-23	4/28/2010	MW-23-042810	3.2	3.5	500 U	268 j	20200	21700	524	550	13500	68800	29600	0.5 U	0.5 UJ	33400	0.27 j	0.4 j	0.5 U	0.28 j	2.3 j	5 U
MW-24	4/28/2010	MW-24-042810	0.32 j	0.36 j	500 U	500 U	15100	14900	511	501	10100	34600	22500	na	na	26900	na	na	na	na	na	na
MW-26	4/29/2010	MW-26-042910	1270	1400	500 U	500 U	27800	27400	382	377	8310	28500	6440	na	na	50600	na	na	na	na	na	na
MW-27	4/29/2010	MW-27-042910	28.6	35.8	500 U	500 U	7630	7330	584	569	16000	128000	64900	na	na	126000	na	na	na	na	na	na

Table 4

Groundwater Data Summary Table
April 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Phenol ug/L	Pentachloro-phenol ug/L	2,4,6-Trichloro-phenol ug/L	2-Chloro-phenol ug/L	2,4,5-Trichloro-phenol ug/L	2,3,4,6-Tetrachloro-phenol ug/L	2,4-Dichloro-phenol ug/L	Formalde-hyde ug/L	Total Organic Halides (TOX) ug/L	Total Organic Carbon mg/L	Hardness mg/L	Total Suspended Solids mg/L	Nitrate mg/L	Sulfate mg/L	Chloride mg/L	Ortho-phosphate mg/L	Alkalinity, Carbonate (As CaCO3) mg/L	Alkalinity, Bicarbonate (As CaCO3) mg/L
MW-1S	4/27/2010	MW-01S-042710	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	5 U	10 U	**2.2 J**	**230**	**6**	0.2 U	**18.8**	**2.4**	**0.13**	2 U	**264**
MW-1S (dup)	4/27/2010	DUP-042710	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	na	na	na	na	na	na	na	na	na	na	na
MW-1D	4/27/2010	MW-01D-042710	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	**36**	na	na	na	**6**	na	na	na	na	na	na
MW-2S	4/27/2010	MW-02S-042710	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	**11**	10 U	**3.8 J**	**181**	**7**	0.2 U	**11.6**	**10.2**	**1.4**	2 U	**302**
MW-2D	4/27/2010	MW-02D-042710	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	**25**	na	na	na	na	na	na	na	na	na	na
MW-3S	4/28/2010	MW-03S-042810	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	**11**	10 U	**3.3**	**82.1**	**33**	0.2 U	1 U	**5.7**	**0.9**	2 U	**142**
MW-3D	4/28/2010	MW-03D-042810	0.98 U	4.9 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	5 U	na	na	na	na	na	na	na	na	na	na
MW-4S	4/27/2010	MW-04S-042710	0.94 U	**648**	0.94 U	0.94 U	0.94 U	**10.5**	0.94 U	**8**	**298**	**3 J**	**66.7**	2 U	0.2 U	**17.3**	**3.6**	**0.13**	2 U	**112**
MW-4S	6/2/2010	MW-04S-060210	4.8 U	**141**	0.96 U	4.8 U	0.96 U	**3.3 j**	4.8 U	na	na	na	na	na	na	na	na	na	na	na
MW-4S	6/2/2010	MW-04S-060210-S	4 U	**140**	4 U	4 U	4 U	4 U	4 U	na	na	na	na	na	na	na	na	na	na	na
MW-5S	4/29/2010	MW-05S-042910	0.99 U	5.0 U	0.99 U	0.99 U	0.99 U	0.99 U	0.99 U	na	10 U	**1.2**	**94.2**	2 U	0.2 U	**55.5**	**3.8**	**0.018**	2 U	**60**
MW-6S	4/29/2010	MW-06S-042910	1.0 U	5.2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	na	10 U	**1.5**	**132**	2 U	0.2 U	**25.2**	**3**	**0.081**	2 U	**196**
MW-7S	4/27/2010	MW-07S-042710	0.94 U	**11.8**	0.94 U	0.94 U	0.94 U	**1.2 j**	0.94 U	5 U	**29**	**2.9 J**	**271**	**2**	0.2 U	**122**	**34**	**0.22**	2 U	**196**
MW-7S	6/2/2010	MW-07S-060210	4.7 U	**21.2**	**1.4 j**	4.7 U	0.94 U	**3 J**	4.7 U	na	na	na	na	na	na	na	na	na	na	na
MW-7S	6/2/2010	MW-07S-060210-S	2.0 U	**23**	2.0 U	2.0 U	2.0 U	**3.2**	2.0 U	na	na	na	na	na	na	na	na	na	na	na
MW-10	4/28/2010	MW-10-042810	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	**9**	**9 j**	**3.6**	**148**	2 U	0.2 U	**23.6**	**2.3**	**0.035**	2 U	**144**
MW-11	4/30/2010	MW-11-043010	0.95 U	4.8 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	**10**	**2.5**	**101**	2 U	0.2 U	**18.3**	**2.9**	**0.12**	2 U	**124**
MW-12	4/30/2010	MW-12-043010	0.95 U	4.8 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	**5 j**	**2.1**	**44.7**	**2**	0.2 U	**21.7**	**8.9**	**0.44**	2 U	**100**
MW-13	4/28/2010	MW-13-042810	0.95 U	**88.6**	0.95 U	0.95 U	0.95 U	**2.7 j**	0.95 U	5 U	**115**	**13.9**	**392**	**5**	0.2 U	**41.5**	**2.8**	**0.27**	2 U	**416**
MW-13	6/2/2010	MW-13-060210	4.7 U	**53.2**	0.95 U	4.7 U	0.95 U	**1.4 j**	4.7 U	na	na	na	na	na	na	na	na	na	na	na
MW-13	6/2/2010	MW-13-060210-S	2 U	**46**	2 U	2 U	2 U	2 U	2 U	na	na	na	na	na	na	na	na	na	na	na
MW-14	4/29/2010	MW-14-042910	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	na	10 U	**4.3**	**154**	**9**	0.2 U	**32.9**	**13.9**	**0.53**	2 U	**226**
MW-14 (dup)	4/29/2010	DUP-042910	0.96 U	4.8 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	na	na	na	na	na	na	na	na	na	na	na
MW-16	4/29/2010	MW-16-042910	0.96 U	**3.8 J**	0.96 U	0.96 U	0.96 U	**11.8**	**2.4 j**	na	**91**	**12.9**	**306**	**5**	0.2 U	**8.6**	**10.9**	**0.23**	2 U	**352**
MW-17	4/27/2010	MW-17-042710	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	**7**	10 U	**2.2 J**	**105**	**5**	0.2 U	**10.8**	**5.5**	**0.38**	2 U	**126**
MW-18	4/29/2010	MW-18-042910	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	**5 j**	**3.8**	**272**	**5**	0.2 U	**67.5**	**3.4**	**0.021**	2 U	**266**
MW-19	4/30/2010	MW-19-043010	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	10 U	**2.8**	**122**	**14**	0.2 U	**1.7**	**5.3**	**0.6**	2 U	**204**
MW-20	4/28/2010	MW-20-042810	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	10 U	**3.8 J**	**191**	**22**	0.2 U	**22.5**	**7.5**	**0.63**	2 U	**184**
MW-21	4/28/2010	MW-21-042810	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	10 U	**2.7 J**	**128**	**7**	0.2 U	**31.5**	**6.6**	**1.2**	2 U	**256**
MW-21 (dup)	4/28/2010	DUP-042810	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	na	na	na	na	na	na	na	na	na	na
MW-22	4/28/2010	MW-22-042810	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	na	10 U	**2.8**	**164**	**18**	0.2 U	**48.9**	**6.8**	**0.44**	2 U	**204**
MW-23	4/28/2010	MW-23-042810	0.95 U	4.7 U	0.95 U	0.95 U	0.95 U	0.95 U	0.95 U	na	10 U	**6.2**	**294**	**19**	0.2 U	**50.4**	**6.2**	**0.3**	2 U	**340**
MW-24	4/28/2010	MW-24-042810	0.94 U	4.7 U	0.94 U	0.94 U	0.94 U	0.94 U	0.94 U	na	10 U	**6.6 J**	**179**	**7**	0.2 U	**27.1**	**39**	**0.29**	2 U	**208**
MW-26	4/29/2010	MW-26-042910	0.96 U	4.8 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	na	10 U	**9**	**97.7**	**33**	0.2 U	**0.23** j	**11.9**	**1.3**	2 U	**240**
MW-27	4/29/2010	MW-27-042910	0.97 U	4.9 U	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	na	**9 j**	**5.6**	**588**	**6**	2 U	**85.3**	**422**	**0.2**	2 U	**392**

Notes and Key:

ug/L = micrograms per liter
mg/L = milligrams per liter
Bold text indicates that compound was detected.
T = total
D = dissolved
na = Not analyzed
dup = Duplicate Sample

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
J1= Estimated due to relative percent difference between primary and duplicate sample greater then 50% with a concentration at greater than 5 times the routine reporting limit.
U = Result is ≤ Method Detection Limit (MDL) or client requested reporting limit (CRRL). Result reported as the MDL or CRRL and is qualified as non detected.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 5

Primary Constituents Detected in Groundwater
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Dissolved Metals				Total Metals					Pentachloro-phenol ug/L	2,4,6-Trichloro-phenol ug/L	2,3,4,6-Tetrachloro-phenol ug/L	Formalde-hyde ug/L
			Arsenic D ug/L	Chromium D ug/L	Copper D ug/L	Zinc D ug/L	Arsenic T ug/L	Silver T ug/L	Chromium T ug/L	Copper T ug/L	Zinc T ug/L				
MW-1S	4/27/2010	MW-01S-042710	8.9	0.5 U	0.7	26.9	15.7	0.072 J	0.47 j	2.1	37.1	4.7 U	0.94 U	0.94 U	5 U
MW-1S (dup)	4/27/2010	DUP-042710	9.1	0.5 U	0.6	26.7	17.9	0.15 J	0.75	3	37.5	4.7 U	0.94 U	0.94 U	na
MW-1D	4/27/2010	MW-01D-042710	9.8	27	5.3	3.5 j	11.5	2.5 UJ	35.2	17.1	25 U	4.7 U	0.95 U	0.95 U	36
MW-2S	4/27/2010	MW-02S-042710	1000	0.5 U	0.31 j	5 U	1340	0.5 UJ	0.73	0.49 j	3.2 j	4.7 U	0.94 U	0.94 U	11
MW-2D	4/27/2010	MW-02D-042710	21.4	5.5	0.25 j	2.8 j	20.5	0.5 UJ	6.6	1.3	5 U	4.7 U	0.94 U	0.94 U	25
MW-3S	4/28/2010	MW-03S-042810	442	0.62	0.5 U	3.1 j	445	0.5 UJ	0.64	2	5 U	4.7 U	0.95 U	0.95 U	11
MW-3D	4/28/2010	MW-03D-042810	31.1	3.3	0.5 U	5 U	31.1	0.5 UJ	3.7	0.5 U	5 U	4.9 U	0.98 U	0.98 U	5 U
MW-4S	4/27/2010	MW-04S-042710	40.4	0.26 j	3.2	6.3	47.7	0.5 UJ	0.44 j	5.5	6.8	648	0.94 U	10.5	8
MW-4S (conf)	6/2/2010	MW-04S-060210-C	na	na	na	na	na	na	na	na	na	141	0.96 U	3.3 j	na
MW-4S (split)	6/2/2010	MW-04S-060210-S	na	na	na	na	na	na	na	na	na	140	4 U	4 U	na
MW-5S	4/29/2010	MW-05S-042910	6.1	na	na	na	4.4	na	na	na	na	5.0 U	0.99 U	0.99 U	na
MW-6S	4/29/2010	MW-06S-042910	16.4	na	na	na	24.9	na	na	na	na	5.2 U	1.0 U	1.0 U	na
MW-7S	4/27/2010	MW-07S-042710	35.1	0.41 j	0.71	2.6 j	36.3	0.5 UJ	0.56	0.56	5	11.8	0.94 U	1.2 j	5 U
MW-7S (conf)	6/2/2010	MW-07S-060210-C	na	na	na	na	na	na	na	na	na	21.2	1.4 j	3 J	na
MW-7S (split)	6/2/2010	MW-07S-060210-S	na	na	na	na	na	na	na	na	na	23	2.0 U	3.2	na
MW-10	4/28/2010	MW-10-042810	9.1	0.57	0.44 j	2.8 j	9.3	0.5 UJ	0.38 j	0.97	5 U	4.7 U	0.94 U	0.94 U	9
MW-11	4/30/2010	MW-11-043010	63.8	na	na	na	73.2	na	na	na	na	4.8 U	0.95 U	0.95 U	na
MW-12	4/30/2010	MW-12-043010	172	na	na	na	216	na	na	na	na	4.8 U	0.95 U	0.95 U	na
MW-13	4/28/2010	MW-13-042810	218	2.8	11.1	113	197	0.39 J	2.9	48.7	110	88.6	0.95 U	2.7 j	5 U
MW-13 (conf)	6/2/2010	MW-13-060210-C	na	na	na	na	na	na	na	na	na	53.2	0.95 U	1.4 j	na
MW-13 (split)	6/2/2010	MW-13-060210-S	na	na	na	na	na	na	na	na	na	46	2 U	2 U	na
MW-14	4/29/2010	MW-14-042910	2700	na	na	na	3290	na	na	na	na	4.7 U	0.94 U	0.94 U	na
MW-14 (dup)	4/29/2010	DUP-042910	1300 J1	na	na	na	3640	na	na	na	na	4.8 U	0.96 U	0.96 U	na
MW-16	4/29/2010	MW-16-042910	3.9	na	na	na	5.2	na	na	na	na	3.8 j	0.96 U	11.8	na
MW-17	4/27/2010	MW-17-042710	79.1	0.5 U	0.5 U	1.8 j	92.1	0.5 UJ	0.31 j	0.5 U	2.7 j	4.7 U	0.94 U	0.94 U	7
MW-18	4/29/2010	MW-18-042910	9.5	na	na	na	10.3	na	na	na	na	4.7 U	0.95 U	0.95 U	na
MW-19	4/30/2010	MW-19-043010	290	na	na	na	327	na	na	na	na	4.7 U	0.95 U	0.95 U	na
MW-20	4/28/2010	MW-20-042810	1760	na	na	na	2000	na	na	na	na	4.7 U	0.95 U	0.95 U	na
MW-21	4/28/2010	MW-21-042810	3370	na	na	na	3280	na	na	na	na	4.7 U	0.95 U	0.95 U	na
MW-21 (dup)	4/28/2010	DUP-042810	3380	na	na	na	3280	na	na	na	na	4.7 U	0.95 U	0.95 U	na
MW-22	4/28/2010	MW-22-042810	10.6	0.5 U	0.5 U	2.2 j	10.6	0.5 UJ	0.28 j	0.29 j	5 U	4.7 U	0.94 U	0.94 U	na
MW-23	4/28/2010	MW-23-042810	3.2	0.27 j	0.5 U	2.3 j	3.5	0.5 UJ	0.4 j	0.28 j	5 U	4.7 U	0.95 U	0.95 U	na
MW-24	4/28/2010	MW-24-042810	0.32 j	na	na	na	0.36 j	na	na	na	na	4.7 U	0.94 U	0.94 U	na
MW-26	4/29/2010	MW-26-042910	1270	na	na	na	1400	na	na	na	na	4.8 U	0.96 U	0.96 U	na
MW-27	4/29/2010	MW-27-042910	28.6	na	na	na	35.8	na	na	na	na	4.9 U	0.97 U	0.97 U	na

Table 5

Primary Constituents Detected in Groundwater
Spring 2010 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Dissolved Metals				Total Metals					Pentachloro-phenol ug/L	2,4,6-Trichloro-phenol ug/L	2,3,4,6-Tetrachloro-phenol ug/L	Formalde-hyde ug/L
			Arsenic D ug/L	Chromium D ug/L	Copper D ug/L	Zinc D ug/L	Arsenic T ug/L	Silver T ug/L	Chromium T ug/L	Copper T ug/L	Zinc T ug/L				
Maximum Detected Concentrations			**3380**	**27**	**11.1**	**113**	**3640**	**2.5**	**35.2**	**48.7**	**110**	**648**	**1.4**	**11.8**	**36**
Method B			0.058 ca	50 a	590 nc	4,800 nc	0.058 ca	80 nc	50 a	590 nc	4,800 nc	0.73 ca	4 ca	480 nc	1,200 nc
Method C			0.58	50 a	1,300 nc	11,000 nc	0.58	180 nc	50 a	1,300 nc	11,000 nc	7.3 ca	40 ca	1,100 nc	2,600 nc
SW-AL			36	NP	3.1	81	36	NP	NP	3.1	81	7.9	NP	NP	NP
SW-HH			0.14	NP	NP	26,000	0.14	NP	NP	NP	26,000	3	2	NP	NP

Notes and Key:

ug/L = micrograms per liter

Bold text indicates that compound was detected.

T = total

D = dissolved

na = Not analyzed

NP = Screening level not provided

Shaded cells indicate values that exceed the Method B.

Boxed cells indicate values that exceed the Method C.

Hatched cells indicate value exceeds Surface Water, Water Quality Criteria - Aquatic Life - Marine/Chronic - Clean Water Act (SW-AL)

Underlined text indicate values exceed Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (SW-HH)

Bold text indicates that compound was detected.

a = State of Washington Model Toxics Control Act Method A Screening Level, no Method B or C screening level available.

Method B = State of Washington Model Toxics Control Act Method B Screening Level. Level provided is the lowest of the carcinogenic and non-carcinogenic.

Method C = State of Washington Model Toxics Control Act Method C Screening Level

dup = Duplicate sample

conf = Confirmation sample analyzed by Pace Analytical

split = Split sample analyzed by ALS Group

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

J1= Estimated due to relative percent difference between primary and duplicate sample greater then 50% with a concentration at greater than 5 times the routine reporting limit.

U = Result is ≤ Method Detection Limit (MDL) or client requested reporting limit (CRRL). Result reported as the MDL or CRRL and is qualified as non detected.

UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Attachment A
Analytical Laboratory Reports

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253584

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253584

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253584001	**MW-01S-042710**	Water	04/27/10 09:27	04/27/10 14:10
253584002	**MW-02S-042710**	Water	04/27/10 11:05	04/27/10 14:10
253584003	**MW-07S-042710**	Water	04/27/10 13:42	04/27/10 14:10
253584004	**MW-17-042710**	Water	04/27/10 12:13	04/27/10 14:10

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

This report shall not be reproduced, except in full,
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Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

Testing. Advising. Assuring.

Certificate of Analysis

May 6, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 122050
Purchase Order: ERM-REICHOLD
Project Name: Water
Samples Received: Four (4) Samples
Date Received: 04/28/2010

Attn: Heidi Geri

Analysis	Page
Formaldehyde by EPA 8315 A	2

D. Northington, Ph.D.
Technical Director

Michael Shelton
Senior Staff Chemist

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EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). One of the solutions required adjustment to pH 5 with acetate buffer. The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde	Detection Limit
MW-01S-042710	ND	0.005
MW-02S-042710	0.011	0.005
MW-07S-042710	ND	0.005
MW-17-042710	0.007	0.005
Method Blank	ND	0.005

Date Derivatized: 04-29-10
Date Analyzed: 04-30-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.00	0.841	84	0.786	79	7
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Method Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.826	83
QC Guideline				80-115

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 253584 **Workorder Name:** RG GW Sampling **Results Requested** 5/7/2010

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	EXOVA P.O._____ ATTN: Jennifer Oakes

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	Requested Analysis: 8315A Formaldehyde	LAB USE ONLY
1	MW-01s-042710 ~	4/27/2010 09:27	253584001	Water		X	
2	MW-02s-042710 ~	4/27/2010 11:05	253584002	Water		X	
3	MW-07s-042710 ~	4/27/2010 13:42	253584003	Water		X	
4	MW-17-042710 ~	4/27/2010 12:13	253584004	Water		X	
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/27/10 16:50	FedEx	
2	FedEx		[signature]	04-28-10/ A9:06
3				
4				
5				

Comments

MDL & J Flags Required.
EDDs Required.

122050

May 11, 2010 Analytical Report for Service Request No: K1004298

Heidi Geri
Pace Analytical Services
940 South Harney
Seattle, WA 98108

RE: RG GW Sampling/253587

Dear Heidi:

Enclosed are the results of the rush samples submitted to our laboratory on April 30, 2010. For your reference, these analyses have been assigned our service request number K1004298.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
K	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
–	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Pace Analytical Services	**Service Request No.:**	K1004298
Project:	RG GW Sampling	**Date Received:**	04/30/10
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier III validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Five water samples were received for analysis at Columbia Analytical Services on 04/30/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by _____ Date 05/11/10

Chain of Custody Documentation

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 253587 **Workorder Name:** RG GW Sampling **Results Requested** 5/7/2010

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	CAS, Kelso Attn: Pauline D 1317 S 13 Ave Kelso, WA 98626 P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: 125AI	Requested Analysis: NO3O2N 1RX	LAB USE ONLY
1	MW-01S-042710	4/27/2010 04:27	253587001	Water			
2	MW-02S-042710	4/27/2010 11:05	253587002	Water			
3	MW-07S-042710	4/27/2010 13:43	253587003	Water			
4	MW-17-042710	4/27/2010 12:13	253587004	Water			
5	MW-04S-042710	4/27/2010 14:52	253587006	Water			

Transfers	Released By	Date/Time	Received By	Date/Time
1	[signature]	4/29/10 1025	[signature]	4/29/10 1025
2				
3				
4				
5				

Comments

MDL 3J flagged report
Equis 4-file EDD needed

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project: Pace Service Request K10 4298

Received: 4/30/10 Opened: 4/30/10 By: Jam

1. Samples were received via? *Mail* (Fed Ex) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (Cooler) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 back
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID (NA)	Tracking Number	NA	Filed
1.7	—	279				Y

7. Packing material used. *Inserts* *Baggies* (Bubble Wrap) *Gel Packs* (Wet Ice) *Sleeves* (Other) plastic bag
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1004298
Project:	RG GW Sampling/253587	**Date Collected:**	4/27/2010
Sample Matrix:	Water	**Date Received:**	4/30/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-01S-042710	K1004298-001	10	4	1	5/3/2010	8	J
MW-02S-042710	K1004298-002	10	4	1	5/3/2010	6	J
MW-07S-042710	K1004298-003	10	4	1	5/3/2010	29	
MW-17-042710	K1004298-004	10	4	1	5/3/2010	5	J
MW-04S-042710	K1004298-005	100	40	10	5/3/2010	298	
Method Blank	K1004298-MB	10	4	1	5/3/2010	5	J

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004298
Project:	RG GW Sampling/253587	**Date Collected:**	4/27/2010
Sample Matrix:	Water	**Date Received:**	4/30/2010
		Date Extracted:	NA
		Date Analyzed:	5/3/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-01S-042710	Units:	ug/L (ppb)
Lab Code:	K1004298-001MS, K1004298-001DMS	Basis:	NA
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Result Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	8	101	99	93	91	82-121	2	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: RG GW Sampling/253587
Sample Matrix: Water

Service Request: K1004298
Date Collected: NA
Date Received: NA
Date Analyzed: 5/3/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.71	9.9	98	5 J
Percent Recovery	102	99	98	
Run B	3.52	9.7		
Percent Recovery	97	97		

Work Request # (Original) K4Z4L K4Z4L 193915

Tier: II III (1-2)

Date Analyzed: 5/3/10

Analyst: EM

Analysis: TOX 9020B
Crackers

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS: K479Y Rerun. 5/7.

See benchsheet for QC failure comments

Final Approved by: Date:

AOX/TOX Benchsheet

Service Request #: K4298, K4296 Method # : TOX-9020B/AOX-506

Analysis For : Total Organic Halides / Adsorbable Organic Halides Instrument: Crackers

Calibration Date: 7/5/2001 IPR Date: 9/17/2009

Instrument:	Volume	Concentration	Result	Reported Value	% Rec.
Halide Check	Run A = 10 µL	3.64	3.7070	3.7070	102
	Run B = 10 µL	3.64	3.5150	3.5150	97
NO_3 Wash Blank	2 mL	1) 0.3010	2) 0.3000	Average =	0.3005
Inst. Cal. Std.	Run A = 10 µL	10.0	10.2010	9.9005	99
	Run B = 10 µL	10.0	10.0180	9.7175	97

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
MB	100	100	0.3330	0.1560	5	< 10					
PAR STD	100	100	10.0630	NA	98	98	<1				98
K4298-1	100	100	0.5130	NA	2		341.5		n	2	
K4298-2	100	100	1.0390	NA	7J		<1		n	2	
K4298-3	100	100	3.3420	NA	30		<1		n	2	
K4298-4	100	100	0.7500	NA	4J		<1		n	2	
K4298-5	100	100	29.9120	1.2100	305	NR	3.0		n	2	
K4296-1	100	100	0.4160	0.3180	1		13.2		n	2	
NO_3 Wash Blank	2 mL		1) 0.1510		2) 0.3230		Average =				0.2370
ICS	10 µl				10.009	9.7720					98

Comments: NA - B column is equal to or less than the nitrate wash blank and should be disregarded as per method.
High break through is disregarded if sample concentration is less than or equal to MRL.

Halide Check = 3.64 µg/L **Inst. Cal Std. =** 10.0 µg/L

TOX-9020B (ppb) = $\frac{\{(OBS.A - NO_3\ Blank) + (OBS.B - NO_3\ Blank)\} \times (DF)}{Volume\ Analyzed\ (L)}$

AOX-506 (ppb)

AOX-1650C (ppb) = $\frac{((OBS.A + OBS.B) - (MB\ OBS.A + MB\ OBS.B))}{Initial\ Volume\ Analyzed\ (L)}$

% Breakthrough = $\frac{(OBS.B - MB\ OBS.B) \times 100}{(OBS.A - MB\ OBS.A) + (OBS.B - MB\ OBS.B)}$

Matrix Spike = $\frac{10\ µl \times 1\ µg \times 100\ ml}{1\ µl \times 100ml \times 0.1\ L}$ = 100 µg/L

NO_3 Wash ID #: TOX/3-26-A
Electrolyte ID #: TOX/3-58-C
Carbon Lot #: 904127
0.0103 NaCl ID #: TOX/3-70-J
1000 ppm TCP (PAR) ID #: TOX/3-62-H
1000 ppm TCP (ICS) ID #: TOX/3-72-HH

NO3 = < 1.0
ICS = 90%-110%
PAR = 87-113%
MS/MSD = 82-121%

Analyzed By: EM	Date: 5/3/10
Reviewed By:	Date:

AOX/TOX Benchsheet

Service Request #: K4298, K4296 Method # : TOX-9020B/AOX-506

Analysis For : Total Organic Halides / Adsorbable Organic Halides Instrument: Crackers

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
K4298-1D	100	100	0.7730	0.4550	8J	8J	28.9	NC			1-1d
K4298-1MS	100	100	10.3000	NA	101	101	<1				93
K4298-1MSD	100	100	9.9710	NA	97	99	<1	4			91
K4298-2D	100	100	0.7750	NA	5J	6J	<1	33			2-2d
K4298-3D	50	100	1.6310	NA	28	29	<1	7			3-3d
K4298-4D	100	100	0.7340	NA	5J	5J	<1	20			4-4d
K4298-5D	5	100	1.6900	NA	291		<1				
K4298-5T	10	100	3.2830	NA	305	298	<1	5			5d-5t
NO3 Wash Blank	2 mL		1) 0.4010		2) 0.5300		Average =				0.4655
ICS	10 µl				10.193	9.7275					97
K4296-2	100	100	0.4610	NA	-0.04		99.0				
K4296-2D	100	100	0.2950	NA	-2	<10	73.2	-	n	2	2-2d
K4296-1D	100	100	0.4170	NA	-0.5	<10	90.6	-			1-1d
ICS	10 µl				10.258	9.7925					98

Comments: K4298-1 is ND and -1d is a j-flag. Report the value for K4298-1 as 8J and the RPD as NC.

K4298-2/2d high RPD due to sample concentration less than five times MRL

Analyzed By: EM	Date: 5/3/10
Reviewed By:	Date:

Blank Report

Blank Results

Data ID : AOX20503201B.001

Reps.	Mode	Counts(ug)	Total Counts	X̄	SD	RSD(%)	ABC No.	Date
1-1	AOX-2	0.301					1	05/03/10 10:00
1-2	AOX-2	0.300	0.601	0.601	****.**	***.**	1	05/03/10 10:10

Sample Report

Sample All Data

Data ID : AOX20503201B.001
Blank : 0.601 ug/2Column

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(ug)	Total Counts	Concentration	ABC No.
1-1	ICS	10.00 µl	1.0000	10.207			1
1-2	ICS	10.00 µl	1.0000	10.012	20.219	0.20 %	1

n = 1 $\bar{X}$ = 0.20 % SD = ****.** RSD(%) = ***.**

Sample Report

Sample All Data

Data ID : AOX20160320160.002
Blank : 0.601 ug/2Column

Repe.	Sample ID	Sample Size	Dilution Rate	Counts(ug)	Total Counts	Concentration	ABC No.
1-1	MB	100.00 ml	1.0000	0.333			1
1-2	MB	100.00 ml	1.0000	0.156	0.489	0.00 ppm	1
	n = 1	$\bar{X}$ = 0.00 ppm		SD = ****.**		RSD(%) = ***.**	
1-1	PAR	100.00 ml	1.0000	10.063			1
1-2	PAR	100.00 ml	1.0000	0.094 NA	10.157	95.56 ppb	1
	n = 1	$\bar{X}$ = 95.56 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4298-1	100.00 ml	1.0000	0.513			1
1-2	K4298-1	100.00 ml	1.0000	0.180 NA	0.693	0.92 ppb	1
	n = 1	$\bar{X}$ = 0.92 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4298-2	100.00 ml	1.0000	1.039			1
1-2	K4298-2	100.00 ml	1.0000	0.123 NA	1.162	5.61 ppb	1
	n = 1	$\bar{X}$ = 5.61 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4298-3	100.00 ml	1.0000	3.342			1
1-2	K4298-3	100.00 ml	1.0000	0.156 NA	3.498	28.97 ppb	1
	n = 1	$\bar{X}$ = 28.97 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4298-4	100.00 ml	1.0000	0.750			1
1-2	K4298-4	100.00 ml	1.0000	0.152 NA	0.902	3.01 ppb	1
	n = 1	$\bar{X}$ = 3.01 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4298-5	100.00 ml	1.0000	29.912			1
1-2	K4298-5	100.00 ml	1.0000	1.210	31.122	305.21 ppb	1
	n = 1	$\bar{X}$ = 305.21 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4296-1	100.00 ml	1.0000	0.416			1
1-2	K4296-1	100.00 ml	1.0000	0.318	0.734	1.33 ppb	1
	n = 1	$\bar{X}$ = 1.33 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.151			1
1-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.323	0.474	0.00 ppm	1
	n = 1	$\bar{X}$ = 0.00 ppm		SD = ****.**		RSD(%) = ***.**	
1-1	ICS	100.00 ml	1.0000	10.009	10.009	94.08 ppb	1
	n = 1	$\bar{X}$ = 94.08 ppb		SD = ****.**		RSD(%) = ***.**	

Sample Report

Sample All Data

Data ID : A0X2050320100.002
Blank : 0.601 ug/2Column

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(ug)		Total Counts	Concentration	ABC No.
1-1	K4298-1D	100.00 ml	1.0000	0.775				1
1-2	K4298-1D	100.00 ml	1.0000	0.453		1.228	6.27 ppb	1
	n = 1	$\bar{X}$ = 6.27 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-1MS	100.00 ml	1.0000	10.300				1
1-2	K4298-1MS	100.00 ml	1.0000	-0.060	NA	10.300	96.99 ppb	1
	n = 1	$\bar{X}$ = 96.99 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-1MSD	100.00 ml	1.0000	9.971				1
1-2	K4298-1MSD	100.00 ml	1.0000	0.166	NA	10.137	95.16 ppb	1
	n = 1	$\bar{X}$ = 95.16 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-2D	100.00 ml	1.0000	0.775				1
1-2	K4298-2D	100.00 ml	1.0000	0.196	NA	0.971	3.70 ppb	1
	n = 1	$\bar{X}$ = 3.70 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-3D	100.00 ml	0.5000	1.631				1
1-2	K4298-3D	100.00 ml	0.5000	0.157	NA	1.788	23.74 ppb	1
	n = 1	$\bar{X}$ = 23.74 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-4D	100.00 ml	1.0000	0.734				1
1-2	K4298-4D	100.00 ml	1.0000	0.134	NA	0.868	2.67 ppb	1
	n = 1	$\bar{X}$ = 2.67 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-5D	100.00 ml	0.0500	1.690				1
1-2	K4298-5D	100.00 ml	0.0500	0.199	NA	1.889	257.60 ppb	1
	n = 1	$\bar{X}$ = 257.60 ppb		SD = ****.**			RSD(%) = ***.**	
1-1	K4298-5T	100.00 ml	0.1000	3.283				1
1-2	K4298-5T	100.00 ml	0.1000	0.178	NA	3.461	286.00 ppb	1
	n = 1	$\bar{X}$ = 286.00 ppb		SD = ****.**			RSD(%) = ***.**	
2-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.401				1
2-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.530		0.931	3.30 ppb	1
	n = 1	$\bar{X}$ = 3.30 ppb		SD = ****.**			RSD(%) = ***.**	
2-1	TCS	100.00 ml	1.0000	10.193		10.193	95.92 ppb	1
	n = 1	$\bar{X}$ = 95.92 ppb		SD = ****.**			RSD(%) = ***.**	

Sample Report

Sample All Data

Data ID : A0X205032010.002
Blank : 0.601 ug/2Column

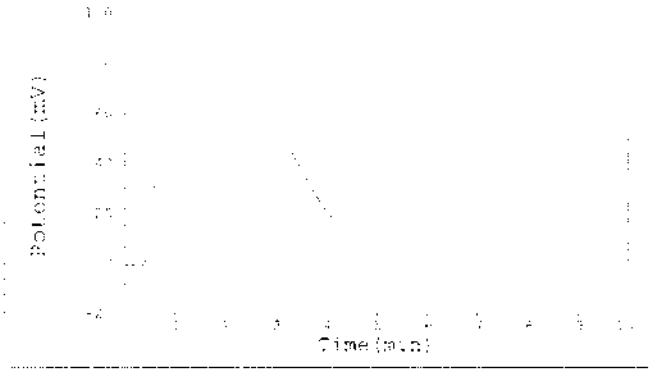
Reps.	Sample ID	Sample Size	Dilution Rate	Counts(ug)	Total Counts	Concentration	ABC No.
1-1	K4296-2	100.00 ml	1.0000	0.461			1
1-2	K4296-2	100.00 ml	1.0000	0.205 NA	0.666	0.65 ppb	1
	n = 1	$\bar{X}$ = 0.65 ppb		SD = ****.**		RSD(%) = ***.**	
1-1	K4296-2D	100.00 ml	1.0000	0.295			1
1-2	K4296-2D	100.00 ml	1.0000	0.171 NA	0.466	0.00 ppm	1
	n = 1	$\bar{X}$ = 0.00 ppm		SD = ****.**		RSD(%) = ***.**	
1-1	K4296-1D	100.00 ml	1.0000	0.417			1
1-2	K4296-1D	100.00 ml	1.0000	0.115 NA	0.532	0.00 ppm	1
	n = 1	$\bar{X}$ 0.00 ppm		SD = ****.**		RSD(%) = ***.**	
5-1	ICS	100.00 ml	1.1000	10.258	10.258	96.57 ppb	1
	n = 1	$\bar{X}$ = 96.57 ppb		SD = ****.**		RSD(%) = ***.**	

Sample Report

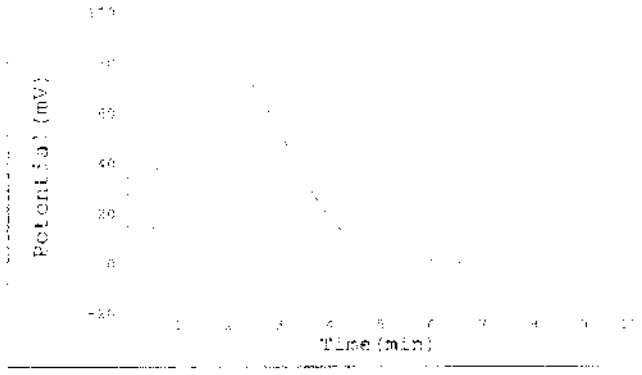
Sample Charts

Data ID : AOX20503201O.001

Reps. : 1-1 05/03/10 10:19
Sample ID : TCS
Counts(ug): 10.201



Reps. : 1-2 05/03/10 10:27
Sample ID : TCS
Counts(ug): 10.018

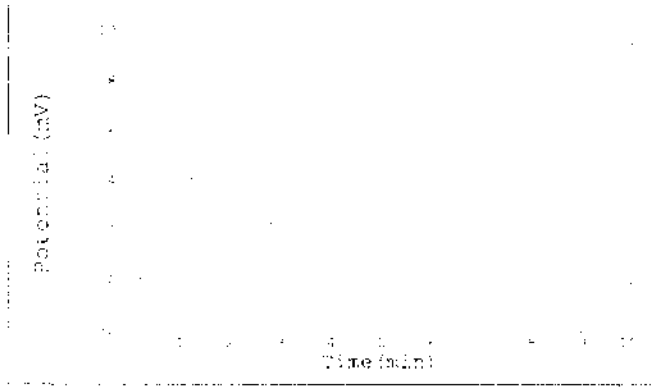


Sample Report

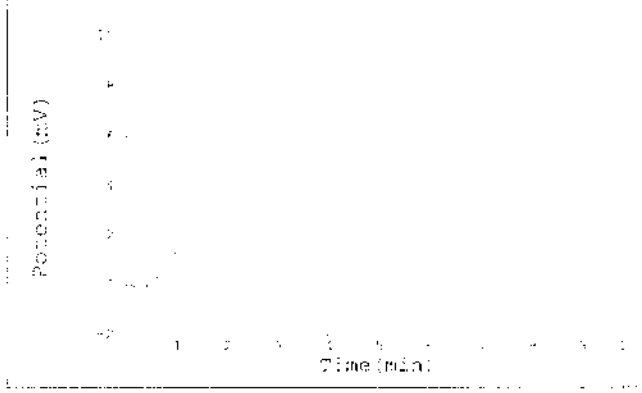
Sample Charts

Data ID : AOX2005032010.002

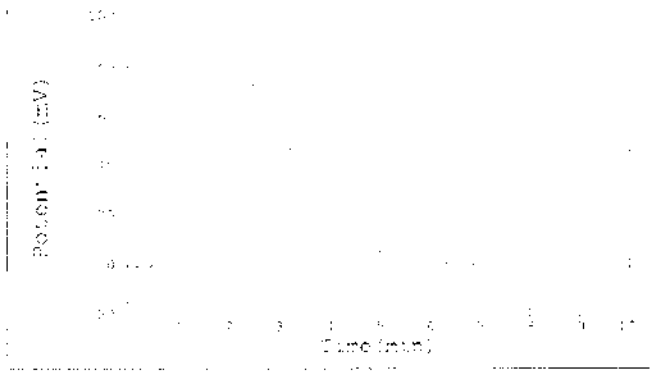
Reps. : 1-1 05/03/10 10:34
Sample ID : MB
Counts(ug): 0.333



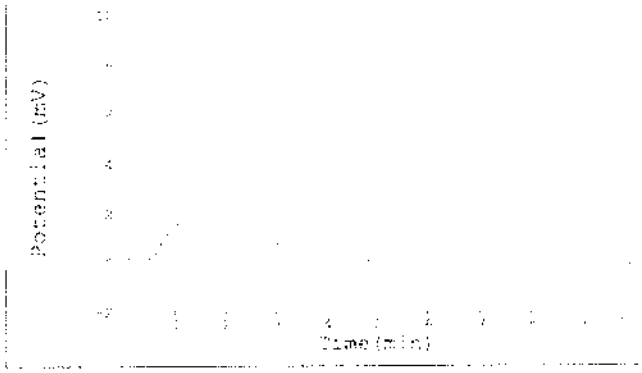
Reps. : 1-2 05/03/10 10:41
Sample ID : MB
Counts(ug): 0.136



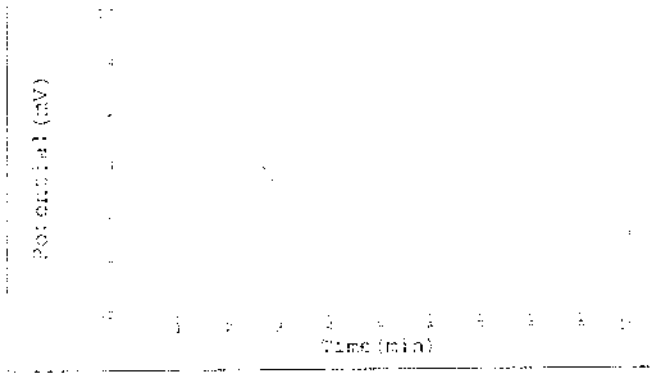
Reps. : 1-1 05/03/10 10:48
Sample ID : PAR
Counts(ug): 10.063



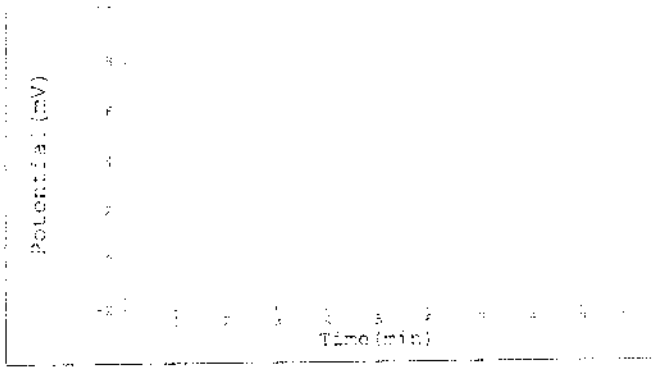
Reps. : 1-2 05/03/10 10:54
Sample ID : PAR
Counts(ug): 0.094



Reps. : 1-1 05/03/10 11:00
Sample ID : K4298-1
Counts(ug): 0.513



Reps. : 1-2 05/03/10 11:06
Sample ID : K4298-1
Counts(ug): 0.180

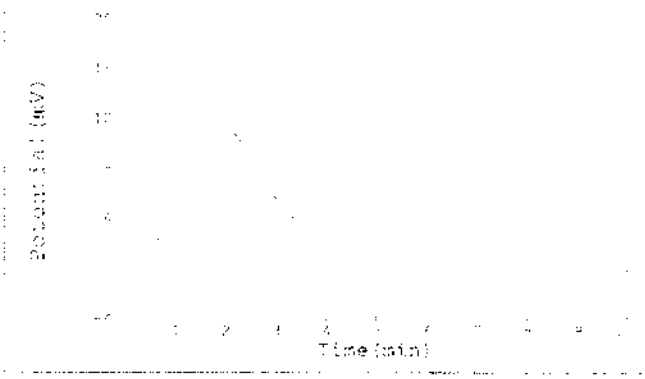


Sample Report

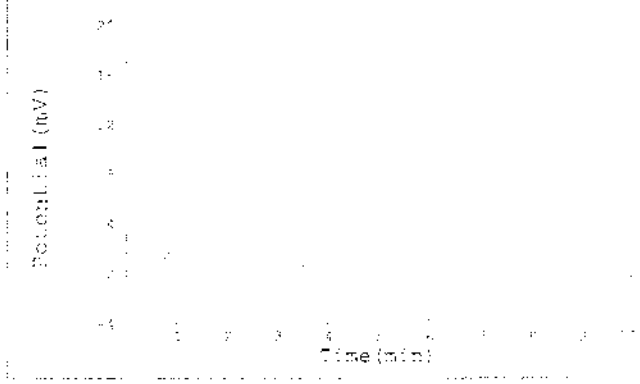
Sample Charts

Data ID : AOX20503201F.002

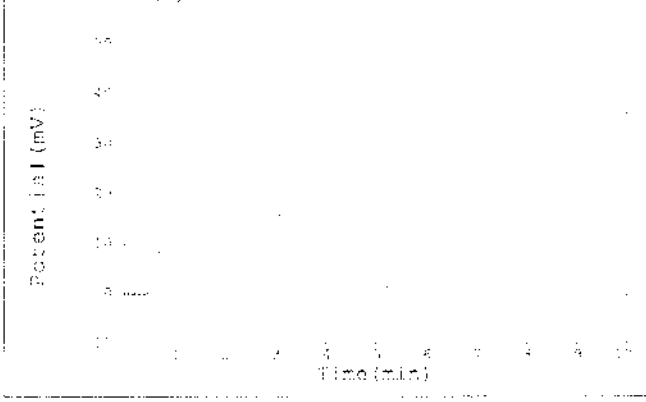
Reps. : 1-1 05/03/10 11:12
Sample ID : K4298-2
Counts(ug): 1.039



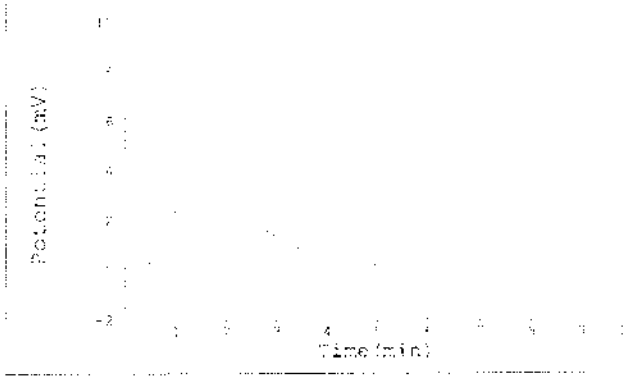
Reps. : 1-2 05/03/10 11:18
Sample ID : K4298-2
Counts(ug): 0.123



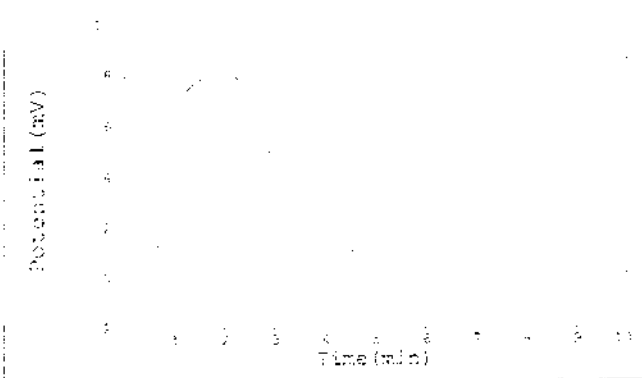
Reps. : 1-1 05/03/10 11:25
Sample ID : K4298-3
Counts(ug): 3.342



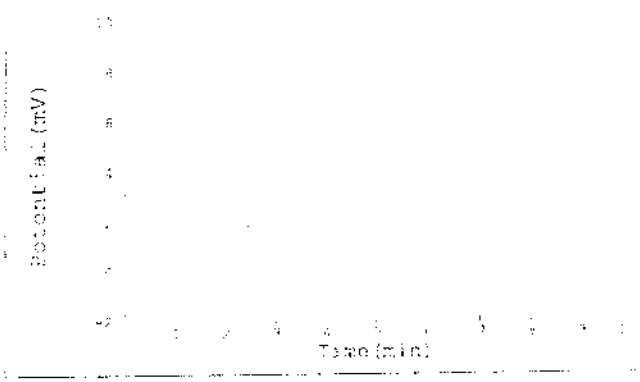
Reps. : 1-2 05/03/10 11:31
Sample ID : K4298-3
Counts(ug): 0.156



Reps. : 1-1 05/03/10 11:36
Sample ID : K4298-4
Counts(ug): 0.750



Reps. : 1-2 05/03/10 11:43
Sample ID : K4298-4
Counts(ug): 0.152

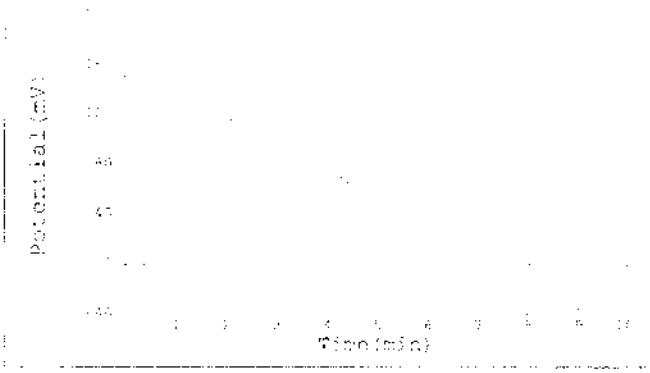


Sample Report

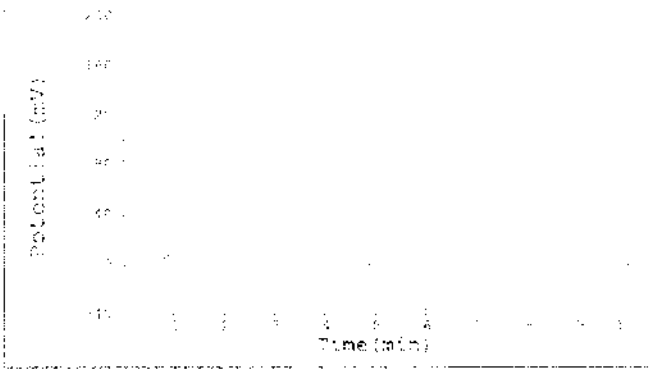
Sample Charts

Data ID : AOX20503201O.002

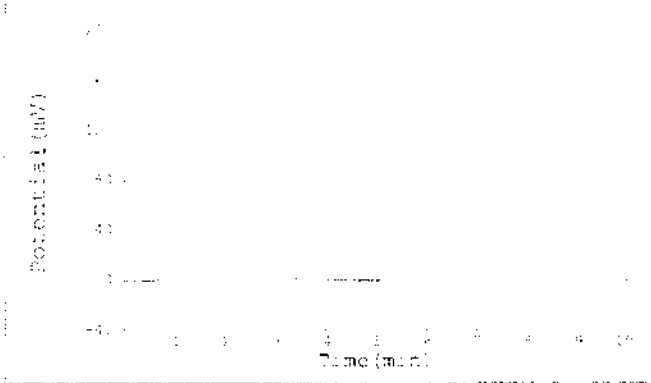
Reps. : 1-1 05/03/10 11:52
Sample ID : K4296-5
Counts(ug): 29.912



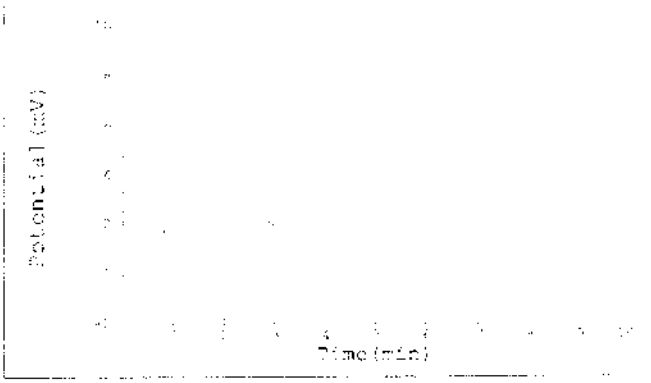
Reps. : 1-2 05/03/10 11:58
Sample ID : K4296-5
Counts(ug): 1.210



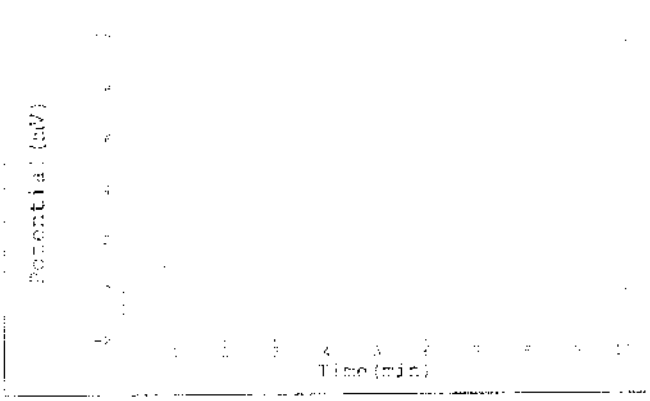
Reps. : 1-1 05/03/10 12:04
Sample ID : K4296-1
Counts(ug): 0.416



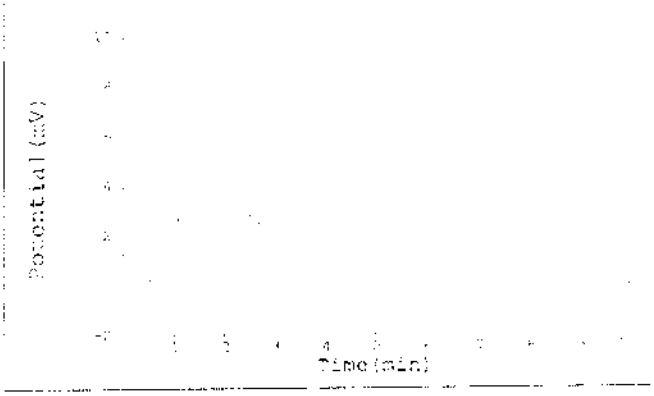
Reps. : 1-2 05/03/10 12:11
Sample ID : K4296-1
Counts(ug): 0.318



Reps. : 1-1 05/03/10 12:20
Sample ID : NITRATE WASH BLANK
Counts(ug): 0.151



Reps. : 1-2 05/03/10 12:26
Sample ID : NITRATE WASH BLANK
Counts(ug): 0.323

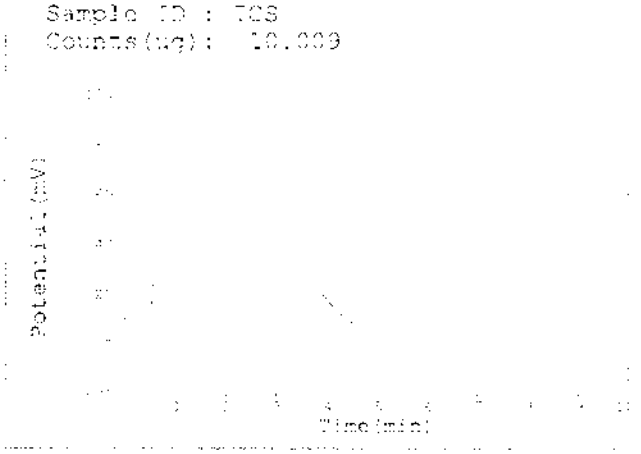


Sample Report

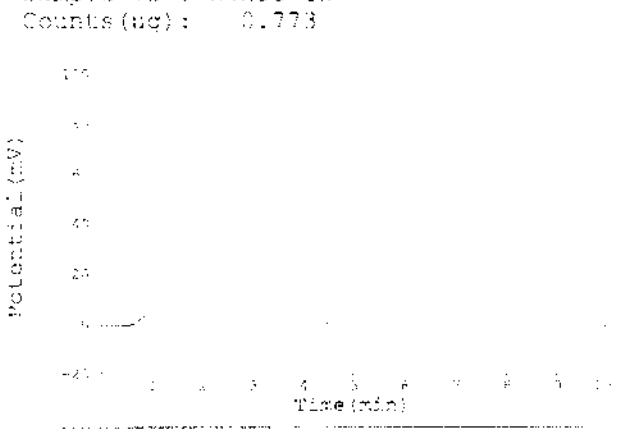
Sample Charts

Data ID : AOX20503201.002

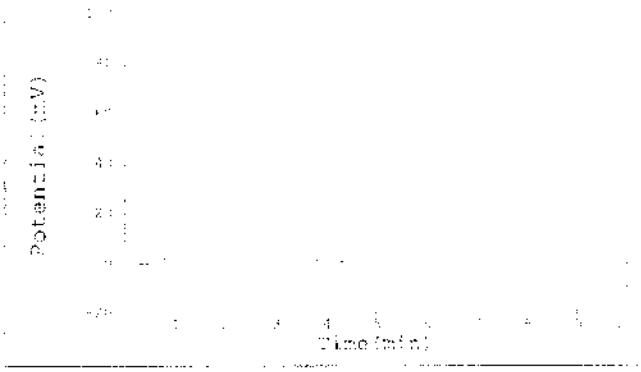
Reps. : 1-1 05/03/10 12:58
Sample ID : TCS
Counts(ug): 10.009



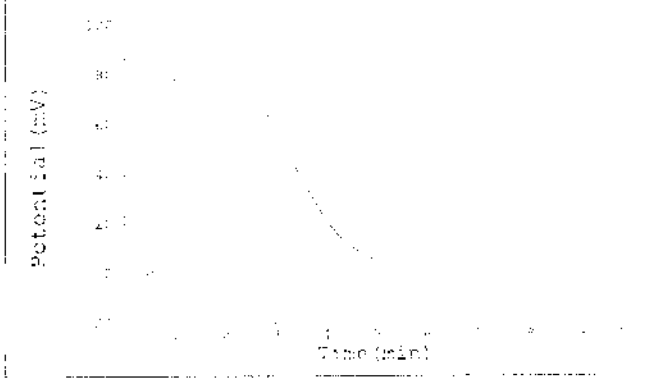
Reps. : 1-1 05/03/10 13:09
Sample ID : K4298-LD
Counts(ug): 0.773



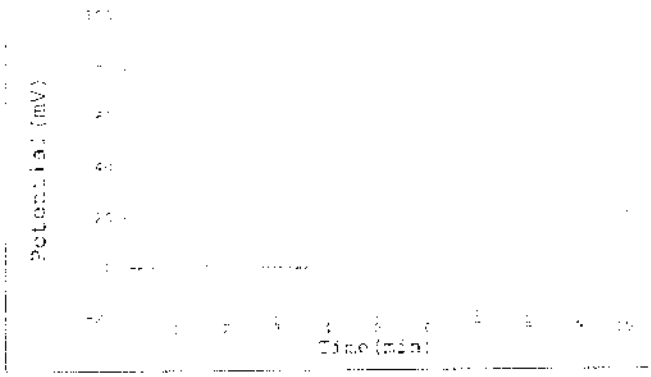
Reps. : 1-2 05/03/10 13:14
Sample ID : K4298-LD
Counts(ug): 0.455



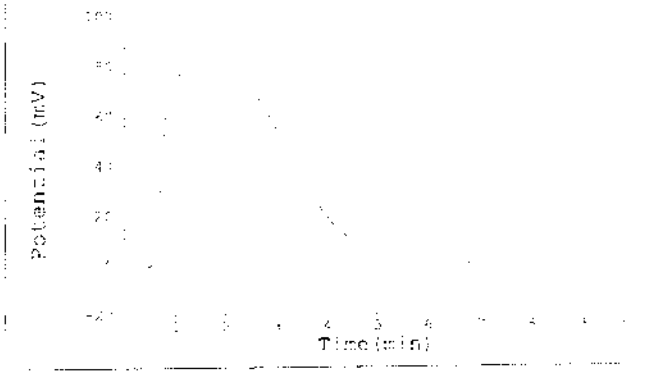
Reps. : 1-1 05/03/10 13:21
Sample ID : K4298-LMS
Counts(ug): 10.300



Reps. : 1-2 05/03/10 13:27
Sample ID : K4298-LMS
Counts(ug): -0.060



Reps. : 1-1 05/03/10 13:35
Sample ID : K4298-LMSD
Counts(ug): 9.971

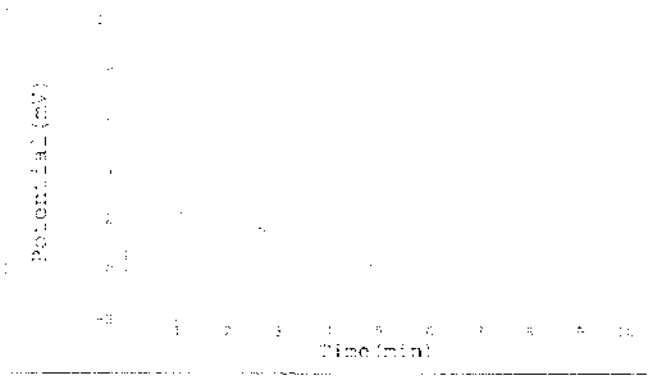


Sample Report

Sample Charts

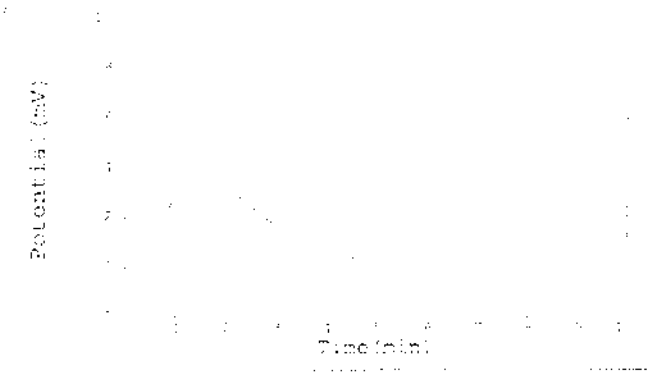
Data ID : AOX305032010.002

Reps. : 1-2 05/03/10 13:41
Sample ID : K4298-1MSD
Counts(µg): 0.146

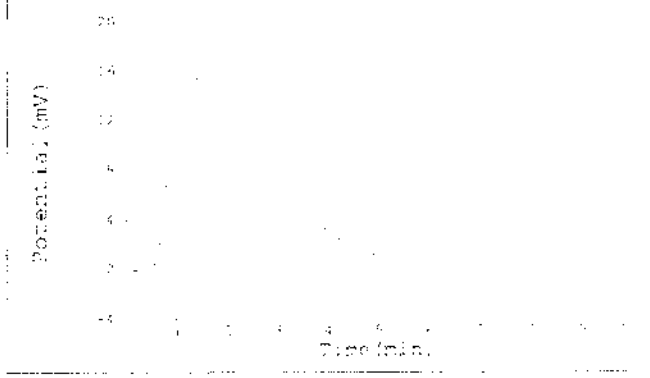


Reps. : 1-1 05/03/10 13:49
Sample ID : K4298-2D
Counts(µg): 0.775

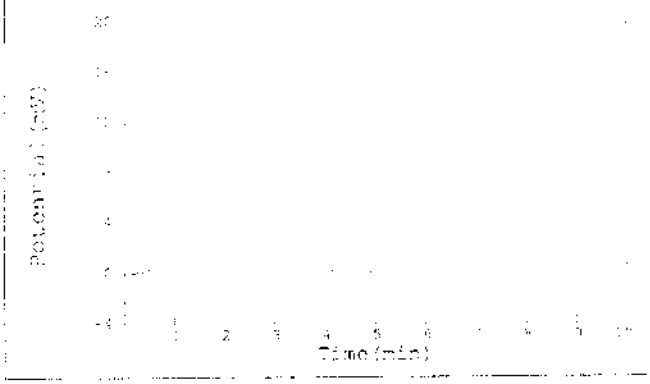
Reps. : 1-2 05/03/10 13:53
Sample ID : K4298-2D
Counts(µg): 0.196



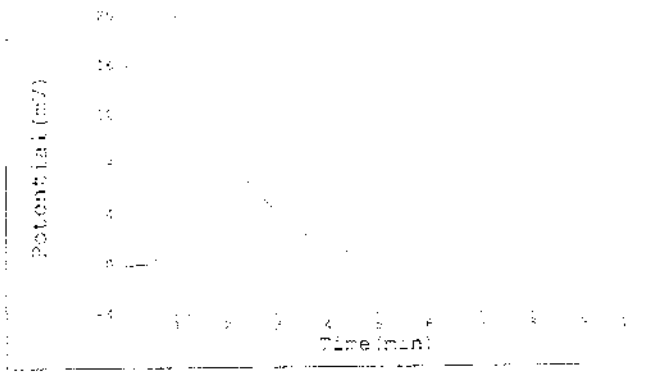
Reps. : 1-1 05/03/10 13:59
Sample ID : K4298-3D
Counts(µg): 1.631



Reps. : 1-2 05/03/10 14:06
Sample ID : K4298-3D
Counts(µg): 0.197



Reps. : 1-1 05/03/10 14:11
Sample ID : K4298-4D
Counts(µg): 0.734

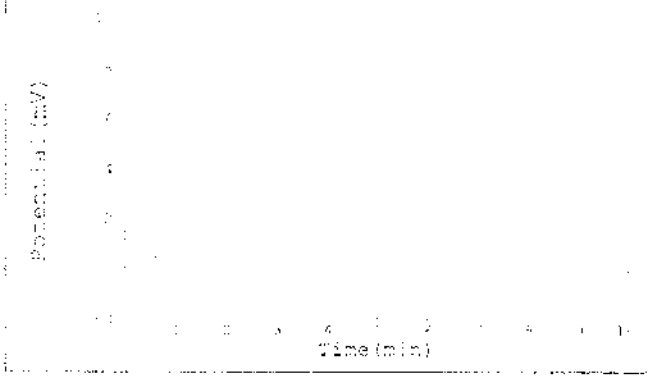


Sample Report

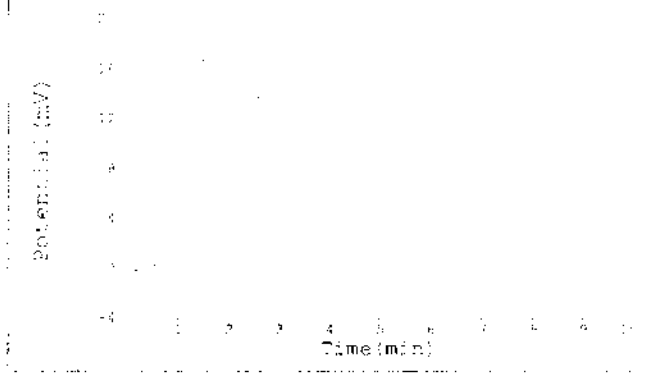
Sample Charts

Data ID : AOX20503201O.002

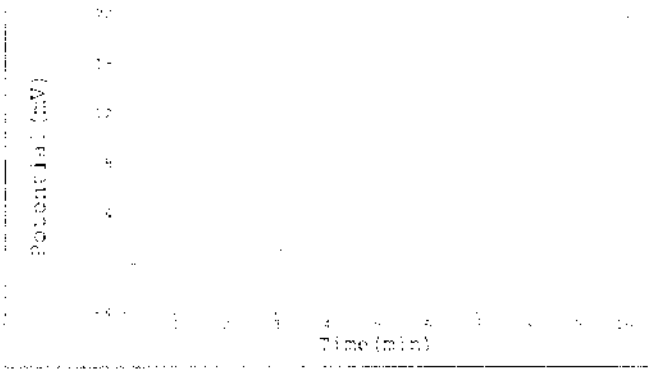
Reps. : 1-2 05/03/10 14:17
Sample ID : K4298-4D
Counts(ug) : 0.134



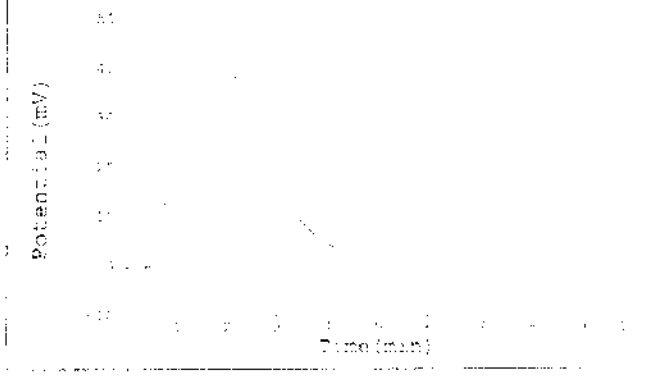
Reps. : 1-2 05/03/10 14:24
Sample ID : K4298-5D
Counts(ug) : 1.690



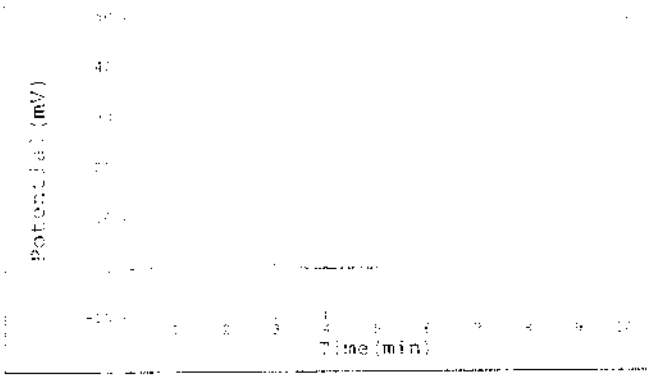
Reps. : 1-2 05/03/10 14:31
Sample ID : K4298-6D
Counts(ug) : 0.199



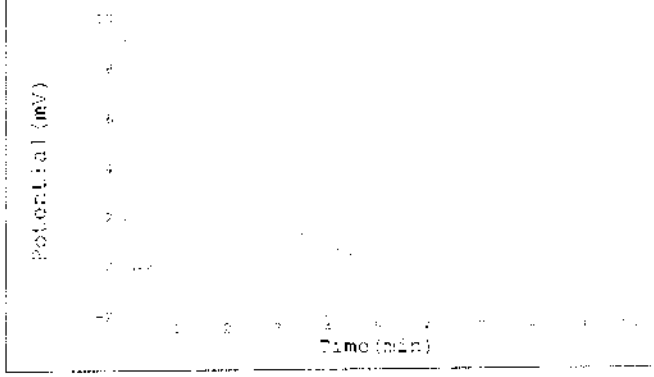
Reps. : 1-1 05/03/10 14:37
Sample ID : K4298-6T
Counts(ug) : 3.283



Reps. : 1-2 05/03/10 14:44
Sample ID : K4298-5T
Counts(ug) : 0.176



Reps. : 2-1 05/03/10 14:57
Sample ID : NITRATE WASH BLANK
Counts(ug) : 0.401

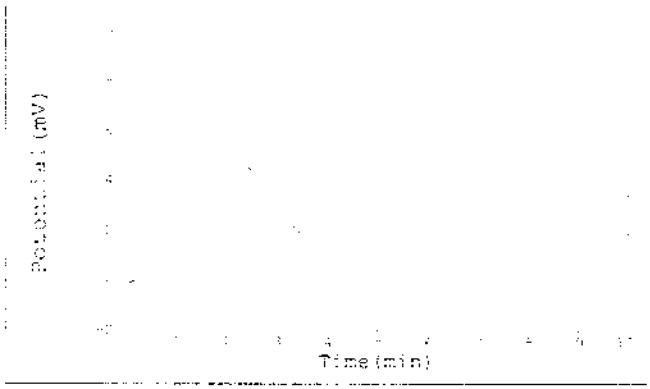


Sample Report

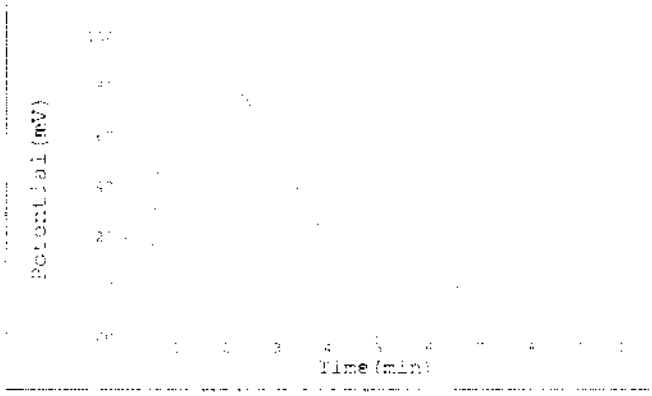
Sample Charts

Data ID : AOX20503201C.002

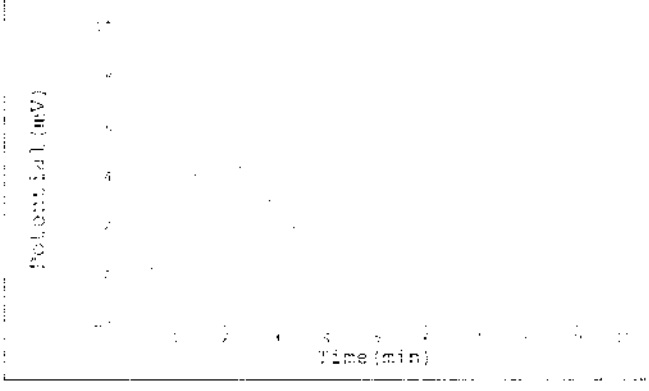
Reps. : 2-2 05/03/10 15:04
Sample ID : NITRATE WASH BLANK
Counts(ug): 0.530



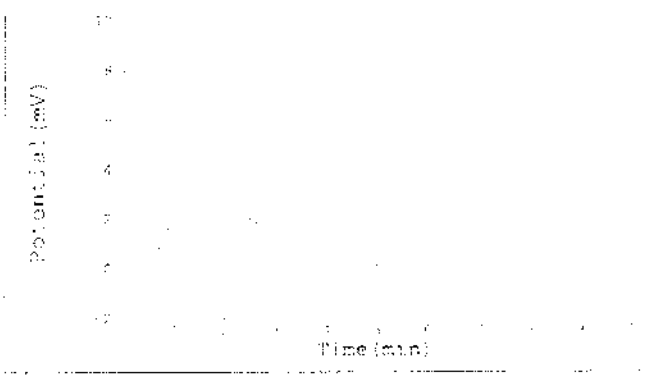
Reps. : 2-1 05/03/10 15:13
Sample ID : ICS
Counts(ug): 10.193



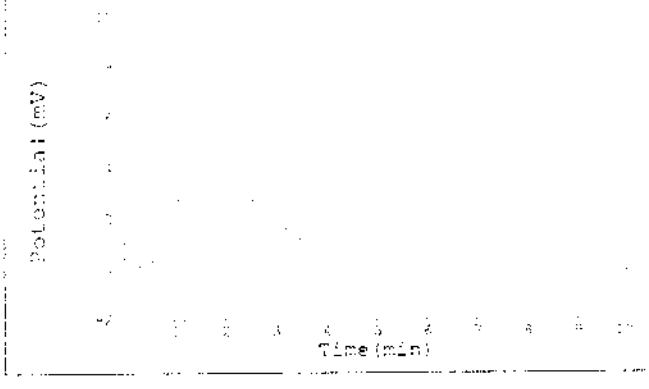
Reps. : 1-1 05/03/10 15:16
Sample ID : K4296-2
Counts(ug): 0.461



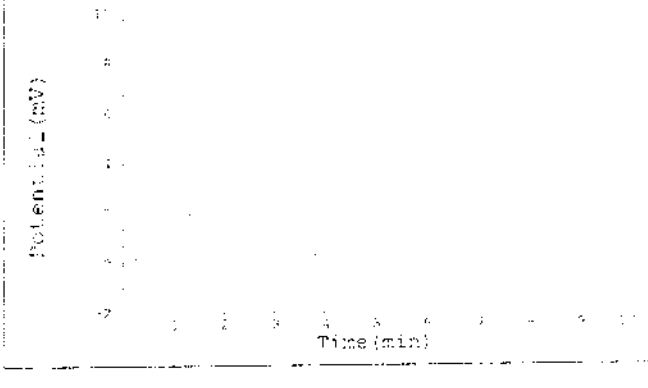
Reps. : 1-2 05/03/10 15:24
Sample ID : K4296-2
Counts(ug): 0.205



Reps. : 1-1 05/03/10 15:29
Sample ID : K4296-2D
Counts(ug): 0.295



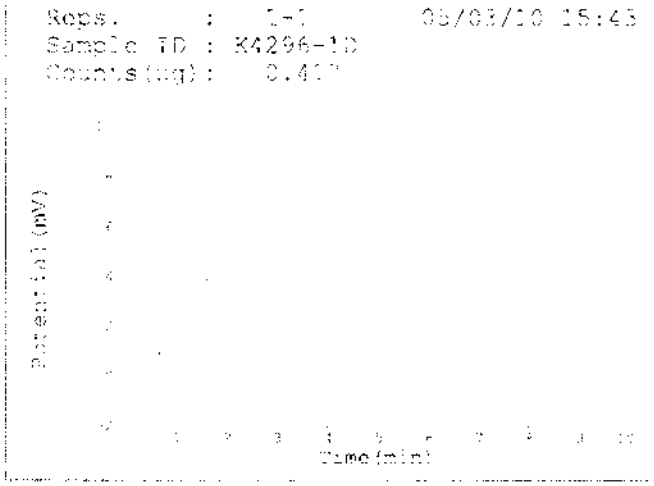
Reps. : 1-2 05/03/10 15:35
Sample ID : K4296-2D
Counts(ug): 0.171

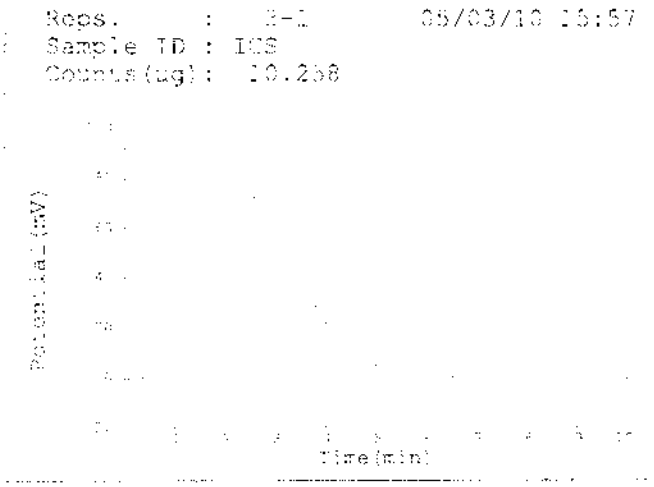


Sample Report

Sample Charts

Data ID : A0X2005032010.002





Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 12, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253587

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross for
Heidi Geri
heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253587

Minnesota Certification IDs

Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253587

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253587001	**MW-01S-042710**	Water	04/27/10 04:27	04/27/10 16:00
253587002	**MW-02S-042710**	Water	04/27/10 11:05	04/27/10 16:00
253587003	**MW-07S-042710**	Water	04/27/10 13:43	04/27/10 16:00
253587004	**MW-17-042710**	Water	04/27/10 12:13	04/27/10 16:00
253587005	**DUP-042710**	Water	04/27/10 12:13	04/27/10 16:00
253587006	**MW-04S-042710**	Water	04/27/10 14:52	04/27/10 16:00

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253587

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253587001	**MW-01S-042710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253587002	**MW-02S-042710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253587003	**MW-07S-042710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253587004	**MW-17-042710**	SM 2340B	BGA	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253587

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253587005	**DUP-042710**	EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
253587006	**MW-04S-042710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
6 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20275

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253587003,4031026017

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 783556)
  - Silver

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
6 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
6 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1499

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 26904)
  - Phosphorus
- MSD (Lab ID: 26905)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253587

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
5 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

TP: The samples were received outside of required temperature range. Analysis was completed upon client approval.
- MW-01S-042710 (Lab ID: 253587001)
- MW-02S-042710 (Lab ID: 253587002)
- MW-04S-042710 (Lab ID: 253587006)
- MW-07S-042710 (Lab ID: 253587003)
- MW-17-042710 (Lab ID: 253587004)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-01S-042710 **Lab ID: 253587001** Collected: 04/27/10 04:27 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**230**	mg/L	1.0		1		05/04/10 11:29		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:29	7429-90-5	
Calcium	**86200**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:29	7440-70-2	
Iron	**3780**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:29	7439-89-6	
Magnesium	**3530J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:29	7439-95-4	
Manganese	**66.3**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:29	7439-96-5	
Potassium	**6160**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:29	7440-09-7	
Sodium	**17500**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:29	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:08	7429-90-5	
Iron, Dissolved	**2920**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:08	7439-89-6	
Manganese, Dissolved	**59.2**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:08	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**15.7**	ug/L	0.50	0.062	1	05/03/10 16:37	05/06/10 11:42	7440-38-2	
Chromium	**0.47J**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 11:42	7440-47-3	
Copper	**2.1**	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 11:42	7440-50-8	
Silver	**0.072J**	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 11:42	7440-22-4	
Zinc	**37.1**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 11:42	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**8.9**	ug/L	0.50	0.062	1	05/04/10 13:50	05/04/10 21:26	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:26	7440-47-3	
Copper, Dissolved	**0.70**	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:26	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 13:24	7440-22-4	
Zinc, Dissolved	**26.9**	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:26	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 01:54	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 01:54	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	04/28/10 12:15	05/05/10 01:54	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 01:54	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 01:54	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 01:54	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 01:54	88-06-2	
Nitrobenzene-d5 (S)	72	%	38-121		1	04/28/10 12:15	05/05/10 01:54	4165-60-0	
2-Fluorobiphenyl (S)	62	%	40-110		1	04/28/10 12:15	05/05/10 01:54	321-60-8	
Terphenyl-d14 (S)	81	%	26-130		1	04/28/10 12:15	05/05/10 01:54	1718-51-0	
Phenol-d6 (S)	28	%	11-120		1	04/28/10 12:15	05/05/10 01:54	13127-88-3	
2-Fluorophenol (S)	43	%	20-120		1	04/28/10 12:15	05/05/10 01:54	367-12-4	
2,4,6-Tribromophenol (S)	81	%	37-120		1	04/28/10 12:15	05/05/10 01:54	118-79-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-01S-042710 **Lab ID: 253587001** Collected: 04/27/10 04:27 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**264**	mg/L	2.0	2.0	1		05/01/10 08:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/01/10 08:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**6.0**	mg/L	2.0	2.0	1		04/30/10 10:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/28/10 22:02	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.4**	mg/L	1.0	0.076	1		04/28/10 00:00	16887-00-6	
Sulfate	**18.8**	mg/L	1.0	0.17	1		04/28/10 00:00	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.13**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.2**	mg/L	1.0	0.37	1		05/05/10 19:23	7440-44-0	TP

Sample: MW-02S-042710 **Lab ID: 253587002** Collected: 04/27/10 11:05 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**181**	mg/L	1.0		1		05/04/10 11:32		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:32	7429-90-5	
Calcium	**66200**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:32	7440-70-2	
Iron	**5320**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:32	7439-89-6	
Magnesium	**3930J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:32	7439-95-4	
Manganese	**109**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:32	7439-96-5	
Potassium	**5840**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:32	7440-09-7	
Sodium	**51600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:32	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:11	7429-90-5	
Iron, Dissolved	**4350**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:11	7439-89-6	
Manganese, Dissolved	**95.2**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:11	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**1340**	ug/L	2.5	0.31	5	05/03/10 16:37	05/06/10 11:50	7440-38-2	
Chromium	**0.73**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 11:46	7440-47-3	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-02S-042710 **Lab ID: 253587002** Collected: 04/27/10 11:05 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Copper	**0.49J**	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 11:46	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 11:46	7440-22-4	
Zinc	**3.2J**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 11:46	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1000**	ug/L	5.0	0.62	10	05/04/10 13:50	05/06/10 15:23	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:31	7440-47-3	
Copper, Dissolved	**0.31J**	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:31	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 13:28	7440-22-4	
Zinc, Dissolved	ND	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:31	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 02:16	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 02:16	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	04/28/10 12:15	05/05/10 02:16	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 02:16	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 02:16	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 02:16	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 02:16	88-06-2	
Nitrobenzene-d5 (S)	62	%	38-121		1	04/28/10 12:15	05/05/10 02:16	4165-60-0	
2-Fluorobiphenyl (S)	56	%	40-110		1	04/28/10 12:15	05/05/10 02:16	321-60-8	
Terphenyl-d14 (S)	82	%	26-130		1	04/28/10 12:15	05/05/10 02:16	1718-51-0	
Phenol-d6 (S)	25	%	11-120		1	04/28/10 12:15	05/05/10 02:16	13127-88-3	
2-Fluorophenol (S)	37	%	20-120		1	04/28/10 12:15	05/05/10 02:16	367-12-4	
2,4,6-Tribromophenol (S)	80	%	37-120		1	04/28/10 12:15	05/05/10 02:16	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**302**	mg/L	2.0	2.0	1		05/01/10 08:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/01/10 08:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.0	2.0	1		04/30/10 10:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/28/10 22:53	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**10.2**	mg/L	10.0	0.76	10		04/29/10 01:29	16887-00-6	
Sulfate	**11.6**	mg/L	10.0	1.7	10		04/29/10 01:29	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.4**	mg/L	0.050	0.014	5		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.8**	mg/L	1.0	0.37	1		05/05/10 19:30	7440-44-0	TP

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-07S-042710 **Lab ID: 253587003** Collected: 04/27/10 13:43 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**271**	mg/L	1.0		1		05/04/10 11:34		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:34	7429-90-5	
Calcium	**97000**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:34	7440-70-2	
Iron	**5340**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:34	7439-89-6	
Magnesium	**6900**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:34	7439-95-4	
Manganese	**226**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:34	7439-96-5	
Potassium	**4760J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:34	7440-09-7	
Sodium	**22300**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:34	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:13	7429-90-5	
Iron, Dissolved	**4940**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:13	7439-89-6	
Manganese, Dissolved	**228**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:13	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**36.3**	ug/L	0.50	0.062	1	05/03/10 16:37	05/06/10 11:54	7440-38-2	
Chromium	**0.56**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 11:54	7440-47-3	
Copper	**0.56**	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 11:54	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 11:54	7440-22-4	M0
Zinc	**5.0**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 11:54	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**35.1**	ug/L	0.50	0.062	1	05/04/10 13:50	05/04/10 21:35	7440-38-2	
Chromium, Dissolved	**0.41J**	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:35	7440-47-3	
Copper, Dissolved	**0.71**	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:35	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 13:32	7440-22-4	
Zinc, Dissolved	**2.6J**	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:35	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 02:38	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 02:38	120-83-2	
Pentachlorophenol	**11.8**	ug/L	4.7	0.43	1	04/28/10 12:15	05/05/10 02:38	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 02:38	108-95-2	
2,3,4,6-Tetrachlorophenol	**1.2J**	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 02:38	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 02:38	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 02:38	88-06-2	
Nitrobenzene-d5 (S)	67	%	38-121		1	04/28/10 12:15	05/05/10 02:38	4165-60-0	
2-Fluorobiphenyl (S)	60	%	40-110		1	04/28/10 12:15	05/05/10 02:38	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	04/28/10 12:15	05/05/10 02:38	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	04/28/10 12:15	05/05/10 02:38	13127-88-3	
2-Fluorophenol (S)	41	%	20-120		1	04/28/10 12:15	05/05/10 02:38	367-12-4	
2,4,6-Tribromophenol (S)	84	%	37-120		1	04/28/10 12:15	05/05/10 02:38	118-79-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-07S-042710 **Lab ID: 253587003** Collected: 04/27/10 13:43 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**196**	mg/L	2.0	2.0	1		05/01/10 08:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/01/10 08:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**2.0**	mg/L	2.0	2.0	1		04/30/10 10:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/28/10 23:11	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**34.0**	mg/L	10.0	0.76	10		04/29/10 01:46	16887-00-6	
Sulfate	**122**	mg/L	10.0	1.7	10		04/29/10 01:46	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.22**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.9**	mg/L	1.0	0.37	1		05/05/10 19:38	7440-44-0	TP

Sample: MW-17-042710 **Lab ID: 253587004** Collected: 04/27/10 12:13 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**105**	mg/L	1.0		1		05/04/10 11:37		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:37	7429-90-5	
Calcium	**36300**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:37	7440-70-2	
Iron	**3940**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:37	7439-89-6	
Magnesium	**3570J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:37	7439-95-4	
Manganese	**193**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:37	7439-96-5	
Potassium	**4220J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:37	7440-09-7	
Sodium	**13800**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:37	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:24	7429-90-5	
Iron, Dissolved	**3620**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:24	7439-89-6	
Manganese, Dissolved	**178**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:24	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**92.1**	ug/L	0.50	0.062	1	05/03/10 16:37	05/06/10 12:03	7440-38-2	
Chromium	**0.31J**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 12:03	7440-47-3	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-17-042710 **Lab ID: 253587004** Collected: 04/27/10 12:13 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Copper	ND	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 12:03	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 12:03	7440-22-4	
Zinc	**2.7J**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 12:03	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**79.1**	ug/L	0.50	0.062	1	05/04/10 13:50	05/04/10 21:39	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:39	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:39	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 13:37	7440-22-4	
Zinc, Dissolved	**1.8J**	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:39	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 03:00	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 03:00	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	04/28/10 12:15	05/05/10 03:00	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 03:00	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 03:00	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 03:00	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 03:00	88-06-2	
Nitrobenzene-d5 (S)	63	%	38-121		1	04/28/10 12:15	05/05/10 03:00	4165-60-0	
2-Fluorobiphenyl (S)	54	%	40-110		1	04/28/10 12:15	05/05/10 03:00	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	04/28/10 12:15	05/05/10 03:00	1718-51-0	
Phenol-d6 (S)	25	%	11-120		1	04/28/10 12:15	05/05/10 03:00	13127-88-3	
2-Fluorophenol (S)	38	%	20-120		1	04/28/10 12:15	05/05/10 03:00	367-12-4	
2,4,6-Tribromophenol (S)	79	%	37-120		1	04/28/10 12:15	05/05/10 03:00	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**126**	mg/L	2.0	2.0	1		05/01/10 08:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/01/10 08:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**5.0**	mg/L	2.0	2.0	1		04/30/10 10:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/28/10 23:28	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.5**	mg/L	1.0	0.076	1		04/28/10 23:28	16887-00-6	
Sulfate	**10.8**	mg/L	1.0	0.17	1		04/28/10 23:28	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.38**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.2**	mg/L	1.0	0.37	1		05/05/10 19:45	7440-44-0	TP

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: DUP-042710 **Lab ID: 253587005** Collected: 04/27/10 12:13 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**17.9**	ug/L	0.50	0.062	1	05/03/10 16:37	05/06/10 12:07	7440-38-2	
Chromium	**0.75**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 12:07	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 12:07	7440-50-8	
Silver	**0.15J**	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 12:07	7440-22-4	
Zinc	**37.5**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 12:07	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**9.1**	ug/L	0.50	0.062	1	05/04/10 13:50	05/04/10 21:44	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:44	7440-47-3	
Copper, Dissolved	**0.60**	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:44	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 14:12	7440-22-4	
Zinc, Dissolved	**26.7**	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:44	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 03:23	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 03:23	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	04/28/10 12:15	05/05/10 03:23	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 03:23	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 03:23	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 03:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 03:23	88-06-2	
Nitrobenzene-d5 (S)	62	%	38-121		1	04/28/10 12:15	05/05/10 03:23	4165-60-0	
2-Fluorobiphenyl (S)	55	%	40-110		1	04/28/10 12:15	05/05/10 03:23	321-60-8	
Terphenyl-d14 (S)	75	%	26-130		1	04/28/10 12:15	05/05/10 03:23	1718-51-0	
Phenol-d6 (S)	26	%	11-120		1	04/28/10 12:15	05/05/10 03:23	13127-88-3	
2-Fluorophenol (S)	39	%	20-120		1	04/28/10 12:15	05/05/10 03:23	367-12-4	
2,4,6-Tribromophenol (S)	76	%	37-120		1	04/28/10 12:15	05/05/10 03:23	118-79-6	

Sample: MW-04S-042710 **Lab ID: 253587006** Collected: 04/27/10 14:52 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**66.7**	mg/L	1.0		1		05/04/10 11:45		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**110J**	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:45	7429-90-5	
Calcium	**24600**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:45	7440-70-2	
Iron	**323**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:45	7439-89-6	
Magnesium	**1260J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:45	7439-95-4	
Manganese	**9.1J**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:45	7439-96-5	
Potassium	**2200J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:45	7440-09-7	
Sodium	**29100**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:45	7440-23-5	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-04S-042710 **Lab ID: 253587006** Collected: 04/27/10 14:52 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	**38.3J**	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:27	7429-90-5	
Iron, Dissolved	**104**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:27	7439-89-6	
Manganese, Dissolved	**6.5J**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:27	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**47.7**	ug/L	0.50	0.062	1	05/03/10 16:37	05/06/10 12:11	7440-38-2	
Chromium	**0.44J**	ug/L	0.50	0.24	1	05/03/10 16:37	05/06/10 12:11	7440-47-3	
Copper	**5.5**	ug/L	0.50	0.20	1	05/03/10 16:37	05/06/10 12:11	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/03/10 16:37	05/06/10 12:11	7440-22-4	
Zinc	**6.8**	ug/L	5.0	1.3	1	05/03/10 16:37	05/06/10 12:11	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**40.4**	ug/L	0.50	0.062	1	05/04/10 13:50	05/04/10 21:48	7440-38-2	
Chromium, Dissolved	**0.26J**	ug/L	0.50	0.24	1	05/04/10 13:50	05/04/10 21:48	7440-47-3	
Copper, Dissolved	**3.2**	ug/L	0.50	0.20	1	05/04/10 13:50	05/04/10 21:48	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 13:50	05/05/10 14:16	7440-22-4	
Zinc, Dissolved	**6.3**	ug/L	5.0	1.3	1	05/04/10 13:50	05/04/10 21:48	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	04/28/10 12:15	05/05/10 03:45	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	04/28/10 12:15	05/05/10 03:45	120-83-2	
Pentachlorophenol	**648**	ug/L	47.2	4.3	10	04/28/10 12:15	05/05/10 14:03	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	04/28/10 12:15	05/05/10 03:45	108-95-2	
2,3,4,6-Tetrachlorophenol	**10.5**	ug/L	0.94	0.45	1	04/28/10 12:15	05/05/10 03:45	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	04/28/10 12:15	05/05/10 03:45	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	04/28/10 12:15	05/05/10 03:45	88-06-2	
Nitrobenzene-d5 (S)	78	%	38-121		1	04/28/10 12:15	05/05/10 03:45	4165-60-0	
2-Fluorobiphenyl (S)	67	%	40-110		1	04/28/10 12:15	05/05/10 03:45	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	04/28/10 12:15	05/05/10 03:45	1718-51-0	
Phenol-d6 (S)	30	%	11-120		1	04/28/10 12:15	05/05/10 03:45	13127-88-3	
2-Fluorophenol (S)	46	%	20-120		1	04/28/10 12:15	05/05/10 03:45	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	04/28/10 12:15	05/05/10 03:45	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**112**	mg/L	2.0	2.0	1		05/01/10 08:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/01/10 08:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		04/30/10 10:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/28/10 23:45	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.6**	mg/L	1.0	0.076	1		04/28/10 23:45	16887-00-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253587

Sample: MW-04S-042710 **Lab ID: 253587006** Collected: 04/27/10 14:52 Received: 04/27/10 16:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**17.3**	mg/L	1.0	0.17	1		04/28/10 23:45	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.13**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.0**	mg/L	1.0	0.37	1		05/05/10 20:11	7440-44-0	TP

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: MPRP/1553 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26890 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 11:13	
Calcium	ug/L	ND	5000	05/04/10 11:13	
Iron	ug/L	13.0J	100	05/04/10 11:13	
Magnesium	ug/L	ND	5000	05/04/10 11:13	
Manganese	ug/L	ND	15.0	05/04/10 11:13	
Potassium	ug/L	ND	5000	05/04/10 11:13	
Sodium	ug/L	ND	5000	05/04/10 11:13	

LABORATORY CONTROL SAMPLE: 26891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	10000	100	80-120	
Calcium	ug/L	10000	10100	101	80-120	
Iron	ug/L	10000	10400	104	80-120	
Magnesium	ug/L	10000	9880	99	80-120	
Manganese	ug/L	500	503	101	80-120	
Potassium	ug/L	10000	10100	101	80-120	
Sodium	ug/L	10000	10400	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26991 26992

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9910	9680	99	97	75-125	2	20	
Calcium	ug/L	47500	10000	10000	57700	56800	102	93	75-125	2	20	
Iron	ug/L	11400	10000	10000	21400	21200	100	98	75-125	.8	20	
Magnesium	ug/L	11100	10000	10000	20900	20600	98	95	75-125	1	20	
Manganese	ug/L	379	500	500	868	877	98	100	75-125	1	20	
Potassium	ug/L	9780	10000	10000	20000	19700	103	99	75-125	2	20	
Sodium	ug/L	29600	10000	10000	40400	40400	109	108	75-125	.07	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: MPRP/1556 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 27069 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:03	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:03	
Manganese, Dissolved	ug/L	0.19J	15.0	05/04/10 13:03	

LABORATORY CONTROL SAMPLE: 27070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9620	96	80-120	
Iron, Dissolved	ug/L	10000	10000	100	80-120	
Manganese, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27071 27072

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9390	9670	94	97	75-125	3	20	
Iron, Dissolved	ug/L	11000	10000	10000	20300	20900	93	99	75-125	3	20	
Manganese, Dissolved	ug/L	367	500	500	840	857	95	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: ICPM/20275 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

METHOD BLANK: 783552 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/05/10 14:01	
Chromium	ug/L	ND	0.50	05/05/10 14:01	
Copper	ug/L	ND	0.50	05/05/10 14:01	
Silver	ug/L	ND	0.50	05/05/10 14:01	
Zinc	ug/L	ND	5.0	05/05/10 14:01	

LABORATORY CONTROL SAMPLE: 783553

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	78.7	98	85-115	
Chromium	ug/L	80	79.1	99	85-115	
Copper	ug/L	80	78.9	99	85-115	
Silver	ug/L	80	81.3	102	85-115	
Zinc	ug/L	80	79.2	99	85-115	

MATRIX SPIKE SAMPLE: 783556

Parameter	Units	253587003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	36.3	80	114	97	70-130	
Chromium	ug/L	0.56	80	77.7	96	70-130	
Copper	ug/L	0.56	80	78.5	97	70-130	
Silver	ug/L	ND	80	49.7	62	70-130	M0
Zinc	ug/L	5.0	80	83.2	98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784062 784063

Parameter	Units	4031026017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.26J	80	80	91.5	89.3	114	111	70-130	2	20	
Chromium	ug/L	<0.24	80	80	92.3	89.5	115	112	70-130	3	20	
Copper	ug/L	1.3	80	80	94.0	91.4	116	113	70-130	3	20	
Silver	ug/L	<0.071	80	80	92.1	84.8	115	106	70-130	8	20	
Zinc	ug/L	1.9J	80	80	95.9	90.8	117	111	70-130	6	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: ICPM/20273 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

METHOD BLANK: 783534 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/04/10 20:20	
Chromium, Dissolved	ug/L	ND	0.50	05/04/10 20:20	
Copper, Dissolved	ug/L	ND	0.50	05/04/10 20:20	
Silver, Dissolved	ug/L	ND	0.50	05/05/10 13:10	
Zinc, Dissolved	ug/L	ND	5.0	05/04/10 20:20	

LABORATORY CONTROL SAMPLE: 783535

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	70.9	89	85-115	
Chromium, Dissolved	ug/L	80	88.5	111	85-115	
Copper, Dissolved	ug/L	80	81.9	102	85-115	
Silver, Dissolved	ug/L	80	80.2	100	85-115	
Zinc, Dissolved	ug/L	80	76.4	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 783536 783537

Parameter	Units	4030943001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L		80	80	78.5	78.6	98	98	70-130	0	20	
Chromium, Dissolved	ug/L		80	80	80.5	79.5	100	99	70-130	1	20	
Copper, Dissolved	ug/L		80	80	73.8	75.5	91	93	70-130	2	20	
Silver, Dissolved	ug/L		80	80	69.1	76.0	86	95	70-130	9	20	
Zinc, Dissolved	ug/L		80	80	83.2	82.9	89	89	70-130	0	20	

MATRIX SPIKE SAMPLE: 783538

Parameter	Units	253587004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	79.1	80	162	104	70-130	
Chromium, Dissolved	ug/L	ND	80	76.3	95	70-130	
Copper, Dissolved	ug/L	ND	80	74.0	92	70-130	
Silver, Dissolved	ug/L	ND	80	61.5	77	70-130	
Zinc, Dissolved	ug/L	1.8J	80	73.9	90	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: OEXT/2140 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

METHOD BLANK: 26723 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587005, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/04/10 20:41	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/04/10 20:41	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/04/10 20:41	
2,4-Dichlorophenol	ug/L	ND	1.0	05/04/10 20:41	
2-Chlorophenol	ug/L	ND	1.0	05/04/10 20:41	
Pentachlorophenol	ug/L	ND	5.0	05/04/10 20:41	
Phenol	ug/L	ND	1.0	05/04/10 20:41	
2,4,6-Tribromophenol (S)	%	83	37-120	05/04/10 20:41	
2-Fluorobiphenyl (S)	%	67	40-110	05/04/10 20:41	
2-Fluorophenol (S)	%	53	20-120	05/04/10 20:41	
Nitrobenzene-d5 (S)	%	84	38-121	05/04/10 20:41	
Phenol-d6 (S)	%	35	11-120	05/04/10 20:41	
Terphenyl-d14 (S)	%	84	26-130	05/04/10 20:41	

LABORATORY CONTROL SAMPLE: 26724

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	100	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.4	92	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.5	92	38-130	
2,4-Dichlorophenol	ug/L	20	17.0	85	42-130	
2-Chlorophenol	ug/L	20	15.4	77	20-130	
Pentachlorophenol	ug/L	20	18.9	95	10-114	
Phenol	ug/L	20	6.0	30	10-127	
2,4,6-Tribromophenol (S)	%			87	37-120	
2-Fluorobiphenyl (S)	%			75	40-110	
2-Fluorophenol (S)	%			50	20-120	
Nitrobenzene-d5 (S)	%			79	38-121	
Phenol-d6 (S)	%			33	11-120	
Terphenyl-d14 (S)	%			85	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26726 26725

Parameter	Units	253570005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	<0.55	21.5	20.4	21.8	24.3	101	119	20-160	11	30	
2,4,5-Trichlorophenol	ug/L	<0.49	21.5	20.4	19.3	21.8	90	107	46-130	12	30	
2,4,6-Trichlorophenol	ug/L	<0.23	21.5	20.4	19.9	21.0	93	103	38-130	5	30	
2,4-Dichlorophenol	ug/L	<0.45	21.5	20.4	18.7	19.7	87	96	42-130	5	30	
2-Chlorophenol	ug/L	<0.43	21.5	20.4	18.1	17.7	84	87	20-130	2	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26726 26725

Parameter	Units	253570005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	2.0J	21.5	20.4	20.3	23.8	85	107	10-114	16	30	
Phenol	ug/L	<0.15	21.5	20.4	7.3	6.8	34	33	10-127	7	30	
2,4,6-Tribromophenol (S)	%						84	92	37-120			
2-Fluorobiphenyl (S)	%						79	87	40-110			
2-Fluorophenol (S)	%						55	53	20-120			
Nitrobenzene-d5 (S)	%						85	93	38-121			
Phenol-d6 (S)	%						38	36	11-120			
Terphenyl-d14 (S)	%						82	89	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WET/1968 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26986 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/01/10 08:00	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/01/10 08:00	

SAMPLE DUPLICATE: 26988

Parameter	Units	253587001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	264	264	0	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WET/1962 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26927 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 10:30	

SAMPLE DUPLICATE: 26928

Parameter	Units	253578001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 26929

Parameter	Units	253591003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	10000 ug/L	9.0	11	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WETA/1492 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26711 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/28/10 21:44	

LABORATORY CONTROL SAMPLE: 26712

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.4	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26713 26714

Parameter	Units	253587001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.5	2.5	100	101	90-110	1	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WETA/1494 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26747 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/28/10 21:44	
Sulfate	mg/L	ND	1.0	04/28/10 21:44	

LABORATORY CONTROL SAMPLE: 26748

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.6	92	90-110	
Sulfate	mg/L	15	14.2	95	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26749 26750

Parameter	Units	253580001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	82400 ug/L	100	100	173	180	91	97	90-110	4	11	
Sulfate	mg/L	26100 ug/L	300	300	308	330	94	101	90-110	7	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WETA/1499 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 26902 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/04/10 12:27	

LABORATORY CONTROL SAMPLE: 26903

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.26	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26904 26905

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.44	.25	.25	0.56	0.52	49	32	80-120	8	30	M1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253587

QC Batch: WETA/12816 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

METHOD BLANK: 638804 Matrix: Water
Associated Lab Samples: 253587001, 253587002, 253587003, 253587004, 253587006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/05/10 19:09	

LABORATORY CONTROL SAMPLE: 638805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	4.6	93	84-120	

MATRIX SPIKE SAMPLE: 638806

Parameter	Units	253587004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	2.2	5	7.6	109	59-144	

SAMPLE DUPLICATE: 638807

Parameter	Units	253587006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.0	3.0	2	25	

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253587

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
TP	The samples were received outside of required temperature range. Analysis was completed upon client approval.

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940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253596

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253596

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253596001	**MW-10-042810**	Water	04/28/10 08:13	04/28/10 14:15
253596002	**MW-03S-042810**	Water	04/28/10 11:58	04/28/10 14:15
253596003	**MW-13-042810**	Water	04/28/10 13:03	04/28/10 14:15

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

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Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

May 6, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 122084
Purchase Order: ERM-REICHOLD
Project Name: Water
Samples Received: Three (3) Samples
Date Received: 04/29/2010

Attn: Heidi Geri

Analysis	Page
Formaldehyde by EPA 8315 A	2

D.J. Northington, Ph.D.
Technical Director

Michael Shelton
Senior Staff Chemist

This report is to be reproduced in its entirety.

Exova

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde	Detection Limit
MW-10-042810	0.009	0.005
MW-03S-042810	0.011	0.005
MW-13-042810	ND	0.005
Method Blank	ND	0.005

Date Derivatized: 04-29-10
Date Analyzed: 04-29-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.0	0.841	84	0.786	79	7
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Method Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.826	83
QC Guideline				80-115

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 253596 **Workorder Name:** Reichold Glacier **Results Requested** 5/10/2010

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	Exova P.O._____ Attn: Jennifer Oakes

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers / Unpreserved	Requested Analysis: 8315A Formaldehyde	LAB USE ONLY
1	MW-10-042810 ∿	4/28/2010 08:13	253596001	Water	1	X	
2	MW-03S-042810 ∿	4/28/2010 11:58	253596002	Water	1	X	
3	MW-13-042810 ∿	4/28/2010 13:03	253596003	Water	1	X	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Amanda Bay	4/28/10 1555	FedEx	
2	FedEx		Vanessa M Reyes	04/29/10
3				09:35
4				
5				

Comments

MDL & J Flag required.
EDD's required.
JC 4/28/10

922084

1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services™
An Employee - Owned Company

May 20, 2010 Analytical Report for Service Request No: K1004394

Heidi Geri
Pace Analytical Services
940 South Harney
Seattle, WA 98108

RE: Reichold Glacier/253600

Dear Heidi:

Enclosed are the results of the rush samples submitted to our laboratory on May 04, 2010. For your reference, these analyses have been assigned our service request number K1004394.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

NELAP Accredited ACIL Seal of Excellence Award 100% Recycled

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Pace Analytical Services	**Service Request No.:**	K1004394
Project:	Reichold Glacier	**Date Received:**	05/04/10
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Five water samples were received for analysis at Columbia Analytical Services on 05/04/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by_____ Date 05/20/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1004394
Project:	Reichold Glacier/253600	**Date Collected:**	4/28/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-10-042810	K1004394-001	10	4	1	5/13/2010	9	J
MW-22-042810	K1004394-002	10	4	1	5/13/2010	ND	
MW-23-042810	K1004394-003	10	4	1	5/13/2010	ND	
MW-03S-042810	K1004394-004	10	4	1	5/13/2010	ND	
MW-13-042810	K1004394-005	25	10	2.5	5/13/2010	115	
Method Blank	K1004394-MB	10	4	1	5/13/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004394
Project:	Reichold Glacier/253600	**Date Collected:**	4/28/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010
		Date Extracted:	NA
		Date Analyzed:	5/13/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-10-042810	Units:	ug/L (ppb)
Lab Code:	K1004394-001MS, K1004394-001DMS	Basis:	NA
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	9 J	104	103	95	94	82-121	1	

DMS.020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold Glacier/253600
Sample Matrix: Water

Service Request: K1004394
Date Collected: NA
Date Received: NA
Date Analyzed: 5/13/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.61	9.8	93	ND
Percent Recovery	99	98	93	
Run B	3.50	9.8		
Percent Recovery	96	98		

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 253600 **Workorder Name:** Reichold Glacier **Results Requested** 5/10/2010 KD0043914

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	CAS: Kelso P.O._____ Attn: Pradeep Divvela 1317 S. 13TH AVE. Kelso, WA 98626

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCl	Requested Analysis: 8260 TDX	LAB USE ONLY
1	MW-10-042810	4/28/2010 08:13	253600001	Water	\	Y	
2	MW-22-042810	4/28/2010 04:31	253600002	Water	\	Y	
3	MW-23-042810	4/28/2010 10:50	253600003	Water	\	Y	
4	MW-03S-042810	4/28/2010 11:58	253600004	Water	\	Y	
5	MW-13-042810	4/28/2010 13:03	253600005	Water	\	Y	

Transfers	Released By	Date/Time	Received By	Date/Time
1	Chandra Purdy	4/28/10 1440	Jill CAS	4/28/10 1540
2				
3				
4				
5				

Comments

MDL & J flag report

Equis - 4 file EDD needed.

CK 4/28/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PM

Client / Project: SAIC Service Request K10 43921

Received: 5/4/10 Opened: 5/4/10 By: CG

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 F
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (NA) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID	NA	Tracking Number	NA	Filed
-0.5		257			7935 0643 9466		X

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other*_____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y (N)
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was Cl2/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:
MW-10-042810 (1/31)	MW-22-042810	FDR + piece of plan.

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 11, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253600

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253600

Minnesota Certification IDs

Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253600

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253600001	**MW-10-042810**	Water	04/28/10 08:13	04/28/10 14:15
253600002	**MW-22-042810**	Water	04/28/10 09:31	04/28/10 14:15
253600003	**MW-23-042810**	Water	04/28/10 10:50	04/28/10 14:15
253600004	**MW-03S-042810**	Water	04/28/10 11:58	04/28/10 14:15
253600005	**MW-13-042810**	Water	04/28/10 13:03	04/28/10 14:15

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940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253600

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253600001	**MW-10-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253600002	**MW-22-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253600003	**MW-23-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253600004	**MW-03S-042810**	SM 2340B	BGA	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253600

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253600005	**MW-13-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20298

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600002,9268357005

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784151)
  - Silver
- MS (Lab ID: 784152)
  - Silver
- MSD (Lab ID: 784153)
  - Silver

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: ICPM/20294

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 784131)
  - Silver, Dissolved
- MS (Lab ID: 784132)
  - Silver, Dissolved
- MS (Lab ID: 784133)
  - Silver, Dissolved
- MSD (Lab ID: 784134)
  - Silver, Dissolved
- MW-03S-042810 (Lab ID: 253600004)
  - Silver, Dissolved
- MW-10-042810 (Lab ID: 253600001)
  - Silver, Dissolved
- MW-13-042810 (Lab ID: 253600005)
  - Silver, Dissolved
- MW-22-042810 (Lab ID: 253600002)
  - Silver, Dissolved
- MW-23-042810 (Lab ID: 253600003)
  - Silver, Dissolved

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 11, 2010

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1495

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 26830)
  - Nitrate as N

R1: RPD value was outside control limits.

- MSD (Lab ID: 26831)
  - Nitrate as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1496

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 26834)
  - Chloride

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1499

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 26904)
  - Phosphorus
- MSD (Lab ID: 26905)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253600

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
5 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/12843

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 640065)
  - Total Organic Carbon

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-10-042810 **Lab ID: 253600001** Collected: 04/28/10 08:13 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**148**	mg/L	1.0		1		05/04/10 11:48		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:48	7429-90-5	
Calcium	**56600**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:48	7440-70-2	
Iron	**470**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:48	7439-89-6	
Magnesium	**1630J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:48	7439-95-4	
Manganese	**38.1**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:48	7439-96-5	
Potassium	**2240J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:48	7440-09-7	
Sodium	**6340**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:48	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:30	7429-90-5	
Iron, Dissolved	**428**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:30	7439-89-6	
Manganese, Dissolved	**35.8**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:30	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**9.3**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 17:33	7440-38-2	
Chromium	**0.38J**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 17:33	7440-47-3	
Copper	**0.97**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 17:33	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 17:33	7440-22-4	
Zinc	**3.9J**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 17:33	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**9.1**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:20	7440-38-2	
Chromium, Dissolved	**0.57**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:20	7440-47-3	
Copper, Dissolved	**0.44J**	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:20	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:20	7440-22-4	CH
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:20	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/03/10 16:20	05/05/10 04:52	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/03/10 16:20	05/05/10 04:52	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/03/10 16:20	05/05/10 04:52	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	05/03/10 16:20	05/05/10 04:52	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/03/10 16:20	05/05/10 04:52	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/03/10 16:20	05/05/10 04:52	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/03/10 16:20	05/05/10 04:52	88-06-2	
Nitrobenzene-d5 (S)	82	%	38-121		1	05/03/10 16:20	05/05/10 04:52	4165-60-0	
2-Fluorobiphenyl (S)	71	%	40-110		1	05/03/10 16:20	05/05/10 04:52	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	05/03/10 16:20	05/05/10 04:52	1718-51-0	
Phenol-d6 (S)	32	%	11-120		1	05/03/10 16:20	05/05/10 04:52	13127-88-3	
2-Fluorophenol (S)	48	%	20-120		1	05/03/10 16:20	05/05/10 04:52	367-12-4	
2,4,6-Tribromophenol (S)	86	%	37-120		1	05/03/10 16:20	05/05/10 04:52	118-79-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-10-042810 **Lab ID: 253600001** Collected: 04/28/10 08:13 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**144**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 16:38	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.3**	mg/L	1.0	0.076	1		04/29/10 16:38	16887-00-6	
Sulfate	**23.6**	mg/L	10.0	1.7	10		04/29/10 20:22	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.035**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.6**	mg/L	1.0	0.37	1		05/08/10 15:18	7440-44-0	

Sample: MW-22-042810 **Lab ID: 253600002** Collected: 04/28/10 09:31 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**164**	mg/L	1.0		1		05/04/10 11:50		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:50	7429-90-5	
Calcium	**47500**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:50	7440-70-2	
Iron	**11400**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:50	7439-89-6	
Magnesium	**11100**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:50	7439-95-4	
Manganese	**379**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:50	7439-96-5	
Potassium	**9780**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:50	7440-09-7	
Sodium	**29600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:50	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:59	7429-90-5	
Iron, Dissolved	**11000**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:59	7439-89-6	
Manganese, Dissolved	**367**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:59	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**10.6**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 17:45	7440-38-2	
Chromium	**0.28J**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 17:45	7440-47-3	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-22-042810 **Lab ID: 253600002** Collected: 04/28/10 09:31 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Copper	**0.29J**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 17:45	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 17:45	7440-22-4	M0
Zinc	**2.8J**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 17:45	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**10.6**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:45	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:45	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:45	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:45	7440-22-4	CH
Zinc, Dissolved	**2.2J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:45	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/03/10 16:20	05/05/10 05:14	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/03/10 16:20	05/05/10 05:14	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/03/10 16:20	05/05/10 05:14	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	05/03/10 16:20	05/05/10 05:14	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/03/10 16:20	05/05/10 05:14	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/03/10 16:20	05/05/10 05:14	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/03/10 16:20	05/05/10 05:14	88-06-2	
Nitrobenzene-d5 (S)	68	%	38-121		1	05/03/10 16:20	05/05/10 05:14	4165-60-0	
2-Fluorobiphenyl (S)	61	%	40-110		1	05/03/10 16:20	05/05/10 05:14	321-60-8	
Terphenyl-d14 (S)	77	%	26-130		1	05/03/10 16:20	05/05/10 05:14	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 05:14	13127-88-3	
2-Fluorophenol (S)	42	%	20-120		1	05/03/10 16:20	05/05/10 05:14	367-12-4	
2,4,6-Tribromophenol (S)	80	%	37-120		1	05/03/10 16:20	05/05/10 05:14	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**204**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**18.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 17:29	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.8**	mg/L	1.0	0.076	1		04/29/10 17:29	16887-00-6	
Sulfate	**48.9**	mg/L	10.0	1.7	10		04/29/10 21:14	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.44**	mg/L	0.020	0.0056	2		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.8**	mg/L	1.0	0.37	1		05/08/10 15:34	7440-44-0	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-23-042810 **Lab ID: 253600003** Collected: 04/28/10 10:50 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**294**	mg/L	1.0		1		05/04/10 11:58		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**268J**	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 11:58	7429-90-5	
Calcium	**68800**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 11:58	7440-70-2	
Iron	**21700**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 11:58	7439-89-6	
Magnesium	**29600**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 11:58	7439-95-4	
Manganese	**550**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 11:58	7439-96-5	
Potassium	**13500**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 11:58	7440-09-7	
Sodium	**33400**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 11:58	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:40	7429-90-5	
Iron, Dissolved	**20200**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:40	7439-89-6	
Manganese, Dissolved	**524**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:40	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3.5**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 17:37	7440-38-2	
Chromium	**0.40J**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 17:37	7440-47-3	
Copper	**0.28J**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 17:37	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 17:37	7440-22-4	
Zinc	**3.1J**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 17:37	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3.2**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:24	7440-38-2	
Chromium, Dissolved	**0.27J**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:24	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:24	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:24	7440-22-4	CH
Zinc, Dissolved	**2.3J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:24	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 06:20	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 06:20	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 06:20	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 06:20	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 06:20	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 06:20	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 06:20	88-06-2	
Nitrobenzene-d5 (S)	84	%	38-121		1	05/03/10 16:20	05/05/10 06:20	4165-60-0	
2-Fluorobiphenyl (S)	72	%	40-110		1	05/03/10 16:20	05/05/10 06:20	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	05/03/10 16:20	05/05/10 06:20	1718-51-0	
Phenol-d6 (S)	33	%	11-120		1	05/03/10 16:20	05/05/10 06:20	13127-88-3	
2-Fluorophenol (S)	50	%	20-120		1	05/03/10 16:20	05/05/10 06:20	367-12-4	
2,4,6-Tribromophenol (S)	86	%	37-120		1	05/03/10 16:20	05/05/10 06:20	118-79-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-23-042810 **Lab ID: 253600003** Collected: 04/28/10 10:50 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**340**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**19.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 17:47	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.2**	mg/L	1.0	0.076	1		04/29/10 17:47	16887-00-6	
Sulfate	**50.4**	mg/L	10.0	1.7	10		04/29/10 21:31	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.30**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**6.2**	mg/L	1.0	0.37	1		05/08/10 15:42	7440-44-0	

Sample: MW-03S-042810 **Lab ID: 253600004** Collected: 04/28/10 11:58 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**82.1**	mg/L	1.0		1		05/04/10 12:01		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:01	7429-90-5	
Calcium	**21700**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:01	7440-70-2	
Iron	**15500**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:01	7439-89-6	
Magnesium	**6780**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:01	7439-95-4	
Manganese	**244**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:01	7439-96-5	
Potassium	**7760**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:01	7440-09-7	
Sodium	**19200**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:01	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:43	7429-90-5	
Iron, Dissolved	**14900**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:43	7439-89-6	
Manganese, Dissolved	**240**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:43	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**445**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 17:41	7440-38-2	
Chromium	**0.64**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 17:41	7440-47-3	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-03S-042810 **Lab ID: 253600004** Collected: 04/28/10 11:58 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Copper	**2.0**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 17:41	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 17:41	7440-22-4	
Zinc	**2.9J**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 17:41	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**442**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:29	7440-38-2	
Chromium, Dissolved	**0.62**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:29	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:29	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:29	7440-22-4	CH
Zinc, Dissolved	**3.1J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:29	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 07:42	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 07:42	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 07:42	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 07:42	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 07:42	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 07:42	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 07:42	88-06-2	
Nitrobenzene-d5 (S)	72	%	38-121		1	05/03/10 16:20	05/05/10 07:42	4165-60-0	
2-Fluorobiphenyl (S)	62	%	40-110		1	05/03/10 16:20	05/05/10 07:42	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	05/03/10 16:20	05/05/10 07:42	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 07:42	13127-88-3	
2-Fluorophenol (S)	40	%	20-120		1	05/03/10 16:20	05/05/10 07:42	367-12-4	
2,4,6-Tribromophenol (S)	86	%	37-120		1	05/03/10 16:20	05/05/10 07:42	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**142**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**33.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 18:04	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.7**	mg/L	1.0	0.076	1		04/29/10 18:04	16887-00-6	
Sulfate	ND	mg/L	1.0	0.17	1		04/29/10 18:04	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.90**	mg/L	0.050	0.014	5		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.3**	mg/L	1.0	0.37	1		05/08/10 16:02	7440-44-0	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-13-042810 **Lab ID: 253600005** Collected: 04/28/10 13:03 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**392**	mg/L	1.0		1		05/04/10 12:04		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:04	7429-90-5	
Calcium	**146000**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:04	7440-70-2	
Iron	**857**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:04	7439-89-6	
Magnesium	**6470**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:04	7439-95-4	
Manganese	**217**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:04	7439-96-5	
Potassium	**3820J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:04	7440-09-7	
Sodium	**17800**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:04	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 13:46	7429-90-5	
Iron, Dissolved	**803**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 13:46	7439-89-6	
Manganese, Dissolved	**211**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 13:46	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**197**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 08:46	7440-38-2	
Chromium	**2.9**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 08:46	7440-47-3	
Copper	**48.7**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 08:46	7440-50-8	
Silver	**0.39J**	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 08:46	7440-22-4	
Zinc	**110**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 08:46	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**218**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 07:01	7440-38-2	
Chromium, Dissolved	**2.8**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 07:01	7440-47-3	
Copper, Dissolved	**11.1**	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 07:01	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 07:01	7440-22-4	CH
Zinc, Dissolved	**113**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 07:01	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 08:04	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 08:04	120-83-2	
Pentachlorophenol	**88.6**	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 08:04	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 08:04	108-95-2	
2,3,4,6-Tetrachlorophenol	**2.7J**	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 08:04	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 08:04	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 08:04	88-06-2	
Nitrobenzene-d5 (S)	70	%	38-121		1	05/03/10 16:20	05/05/10 08:04	4165-60-0	
2-Fluorobiphenyl (S)	62	%	40-110		1	05/03/10 16:20	05/05/10 08:04	321-60-8	
Terphenyl-d14 (S)	76	%	26-130		1	05/03/10 16:20	05/05/10 08:04	1718-51-0	
Phenol-d6 (S)	28	%	11-120		1	05/03/10 16:20	05/05/10 08:04	13127-88-3	
2-Fluorophenol (S)	41	%	20-120		1	05/03/10 16:20	05/05/10 08:04	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/03/10 16:20	05/05/10 08:04	118-79-6	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253600

Sample: MW-13-042810 **Lab ID: 253600005** Collected: 04/28/10 13:03 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**416**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**5.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 18:21	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.8**	mg/L	1.0	0.076	1		04/29/10 18:21	16887-00-6	
Sulfate	**41.5**	mg/L	20.0	3.4	20		04/29/10 22:05	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.27**	mg/L	0.010	0.0028	1		05/04/10 12:27	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**13.9**	mg/L	2.0	0.74	1		05/09/10 17:05	7440-44-0	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: MPRP/1553 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 26890 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 11:13	
Calcium	ug/L	ND	5000	05/04/10 11:13	
Iron	ug/L	13.0J	100	05/04/10 11:13	
Magnesium	ug/L	ND	5000	05/04/10 11:13	
Manganese	ug/L	ND	15.0	05/04/10 11:13	
Potassium	ug/L	ND	5000	05/04/10 11:13	
Sodium	ug/L	ND	5000	05/04/10 11:13	

LABORATORY CONTROL SAMPLE: 26891

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	10000	100	80-120	
Calcium	ug/L	10000	10100	101	80-120	
Iron	ug/L	10000	10400	104	80-120	
Magnesium	ug/L	10000	9880	99	80-120	
Manganese	ug/L	500	503	101	80-120	
Potassium	ug/L	10000	10100	101	80-120	
Sodium	ug/L	10000	10400	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26991 26992

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9910	9680	99	97	75-125	2	20	
Calcium	ug/L	47500	10000	10000	57700	56800	102	93	75-125	2	20	
Iron	ug/L	11400	10000	10000	21400	21200	100	98	75-125	.8	20	
Magnesium	ug/L	11100	10000	10000	20900	20600	98	95	75-125	1	20	
Manganese	ug/L	379	500	500	868	877	98	100	75-125	1	20	
Potassium	ug/L	9780	10000	10000	20000	19700	103	99	75-125	2	20	
Sodium	ug/L	29600	10000	10000	40400	40400	109	108	75-125	.07	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: MPRP/1556 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 27069 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:03	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:03	
Manganese, Dissolved	ug/L	0.19J	15.0	05/04/10 13:03	

LABORATORY CONTROL SAMPLE: 27070

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9620	96	80-120	
Iron, Dissolved	ug/L	10000	10000	100	80-120	
Manganese, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27071 27072

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9390	9670	94	97	75-125	3	20	
Iron, Dissolved	ug/L	11000	10000	10000	20300	20900	93	99	75-125	3	20	
Manganese, Dissolved	ug/L	367	500	500	840	857	95	98	75-125	2	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: ICPM/20298 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 784149 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/08/10 15:34	
Chromium	ug/L	ND	0.50	05/08/10 15:34	
Copper	ug/L	ND	0.50	05/08/10 15:34	
Silver	ug/L	ND	0.50	05/08/10 15:34	
Zinc	ug/L	1.4J	5.0	05/08/10 15:34	

LABORATORY CONTROL SAMPLE: 784150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	76.6	96	85-115	
Chromium	ug/L	80	75.9	95	85-115	
Copper	ug/L	80	78.8	98	85-115	
Silver	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	76.2	95	85-115	

MATRIX SPIKE SAMPLE: 784151

Parameter	Units	9268357005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.12J	80	79.1	99	70-130	
Chromium	ug/L	1.1	80	78.5	97	70-130	
Copper	ug/L	3.1	80	82.7	99	70-130	
Silver	ug/L	ND	80	25.3	32	70-130	M0
Zinc	ug/L	5.8	80	83.0	96	70-130	

MATRIX SPIKE SAMPLE: 784152

Parameter	Units	253600002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	10.6	80	87.0	96	70-130	
Chromium	ug/L	0.28J	80	75.4	94	70-130	
Copper	ug/L	0.29J	80	76.6	95	70-130	
Silver	ug/L	ND	80	29.4	37	70-130	M0
Zinc	ug/L	2.8J	80	77.4	93	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: ICPM/20294 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 784130 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Chromium, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Copper, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Silver, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Zinc, Dissolved	ug/L	ND	5.0	05/07/10 11:50	

LABORATORY CONTROL SAMPLE: 784131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	74.9	94	85-115	
Chromium, Dissolved	ug/L	80	76.4	95	85-115	
Copper, Dissolved	ug/L	80	76.4	95	85-115	
Silver, Dissolved	ug/L	80	90.6	113	85-115	CH
Zinc, Dissolved	ug/L	80	76.5	96	85-115	

MATRIX SPIKE SAMPLE: 784132

Parameter	Units	253591001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	80	76.3	95	70-130	
Chromium, Dissolved	ug/L	<0.24	80	78.4	98	70-130	
Copper, Dissolved	ug/L	2.0	80	80.9	99	70-130	
Silver, Dissolved	ug/L	0.17J	80	94.2	117	70-130	CH
Zinc, Dissolved	ug/L	134	80	219	107	70-130	

MATRIX SPIKE SAMPLE: 784133

Parameter	Units	253600002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	10.6	80	89.2	98	70-130	
Chromium, Dissolved	ug/L	ND	80	78.5	98	70-130	
Copper, Dissolved	ug/L	ND	80	77.1	96	70-130	
Silver, Dissolved	ug/L	ND	80	91.8	115	70-130	CH
Zinc, Dissolved	ug/L	2.2J	80	81.2	99	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: OEXT/2153 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 27099 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4-Dichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2-Chlorophenol	ug/L	ND	1.0	05/05/10 04:07	
Pentachlorophenol	ug/L	ND	5.0	05/05/10 04:07	
Phenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Tribromophenol (S)	%	87	37-120	05/05/10 04:07	
2-Fluorobiphenyl (S)	%	89	40-110	05/05/10 04:07	
2-Fluorophenol (S)	%	92	20-120	05/05/10 04:07	
Nitrobenzene-d5 (S)	%	93	38-121	05/05/10 04:07	
Phenol-d6 (S)	%	94	11-120	05/05/10 04:07	
Terphenyl-d14 (S)	%	84	26-130	05/05/10 04:07	

LABORATORY CONTROL SAMPLE: 27100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	99	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.2	91	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.0	90	38-130	
2,4-Dichlorophenol	ug/L	20	17.5	88	42-130	
2-Chlorophenol	ug/L	20	16.6	83	20-130	
Pentachlorophenol	ug/L	20	18.8	94	10-114	
Phenol	ug/L	20	7.0	35	10-127	
2,4,6-Tribromophenol (S)	%			83	37-120	
2-Fluorobiphenyl (S)	%			72	40-110	
2-Fluorophenol (S)	%			57	20-120	
Nitrobenzene-d5 (S)	%			85	38-121	
Phenol-d6 (S)	%			39	11-120	
Terphenyl-d14 (S)	%			78	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	18.9	19	19.0	19.7	101	104	20-160	3	30	
2,4,5-Trichlorophenol	ug/L	ND	18.9	19	16.8	16.8	89	89	46-130	.3	30	
2,4,6-Trichlorophenol	ug/L	ND	18.9	19	17.0	16.6	90	88	38-130	2	30	
2,4-Dichlorophenol	ug/L	ND	18.9	19	15.9	14.1	84	75	42-130	11	30	
2-Chlorophenol	ug/L	ND	18.9	19	14.5	13.1	77	69	20-130	10	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	18.9	19	18.0	18.7	96	99	10-114	4	30	
Phenol	ug/L	ND	18.9	19	5.3	4.9	28	26	10-127	8	30	
2,4,6-Tribromophenol (S)	%						86	87	37-120			
2-Fluorobiphenyl (S)	%						77	70	40-110			
2-Fluorophenol (S)	%						48	43	20-120			
Nitrobenzene-d5 (S)	%						82	73	38-121			
Phenol-d6 (S)	%						31	28	11-120			
Terphenyl-d14 (S)	%						79	81	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WET/1970 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 27065 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/03/10 12:25	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/03/10 12:25	

SAMPLE DUPLICATE: 27067

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	204	202	1	10	

SAMPLE DUPLICATE: 27068

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	226	232	3	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WET/1966 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 26980 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WETA/1495 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 26828 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26830 26831

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.2	2.5	88	99	90-110	12	10	M1,R1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WETA/1496 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 26832 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/29/10 16:06	
Sulfate	mg/L	ND	1.0	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	15	15.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26834 26835

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.3	5	5	6.6	7.1	86	96	90-110	8	11	M0
Sulfate	mg/L	23.6	150	150	176	175	102	101	90-110	.9	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WETA/1499 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 26902 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/04/10 12:27	

LABORATORY CONTROL SAMPLE: 26903

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.26	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26904 26905

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.44	.25	.25	0.56	0.52	49	32	80-120	8	30	M1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253600

QC Batch: WETA/12843 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

METHOD BLANK: 640063 Matrix: Water
Associated Lab Samples: 253600001, 253600002, 253600003, 253600004, 253600005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/08/10 15:04	

LABORATORY CONTROL SAMPLE: 640064

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.1	101	84-120	

MATRIX SPIKE SAMPLE: 640065

Parameter	Units	253600001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	3.6	5	11.1	149	59-144	M0

SAMPLE DUPLICATE: 640066

Parameter	Units	253600005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	13.9	13.8	1	25	

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253600

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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May 11, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253602

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253602

Minnesota Certification IDs

North Carolina Certification #: 530
Arizona Certification #: AZ-0014
California Certification #: 01155CA
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
Alaska Certification #: UST-078
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229
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SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253602

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253602001	**MW-01D-042710**	Water	04/27/10 17:41	04/28/10 14:15
253602002	**MW-02D-042710**	Water	04/27/10 16:32	04/28/10 14:15

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253602

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253602001	**MW-01D-042710**	EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2540D	KMT	1	PASI-S
253602002	**MW-02D-042710**	EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2540D	KMT	1	PASI-S

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253602

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20298

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600002,9268357005

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784151)
  - Silver
- MS (Lab ID: 784152)
  - Silver
- MSD (Lab ID: 784153)
  - Silver

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: ICPM/20298

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW-01D-042710 (Lab ID: 253602001)
  - Silver

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253602

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 11, 2010

Analyte Comments:

QC Batch: ICPM/20298

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MW-01D-042710 (Lab ID: 253602001)
  - Zinc

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253602

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: ICPM/20294

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 784131)
  - Silver, Dissolved
- MS (Lab ID: 784132)
  - Silver, Dissolved
- MS (Lab ID: 784133)
  - Silver, Dissolved
- MSD (Lab ID: 784134)
  - Silver, Dissolved
- MW-01D-042710 (Lab ID: 253602001)
  - Silver, Dissolved
- MW-02D-042710 (Lab ID: 253602002)
  - Silver, Dissolved

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253602

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
2 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253602

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 11, 2010

General Information:
2 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253602

Sample: MW-01D-042710 **Lab ID: 253602001** Collected: 04/27/10 17:41 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**11.5**	ug/L	2.5	0.31	5	05/07/10 20:19	05/08/10 17:21	7440-38-2	
Chromium	**35.2**	ug/L	2.5	1.2	5	05/07/10 20:19	05/08/10 17:21	7440-47-3	
Copper	**17.1**	ug/L	2.5	1.0	5	05/07/10 20:19	05/08/10 17:21	7440-50-8	
Silver	ND	ug/L	2.5	0.36	5	05/07/10 20:19	05/08/10 17:21	7440-22-4	D3
Zinc	**9.1J**	ug/L	25.0	6.4	5	05/07/10 20:19	05/08/10 17:21	7440-66-6	B,D3
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**9.8**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:08	7440-38-2	
Chromium, Dissolved	**27.0**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:08	7440-47-3	
Copper, Dissolved	**5.3**	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:08	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:08	7440-22-4	CH
Zinc, Dissolved	**3.5J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:08	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 08:26	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 08:26	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 08:26	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 08:26	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 08:26	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 08:26	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 08:26	88-06-2	
Nitrobenzene-d5 (S)	58	%	38-121		1	05/03/10 16:20	05/05/10 08:26	4165-60-0	
2-Fluorobiphenyl (S)	49	%	40-110		1	05/03/10 16:20	05/05/10 08:26	321-60-8	
Terphenyl-d14 (S)	59	%	26-130		1	05/03/10 16:20	05/05/10 08:26	1718-51-0	
Phenol-d6 (S)	24	%	11-120		1	05/03/10 16:20	05/05/10 08:26	13127-88-3	
2-Fluorophenol (S)	33	%	20-120		1	05/03/10 16:20	05/05/10 08:26	367-12-4	
2,4,6-Tribromophenol (S)	73	%	37-120		1	05/03/10 16:20	05/05/10 08:26	118-79-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**6.0**	mg/L	2.0	2.0	1		04/30/10 16:15		

Sample: MW-02D-042710 **Lab ID: 253602002** Collected: 04/27/10 16:32 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**20.5**	ug/L	0.50	0.062	1	05/07/10 20:19	05/08/10 17:25	7440-38-2	
Chromium	**6.6**	ug/L	0.50	0.24	1	05/07/10 20:19	05/08/10 17:25	7440-47-3	
Copper	**1.3**	ug/L	0.50	0.20	1	05/07/10 20:19	05/08/10 17:25	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/07/10 20:19	05/08/10 17:25	7440-22-4	
Zinc	**4.0J**	ug/L	5.0	1.3	1	05/07/10 20:19	05/08/10 17:25	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**21.4**	ug/L	0.50	0.062	1	05/06/10 14:31	05/07/10 06:16	7440-38-2	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253602

Sample: MW-02D-042710 **Lab ID: 253602002** Collected: 04/27/10 16:32 Received: 04/28/10 14:15 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Chromium, Dissolved	**5.5**	ug/L	0.50	0.24	1	05/06/10 14:31	05/07/10 06:16	7440-47-3	
Copper, Dissolved	**0.25J**	ug/L	0.50	0.20	1	05/06/10 14:31	05/07/10 06:16	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/06/10 14:31	05/07/10 06:16	7440-22-4	CH
Zinc, Dissolved	**2.8J**	ug/L	5.0	1.3	1	05/06/10 14:31	05/07/10 06:16	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/03/10 16:20	05/05/10 08:49	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/03/10 16:20	05/05/10 08:49	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/03/10 16:20	05/05/10 08:49	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	05/03/10 16:20	05/05/10 08:49	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/03/10 16:20	05/05/10 08:49	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/03/10 16:20	05/05/10 08:49	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/03/10 16:20	05/05/10 08:49	88-06-2	
Nitrobenzene-d5 (S)	82	%	38-121		1	05/03/10 16:20	05/05/10 08:49	4165-60-0	
2-Fluorobiphenyl (S)	70	%	40-110		1	05/03/10 16:20	05/05/10 08:49	321-60-8	
Terphenyl-d14 (S)	73	%	26-130		1	05/03/10 16:20	05/05/10 08:49	1718-51-0	
Phenol-d6 (S)	33	%	11-120		1	05/03/10 16:20	05/05/10 08:49	13127-88-3	
2-Fluorophenol (S)	49	%	20-120		1	05/03/10 16:20	05/05/10 08:49	367-12-4	
2,4,6-Tribromophenol (S)	80	%	37-120		1	05/03/10 16:20	05/05/10 08:49	118-79-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	2.0	1		04/30/10 16:15		

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253602

QC Batch: ICPM/20298 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253602001, 253602002

METHOD BLANK: 784149 Matrix: Water
Associated Lab Samples: 253602001, 253602002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/08/10 15:34	
Chromium	ug/L	ND	0.50	05/08/10 15:34	
Copper	ug/L	ND	0.50	05/08/10 15:34	
Silver	ug/L	ND	0.50	05/08/10 15:34	
Zinc	ug/L	1.4J	5.0	05/08/10 15:34	

LABORATORY CONTROL SAMPLE: 784150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	76.6	96	85-115	
Chromium	ug/L	80	75.9	95	85-115	
Copper	ug/L	80	78.8	98	85-115	
Silver	ug/L	80	82.4	103	85-115	
Zinc	ug/L	80	76.2	95	85-115	

MATRIX SPIKE SAMPLE: 784151

Parameter	Units	9268357005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.12J	80	79.1	99	70-130	
Chromium	ug/L	1.1	80	78.5	97	70-130	
Copper	ug/L	3.1	80	82.7	99	70-130	
Silver	ug/L	ND	80	25.3	32	70-130	M0
Zinc	ug/L	5.8	80	83.0	96	70-130	

MATRIX SPIKE SAMPLE: 784152

Parameter	Units	253600002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	10.6	80	87.0	96	70-130	
Chromium	ug/L	0.28J	80	75.4	94	70-130	
Copper	ug/L	0.29J	80	76.6	95	70-130	
Silver	ug/L	ND	80	29.4	37	70-130	M0
Zinc	ug/L	2.8J	80	77.4	93	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253602

QC Batch: ICPM/20294 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253602001, 253602002

METHOD BLANK: 784130 Matrix: Water
Associated Lab Samples: 253602001, 253602002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Chromium, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Copper, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Silver, Dissolved	ug/L	ND	0.50	05/07/10 11:50	
Zinc, Dissolved	ug/L	ND	5.0	05/07/10 11:50	

LABORATORY CONTROL SAMPLE: 784131

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	74.9	94	85-115	
Chromium, Dissolved	ug/L	80	76.4	95	85-115	
Copper, Dissolved	ug/L	80	76.4	95	85-115	
Silver, Dissolved	ug/L	80	90.6	113	85-115	CH
Zinc, Dissolved	ug/L	80	76.5	96	85-115	

MATRIX SPIKE SAMPLE: 784132

Parameter	Units	253591001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	<0.062	80	76.3	95	70-130	
Chromium, Dissolved	ug/L	<0.24	80	78.4	98	70-130	
Copper, Dissolved	ug/L	2.0	80	80.9	99	70-130	
Silver, Dissolved	ug/L	0.17J	80	94.2	117	70-130	CH
Zinc, Dissolved	ug/L	134	80	219	107	70-130	

MATRIX SPIKE SAMPLE: 784133

Parameter	Units	253600002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	10.6	80	89.2	98	70-130	
Chromium, Dissolved	ug/L	ND	80	78.5	98	70-130	
Copper, Dissolved	ug/L	ND	80	77.1	96	70-130	
Silver, Dissolved	ug/L	ND	80	91.8	115	70-130	CH
Zinc, Dissolved	ug/L	2.2J	80	81.2	99	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253602

QC Batch: OEXT/2153 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253602001, 253602002

METHOD BLANK: 27099 Matrix: Water
Associated Lab Samples: 253602001, 253602002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4-Dichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2-Chlorophenol	ug/L	ND	1.0	05/05/10 04:07	
Pentachlorophenol	ug/L	ND	5.0	05/05/10 04:07	
Phenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Tribromophenol (S)	%	87	37-120	05/05/10 04:07	
2-Fluorobiphenyl (S)	%	89	40-110	05/05/10 04:07	
2-Fluorophenol (S)	%	92	20-120	05/05/10 04:07	
Nitrobenzene-d5 (S)	%	93	38-121	05/05/10 04:07	
Phenol-d6 (S)	%	94	11-120	05/05/10 04:07	
Terphenyl-d14 (S)	%	84	26-130	05/05/10 04:07	

LABORATORY CONTROL SAMPLE: 27100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	99	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.2	91	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.0	90	38-130	
2,4-Dichlorophenol	ug/L	20	17.5	88	42-130	
2-Chlorophenol	ug/L	20	16.6	83	20-130	
Pentachlorophenol	ug/L	20	18.8	94	10-114	
Phenol	ug/L	20	7.0	35	10-127	
2,4,6-Tribromophenol (S)	%			83	37-120	
2-Fluorobiphenyl (S)	%			72	40-110	
2-Fluorophenol (S)	%			57	20-120	
Nitrobenzene-d5 (S)	%			85	38-121	
Phenol-d6 (S)	%			39	11-120	
Terphenyl-d14 (S)	%			78	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	18.9	19	19.0	19.7	101	104	20-160	3	30	
2,4,5-Trichlorophenol	ug/L	ND	18.9	19	16.8	16.8	89	89	46-130	.3	30	
2,4,6-Trichlorophenol	ug/L	ND	18.9	19	17.0	16.6	90	88	38-130	2	30	
2,4-Dichlorophenol	ug/L	ND	18.9	19	15.9	14.1	84	75	42-130	11	30	
2-Chlorophenol	ug/L	ND	18.9	19	14.5	13.1	77	69	20-130	10	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253602

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	18.9	19	18.0	18.7	96	99	10-114	4	30	
Phenol	ug/L	ND	18.9	19	5.3	4.9	28	26	10-127	8	30	
2,4,6-Tribromophenol (S)	%						86	87	37-120			
2-Fluorobiphenyl (S)	%						77	70	40-110			
2-Fluorophenol (S)	%						48	43	20-120			
Nitrobenzene-d5 (S)	%						82	73	38-121			
Phenol-d6 (S)	%						31	28	11-120			
Terphenyl-d14 (S)	%						79	81	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253602

QC Batch: WET/1966 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253602001, 253602002

METHOD BLANK: 26980 Matrix: Water
Associated Lab Samples: 253602001, 253602002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253602

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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May 12, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253606

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Regina Ste. Marie

Regina SteMarie for
Heidi Geri
heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253606

Minnesota Certification IDs

North Carolina Certification #: 530
Arizona Certification #: AZ-0014
California Certification #: 01155CA
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
Alaska Certification #: UST-078
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
Louisiana Certification #: LA080009

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229
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SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253606

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253606001	**MW-03D-042810**	Water	04/28/10 17:43	04/29/10 08:38

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253606

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253606001	**MW-03D-042810**	EPA 6020	RJS	5	PASI-M
		EPA 6020	RJS	5	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2540D	KMT	1	PASI-S

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253606

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
1 sample was analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20297

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10127531002,253606001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784146)
  - Antimony
  - Arsenic
  - Tin
  - Vanadium
- MS (Lab ID: 784148)
  - Silver
- MSD (Lab ID: 784147)
  - Antimony
  - Arsenic
  - Chromium
  - Selenium
  - Tin
  - Vanadium

R1: RPD value was outside control limits.

- MSD (Lab ID: 784147)
  - Antimony

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253606

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 12, 2010

QC Batch: ICPM/20297

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10127531002,253606001

R1: RPD value was outside control limits.

- Arsenic
- Chromium
- Selenium
- Tin
- Vanadium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253606

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
1 sample was analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20274

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 4030705007,6077858001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 783541)
  - Silver, Dissolved
- MS (Lab ID: 783543)
  - Silver, Dissolved
- MSD (Lab ID: 783542)
  - Silver, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253606

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
1 sample was analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253606

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 12, 2010

General Information:
1 sample was analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253606

Sample: MW-03D-042810 **Lab ID: 253606001** Collected: 04/28/10 17:43 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**31.1**	ug/L	0.50	0.062	1	05/06/10 13:48	05/10/10 19:56	7440-38-2	
Chromium	**3.7**	ug/L	0.50	0.24	1	05/06/10 13:48	05/10/10 19:56	7440-47-3	
Copper	ND	ug/L	0.50	0.20	1	05/06/10 13:48	05/10/10 19:56	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	05/06/10 13:48	05/10/10 19:56	7440-22-4	M0
Zinc	**4.7J**	ug/L	5.0	1.3	1	05/06/10 13:48	05/10/10 19:56	7440-66-6	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**31.1**	ug/L	0.50	0.062	1	05/04/10 16:40	05/06/10 03:48	7440-38-2	
Chromium, Dissolved	**3.3**	ug/L	0.50	0.24	1	05/04/10 16:40	05/06/10 03:48	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	05/04/10 16:40	05/06/10 03:48	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	05/04/10 16:40	05/06/10 03:48	7440-22-4	
Zinc, Dissolved	**3.0J**	ug/L	5.0	1.3	1	05/04/10 16:40	05/06/10 03:48	7440-66-6	B
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.98	0.37	1	05/03/10 16:20	05/05/10 09:11	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.98	0.39	1	05/03/10 16:20	05/05/10 09:11	120-83-2	
Pentachlorophenol	ND	ug/L	4.9	0.45	1	05/03/10 16:20	05/05/10 09:11	87-86-5	
Phenol	ND	ug/L	0.98	0.13	1	05/03/10 16:20	05/05/10 09:11	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.98	0.47	1	05/03/10 16:20	05/05/10 09:11	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.98	0.42	1	05/03/10 16:20	05/05/10 09:11	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.98	0.20	1	05/03/10 16:20	05/05/10 09:11	88-06-2	
Nitrobenzene-d5 (S)	63	%	38-121		1	05/03/10 16:20	05/05/10 09:11	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	05/03/10 16:20	05/05/10 09:11	321-60-8	
Terphenyl-d14 (S)	77	%	26-130		1	05/03/10 16:20	05/05/10 09:11	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 09:11	13127-88-3	
2-Fluorophenol (S)	39	%	20-120		1	05/03/10 16:20	05/05/10 09:11	367-12-4	
2,4,6-Tribromophenol (S)	84	%	37-120		1	05/03/10 16:20	05/05/10 09:11	118-79-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		04/30/10 16:15		

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253606

QC Batch: ICPM/20297 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253606001

METHOD BLANK: 784144 Matrix: Water
Associated Lab Samples: 253606001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/10/10 18:13	
Chromium	ug/L	ND	0.50	05/10/10 18:13	
Copper	ug/L	ND	0.50	05/10/10 18:13	
Silver	ug/L	ND	0.50	05/10/10 18:13	
Zinc	ug/L	1.4J	5.0	05/10/10 18:13	

LABORATORY CONTROL SAMPLE: 784145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	
Chromium	ug/L	80	79.6	99	85-115	
Copper	ug/L	80	81.0	101	85-115	
Silver	ug/L	80	83.9	105	85-115	
Zinc	ug/L	80	82.2	103	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784146 784147

Parameter	Units	10127531002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.045	80	80	79.0	34.5	42	-13	70-130	79	20	M0,R1
Chromium	ug/L	<0.00024	80	80	56.4	36.1	70	45	70-130	44	20	M0,R1
Copper	ug/L	<0.00020	80	80	74.0	74.6	93	93	70-130	1	20	
Silver	ug/L	<0.000071	80	80	78.2	74.8	98	94	70-130	4	20	
Zinc	ug/L	0.0039J	80	80	80.2	78.1	95	93	70-130	3	20	

MATRIX SPIKE SAMPLE: 784148

Parameter	Units	253606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	31.1	80	111	100	70-130	
Chromium	ug/L	3.7	80	83.6	100	70-130	
Copper	ug/L	ND	80	79.9	100	70-130	
Silver	ug/L	ND	80	41.2	52	70-130	M0
Zinc	ug/L	4.7J	80	84.8	100	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253606

QC Batch: ICPM/20274
QC Batch Method: EPA 6020
Analysis Method: EPA 6020
Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253606001

METHOD BLANK: 783539 Matrix: Water
Associated Lab Samples: 253606001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/06/10 02:12	
Chromium, Dissolved	ug/L	ND	0.50	05/06/10 02:12	
Copper, Dissolved	ug/L	ND	0.50	05/06/10 02:12	
Silver, Dissolved	ug/L	ND	0.50	05/06/10 02:12	
Zinc, Dissolved	ug/L	1.4J	5.0	05/06/10 02:12	

LABORATORY CONTROL SAMPLE: 783540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	78.9	99	85-115	
Chromium, Dissolved	ug/L	80	80.1	100	85-115	
Copper, Dissolved	ug/L	80	85.2	106	85-115	
Silver, Dissolved	ug/L	80	83.8	105	85-115	
Zinc, Dissolved	ug/L	80	80.9	101	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 783541 783542

Parameter	Units	4030705007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	1.0	80	80	74.4	75.2	92	93	70-130	1	20	
Chromium, Dissolved	ug/L	0.24J	80	80	73.0	73.7	91	92	70-130	1	20	
Copper, Dissolved	ug/L	1.1	80	80	77.1	77.7	95	96	70-130	1	20	
Silver, Dissolved	ug/L	<0.071	80	80	47.9	44.8	60	56	70-130	7	20	M0
Zinc, Dissolved	ug/L	4.1J	80	80	76.1	76.8	90	91	70-130	1	20	

MATRIX SPIKE SAMPLE: 783543

Parameter	Units	6077858001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	3.2	80	82.2	99	70-130	
Chromium, Dissolved	ug/L	0.54	80	80.4	100	70-130	
Copper, Dissolved	ug/L	ND	80	84.0	105	70-130	
Silver, Dissolved	ug/L	ND	80	45.5	57	70-130	M0
Zinc, Dissolved	ug/L	2.3J	80	82.0	100	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253606

QC Batch: OEXT/2153
QC Batch Method: EPA 3510
Analysis Method: EPA 8270
Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253606001

METHOD BLANK: 27099 Matrix: Water
Associated Lab Samples: 253606001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4-Dichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2-Chlorophenol	ug/L	ND	1.0	05/05/10 04:07	
Pentachlorophenol	ug/L	ND	5.0	05/05/10 04:07	
Phenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Tribromophenol (S)	%	87	37-120	05/05/10 04:07	
2-Fluorobiphenyl (S)	%	89	40-110	05/05/10 04:07	
2-Fluorophenol (S)	%	92	20-120	05/05/10 04:07	
Nitrobenzene-d5 (S)	%	93	38-121	05/05/10 04:07	
Phenol-d6 (S)	%	94	11-120	05/05/10 04:07	
Terphenyl-d14 (S)	%	84	26-130	05/05/10 04:07	

LABORATORY CONTROL SAMPLE: 27100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	99	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.2	91	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.0	90	38-130	
2,4-Dichlorophenol	ug/L	20	17.5	88	42-130	
2-Chlorophenol	ug/L	20	16.6	83	20-130	
Pentachlorophenol	ug/L	20	18.8	94	10-114	
Phenol	ug/L	20	7.0	35	10-127	
2,4,6-Tribromophenol (S)	%			83	37-120	
2-Fluorobiphenyl (S)	%			72	40-110	
2-Fluorophenol (S)	%			57	20-120	
Nitrobenzene-d5 (S)	%			85	38-121	
Phenol-d6 (S)	%			39	11-120	
Terphenyl-d14 (S)	%			78	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	18.9	19	19.0	19.7	101	104	20-160	3	30	
2,4,5-Trichlorophenol	ug/L	ND	18.9	19	16.8	16.8	89	89	46-130	.3	30	
2,4,6-Trichlorophenol	ug/L	ND	18.9	19	17.0	16.6	90	88	38-130	2	30	
2,4-Dichlorophenol	ug/L	ND	18.9	19	15.9	14.1	84	75	42-130	11	30	
2-Chlorophenol	ug/L	ND	18.9	19	14.5	13.1	77	69	20-130	10	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253606

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	18.9	19	18.0	18.7	96	99	10-114	4	30	
Phenol	ug/L	ND	18.9	19	5.3	4.9	28	26	10-127	8	30	
2,4,6-Tribromophenol (S)	%						86	87	37-120			
2-Fluorobiphenyl (S)	%						77	70	40-110			
2-Fluorophenol (S)	%						48	43	20-120			
Nitrobenzene-d5 (S)	%						82	73	38-121			
Phenol-d6 (S)	%						31	28	11-120			
Terphenyl-d14 (S)	%						79	81	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253606

QC Batch: WET/1966 — Analysis Method: SM 2540D
QC Batch Method: SM 2540D — Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253606001

METHOD BLANK: 26980 — Matrix: Water
Associated Lab Samples: 253606001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253606

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
R1	RPD value was outside control limits.

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May 21, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253608

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

TOC samples were shipped from Pace-Seattle on a Thursday for Friday delivery and were received at Pace-Kansas on Monday due to a FedEx flight delay. The temperature was 11.9C which is outside the EPA recommended temperature of 4C +/- 2C.

This is a revised report due a re-analysis of of Total Arsenic and Dissolved Arsenic incongruities.

TOC samples are warmed to room temperature (20C) prior to analyses. Since samples were still cooled and unopened, the temperature should have no impact on the data set.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

REPORT OF LABORATORY ANALYSIS

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www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Phone: 612.607.1700
Fax: 612.607.6444

Investigation of EPA Method 6020 Arsenic Results for 10127794/263608

Project 253608 was received via laboratory transfer from Pace-Seattle on April 30, 2010 requesting metals analysis for arsenic by EPA Method 6020. The samples were received in 250 mL plastic containers that had been split in the Pace-Seattle laboratory.

The analysis was conducted on Instrument 10ICM3 on 5/6/10 for dissolved metals and 5/10/10 for total metals. The analytical results indicated that there was a data incongruity present in the relationship, the dissolved values were greater than the total arsenic values for samples 253608002 and 253608003. This was not noted at the time of shipping results to Pace-Seattle by Pace-MN in error. It was noticed post-shipment and submitted for investigation.

The initial investigation reviewed the container labels. The labels matched between Pace-Seattle and Pace-MN. The original client label was not present since the sample volume required splitting in Pace-Seattle.

The next step was to reanalyze the samples to determine the source of error. The samples were reanalyzed from the original digestion tubes and straight undigested from the sample containers. Below is a summary of the results.

Sample Name	Original Analysis	Confirmation analysis of digest	Confirmation analysis straight from the container
253608002 Total	408 ug/L	720 ug/L	4248 ug/L (Eflagged)*
253608002 Dissolved	3320 ug/L	3791 ug/L	4304 ug/L (Eflagged)*
253608003 Total	35.1 ug/L	292 ug/L	2144 ug/L (Eflagged)*
254608003 Dissolved	1740 ug/L	1823 ug/L	2089 ug/L (Eflagged)*

* *Undigested and followed failing tune criteria*

It appears that there was an error made in the digestion of the total arsenic analysis. Reviewing the associated samples in the batch and applying any applicable dilutions noted for the samples does not result in an indication of an error in the pouring of the analytical cups at the instrument. It appears that possibly the error was made in pouring up an incorrect sample aliquot at the digestion step. The undigested sample confirmation matches very well with the expected data relationship and the dissolved results indicating that the samples were not collected, subsampled, or labeled incorrectly.

The samples are being redigested on 5/20/10 from the original sample containers and will be available mid afternoon on 5/20/10.

Investigated by: Melanie Ollila, Quality Manager

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(206)767-5060

Enclosures

cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253608

Minnesota Certification IDs
Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs
9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253608001	MW-24-042810	Water	04/28/10 14:32	04/29/10 08:38
253608002	MW-21-042810	Water	04/28/10 15:33	04/29/10 08:38
253608003	MW-20-042810	Water	04/28/10 16:42	04/29/10 08:38
253608004	DUP 042810	Water	04/28/10 08:00	04/29/10 08:38

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253608001	**MW-24-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608002	**MW-21-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608003	**MW-20-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608004	**DUP 042810**	EPA 6020	RJS	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: SM 2340B
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: EPA 6010
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: EPA 6010
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20297

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10127531002,253606001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784146)
  - Arsenic
- MSD (Lab ID: 784147)
  - Arsenic

R1: RPD value was outside control limits.

- MSD (Lab ID: 784147)
  - Arsenic

QC Batch: ICPM/20573

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253608002

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 793696)
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: EPA 6020
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 21, 2010

Additional Comments:

Analyte Comments:

QC Batch: ICPM/20573

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 793696)
  - Arsenic
- MSD (Lab ID: 793697)
  - Arsenic

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20572

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253608002

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 793687)
  - Arsenic, Dissolved
- MSD (Lab ID: 793688)
  - Arsenic, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: ICPM/20572

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 793687)
  - Arsenic, Dissolved
- MSD (Lab ID: 793688)
  - Arsenic, Dissolved

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: EPA 8270
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
4 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: SM 2320B
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1495

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 26830)
  - Nitrate as N

R1: RPD value was outside control limits.

- MSD (Lab ID: 26831)
  - Nitrate as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1496

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 26834)
  - Chloride

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: SM 4500-P E
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1506

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MSD (Lab ID: 27498)
  - Phosphorus

R2: RPD value was outside control limits due to matrix interference

- MSD (Lab ID: 27498)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 21, 2010

General Information:
3 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

TP: The samples were received outside of required temperature range. Analysis was completed upon client approval.
- MW-20-042810 (Lab ID: 253608003)
- MW-21-042810 (Lab ID: 253608002)
- MW-24-042810 (Lab ID: 253608001)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-24-042810 **Lab ID: 253608001** Collected: 04/28/10 14:32 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**179**	mg/L	1.0		1		05/04/10 12:38		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:38	7429-90-5	
Calcium	**34600**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:38	7440-70-2	
Iron	**14900**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:38	7439-89-6	
Magnesium	**22500**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:38	7439-95-4	
Manganese	**501**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:38	7439-96-5	
Potassium	**10100**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:38	7440-09-7	
Sodium	**26900**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:38	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:29	7429-90-5	
Iron, Dissolved	**15100**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:29	7439-89-6	
Manganese, Dissolved	**511**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:29	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**0.36J**	ug/L	0.50	0.062	1	05/06/10 13:48	05/10/10 20:07	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**0.32J**	ug/L	0.50	0.062	1	05/04/10 16:40	05/06/10 03:53	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/03/10 16:20	05/05/10 09:33	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/03/10 16:20	05/05/10 09:33	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/03/10 16:20	05/05/10 09:33	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	05/03/10 16:20	05/05/10 09:33	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/03/10 16:20	05/05/10 09:33	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/03/10 16:20	05/05/10 09:33	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/03/10 16:20	05/05/10 09:33	88-06-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	05/03/10 16:20	05/05/10 09:33	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	05/03/10 16:20	05/05/10 09:33	321-60-8	
Terphenyl-d14 (S)	77	%	26-130		1	05/03/10 16:20	05/05/10 09:33	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 09:33	13127-88-3	
2-Fluorophenol (S)	40	%	20-120		1	05/03/10 16:20	05/05/10 09:33	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/03/10 16:20	05/05/10 09:33	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**208**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.0	2.0	1		04/30/10 16:15		

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-24-042810 **Lab ID: 253608001** Collected: 04/28/10 14:32 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 18:38	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.0**	mg/L	10.0	0.76	10		04/29/10 23:14	16887-00-6	
Sulfate	**27.1**	mg/L	10.0	1.7	10		04/29/10 23:14	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.29**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**6.6**	mg/L	1.0	0.37	1		05/09/10 18:38	7440-44-0	TP

Sample: MW-21-042810 **Lab ID: 253608002** Collected: 04/28/10 15:33 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**128**	mg/L	1.0		1		05/04/10 12:41		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:41	7429-90-5	
Calcium	**32900**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:41	7440-70-2	
Iron	**13200**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:41	7439-89-6	
Magnesium	**11100**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:41	7439-95-4	
Manganese	**382**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:41	7439-96-5	
Potassium	**9510**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:41	7440-09-7	
Sodium	**27200**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:41	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:32	7429-90-5	
Iron, Dissolved	**13400**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:32	7439-89-6	
Manganese, Dissolved	**390**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:32	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3280**	ug/L	50.0	6.2	100	05/20/10 15:18	05/20/10 12:33	7440-38-2	M0
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3370**	ug/L	50.0	6.2	100	05/20/10 15:16	05/20/10 11:56	7440-38-2	M0
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 09:56	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 09:56	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 09:56	87-86-5	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-21-042810 **Lab ID: 253608002** Collected: 04/28/10 15:33 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 09:56	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 09:56	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 09:56	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 09:56	88-06-2	
Nitrobenzene-d5 (S)	52	%	38-121		1	05/03/10 16:20	05/05/10 09:56	4165-60-0	
2-Fluorobiphenyl (S)	48	%	40-110		1	05/03/10 16:20	05/05/10 09:56	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	05/03/10 16:20	05/05/10 09:56	1718-51-0	
Phenol-d6 (S)	23	%	11-120		1	05/03/10 16:20	05/05/10 09:56	13127-88-3	
2-Fluorophenol (S)	32	%	20-120		1	05/03/10 16:20	05/05/10 09:56	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/03/10 16:20	05/05/10 09:56	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**256**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 19:47	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.6**	mg/L	1.0	0.076	1		04/29/10 19:47	16887-00-6	
Sulfate	**31.5**	mg/L	10.0	1.7	10		04/29/10 23:32	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.2**	mg/L	0.050	0.014	5		05/10/10 18:11	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.7**	mg/L	1.0	0.37	1		05/09/10 18:45	7440-44-0	TP

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**191**	mg/L	1.0		1		05/04/10 12:49		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:49	7429-90-5	
Calcium	**36800**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:49	7440-70-2	
Iron	**21600**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:49	7439-89-6	
Magnesium	**24100**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:49	7439-95-4	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**868**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:49	7439-96-5	
Potassium	**14800**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:49	7440-09-7	
Sodium	**26600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:49	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:48	7429-90-5	
Iron, Dissolved	**21300**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:48	7439-89-6	
Manganese, Dissolved	**875**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:48	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**2000**	ug/L	2.5	0.31	5	05/20/10 15:18	05/20/10 12:38	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1760**	ug/L	2.5	0.31	5	05/20/10 15:16	05/20/10 12:00	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 10:18	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 10:18	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 10:18	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 10:18	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 10:18	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 10:18	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 10:18	88-06-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	05/03/10 16:20	05/05/10 10:18	4165-60-0	
2-Fluorobiphenyl (S)	55	%	40-110		1	05/03/10 16:20	05/05/10 10:18	321-60-8	
Terphenyl-d14 (S)	76	%	26-130		1	05/03/10 16:20	05/05/10 10:18	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 10:18	13127-88-3	
2-Fluorophenol (S)	41	%	20-120		1	05/03/10 16:20	05/05/10 10:18	367-12-4	
2,4,6-Tribromophenol (S)	75	%	37-120		1	05/03/10 16:20	05/05/10 10:18	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**184**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**22.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 20:05	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.5**	mg/L	1.0	0.076	1		04/29/10 20:05	16887-00-6	
Sulfate	**22.5**	mg/L	10.0	1.7	10		04/29/10 23:49	14808-79-8	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.63**	mg/L	0.020	0.0056	2		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.8**	mg/L	1.0	0.37	1		05/09/10 18:52	7440-44-0	TP

Sample: DUP 042810 **Lab ID: 253608004** Collected: 04/28/10 08:00 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3280**	ug/L	25.0	3.1	50	05/06/10 13:48	05/10/10 20:19	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3380**	ug/L	50.0	6.2	100	05/04/10 16:40	05/06/10 16:26	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 10:41	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 10:41	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 10:41	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 10:41	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 10:41	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 10:41	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 10:41	88-06-2	
Nitrobenzene-d5 (S)	66	%	38-121		1	05/03/10 16:20	05/05/10 10:41	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	05/03/10 16:20	05/05/10 10:41	321-60-8	
Terphenyl-d14 (S)	75	%	26-130		1	05/03/10 16:20	05/05/10 10:41	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 10:41	13127-88-3	
2-Fluorophenol (S)	42	%	20-120		1	05/03/10 16:20	05/05/10 10:41	367-12-4	
2,4,6-Tribromophenol (S)	80	%	37-120		1	05/03/10 16:20	05/05/10 10:41	118-79-6	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: MPRP/1554 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26993 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 12:06	
Calcium	ug/L	ND	5000	05/04/10 12:06	
Iron	ug/L	ND	100	05/04/10 12:06	
Magnesium	ug/L	ND	5000	05/04/10 12:06	
Manganese	ug/L	ND	15.0	05/04/10 12:06	
Potassium	ug/L	ND	5000	05/04/10 12:06	
Sodium	ug/L	ND	5000	05/04/10 12:06	

LABORATORY CONTROL SAMPLE: 26994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9650	97	80-120	
Calcium	ug/L	10000	9300	93	80-120	
Iron	ug/L	10000	9860	99	80-120	
Magnesium	ug/L	10000	9200	92	80-120	
Manganese	ug/L	500	483	97	80-120	
Potassium	ug/L	10000	9850	98	80-120	
Sodium	ug/L	10000	10300	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26995 26996

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9980	9900	99	99	75-125	.8	20	
Calcium	ug/L	46300	10000	10000	57300	56600	110	103	75-125	1	20	
Iron	ug/L	15200	10000	10000	25400	25100	102	99	75-125	.9	20	
Magnesium	ug/L	9220	10000	10000	19000	18600	98	94	75-125	2	20	
Manganese	ug/L	456	500	500	948	948	98	98	75-125	.05	20	
Potassium	ug/L	8260	10000	10000	18800	18500	105	102	75-125	1	20	
Sodium	ug/L	45400	10000	10000	57300	55600	119	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: MPRP/1557 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27073 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:54	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:54	
Manganese, Dissolved	ug/L	ND	15.0	05/04/10 13:54	

LABORATORY CONTROL SAMPLE: 27074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9370	94	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Manganese, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27075 27076

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9420	9750	94	97	75-125	3	20	
Iron, Dissolved	ug/L	14300	10000	10000	23900	24800	96	105	75-125	4	20	
Manganese, Dissolved	ug/L	430	500	500	914	939	97	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20297 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253608001, 253608004

METHOD BLANK: 784144 Matrix: Water
Associated Lab Samples: 253608001, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/10/10 18:13	

LABORATORY CONTROL SAMPLE: 784145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784146 784147

Parameter	Units	10127531002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.045	80	80	79.0	34.5	42	-13	70-130	79	20	M0,R1

MATRIX SPIKE SAMPLE: 784148

Parameter	Units	253606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	31.1	80	111	100	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20573 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253608002, 253608003

METHOD BLANK: 793694 Matrix: Water
Associated Lab Samples: 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/20/10 12:12	

LABORATORY CONTROL SAMPLE: 793695

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.2	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 793696 793697

Parameter	Units	253608002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	3280	80	80	3710	3370	539	109	75-125	10	20	E,M0

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20274 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253608001, 253608003, 253608004

METHOD BLANK: 783539 Matrix: Water
Associated Lab Samples: 253608001, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/06/10 02:12	

LABORATORY CONTROL SAMPLE: 783540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	78.9	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 783541 783542

Parameter	Units	4030705007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	1.0	80	80	74.4	75.2	92	93	70-130	1	20	

MATRIX SPIKE SAMPLE: 783543

Parameter	Units	6077858001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	3.2	80	82.2	99	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20572
QC Batch Method: EPA 6020
Analysis Method: EPA 6020
Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253608002, 253608003

METHOD BLANK: 793685 Matrix: Water
Associated Lab Samples: 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/20/10 11:31	

LABORATORY CONTROL SAMPLE: 793686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	79.6	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 793687 793688

Parameter	Units	253608002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	3370	80	80	3520	3530	199	208	70-130	0	20	E,M0

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: OEXT/2153 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

METHOD BLANK: 27099 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4-Dichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2-Chlorophenol	ug/L	ND	1.0	05/05/10 04:07	
Pentachlorophenol	ug/L	ND	5.0	05/05/10 04:07	
Phenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Tribromophenol (S)	%	87	37-120	05/05/10 04:07	
2-Fluorobiphenyl (S)	%	89	40-110	05/05/10 04:07	
2-Fluorophenol (S)	%	92	20-120	05/05/10 04:07	
Nitrobenzene-d5 (S)	%	93	38-121	05/05/10 04:07	
Phenol-d6 (S)	%	94	11-120	05/05/10 04:07	
Terphenyl-d14 (S)	%	84	26-130	05/05/10 04:07	

LABORATORY CONTROL SAMPLE: 27100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	99	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.2	91	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.0	90	38-130	
2,4-Dichlorophenol	ug/L	20	17.5	88	42-130	
2-Chlorophenol	ug/L	20	16.6	83	20-130	
Pentachlorophenol	ug/L	20	18.8	94	10-114	
Phenol	ug/L	20	7.0	35	10-127	
2,4,6-Tribromophenol (S)	%			83	37-120	
2-Fluorobiphenyl (S)	%			72	40-110	
2-Fluorophenol (S)	%			57	20-120	
Nitrobenzene-d5 (S)	%			85	38-121	
Phenol-d6 (S)	%			39	11-120	
Terphenyl-d14 (S)	%			78	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	18.9	19	19.0	19.7	101	104	20-160	3	30	
2,4,5-Trichlorophenol	ug/L	ND	18.9	19	16.8	16.8	89	89	46-130	.3	30	
2,4,6-Trichlorophenol	ug/L	ND	18.9	19	17.0	16.6	90	88	38-130	2	30	
2,4-Dichlorophenol	ug/L	ND	18.9	19	15.9	14.1	84	75	42-130	11	30	
2-Chlorophenol	ug/L	ND	18.9	19	14.5	13.1	77	69	20-130	10	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	18.9	19	18.0	18.7	96	99	10-114	4	30	
Phenol	ug/L	ND	18.9	19	5.3	4.9	28	26	10-127	8	30	
2,4,6-Tribromophenol (S)	%						86	87	37-120			
2-Fluorobiphenyl (S)	%						77	70	40-110			
2-Fluorophenol (S)	%						48	43	20-120			
Nitrobenzene-d5 (S)	%						82	73	38-121			
Phenol-d6 (S)	%						31	28	11-120			
Terphenyl-d14 (S)	%						79	81	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WET/1980 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27520 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	

SAMPLE DUPLICATE: 27522

Parameter	Units	253614001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	392	396	1	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WET/1966 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26980 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1495 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26828 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26830 26831

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.2	2.5	88	99	90-110	12	10	M1,R1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1496 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26832 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/29/10 16:06	
Sulfate	mg/L	ND	1.0	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	15	15.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26834 26835

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.3	5	5	6.6	7.1	86	96	90-110	8	11	M0
Sulfate	mg/L	23.6	150	150	176	175	102	101	90-110	.9	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1506 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27495 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/10/10 17:32	

LABORATORY CONTROL SAMPLE: 27496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.25	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27497 27498

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.53	.25	.25	0.74	1.1	85	225	80-120	38	30	M3,R2

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/12863 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 640981 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/09/10 17:19	

LABORATORY CONTROL SAMPLE: 640982

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	84-120	

MATRIX SPIKE SAMPLE: 640983

Parameter	Units	253591001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	1.9	5	7.2	106	59-144	TP

SAMPLE DUPLICATE: 640984

Parameter	Units	253608003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.8	3.5	7	25	TP

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253608

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
R1	RPD value was outside control limits.
R2	RPD value was outside control limits due to matrix interference
TP	The samples were received outside of required temperature range. Analysis was completed upon client approval.

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May 13, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253608

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

TOC samples were shipped from Pace-Seattle on a Thursday for Friday delivery and were received at Pace-Kansas on Monday due to a FedEx flight delay. The temperature was 11.9C which is outside the EPA recommended temperature of 4C +/- 2C.

TOC samples are warmed to room temperature (20C) prior to analyses. Since samples were still cooled and unopened, the temperature should have no impact on the data set.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Regina Ste. Marie

Regina SteMarie for
Heidi Geri
heidi.geri@pacelabs.com
Project Manager

Enclosures

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cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253608

Minnesota Certification IDs

Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253608001	**MW-24-042810**	Water	04/28/10 14:32	04/29/10 08:38
253608002	**MW-21-042810**	Water	04/28/10 15:33	04/29/10 08:38
253608003	**MW-20-042810**	Water	04/28/10 16:42	04/29/10 08:38
253608004	**DUP 042810**	Water	04/28/10 08:00	04/29/10 08:38

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253608001	**MW-24-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608002	**MW-21-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608003	**MW-20-042810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253608004	**DUP 042810**	EPA 6020	RJS	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253608

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	1	PASI-M
		EPA 8270	ATH	13	PASI-S

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20297

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10127531002,253606001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784146)
  - Arsenic
- MSD (Lab ID: 784147)
  - Arsenic

R1: RPD value was outside control limits.

- MSD (Lab ID: 784147)
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1495

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 26830)
  - Nitrate as N

R1: RPD value was outside control limits.

- MSD (Lab ID: 26831)
  - Nitrate as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1496

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253600001

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 26834)
  - Chloride

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1506

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MSD (Lab ID: 27498)
  - Phosphorus

R2: RPD value was outside control limits due to matrix interference

- MSD (Lab ID: 27498)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253608

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

TP: The samples were received outside of required temperature range. Analysis was completed upon client approval.
- MW-20-042810 (Lab ID: 253608003)
- MW-21-042810 (Lab ID: 253608002)
- MW-24-042810 (Lab ID: 253608001)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-24-042810 **Lab ID: 253608001** Collected: 04/28/10 14:32 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**179**	mg/L	1.0		1		05/04/10 12:38		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:38	7429-90-5	
Calcium	**34600**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:38	7440-70-2	
Iron	**14900**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:38	7439-89-6	
Magnesium	**22500**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:38	7439-95-4	
Manganese	**501**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:38	7439-96-5	
Potassium	**10100**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:38	7440-09-7	
Sodium	**26900**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:38	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:29	7429-90-5	
Iron, Dissolved	**15100**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:29	7439-89-6	
Manganese, Dissolved	**511**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:29	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**0.36J**	ug/L	0.50	0.062	1	05/06/10 13:48	05/10/10 20:07	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**0.32J**	ug/L	0.50	0.062	1	05/04/10 16:40	05/06/10 03:53	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/03/10 16:20	05/05/10 09:33	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/03/10 16:20	05/05/10 09:33	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/03/10 16:20	05/05/10 09:33	87-86-5	
Phenol	ND	ug/L	0.94	0.12	1	05/03/10 16:20	05/05/10 09:33	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/03/10 16:20	05/05/10 09:33	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/03/10 16:20	05/05/10 09:33	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/03/10 16:20	05/05/10 09:33	88-06-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	05/03/10 16:20	05/05/10 09:33	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	05/03/10 16:20	05/05/10 09:33	321-60-8	
Terphenyl-d14 (S)	77	%	26-130		1	05/03/10 16:20	05/05/10 09:33	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 09:33	13127-88-3	
2-Fluorophenol (S)	40	%	20-120		1	05/03/10 16:20	05/05/10 09:33	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/03/10 16:20	05/05/10 09:33	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**208**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.0	2.0	1		04/30/10 16:15		

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-24-042810 **Lab ID: 253608001** Collected: 04/28/10 14:32 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 18:38	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**39.0**	mg/L	10.0	0.76	10		04/29/10 23:14	16887-00-6	
Sulfate	**27.1**	mg/L	10.0	1.7	10		04/29/10 23:14	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.29**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**6.6**	mg/L	1.0	0.37	1		05/09/10 18:38	7440-44-0	TP

Sample: MW-21-042810 **Lab ID: 253608002** Collected: 04/28/10 15:33 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**128**	mg/L	1.0		1		05/04/10 12:41		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:41	7429-90-5	
Calcium	**32900**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:41	7440-70-2	
Iron	**13200**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:41	7439-89-6	
Magnesium	**11100**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:41	7439-95-4	
Manganese	**382**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:41	7439-96-5	
Potassium	**9510**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:41	7440-09-7	
Sodium	**27200**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:41	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:32	7429-90-5	
Iron, Dissolved	**13400**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:32	7439-89-6	
Manganese, Dissolved	**390**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:32	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**408**	ug/L	2.5	0.31	5	05/06/10 13:48	05/10/10 20:11	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3320**	ug/L	50.0	6.2	100	05/04/10 16:40	05/06/10 16:18	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 09:56	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 09:56	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 09:56	87-86-5	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-21-042810 **Lab ID: 253608002** Collected: 04/28/10 15:33 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 09:56	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 09:56	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 09:56	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 09:56	88-06-2	
Nitrobenzene-d5 (S)	52	%	38-121		1	05/03/10 16:20	05/05/10 09:56	4165-60-0	
2-Fluorobiphenyl (S)	48	%	40-110		1	05/03/10 16:20	05/05/10 09:56	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	05/03/10 16:20	05/05/10 09:56	1718-51-0	
Phenol-d6 (S)	23	%	11-120		1	05/03/10 16:20	05/05/10 09:56	13127-88-3	
2-Fluorophenol (S)	32	%	20-120		1	05/03/10 16:20	05/05/10 09:56	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/03/10 16:20	05/05/10 09:56	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**256**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**7.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 19:47	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.6**	mg/L	1.0	0.076	1		04/29/10 19:47	16887-00-6	
Sulfate	**31.5**	mg/L	10.0	1.7	10		04/29/10 23:32	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.2**	mg/L	0.050	0.014	5		05/10/10 18:11	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.7**	mg/L	1.0	0.37	1		05/09/10 18:45	7440-44-0	TP

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**191**	mg/L	1.0		1		05/04/10 12:49		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:49	7429-90-5	
Calcium	**36800**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:49	7440-70-2	
Iron	**21600**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:49	7439-89-6	
Magnesium	**24100**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:49	7439-95-4	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**868**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:49	7439-96-5	
Potassium	**14800**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:49	7440-09-7	
Sodium	**26600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:49	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:48	7429-90-5	
Iron, Dissolved	**21300**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:48	7439-89-6	
Manganese, Dissolved	**875**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:48	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**35.1**	ug/L	2.5	0.31	5	05/06/10 13:48	05/10/10 20:15	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1740**	ug/L	50.0	6.2	100	05/04/10 16:40	05/06/10 16:22	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 10:18	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 10:18	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 10:18	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 10:18	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 10:18	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 10:18	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 10:18	88-06-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	05/03/10 16:20	05/05/10 10:18	4165-60-0	
2-Fluorobiphenyl (S)	55	%	40-110		1	05/03/10 16:20	05/05/10 10:18	321-60-8	
Terphenyl-d14 (S)	76	%	26-130		1	05/03/10 16:20	05/05/10 10:18	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 10:18	13127-88-3	
2-Fluorophenol (S)	41	%	20-120		1	05/03/10 16:20	05/05/10 10:18	367-12-4	
2,4,6-Tribromophenol (S)	75	%	37-120		1	05/03/10 16:20	05/05/10 10:18	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**184**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**22.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/29/10 20:05	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.5**	mg/L	1.0	0.076	1		04/29/10 20:05	16887-00-6	
Sulfate	**22.5**	mg/L	10.0	1.7	10		04/29/10 23:49	14808-79-8	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253608

Sample: MW-20-042810 **Lab ID: 253608003** Collected: 04/28/10 16:42 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.63**	mg/L	0.020	0.0056	2		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.8**	mg/L	1.0	0.37	1		05/09/10 18:52	7440-44-0	TP

Sample: DUP 042810 **Lab ID: 253608004** Collected: 04/28/10 08:00 Received: 04/29/10 08:38 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3280**	ug/L	25.0	3.1	50	05/06/10 13:48	05/10/10 20:19	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3380**	ug/L	50.0	6.2	100	05/04/10 16:40	05/06/10 16:26	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/03/10 16:20	05/05/10 10:41	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/03/10 16:20	05/05/10 10:41	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/03/10 16:20	05/05/10 10:41	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/03/10 16:20	05/05/10 10:41	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/03/10 16:20	05/05/10 10:41	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/03/10 16:20	05/05/10 10:41	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/03/10 16:20	05/05/10 10:41	88-06-2	
Nitrobenzene-d5 (S)	66	%	38-121		1	05/03/10 16:20	05/05/10 10:41	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	05/03/10 16:20	05/05/10 10:41	321-60-8	
Terphenyl-d14 (S)	75	%	26-130		1	05/03/10 16:20	05/05/10 10:41	1718-51-0	
Phenol-d6 (S)	27	%	11-120		1	05/03/10 16:20	05/05/10 10:41	13127-88-3	
2-Fluorophenol (S)	42	%	20-120		1	05/03/10 16:20	05/05/10 10:41	367-12-4	
2,4,6-Tribromophenol (S)	80	%	37-120		1	05/03/10 16:20	05/05/10 10:41	118-79-6	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: MPRP/1554 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26993 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 12:06	
Calcium	ug/L	ND	5000	05/04/10 12:06	
Iron	ug/L	ND	100	05/04/10 12:06	
Magnesium	ug/L	ND	5000	05/04/10 12:06	
Manganese	ug/L	ND	15.0	05/04/10 12:06	
Potassium	ug/L	ND	5000	05/04/10 12:06	
Sodium	ug/L	ND	5000	05/04/10 12:06	

LABORATORY CONTROL SAMPLE: 26994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9650	97	80-120	
Calcium	ug/L	10000	9300	93	80-120	
Iron	ug/L	10000	9860	99	80-120	
Magnesium	ug/L	10000	9200	92	80-120	
Manganese	ug/L	500	483	97	80-120	
Potassium	ug/L	10000	9850	98	80-120	
Sodium	ug/L	10000	10300	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26995 26996

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9980	9900	99	99	75-125	.8	20	
Calcium	ug/L	46300	10000	10000	57300	56600	110	103	75-125	1	20	
Iron	ug/L	15200	10000	10000	25400	25100	102	99	75-125	.9	20	
Magnesium	ug/L	9220	10000	10000	19000	18600	98	94	75-125	2	20	
Manganese	ug/L	456	500	500	948	948	98	98	75-125	.05	20	
Potassium	ug/L	8260	10000	10000	18800	18500	105	102	75-125	1	20	
Sodium	ug/L	45400	10000	10000	57300	55600	119	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: MPRP/1557 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27073 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:54	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:54	
Manganese, Dissolved	ug/L	ND	15.0	05/04/10 13:54	

LABORATORY CONTROL SAMPLE: 27074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9370	94	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Manganese, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27075 27076

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9420	9750	94	97	75-125	3	20	
Iron, Dissolved	ug/L	14300	10000	10000	23900	24800	96	105	75-125	4	20	
Manganese, Dissolved	ug/L	430	500	500	914	939	97	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20297 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

METHOD BLANK: 784144 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/10/10 18:13	

LABORATORY CONTROL SAMPLE: 784145

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.0	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784146 784147

Parameter	Units	10127531002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	0.045	80	80	79.0	34.5	42	-13	70-130	79	20	M0,R1

MATRIX SPIKE SAMPLE: 784148

Parameter	Units	253606001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	31.1	80	111	100	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: ICPM/20274 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

METHOD BLANK: 783539 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/06/10 02:12	

LABORATORY CONTROL SAMPLE: 783540

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	78.9	99	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 783541 783542

Parameter	Units	4030705007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	1.0	80	80	74.4	75.2	92	93	70-130	1	20	

MATRIX SPIKE SAMPLE: 783543

Parameter	Units	6077858001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	3.2	80	82.2	99	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: OEXT/2153 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

METHOD BLANK: 27099 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003, 253608004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2,4-Dichlorophenol	ug/L	ND	1.0	05/05/10 04:07	
2-Chlorophenol	ug/L	ND	1.0	05/05/10 04:07	
Pentachlorophenol	ug/L	ND	5.0	05/05/10 04:07	
Phenol	ug/L	ND	1.0	05/05/10 04:07	
2,4,6-Tribromophenol (S)	%	87	37-120	05/05/10 04:07	
2-Fluorobiphenyl (S)	%	89	40-110	05/05/10 04:07	
2-Fluorophenol (S)	%	92	20-120	05/05/10 04:07	
Nitrobenzene-d5 (S)	%	93	38-121	05/05/10 04:07	
Phenol-d6 (S)	%	94	11-120	05/05/10 04:07	
Terphenyl-d14 (S)	%	84	26-130	05/05/10 04:07	

LABORATORY CONTROL SAMPLE: 27100

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	19.9	99	20-160	
2,4,5-Trichlorophenol	ug/L	20	18.2	91	46-130	
2,4,6-Trichlorophenol	ug/L	20	18.0	90	38-130	
2,4-Dichlorophenol	ug/L	20	17.5	88	42-130	
2-Chlorophenol	ug/L	20	16.6	83	20-130	
Pentachlorophenol	ug/L	20	18.8	94	10-114	
Phenol	ug/L	20	7.0	35	10-127	
2,4,6-Tribromophenol (S)	%			83	37-120	
2-Fluorobiphenyl (S)	%			72	40-110	
2-Fluorophenol (S)	%			57	20-120	
Nitrobenzene-d5 (S)	%			85	38-121	
Phenol-d6 (S)	%			39	11-120	
Terphenyl-d14 (S)	%			78	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	18.9	19	19.0	19.7	101	104	20-160	3	30	
2,4,5-Trichlorophenol	ug/L	ND	18.9	19	16.8	16.8	89	89	46-130	.3	30	
2,4,6-Trichlorophenol	ug/L	ND	18.9	19	17.0	16.6	90	88	38-130	2	30	
2,4-Dichlorophenol	ug/L	ND	18.9	19	15.9	14.1	84	75	42-130	11	30	
2-Chlorophenol	ug/L	ND	18.9	19	14.5	13.1	77	69	20-130	10	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27101 27102

Parameter	Units	253600002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	18.9	19	18.0	18.7	96	99	10-114	4	30	
Phenol	ug/L	ND	18.9	19	5.3	4.9	28	26	10-127	8	30	
2,4,6-Tribromophenol (S)	%						86	87	37-120			
2-Fluorobiphenyl (S)	%						77	70	40-110			
2-Fluorophenol (S)	%						48	43	20-120			
Nitrobenzene-d5 (S)	%						82	73	38-121			
Phenol-d6 (S)	%						31	28	11-120			
Terphenyl-d14 (S)	%						79	81	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WET/1980 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27520 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	

SAMPLE DUPLICATE: 27522

Parameter	Units	253614001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	392	396	1	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WET/1966 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26980 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1495 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26828 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26829

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26830 26831

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.2	2.5	88	99	90-110	12	10	M1,R1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1496 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 26832 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/29/10 16:06	
Sulfate	mg/L	ND	1.0	04/29/10 16:06	

LABORATORY CONTROL SAMPLE: 26833

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	15	15.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26834 26835

Parameter	Units	253600001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	2.3	5	5	6.6	7.1	86	96	90-110	8	11	M0
Sulfate	mg/L	23.6	150	150	176	175	102	101	90-110	.9	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/1506 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 27495 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/10/10 17:32	

LABORATORY CONTROL SAMPLE: 27496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.25	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27497 27498

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.53	.25	.25	0.74	1.1	85	225	80-120	38	30	M3,R2

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253608

QC Batch: WETA/12863 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253608001, 253608002, 253608003

METHOD BLANK: 640981 Matrix: Water
Associated Lab Samples: 253608001, 253608002, 253608003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/09/10 17:19	

LABORATORY CONTROL SAMPLE: 640982

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.3	106	84-120	

MATRIX SPIKE SAMPLE: 640983

Parameter	Units	253591001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	1.9	5	7.2	106	59-144	TP

SAMPLE DUPLICATE: 640984

Parameter	Units	253608003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	3.8	3.5	7	25	TP

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(206)767-5060

QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253608

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
R1	RPD value was outside control limits.
R2	RPD value was outside control limits due to matrix interference
TP	The samples were received outside of required temperature range. Analysis was completed upon client approval.

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1317 South 13th Avenue Kelso, Washington 98626 (360) 577-7222 (360) 636-1068 fax

Columbia Analytical Services™
An Employee - Owned Company

May 19, 2010 Analytical Report for Service Request No: K1004396

Heidi Geri
Pace Analytical Services
940 South Harney
Seattle, WA 98108

RE: Reichold Glacier/253611

Dear Heidi:

Enclosed are the results of the rush samples submitted to our laboratory on May 04, 2010. For your reference, these analyses have been assigned our service request number K1004396.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/rh

Acronyms

ASTM	American Society for Testing and Materials.
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Pace Analytical Services	**Service Request No.:**	K1004396
Project:	Reichold Glacier	**Date Received:**	05/04/10
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 05/04/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by _____ **Date** 5/19/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1004396
Project:	Reichold Glacier/253611	**Date Collected:**	4/29/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-18-042910	K1004396-001	10	4	1	5/11/2010	5	J
MW-14-042910	K1004396-002	10	4	1	5/11/2010	ND	
MW-06S-042910	K1004396-003	10	4	1	5/11/2010	ND	
Method Blank	K1004396-MB	10	4	1	5/11/2010	ND	
Method Blank	K1004396-MB	10	4	1	5/11/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004396
Project:	Reichold Glacier/253611	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	5/11/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	Batch QC	Units:	ug/L (ppb)
Lab Code:	K1004393-001MS, K1004393-001DMS	Basis:	NA

Test Notes:

									Percent Recovery				
				Spike Level			Spike Result				CAS	Relative	
Analyte	Prep Method	Analysis Method	MRL	MS	DMS	Sample Result	MS	DMS	MS	DMS	Acceptance Limits	Percent Difference	Result Notes
Halides, Total Organic (TOX)	NONE	9020B	10	100	200	ND	99	204	99	104	82-121		

DMS 020607p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004396
Project:	Reichold Glacier/253611	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/11/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.63	9.8	92	ND
Percent Recovery	100	98	92	
Run B	3.50	9.5		
Percent Recovery	96	95		

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004396
Project:	Reichold Glacier/253611	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/11/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.57	9.7	91	ND
Percent Recovery	98	97	91	
Run B	3.38	9.3		
Percent Recovery	93	93		

Chain of Custody

Pace Analytical
www.pacelabs.com

Workorder: 253611 **Workorder Name:** Reichold Glacier **Results Requested** 5/11/2010

K100430

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	CAS, Kelso Attn Pradeep D. 1317 S 13TH AVE Kelso, WA 98626

P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis	LAB USE ONLY
1	MW-18-042910	4/29/2010 04:21	253611001	Water		X	
2	MW-14-042910	4/29/2010 10:37	253611002	Water		X	
3	MW-06S-042910	4/29/2010 12:13	253611003	Water		X	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1		4/30/10 1440		5/4/10 1340
2				
3				
4				
5				

Comments

Need Equis 4 file EDD

report to mdl, JHaggerty Subj

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project FHCE Service Request K10 4396

Received: 5/4/10 Opened: 5/4/10 By: CM

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1F
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.3		237		793506439466	X

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Sleeves* *Other* _____

8. Were custody papers properly filled out (ink, signed, etc.)?	NA	(Y)	N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.*	NA	(Y)	N
10. Were all sample labels complete (i.e analysis, preservation, etc.)?	NA	(Y)	N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.*	NA	(Y)	N
12. Were appropriate bottles/containers and volumes received for the tests indicated?	NA	(Y)	N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below*	NA	(Y)	N
14. Were VOA vials received without headspace? *Indicate in the table below.*	(NA)	Y	N
15. Was Cl2/Res negative?	(NA)	Y	N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 13, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253611

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Regina Ste. Marie

Regina SteMarie for
Heidi Geri
heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253611

Minnesota Certification IDs

Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253611

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253611001	**MW-18-042910**	Water	04/29/10 04:21	04/29/10 13:30
253611002	**MW-14-042910**	Water	04/29/10 10:37	04/29/10 13:30
253611003	**MW-06S-042910**	Water	04/29/10 12:13	04/29/10 13:30
253611004	**DUP 042910**	Water	04/29/10 08:00	04/29/10 13:30

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253611

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253611001	**MW-18-042910**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253611002	**MW-14-042910**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253611003	**MW-06S-042910**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BGA	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253611004	**DUP 042910**	EPA 6020	RJS	1	PASI-M

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Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253611

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S

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Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20299

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002,9268135007

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784156)
  - Arsenic
- MSD (Lab ID: 784157)
  - Antimony
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20295

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784137)
  - Arsenic, Dissolved
- MSD (Lab ID: 784138)
  - Arsenic, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: ICPM/20295

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 784137)
  - Arsenic, Dissolved
- MSD (Lab ID: 784138)
  - Arsenic, Dissolved

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/2167

S0: Surrogate recovery outside laboratory control limits.

- BLANK (Lab ID: 27206)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorobiphenyl (S)
  - Nitrobenzene-d5 (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 13, 2010

Analyte Comments:

QC Batch: OEXT/2167

1n: Reported results were confirmed by the analysis of an out-of-hold re-extract sample, associated with a passing method blank, on 5/11/10.

- DUP 042910 (Lab ID: 253611004)
  - Nitrobenzene-d5 (S)
- MW-06S-042910 (Lab ID: 253611003)
  - Nitrobenzene-d5 (S)
- MW-14-042910 (Lab ID: 253611002)
  - Nitrobenzene-d5 (S)
- MW-18-042910 (Lab ID: 253611001)
  - Nitrobenzene-d5 (S)

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: WET/1966

D8: The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.

- DUP (Lab ID: 26982)
  - Total Suspended Solids

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1497

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MS (Lab ID: 26896)
  - Nitrate as N
- MSD (Lab ID: 26897)
  - Nitrate as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1504

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 27019)
  - Chloride
  - Sulfate
- MSD (Lab ID: 27020)
  - Chloride
  - Sulfate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1506

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MSD (Lab ID: 27498)
  - Phosphorus

R2: RPD value was outside control limits due to matrix interference

- MSD (Lab ID: 27498)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253611

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
3 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253611

Sample: MW-18-042910 **Lab ID: 253611001** Collected: 04/29/10 04:21 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**272**	mg/L	1.0		1		05/04/10 12:17		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:17	7429-90-5	
Calcium	**101000**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:17	7440-70-2	
Iron	**1570**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:17	7439-89-6	
Magnesium	**4980J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:17	7439-95-4	
Manganese	**60.2**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:17	7439-96-5	
Potassium	**1470J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:17	7440-09-7	
Sodium	**16400**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:17	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:02	7429-90-5	
Iron, Dissolved	**1480**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:02	7439-89-6	
Manganese, Dissolved	**60.4**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:02	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**10.3**	ug/L	0.50	0.062	1	05/06/10 14:28	05/11/10 12:12	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**9.5**	ug/L	0.50	0.062	1	05/06/10 14:36	05/07/10 22:59	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/05/10 17:45	05/10/10 01:58	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/05/10 17:45	05/10/10 01:58	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/05/10 17:45	05/10/10 01:58	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/05/10 17:45	05/10/10 01:58	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/05/10 17:45	05/10/10 01:58	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/05/10 17:45	05/10/10 01:58	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/05/10 17:45	05/10/10 01:58	88-06-2	
Nitrobenzene-d5 (S)	77	%	38-121		1	05/05/10 17:45	05/10/10 01:58	4165-60-0	1n
2-Fluorobiphenyl (S)	67	%	40-110		1	05/05/10 17:45	05/10/10 01:58	321-60-8	
Terphenyl-d14 (S)	90	%	26-130		1	05/05/10 17:45	05/10/10 01:58	1718-51-0	
Phenol-d6 (S)	31	%	11-120		1	05/05/10 17:45	05/10/10 01:58	13127-88-3	
2-Fluorophenol (S)	46	%	20-120		1	05/05/10 17:45	05/10/10 01:58	367-12-4	
2,4,6-Tribromophenol (S)	97	%	37-120		1	05/05/10 17:45	05/10/10 01:58	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**266**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**5.0**	mg/L	2.0	2.0	1		04/30/10 16:15		

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253611

Sample: MW-18-042910 **Lab ID: 253611001** Collected: 04/29/10 04:21 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 15:52	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.4**	mg/L	1.0	0.076	1		04/30/10 15:52	16887-00-6	
Sulfate	**67.5**	mg/L	10.0	1.7	10		04/30/10 19:53	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.021**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**3.8**	mg/L	1.0	0.37	1		05/09/10 20:10	7440-44-0	

Sample: MW-14-042910 **Lab ID: 253611002** Collected: 04/29/10 10:37 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**154**	mg/L	1.0		1		05/04/10 12:20		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:20	7429-90-5	
Calcium	**46300**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:20	7440-70-2	
Iron	**15200**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:20	7439-89-6	
Magnesium	**9220**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:20	7439-95-4	
Manganese	**456**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:20	7439-96-5	
Potassium	**8260**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:20	7440-09-7	
Sodium	**45400**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:20	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:05	7429-90-5	
Iron, Dissolved	**14300**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:05	7439-89-6	
Manganese, Dissolved	**430**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:05	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3290**	ug/L	5.0	0.62	10	05/06/10 14:28	05/11/10 12:29	7440-38-2	M0
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**2700**	ug/L	5.0	0.62	10	05/06/10 14:36	05/09/10 02:50	7440-38-2	M0
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.94	0.36	1	05/05/10 17:45	05/10/10 02:20	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.94	0.38	1	05/05/10 17:45	05/10/10 02:20	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	05/05/10 17:45	05/10/10 02:20	87-86-5	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253611

Sample: MW-14-042910 **Lab ID: 253611002** Collected: 04/29/10 10:37 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol	ND	ug/L	0.94	0.12	1	05/05/10 17:45	05/10/10 02:20	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.94	0.45	1	05/05/10 17:45	05/10/10 02:20	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	05/05/10 17:45	05/10/10 02:20	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	05/05/10 17:45	05/10/10 02:20	88-06-2	
Nitrobenzene-d5 (S)	86	%	38-121		1	05/05/10 17:45	05/10/10 02:20	4165-60-0	1n
2-Fluorobiphenyl (S)	70	%	40-110		1	05/05/10 17:45	05/10/10 02:20	321-60-8	
Terphenyl-d14 (S)	88	%	26-130		1	05/05/10 17:45	05/10/10 02:20	1718-51-0	
Phenol-d6 (S)	32	%	11-120		1	05/05/10 17:45	05/10/10 02:20	13127-88-3	
2-Fluorophenol (S)	50	%	20-120		1	05/05/10 17:45	05/10/10 02:20	367-12-4	
2,4,6-Tribromophenol (S)	95	%	37-120		1	05/05/10 17:45	05/10/10 02:20	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**226**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**9.0**	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 16:10	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**13.9**	mg/L	10.0	0.76	10		04/30/10 20:10	16887-00-6	
Sulfate	**32.9**	mg/L	10.0	1.7	10		04/30/10 20:10	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.53**	mg/L	0.050	0.014	5		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**4.3**	mg/L	1.0	0.37	1		05/09/10 20:17	7440-44-0	

Sample: MW-06S-042910 **Lab ID: 253611003** Collected: 04/29/10 12:13 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**132**	mg/L	1.0		1		05/04/10 12:28		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:28	7429-90-5	
Calcium	**45400**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:28	7440-70-2	
Iron	**1150**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:28	7439-89-6	
Magnesium	**4500J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:28	7439-95-4	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253611

Sample: MW-06S-042910 **Lab ID: 253611003** Collected: 04/29/10 12:13 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**26.6**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:28	7439-96-5	
Potassium	**12000**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:28	7440-09-7	
Sodium	**23500**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:28	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:13	7429-90-5	
Iron, Dissolved	**1060**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:13	7439-89-6	
Manganese, Dissolved	**26.8**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:13	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**24.9**	ug/L	5.0	0.62	10	05/06/10 14:28	05/11/10 12:16	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**16.4**	ug/L	0.50	0.062	1	05/06/10 14:36	05/07/10 23:20	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	1.0	0.39	1	05/05/10 17:45	05/10/10 03:28	95-57-8	
2,4-Dichlorophenol	ND	ug/L	1.0	0.41	1	05/05/10 17:45	05/10/10 03:28	120-83-2	
Pentachlorophenol	ND	ug/L	5.2	0.47	1	05/05/10 17:45	05/10/10 03:28	87-86-5	
Phenol	ND	ug/L	1.0	0.13	1	05/05/10 17:45	05/10/10 03:28	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	1.0	0.49	1	05/05/10 17:45	05/10/10 03:28	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	1.0	0.44	1	05/05/10 17:45	05/10/10 03:28	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	1.0	0.21	1	05/05/10 17:45	05/10/10 03:28	88-06-2	
Nitrobenzene-d5 (S)	88	%	38-121		1	05/05/10 17:45	05/10/10 03:28	4165-60-0	1n
2-Fluorobiphenyl (S)	70	%	40-110		1	05/05/10 17:45	05/10/10 03:28	321-60-8	
Terphenyl-d14 (S)	90	%	26-130		1	05/05/10 17:45	05/10/10 03:28	1718-51-0	
Phenol-d6 (S)	38	%	11-120		1	05/05/10 17:45	05/10/10 03:28	13127-88-3	
2-Fluorophenol (S)	56	%	20-120		1	05/05/10 17:45	05/10/10 03:28	367-12-4	
2,4,6-Tribromophenol (S)	88	%	37-120		1	05/05/10 17:45	05/10/10 03:28	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**196**	mg/L	2.0	2.0	1		05/03/10 12:25		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/03/10 12:25		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		04/30/10 16:15		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 17:01	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.0**	mg/L	1.0	0.076	1		04/30/10 17:01	16887-00-6	
Sulfate	**25.2**	mg/L	10.0	1.7	10		04/30/10 21:01	14808-79-8	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253611

Sample: MW-06S-042910 **Lab ID: 253611003** Collected: 04/29/10 12:13 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.081**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**1.5**	mg/L	1.0	0.37	1		05/09/10 20:24	7440-44-0	

Sample: DUP 042910 **Lab ID: 253611004** Collected: 04/29/10 08:00 Received: 04/29/10 13:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**3640**	ug/L	5.0	0.62	10	05/06/10 14:28	05/11/10 12:41	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1300**	ug/L	5.0	0.62	10	05/06/10 14:36	05/09/10 02:55	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.96	0.37	1	05/05/10 17:45	05/10/10 03:51	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.96	0.38	1	05/05/10 17:45	05/10/10 03:51	120-83-2	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	05/05/10 17:45	05/10/10 03:51	87-86-5	
Phenol	ND	ug/L	0.96	0.12	1	05/05/10 17:45	05/10/10 03:51	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.96	0.46	1	05/05/10 17:45	05/10/10 03:51	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.96	0.41	1	05/05/10 17:45	05/10/10 03:51	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.96	0.19	1	05/05/10 17:45	05/10/10 03:51	88-06-2	
Nitrobenzene-d5 (S)	76	%	38-121		1	05/05/10 17:45	05/10/10 03:51	4165-60-0	1n
2-Fluorobiphenyl (S)	65	%	40-110		1	05/05/10 17:45	05/10/10 03:51	321-60-8	
Terphenyl-d14 (S)	88	%	26-130		1	05/05/10 17:45	05/10/10 03:51	1718-51-0	
Phenol-d6 (S)	31	%	11-120		1	05/05/10 17:45	05/10/10 03:51	13127-88-3	
2-Fluorophenol (S)	47	%	20-120		1	05/05/10 17:45	05/10/10 03:51	367-12-4	
2,4,6-Tribromophenol (S)	91	%	37-120		1	05/05/10 17:45	05/10/10 03:51	118-79-6	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: MPRP/1554 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 26993 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 12:06	
Calcium	ug/L	ND	5000	05/04/10 12:06	
Iron	ug/L	ND	100	05/04/10 12:06	
Magnesium	ug/L	ND	5000	05/04/10 12:06	
Manganese	ug/L	ND	15.0	05/04/10 12:06	
Potassium	ug/L	ND	5000	05/04/10 12:06	
Sodium	ug/L	ND	5000	05/04/10 12:06	

LABORATORY CONTROL SAMPLE: 26994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9650	97	80-120	
Calcium	ug/L	10000	9300	93	80-120	
Iron	ug/L	10000	9860	99	80-120	
Magnesium	ug/L	10000	9200	92	80-120	
Manganese	ug/L	500	483	97	80-120	
Potassium	ug/L	10000	9850	98	80-120	
Sodium	ug/L	10000	10300	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26995 26996

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9980	9900	99	99	75-125	.8	20	
Calcium	ug/L	46300	10000	10000	57300	56600	110	103	75-125	1	20	
Iron	ug/L	15200	10000	10000	25400	25100	102	99	75-125	.9	20	
Magnesium	ug/L	9220	10000	10000	19000	18600	98	94	75-125	2	20	
Manganese	ug/L	456	500	500	948	948	98	98	75-125	.05	20	
Potassium	ug/L	8260	10000	10000	18800	18500	105	102	75-125	1	20	
Sodium	ug/L	45400	10000	10000	57300	55600	119	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: MPRP/1557 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 27073 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:54	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:54	
Manganese, Dissolved	ug/L	ND	15.0	05/04/10 13:54	

LABORATORY CONTROL SAMPLE: 27074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9370	94	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Manganese, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27075 27076

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9420	9750	94	97	75-125	3	20	
Iron, Dissolved	ug/L	14300	10000	10000	23900	24800	96	105	75-125	4	20	
Manganese, Dissolved	ug/L	430	500	500	914	939	97	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: ICPM/20299 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

METHOD BLANK: 784154 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/11/10 11:39	

LABORATORY CONTROL SAMPLE: 784155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	75.6	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784156 784157

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	3290	80	80	3840	4010	688	905	70-130	4	20	M0

MATRIX SPIKE SAMPLE: 784158

Parameter	Units	9268135007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	80	97.4	122	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: ICPM/20295 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

METHOD BLANK: 784135 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/07/10 22:51	

LABORATORY CONTROL SAMPLE: 784136

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	70.3	88	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784137 784138

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	2700	160	160	1120	1100	-985	-996	70-130	2	20	E,M0

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: OEXT/2167 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

METHOD BLANK: 27206 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003, 253611004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4-Dichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2-Chlorophenol	ug/L	ND	1.0	05/10/10 01:12	
Pentachlorophenol	ug/L	ND	5.0	05/10/10 01:12	
Phenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,6-Tribromophenol (S)	%	25	37-120	05/10/10 01:12	S0
2-Fluorobiphenyl (S)	%	23	40-110	05/10/10 01:12	S0
2-Fluorophenol (S)	%	20	20-120	05/10/10 01:12	
Nitrobenzene-d5 (S)	%	27	38-121	05/10/10 01:12	S0
Phenol-d6 (S)	%	15	11-120	05/10/10 01:12	
Terphenyl-d14 (S)	%	28	26-130	05/10/10 01:12	

LABORATORY CONTROL SAMPLE: 27207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	23.5	118	20-160	
2,4,5-Trichlorophenol	ug/L	20	21.6	108	46-130	
2,4,6-Trichlorophenol	ug/L	20	21.2	106	38-130	
2,4-Dichlorophenol	ug/L	20	19.7	99	42-130	
2-Chlorophenol	ug/L	20	19.8	99	20-130	
Pentachlorophenol	ug/L	20	20.1	100	10-114	
Phenol	ug/L	20	9.6	48	10-127	
2,4,6-Tribromophenol (S)	%			97	37-120	
2-Fluorobiphenyl (S)	%			84	40-110	
2-Fluorophenol (S)	%			69	20-120	
Nitrobenzene-d5 (S)	%			100	38-121	
Phenol-d6 (S)	%			51	11-120	
Terphenyl-d14 (S)	%			97	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27208 27209

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	19.2	19.2	21.5	21.4	112	111	20-160	.8	30	
2,4,5-Trichlorophenol	ug/L	ND	19.2	19.2	19.0	18.4	99	96	46-130	4	30	
2,4,6-Trichlorophenol	ug/L	ND	19.2	19.2	18.9	17.8	98	93	38-130	6	30	
2,4-Dichlorophenol	ug/L	ND	19.2	19.2	16.5	16.1	86	84	42-130	2	30	
2-Chlorophenol	ug/L	ND	19.2	19.2	15.6	15.0	81	78	20-130	4	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27208 27209

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	19.2	19.2	18.6	18.8	97	98	10-114	.9	30	
Phenol	ug/L	ND	19.2	19.2	5.6	5.4	29	28	10-127	3	30	
2,4,6-Tribromophenol (S)	%						93	90	37-120			
2-Fluorobiphenyl (S)	%						79	72	40-110			
2-Fluorophenol (S)	%						49	44	20-120			
Nitrobenzene-d5 (S)	%						83	78	38-121			
Phenol-d6 (S)	%						33	31	11-120			
Terphenyl-d14 (S)	%						88	89	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WET/1970 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 27065 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/03/10 12:25	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/03/10 12:25	

SAMPLE DUPLICATE: 27067

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	204	202	1	10	

SAMPLE DUPLICATE: 27068

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	226	232	3	10	

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WET/1966 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 26980 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	04/30/10 16:15	

SAMPLE DUPLICATE: 26981

Parameter	Units	253600002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	18.0	20.0	11	20	

SAMPLE DUPLICATE: 26982

Parameter	Units	253611002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	7.0	25	20	D8

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WETA/1497 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 26894 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/30/10 15:35	

LABORATORY CONTROL SAMPLE: 26895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26896 26897

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	1.3	1.6	52	65	90-110	23	10	M3

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WETA/1504 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 27017 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/30/10 15:35	
Sulfate	mg/L	ND	1.0	04/30/10 15:35	

LABORATORY CONTROL SAMPLE: 27018

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	15	14.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27019 27020

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.9	50	50	35.2	37.1	43	46	90-110	5	11	M1
Sulfate	mg/L	32.9	150	150	103	109	46	51	90-110	6	10	M1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WETA/1506 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 27495 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/10/10 17:32	

LABORATORY CONTROL SAMPLE: 27496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.25	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27497 27498

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.53	.25	.25	0.74	1.1	85	225	80-120	38	30	M3,R2

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940 South Harney
Seattle, WA 98108
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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253611

QC Batch: WETA/12864 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253611001, 253611002, 253611003

METHOD BLANK: 640988 Matrix: Water
Associated Lab Samples: 253611001, 253611002, 253611003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/09/10 19:16	

LABORATORY CONTROL SAMPLE: 640989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	104	84-120	

MATRIX SPIKE SAMPLE: 640990

Parameter	Units	253614001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5.6	5	10.2	92	59-144	

SAMPLE DUPLICATE: 640991

Parameter	Units	253619004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2.8	2.5	12	25	

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253611

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

1n	Reported results were confirmed by the analysis of an out-of-hold re-extract sample, associated with a passing method blank, on 5/11/10.
D8	The sample and duplicate results for this parameter are less than 5 times the reporting limit, the RPD may not be statistically valid.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
R2	RPD value was outside control limits due to matrix interference
S0	Surrogate recovery outside laboratory control limits.

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May 18, 2010 Analytical Report for Service Request No: K1004395

Heidi Geri
Pace Analytical Services
940 South Harney
Seattle, WA 98108

RE: Reichold Glacier/253614

Dear Heidi:

Enclosed are the results of the rush samples submitted to our laboratory on May 04, 2010. For your reference, these analyses have been assigned our service request number K1004395.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
N	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Pace Analytical Services	**Service Request No.:**	K1004395
Project:	Reichold Glacier	**Date Received:**	05/04/10
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), and Laboratory Control Sample (LCS).

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 05/04/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by_____ **Date** 05/18/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1004395
Project:	Reichold Glacier/253614	**Date Collected:**	4/29/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-27-042910	K1004395-001	10	4	1	5/11/2010	9	J
MW-26-042910	K1004395-002	10	4	1	5/11/2010	ND	
MW-16-042910	K1004395-003	10	4	2	5/11,13/2010	91	
Method Blank	K1004395-MB	10	4	1	5/11/2010	ND	
Method Blank	K1004395-MB	10	4	1	5/12/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004395
Project:	Reichold Glacier/253614	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	5/11/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	Batch QC	Units:	ug/L (ppb)
Lab Code:	K1004393-001MS, K1004393-001DMS	Basis:	NA
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	200	ND	99	204	99	102	82-121	3	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold Glacier/253614
Sample Matrix: Water

Service Request: K1004395
Date Collected: NA
Date Received: NA
Date Analyzed: 5/13/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.61	9.8	93	ND
Percent Recovery	99	98	93	
Run B	3.50	9.8		
Percent Recovery	96	98		

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold Glacier/253614
Sample Matrix: Water

Service Request: K1004395
Date Collected: NA
Date Received: NA
Date Analyzed: 5/11/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.57	9.7	91	ND
Percent Recovery	98	97	91	
Run B	3.38	9.3		
Percent Recovery	93	93		

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 253614 Workorder Name: Reichold Glacier Results Requested 5/11/2010 L107431[illegible]5

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	CAS, Kelso Attn: Pradeep D. 1317 S. 13TH Ave. Kelso, Wa 98626 P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis: 9020 TOX	LAB USE ONLY
1	MW-27-042910	4/29/2010 13:07	253614001	Water		X	
2	MW-26-042910	4/29/2010 13:56	253614002	Water		X	
3	MW-16-042910	4/29/2010 15:01	253614003	Water		X	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	[illegible]	5/3/10 1440	[illegible]	5/4/10 [illegible]
2				
3				
4				
5				

Comments

4 - file Equis EDD needed. JL 4/30/10

Report to the MDL, J flag report

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PO

Client / Project SMCE Service Request K10 43965

Received: 5/4/10 Opened: 5/4/10 By: CM

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1F
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number	NA	Filed
-0.3		287		1935 0643 9446		X

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 13, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253619

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 30, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Regina Ste. Marie

Regina SteMarie for
Heidi Geri
heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253619

Minnesota Certification IDs

Arizona Certification #: AZ-0014
Louisiana Certification #: LA080009
Florida/NELAP Certification #: E87605
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Alaska Certification #: UST-078
1700 Elm Street SE, Suite 200 Minneapolis, MN 55414
Wisconsin Certification #: 999407970
Washington Certification #: C754
Tennessee Certification #: 02818
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Michigan DEQ Certification #: 9909
Maine Certification #: 2007029
California Certification #: 01155CA

Washington Certification IDs

Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01-09
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
A2LA Certification #: 2456.01
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
Nevada Certification #: KS000212008A

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253619

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253619001	**MW-05S-042910**	Water	04/29/10 15:54	04/30/10 10:35
253619002	**MW-11-043010**	Water	04/30/10 07:36	04/30/10 10:35
253619003	**MW-12-043010**	Water	04/30/10 08:23	04/30/10 10:35
253619004	**MW-19-043010**	Water	04/30/10 09:20	04/30/10 10:35

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253619

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
253619001	**MW-05S-042910**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	BGA	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253619002	**MW-11-043010**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	BGA	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253619003	**MW-12-043010**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	BGA	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K
253619004	**MW-19-043010**	SM 2340B	BGA	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253619

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	RJS	1	PASI-M
		EPA 6020	RJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	BGA	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		EPA 9060	SRM1	1	PASI-K

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20299

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002,9268135007

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784156)
  - Arsenic
- MSD (Lab ID: 784157)
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/20295

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 784137)
  - Arsenic, Dissolved
- MSD (Lab ID: 784138)
  - Arsenic, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: ICPM/20295

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 784137)
  - Arsenic, Dissolved
- MSD (Lab ID: 784138)
  - Arsenic, Dissolved

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/2167

S0: Surrogate recovery outside laboratory control limits.

- BLANK (Lab ID: 27206)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorobiphenyl (S)
  - Nitrobenzene-d5 (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: May 13, 2010

Analyte Comments:

QC Batch: OEXT/2167

1n: Reported results were confirmed by the analysis of an out-of-hold re-extract sample, associated with a passing method blank, on 5/11/10.

- MW-05S-042910 (Lab ID: 253619001)
  - Nitrobenzene-d5 (S)
- MW-11-043010 (Lab ID: 253619002)
  - Nitrobenzene-d5 (S)
- MW-12-043010 (Lab ID: 253619003)
  - Nitrobenzene-d5 (S)
- MW-19-043010 (Lab ID: 253619004)
  - Nitrobenzene-d5 (S)

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1497

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MS (Lab ID: 26896)
  - Nitrate as N
- MSD (Lab ID: 26897)
  - Nitrate as N

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1504

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 27019)
  - Chloride
  - Sulfate
- MSD (Lab ID: 27020)
  - Chloride
  - Sulfate

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1506

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 253611002

M3: Matrix spike recovery was outside laboratory control limits due to matrix interferences.

- MSD (Lab ID: 27498)
  - Phosphorus

R2: RPD value was outside control limits due to matrix interference

- MSD (Lab ID: 27498)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253619

Method: **EPA 9060**
Description: Total Organic Carbon
Client: ERM-PORTLAND
Date: May 13, 2010

General Information:
4 samples were analyzed for EPA 9060. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-05S-042910 **Lab ID: 253619001** Collected: 04/29/10 15:54 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**94.2**	mg/L	1.0		1		05/04/10 13:21		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 13:21	7429-90-5	
Calcium	**32700**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 13:21	7440-70-2	
Iron	**24.2J**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 13:21	7439-89-6	
Magnesium	**3050J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 13:21	7439-95-4	
Manganese	**14.6J**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 13:21	7439-96-5	
Potassium	**1090J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 13:21	7440-09-7	
Sodium	**7710**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 13:21	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	**51.8J**	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:37	7429-90-5	
Iron, Dissolved	**29.6J**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:37	7439-89-6	
Manganese, Dissolved	**22.2**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:37	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**4.4**	ug/L	0.50	0.062	1	05/06/10 14:28	05/11/10 12:45	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**6.1**	ug/L	0.50	0.062	1	05/06/10 14:36	05/07/10 23:28	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.99	0.38	1	05/05/10 17:45	05/10/10 04:13	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.99	0.40	1	05/05/10 17:45	05/10/10 04:13	120-83-2	
Pentachlorophenol	ND	ug/L	5.0	0.46	1	05/05/10 17:45	05/10/10 04:13	87-86-5	
Phenol	ND	ug/L	0.99	0.13	1	05/05/10 17:45	05/10/10 04:13	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.99	0.48	1	05/05/10 17:45	05/10/10 04:13	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.99	0.43	1	05/05/10 17:45	05/10/10 04:13	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.99	0.20	1	05/05/10 17:45	05/10/10 04:13	88-06-2	
Nitrobenzene-d5 (S)	75	%	38-121		1	05/05/10 17:45	05/10/10 04:13	4165-60-0	1n
2-Fluorobiphenyl (S)	72	%	40-110		1	05/05/10 17:45	05/10/10 04:13	321-60-8	
Terphenyl-d14 (S)	94	%	26-130		1	05/05/10 17:45	05/10/10 04:13	1718-51-0	
Phenol-d6 (S)	30	%	11-120		1	05/05/10 17:45	05/10/10 04:13	13127-88-3	
2-Fluorophenol (S)	45	%	20-120		1	05/05/10 17:45	05/10/10 04:13	367-12-4	
2,4,6-Tribromophenol (S)	82	%	37-120		1	05/05/10 17:45	05/10/10 04:13	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**60.0**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		05/05/10 16:10		

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-05S-042910 **Lab ID: 253619001** Collected: 04/29/10 15:54 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 23:03	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.8**	mg/L	1.0	0.076	1		04/30/10 23:03	16887-00-6	
Sulfate	**55.5**	mg/L	10.0	1.7	10		05/05/10 17:23	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.018**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**1.2**	mg/L	1.0	0.37	1		05/09/10 20:30	7440-44-0	

Sample: MW-11-043010 **Lab ID: 253619002** Collected: 04/30/10 07:36 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**101**	mg/L	1.0		1		05/04/10 12:55		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:55	7429-90-5	
Calcium	**38400**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:55	7440-70-2	
Iron	**41.0J**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:55	7439-89-6	
Magnesium	**1340J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:55	7439-95-4	
Manganese	**7.7J**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:55	7439-96-5	
Potassium	**1120J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:55	7440-09-7	
Sodium	**11700**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:55	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:40	7429-90-5	
Iron, Dissolved	ND	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:40	7439-89-6	
Manganese, Dissolved	**0.55J**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:40	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**73.2**	ug/L	2.5	0.31	5	05/06/10 14:28	05/11/10 12:50	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**63.8**	ug/L	0.50	0.062	1	05/06/10 14:36	05/07/10 23:53	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/05/10 17:45	05/10/10 04:36	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/05/10 17:45	05/10/10 04:36	120-83-2	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	05/05/10 17:45	05/10/10 04:36	87-86-5	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-11-043010 **Lab ID: 253619002** Collected: 04/30/10 07:36 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol	ND	ug/L	0.95	0.12	1	05/05/10 17:45	05/10/10 04:36	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.46	1	05/05/10 17:45	05/10/10 04:36	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/05/10 17:45	05/10/10 04:36	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/05/10 17:45	05/10/10 04:36	88-06-2	
Nitrobenzene-d5 (S)	78	%	38-121		1	05/05/10 17:45	05/10/10 04:36	4165-60-0	1n
2-Fluorobiphenyl (S)	75	%	40-110		1	05/05/10 17:45	05/10/10 04:36	321-60-8	
Terphenyl-d14 (S)	85	%	26-130		1	05/05/10 17:45	05/10/10 04:36	1718-51-0	
Phenol-d6 (S)	30	%	11-120		1	05/05/10 17:45	05/10/10 04:36	13127-88-3	
2-Fluorophenol (S)	44	%	20-120		1	05/05/10 17:45	05/10/10 04:36	367-12-4	
2,4,6-Tribromophenol (S)	85	%	37-120		1	05/05/10 17:45	05/10/10 04:36	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**124**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	2.0	1		05/05/10 16:10		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 23:20	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**2.9**	mg/L	1.0	0.076	1		04/30/10 23:20	16887-00-6	
Sulfate	**18.3**	mg/L	1.0	0.17	1		04/30/10 23:20	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.12**	mg/L	0.010	0.0028	1		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.5**	mg/L	1.0	0.37	1		05/09/10 20:37	7440-44-0	

Sample: MW-12-043010 **Lab ID: 253619003** Collected: 04/30/10 08:23 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**44.7**	mg/L	1.0		1		05/04/10 12:57		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	**78.7J**	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 12:57	7429-90-5	
Calcium	**15700**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 12:57	7440-70-2	
Iron	**847**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 12:57	7439-89-6	
Magnesium	**1330J**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 12:57	7439-95-4	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-12-043010 **Lab ID: 253619003** Collected: 04/30/10 08:23 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**23.9**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 12:57	7439-96-5	
Potassium	**2850J**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 12:57	7440-09-7	
Sodium	**33600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 12:57	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	**47.3J**	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:42	7429-90-5	
Iron, Dissolved	**662**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:42	7439-89-6	
Manganese, Dissolved	**24.1**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:42	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**216**	ug/L	2.5	0.31	5	05/06/10 14:28	05/11/10 12:54	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**172**	ug/L	0.50	0.062	1	05/06/10 14:36	05/07/10 23:57	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/05/10 17:45	05/10/10 04:58	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/05/10 17:45	05/10/10 04:58	120-83-2	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	05/05/10 17:45	05/10/10 04:58	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/05/10 17:45	05/10/10 04:58	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.46	1	05/05/10 17:45	05/10/10 04:58	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/05/10 17:45	05/10/10 04:58	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/05/10 17:45	05/10/10 04:58	88-06-2	
Nitrobenzene-d5 (S)	88	%	38-121		1	05/05/10 17:45	05/10/10 04:58	4165-60-0	1n
2-Fluorobiphenyl (S)	84	%	40-110		1	05/05/10 17:45	05/10/10 04:58	321-60-8	
Terphenyl-d14 (S)	90	%	26-130		1	05/05/10 17:45	05/10/10 04:58	1718-51-0	
Phenol-d6 (S)	33	%	11-120		1	05/05/10 17:45	05/10/10 04:58	13127-88-3	
2-Fluorophenol (S)	51	%	20-120		1	05/05/10 17:45	05/10/10 04:58	367-12-4	
2,4,6-Tribromophenol (S)	89	%	37-120		1	05/05/10 17:45	05/10/10 04:58	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**100**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**2.0**	mg/L	2.0	2.0	1		05/05/10 16:10		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 23:38	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.9**	mg/L	1.0	0.076	1		04/30/10 23:38	16887-00-6	
Sulfate	**21.7**	mg/L	5.0	0.85	5		05/05/10 17:40	14808-79-8	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-12-043010 **Lab ID: 253619003** Collected: 04/30/10 08:23 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.44**	mg/L	0.020	0.0056	2		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.1**	mg/L	1.0	0.37	1		05/09/10 20:44	7440-44-0	

Sample: MW-19-043010 **Lab ID: 253619004** Collected: 04/30/10 09:20 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**122**	mg/L	1.0		1		05/04/10 13:00		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	77.1	1	05/03/10 08:57	05/04/10 13:00	7429-90-5	
Calcium	**32400**	ug/L	5000	23.4	1	05/03/10 08:57	05/04/10 13:00	7440-70-2	
Iron	**12100**	ug/L	100	5.8	1	05/03/10 08:57	05/04/10 13:00	7439-89-6	
Magnesium	**10000**	ug/L	5000	83.0	1	05/03/10 08:57	05/04/10 13:00	7439-95-4	
Manganese	**441**	ug/L	15.0	0.18	1	05/03/10 08:57	05/04/10 13:00	7439-96-5	
Potassium	**9760**	ug/L	5000	59.4	1	05/03/10 08:57	05/04/10 13:00	7440-09-7	
Sodium	**24600**	ug/L	5000	14.7	1	05/03/10 08:57	05/04/10 13:00	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	22.3	1	05/03/10 12:24	05/04/10 14:45	7429-90-5	
Iron, Dissolved	**10900**	ug/L	100	13.1	1	05/03/10 12:24	05/04/10 14:45	7439-89-6	
Manganese, Dissolved	**422**	ug/L	15.0	0.12	1	05/03/10 12:24	05/04/10 14:45	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**327**	ug/L	2.5	0.31	5	05/06/10 14:28	05/11/10 12:58	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**290**	ug/L	0.50	0.062	1	05/06/10 14:36	05/08/10 00:01	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	0.95	0.36	1	05/05/10 17:45	05/10/10 05:21	95-57-8	
2,4-Dichlorophenol	ND	ug/L	0.95	0.38	1	05/05/10 17:45	05/10/10 05:21	120-83-2	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	05/05/10 17:45	05/10/10 05:21	87-86-5	
Phenol	ND	ug/L	0.95	0.12	1	05/05/10 17:45	05/10/10 05:21	108-95-2	
2,3,4,6-Tetrachlorophenol	ND	ug/L	0.95	0.45	1	05/05/10 17:45	05/10/10 05:21	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	05/05/10 17:45	05/10/10 05:21	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	05/05/10 17:45	05/10/10 05:21	88-06-2	
Nitrobenzene-d5 (S)	82	%	38-121		1	05/05/10 17:45	05/10/10 05:21	4165-60-0	1n
2-Fluorobiphenyl (S)	81	%	40-110		1	05/05/10 17:45	05/10/10 05:21	321-60-8	
Terphenyl-d14 (S)	89	%	26-130		1	05/05/10 17:45	05/10/10 05:21	1718-51-0	

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ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253619

Sample: MW-19-043010 **Lab ID: 253619004** Collected: 04/30/10 09:20 Received: 04/30/10 10:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol-d6 (S)	31	%	11-120		1	05/05/10 17:45	05/10/10 05:21	13127-88-3	
2-Fluorophenol (S)	49	%	20-120		1	05/05/10 17:45	05/10/10 05:21	367-12-4	
2,4,6-Tribromophenol (S)	93	%	37-120		1	05/05/10 17:45	05/10/10 05:21	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**204**	mg/L	2.0	2.0	1		05/10/10 16:10		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		05/10/10 16:10		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**14.0**	mg/L	2.0	2.0	1		05/05/10 16:10		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.055	1		04/30/10 23:55	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**5.3**	mg/L	1.0	0.076	1		04/30/10 23:55	16887-00-6	
Sulfate	**1.7**	mg/L	1.0	0.17	1		04/30/10 23:55	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.60**	mg/L	0.020	0.0056	2		05/10/10 17:32	7723-14-0	
Total Organic Carbon	Analytical Method: EPA 9060								
Total Organic Carbon	**2.8**	mg/L	1.0	0.37	1		05/09/10 20:50	7440-44-0	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: MPRP/1554 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 26993 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	05/04/10 12:06	
Calcium	ug/L	ND	5000	05/04/10 12:06	
Iron	ug/L	ND	100	05/04/10 12:06	
Magnesium	ug/L	ND	5000	05/04/10 12:06	
Manganese	ug/L	ND	15.0	05/04/10 12:06	
Potassium	ug/L	ND	5000	05/04/10 12:06	
Sodium	ug/L	ND	5000	05/04/10 12:06	

LABORATORY CONTROL SAMPLE: 26994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9650	97	80-120	
Calcium	ug/L	10000	9300	93	80-120	
Iron	ug/L	10000	9860	99	80-120	
Magnesium	ug/L	10000	9200	92	80-120	
Manganese	ug/L	500	483	97	80-120	
Potassium	ug/L	10000	9850	98	80-120	
Sodium	ug/L	10000	10300	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26995 26996

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9980	9900	99	99	75-125	.8	20	
Calcium	ug/L	46300	10000	10000	57300	56600	110	103	75-125	1	20	
Iron	ug/L	15200	10000	10000	25400	25100	102	99	75-125	.9	20	
Magnesium	ug/L	9220	10000	10000	19000	18600	98	94	75-125	2	20	
Manganese	ug/L	456	500	500	948	948	98	98	75-125	.05	20	
Potassium	ug/L	8260	10000	10000	18800	18500	105	102	75-125	1	20	
Sodium	ug/L	45400	10000	10000	57300	55600	119	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: MPRP/1557 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27073 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	05/04/10 13:54	
Iron, Dissolved	ug/L	ND	100	05/04/10 13:54	
Manganese, Dissolved	ug/L	ND	15.0	05/04/10 13:54	

LABORATORY CONTROL SAMPLE: 27074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9370	94	80-120	
Iron, Dissolved	ug/L	10000	9660	97	80-120	
Manganese, Dissolved	ug/L	500	485	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27075 27076

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9420	9750	94	97	75-125	3	20	
Iron, Dissolved	ug/L	14300	10000	10000	23900	24800	96	105	75-125	4	20	
Manganese, Dissolved	ug/L	430	500	500	914	939	97	102	75-125	3	20	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: ICPM/20299 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 784154 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	05/11/10 11:39	

LABORATORY CONTROL SAMPLE: 784155

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	75.6	95	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784156 784157

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	3290	80	80	3840	4010	688	905	70-130	4	20	M0

MATRIX SPIKE SAMPLE: 784158

Parameter	Units	9268135007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	80	97.4	122	70-130	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: ICPM/20295 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 784135 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	05/07/10 22:51	

LABORATORY CONTROL SAMPLE: 784136

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	70.3	88	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 784137 784138

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	2700	160	160	1120	1100	-985	-996	70-130	2	20	E,M0

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: OEXT/2167 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27206 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,5-Trichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,6-Trichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2,4-Dichlorophenol	ug/L	ND	1.0	05/10/10 01:12	
2-Chlorophenol	ug/L	ND	1.0	05/10/10 01:12	
Pentachlorophenol	ug/L	ND	5.0	05/10/10 01:12	
Phenol	ug/L	ND	1.0	05/10/10 01:12	
2,4,6-Tribromophenol (S)	%	25	37-120	05/10/10 01:12	S0
2-Fluorobiphenyl (S)	%	23	40-110	05/10/10 01:12	S0
2-Fluorophenol (S)	%	20	20-120	05/10/10 01:12	
Nitrobenzene-d5 (S)	%	27	38-121	05/10/10 01:12	S0
Phenol-d6 (S)	%	15	11-120	05/10/10 01:12	
Terphenyl-d14 (S)	%	28	26-130	05/10/10 01:12	

LABORATORY CONTROL SAMPLE: 27207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	23.5	118	20-160	
2,4,5-Trichlorophenol	ug/L	20	21.6	108	46-130	
2,4,6-Trichlorophenol	ug/L	20	21.2	106	38-130	
2,4-Dichlorophenol	ug/L	20	19.7	99	42-130	
2-Chlorophenol	ug/L	20	19.8	99	20-130	
Pentachlorophenol	ug/L	20	20.1	100	10-114	
Phenol	ug/L	20	9.6	48	10-127	
2,4,6-Tribromophenol (S)	%			97	37-120	
2-Fluorobiphenyl (S)	%			84	40-110	
2-Fluorophenol (S)	%			69	20-120	
Nitrobenzene-d5 (S)	%			100	38-121	
Phenol-d6 (S)	%			51	11-120	
Terphenyl-d14 (S)	%			97	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27208 27209

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,3,4,6-Tetrachlorophenol	ug/L	ND	19.2	19.2	21.5	21.4	112	111	20-160	.8	30	
2,4,5-Trichlorophenol	ug/L	ND	19.2	19.2	19.0	18.4	99	96	46-130	4	30	
2,4,6-Trichlorophenol	ug/L	ND	19.2	19.2	18.9	17.8	98	93	38-130	6	30	
2,4-Dichlorophenol	ug/L	ND	19.2	19.2	16.5	16.1	86	84	42-130	2	30	
2-Chlorophenol	ug/L	ND	19.2	19.2	15.6	15.0	81	78	20-130	4	30	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27208 27209

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/L	ND	19.2	19.2	18.6	18.8	97	98	10-114	.9	30	
Phenol	ug/L	ND	19.2	19.2	5.6	5.4	29	28	10-127	3	30	
2,4,6-Tribromophenol (S)	%						93	90	37-120			
2-Fluorobiphenyl (S)	%						79	72	40-110			
2-Fluorophenol (S)	%						49	44	20-120			
Nitrobenzene-d5 (S)	%						83	78	38-121			
Phenol-d6 (S)	%						33	31	11-120			
Terphenyl-d14 (S)	%						88	89	26-130			

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WET/1980 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27520 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	05/10/10 16:10	

SAMPLE DUPLICATE: 27522

Parameter	Units	253614001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	392	396	1	10	

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WET/1976 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27235 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	05/05/10 16:10	

SAMPLE DUPLICATE: 27236

Parameter	Units	253642001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	7.0	9.0	25	20	R3

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WETA/1497 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 26894 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	04/30/10 15:35	

LABORATORY CONTROL SAMPLE: 26895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.5	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 26896 26897

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	1.3	1.6	52	65	90-110	23	10	M3

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WETA/1504 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27017 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	04/30/10 15:35	
Sulfate	mg/L	ND	1.0	04/30/10 15:35	

LABORATORY CONTROL SAMPLE: 27018

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.8	96	90-110	
Sulfate	mg/L	15	14.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27019 27020

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	13.9	50	50	35.2	37.1	43	46	90-110	5	11	M1
Sulfate	mg/L	32.9	150	150	103	109	46	51	90-110	6	10	M1

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WETA/1506 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 27495 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	05/10/10 17:32	

LABORATORY CONTROL SAMPLE: 27496

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.25	0.25	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 27497 27498

Parameter	Units	253611002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.53	.25	.25	0.74	1.1	85	225	80-120	38	30	M3,R2

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QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253619

QC Batch: WETA/12864 Analysis Method: EPA 9060
QC Batch Method: EPA 9060 Analysis Description: 9060 TOC
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

METHOD BLANK: 640988 Matrix: Water
Associated Lab Samples: 253619001, 253619002, 253619003, 253619004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	05/09/10 19:16	

LABORATORY CONTROL SAMPLE: 640989

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5	5.2	104	84-120	

MATRIX SPIKE SAMPLE: 640990

Parameter	Units	253614001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	5.6	5	10.2	92	59-144	

SAMPLE DUPLICATE: 640991

Parameter	Units	253619004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	2.8	2.5	12	25	

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QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253619

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-K	Pace Analytical Services - Kansas City
PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

1n	Reported results were confirmed by the analysis of an out-of-hold re-extract sample, associated with a passing method blank, on 5/11/10.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M3	Matrix spike recovery was outside laboratory control limits due to matrix interferences.
R2	RPD value was outside control limits due to matrix interference
R3	RPD value was outside control limits due to uncertainty of values at or near the PRL.
S0	Surrogate recovery outside laboratory control limits.

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May 14, 2010 Analytical Report for Service Request No: K1004393

Heidi Geri
Pace Analytical Services
940 South Harney
Seattle, WA 98108

RE: Reichold Glacier/253619

Dear Heidi:

Enclosed are the results of the samples submitted to our laboratory on May 04, 2010. For your reference, these analyses have been assigned our service request number K1004393.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at PDivvela@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Pradeep Divvela
Project Chemist

PD/kd

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
–	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Pace Analytical Services	**Service Request No.:**	K1004393
Project:	Reichold Glacier	**Date Received:**	05/04/10
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Additional quality control analyses reported herein include: Matrix/Duplicate Matrix Spike (MS/DMS), and Laboratory Control Sample (LCS).

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 05/04/10. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by_____ Date 05/14/10

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1004393
Project:	Reichold Glacier/253619	**Date Collected:**	4/29-30/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-05S-042910	K1004393-001	10	4	1	5/11/2010	ND	
MW-11-043010	K1004393-002	10	4	1	5/11/2010	10	
MW-12-043010	K1004393-003	10	4	1	5/11/2010	5	J
MW-19-043010	K1004393-004	10	4	1	5/11/2010	ND	
Method Blank	K1004393-MB	10	4	1	5/11/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1004393
Project:	Reichold Glacier/253619	**Date Collected:**	4/29/2010
Sample Matrix:	Water	**Date Received:**	5/4/2010
		Date Extracted:	NA
		Date Analyzed:	5/11/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-05S-042910	Units:	ug/L (ppb)
Lab Code:	K1004393-001MS, K1004393-001DMS	Basis:	NA
Test Notes:			

									Percent Recovery				
	Prep	Analysis		Spike Level		Sample	Spike Result				CAS Acceptance	Relative Percent	Result
Analyte	**Method**	**Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	200	100	ND	99	204	99	96	82-121	3	

DMS 02697n

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold Glacier/253619
Sample Matrix: Water

Service Request: K1004393
Date Collected: NA
Date Received: NA
Date Analyzed: 5/11/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.57	9.7	91	ND
Percent Recovery	98	97	91	
Run B	3.38	9.3		
Percent Recovery	93	93		

Chain of Custody

Pace Analytical
www.pacelabs.com

K1004313

Workorder: 253619 **Workorder Name:** Reichold Glacier **Results Requested** 5/12/2010

Report / Invoice To	Subcontract To
Heidi Geri Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: heidi.geri@pacelabs.com	CAS, Kelso Attn: Pradeep D. 1317 S. 13TH AVE Kelso, WA 98626 P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis: 8020 TOX	LAB USE ONLY
1	MW-05S-042910	4/29/2010 15:54	253619001	Water		X	
2	MW-11-043010	4/30/2010 07:36	253619002	Water		X	
3	MW-12-043010	4/30/2010 08:23	253619003	Water		X	
4	MW-19-043010	4/30/2010 09:20	253619004	Water		X	
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Amanda Bay	4/30/10 1440	Jill Hall CAS	5/4/10 0840
2				
3				
4				
5				

Comments

report to the MDL, "J" flagging

4-file Equis EDD needed.

Re 4/30/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC PD

Client / Project: PACE Service Request: K10 04393

Received: 5/4/10 Opened: 5/4/10 By: [illegible]

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1F
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (NA) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID	NA	Tracking Number	NA	Filed
-0.3		187			793506439466		X

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) (*Gel Packs*) (*Wet Ice*) *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was Cl2/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253631

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 29, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253631

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253631001	**MW-03D-042810**	Water	04/28/10 17:43	04/29/10 09:35

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

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Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

May 6, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 122083
Purchase Order: ERM-REICHOLD
Project Name: Water
Samples Received: One (1) Sample
Date Received: 04/29/2010

Attn: Heidi Geri

Analysis	Page
Formaldehyde by EPA 8315 A	2

D.J. Northington, Ph.D.
Technical Director

Michael Shelton
Senior Staff Chemist

This report is to be reproduced in its entirety.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The sample (10.0 mL) was derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). The resulting test solution was analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde	Detection Limit
MW-03D-042810	0.013	0.005
Method Blank	ND	0.005

Date Derivatized: 04-29-10
Date Analyzed: 04-29-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.00	0.841	84	0.786	79	7
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Method Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.826	83
QC Guideline				80-115

Jenni Gross 206 957 2426

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4011

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 1

6 of 6

PROJECT #	PROJECT NAME
115199.04	RG GW Sampling
SAMPLER (PRINT NAME)	SIGNATURE
Cyrus Gorman	CG

SPECIAL INSTRUCTIONS

PO Send report to Pace Analytical
send invoice

SAMPLE ID	DATE	TIME	# OF CONTAINERS	SOIL	WATER	GAS	REQUESTED ANALYSIS: for analysis by 8151A
MW-03d 042810	4/28/10		1		X		X

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
CG	4/28/10	1803	FedEx		
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
FedEx			Vanessa 11 Rep	04-29-10	09:35
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS

REMARKS ON SAMPLE RECEIPT

☑ BOTTLE INTACT ☐ CUSTODY SEALS ☑ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

LAB REMARKS

SEND REPORT TO: Pace Analytical

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

122083

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253632

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253632

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253632001	**MW-04S-042710**	Water	04/27/10 14:52	04/28/10 09:06
253632002	**MW-01D-042710**	Water	04/27/10 16:32	04/28/10 09:06
253632003	**MW-02D-042710**	Water	04/27/10 17:41	04/28/10 09:06

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

This data package has been reviewed for quality and completeness and is approved for release.

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9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

May 6, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 122051
Purchase Order: ERM-REICHOLD
Project Name: Water
Samples Received: Three (3) Samples
Date Received: 04/28/2010

Attn: Heidi Geri

Analysis	Page
Formaldehyde by EPA 8315 A	2

D.J. Northington, Ph.D.
Technical Director

Michael Shelton
Senior Staff Chemist

This report is to be reproduced in its entirety.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). Two of the solutions required adjustment to pH 5 with acetate buffer. The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde	Detection Limit
MW-04S-042710	0.008	0.005
MW-01D-042710	0.036	0.005
MW-02D-042710	0.025	0.005
Method Blank	ND	0.005

Date Derivatized: 04-29-10
Date Analyzed: 04-29-10 to 04-30-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.0	0.841	84	0.786	79	7
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Method Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.826	83
QC Guideline				80-115

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1 — 6 of 6

1338367

Section A Required Client Information:

Company: Pace Analytical
Address: Seattle
Heidi Geri
Email To: 206 767 5060
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:

Attention: Pace Analytical
Company Name: Seattle
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Formaldehyde 8315A	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-04s-042710 ~	WT				4/27/10	1452		1									X	X		
2	MW-01d-042710 ~	WT				4/27/10	1632		1												
3	MW-02d-042710 ~	WT				4/27/10	1741		1												
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Fed Ex	4/27/10	1800	Fed Ex			
	Fed Ex			Vanessa M Rey	04-28-10	0910	

ORIGINAL

122051

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

May 10, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253632

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253632

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253632001	**MW-04S-042710**	Water	04/27/10 14:52	04/28/10 09:06
253632002	**MW-01D-042710**	Water	04/27/10 16:32	04/28/10 09:06
253632003	**MW-02D-042710**	Water	04/27/10 17:41	04/28/10 09:06

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project:
Pace Project No.:

Method:
Description:
Client:
Date:

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F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

May 6, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 122051
Purchase Order: ERM-REICHOLD
Project Name: Water
Samples Received: Three (3) Samples
Date Received: 04/28/2010

Attn: Heidi Geri

Analysis	Page
Formaldehyde by EPA 8315 A	2

D.J. Northington, Ph.D.
Technical Director

Michael Shelton
Senior Staff Chemist

This report is to be reproduced in its entirety.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). Two of the solutions required adjustment to pH 5 with acetate buffer. The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde	Detection Limit
MW-04S-042710	0.008	0.005
MW-01D-042710	0.036	0.005
MW-02D-042710	0.025	0.005
Method Blank	ND	0.005

Date Derivatized: 04-29-10
Date Analyzed: 04-29-10 to 04-30-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.0	0.841	84	0.786	79	7
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Method Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.826	83
QC Guideline				80-115

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1 — 6 of 6

1338367

Section A Required Client Information:

Company: Pace Analytical
Address: Seattle
Heidi Geri
Email To: 206 767 5060
Phone: Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To:
Copy To:
Purchase Order No.:
Project Name:
Project Number:

Section C Invoice Information:

Attention: Pace Analytical
Company Name: Seattle
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: WA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): Formaldehyde 8315A	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-04s-042710 ~	WT				4/27/10	1452		1									X	X		
2	MW-01d-042710 ~	WT				4/27/10	1632		1												
3	MW-02d-042710 ~	WT				4/27/10	1741		1												
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Fed Ex	4/27/10	1800	Fed Ex			
	Fed Ex			Vanessa M Rey	04-28-10	0910	

ORIGINAL

122051

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

June 09, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: RG GW Sampling
Pace Project No.: 253850

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on June 02, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Heidi Geri

heidi.geri@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: RG GW Sampling
Pace Project No.: 253850

Washington Certification IDs

940 South Harney Street Seattle, WA 98108
Washington Certification #: C1229
Oregon Certification #: WA200007
Alaska CS Certification #: UST-025
California Certification #: 01153CA
Alaska Drinking Water Micro Certification #: WA01230
Alaska Drinking Water VOC Certification #: WA01-09
Florida/NELAP Certification #: E87617

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: RG GW Sampling
Pace Project No.: 253850

Lab ID	Sample ID	Matrix	Date Collected	Date Received
253850001	**MW-04S-060210**	Water	06/02/10 13:42	06/02/10 16:45
253850002	**MW-07S-060210**	Water	06/02/10 14:50	06/02/10 16:45
253850003	**MW-13-060210**	Water	06/02/10 15:48	06/02/10 16:45

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: RG GW Sampling
Pace Project No.: 253850

Lab ID	Sample ID	Method	Analysts	Analytes Reported
253850001	**MW-04S-060210**	EPA 8270	ATH	13
253850002	**MW-07S-060210**	EPA 8270	ATH	13
253850003	**MW-13-060210**	EPA 8270	ATH	13

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: RG GW Sampling
Pace Project No.: 253850

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: June 09, 2010

General Information:
3 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/1310

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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940 South Harney
Seattle, WA 98108
(206)767-5060

ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253850

Sample: MW-04S-060210 **Lab ID: 253850001** Collected: 06/02/10 13:42 Received: 06/02/10 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	4.8	0.37	1	06/04/10 14:00	06/08/10 17:05	95-57-8	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	06/04/10 14:00	06/08/10 17:05	120-83-2	
Pentachlorophenol	**141**	ug/L	24.0	2.2	5	06/04/10 14:00	06/08/10 18:36	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	06/04/10 14:00	06/08/10 17:05	108-95-2	
2,3,4,6-Tetrachlorophenol	**3.3J**	ug/L	4.8	0.46	1	06/04/10 14:00	06/08/10 17:05	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.96	0.41	1	06/04/10 14:00	06/08/10 17:05	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.96	0.19	1	06/04/10 14:00	06/08/10 17:05	88-06-2	
Nitrobenzene-d5 (S)	82	%	38-121		1	06/04/10 14:00	06/08/10 17:05	4165-60-0	
2-Fluorobiphenyl (S)	56	%	40-110		1	06/04/10 14:00	06/08/10 17:05	321-60-8	
Terphenyl-d14 (S)	87	%	26-130		1	06/04/10 14:00	06/08/10 17:05	1718-51-0	
Phenol-d6 (S)	25	%	11-120		1	06/04/10 14:00	06/08/10 17:05	13127-88-3	
2-Fluorophenol (S)	38	%	20-120		1	06/04/10 14:00	06/08/10 17:05	367-12-4	
2,4,6-Tribromophenol (S)	100	%	37-120		1	06/04/10 14:00	06/08/10 17:05	118-79-6	

Sample: MW-07S-060210 **Lab ID: 253850002** Collected: 06/02/10 14:50 Received: 06/02/10 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	4.7	0.36	1	06/04/10 14:00	06/08/10 17:28	95-57-8	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	06/04/10 14:00	06/08/10 17:28	120-83-2	
Pentachlorophenol	**21.2**	ug/L	4.7	0.43	1	06/04/10 14:00	06/08/10 17:28	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	06/04/10 14:00	06/08/10 17:28	108-95-2	
2,3,4,6-Tetrachlorophenol	**3.0J**	ug/L	4.7	0.45	1	06/04/10 14:00	06/08/10 17:28	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	06/04/10 14:00	06/08/10 17:28	95-95-4	
2,4,6-Trichlorophenol	**1.4J**	ug/L	0.94	0.19	1	06/04/10 14:00	06/08/10 17:28	88-06-2	
Nitrobenzene-d5 (S)	78	%	38-121		1	06/04/10 14:00	06/08/10 17:28	4165-60-0	
2-Fluorobiphenyl (S)	54	%	40-110		1	06/04/10 14:00	06/08/10 17:28	321-60-8	
Terphenyl-d14 (S)	90	%	26-130		1	06/04/10 14:00	06/08/10 17:28	1718-51-0	
Phenol-d6 (S)	24	%	11-120		1	06/04/10 14:00	06/08/10 17:28	13127-88-3	
2-Fluorophenol (S)	38	%	20-120		1	06/04/10 14:00	06/08/10 17:28	367-12-4	
2,4,6-Tribromophenol (S)	100	%	37-120		1	06/04/10 14:00	06/08/10 17:28	118-79-6	

Sample: MW-13-060210 **Lab ID: 253850003** Collected: 06/02/10 15:48 Received: 06/02/10 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	4.7	0.36	1	06/04/10 14:00	06/08/10 17:51	95-57-8	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	06/04/10 14:00	06/08/10 17:51	120-83-2	
Pentachlorophenol	**53.2**	ug/L	4.7	0.44	1	06/04/10 14:00	06/08/10 17:51	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	06/04/10 14:00	06/08/10 17:51	108-95-2	

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940 South Harney
Seattle, WA 98108
(206)767-5060

ANALYTICAL RESULTS

Project: RG GW Sampling
Pace Project No.: 253850

Sample: MW-13-060210 **Lab ID: 253850003** Collected: 06/02/10 15:48 Received: 06/02/10 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	**1.4J**	ug/L	4.7	0.45	1	06/04/10 14:00	06/08/10 17:51	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	06/04/10 14:00	06/08/10 17:51	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	06/04/10 14:00	06/08/10 17:51	88-06-2	
Nitrobenzene-d5 (S)	94	%	38-121		1	06/04/10 14:00	06/08/10 17:51	4165-60-0	
2-Fluorobiphenyl (S)	64	%	40-110		1	06/04/10 14:00	06/08/10 17:51	321-60-8	
Terphenyl-d14 (S)	93	%	26-130		1	06/04/10 14:00	06/08/10 17:51	1718-51-0	
Phenol-d6 (S)	28	%	11-120		1	06/04/10 14:00	06/08/10 17:51	13127-88-3	
2-Fluorophenol (S)	44	%	20-120		1	06/04/10 14:00	06/08/10 17:51	367-12-4	
2,4,6-Tribromophenol (S)	107	%	37-120		1	06/04/10 14:00	06/08/10 17:51	118-79-6	

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940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: RG GW Sampling
Pace Project No.: 253850

QC Batch: OEXT/2238 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 253850001, 253850002, 253850003

METHOD BLANK: 29291 Matrix: Water
Associated Lab Samples: 253850001, 253850002, 253850003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	06/08/10 15:16	
2,4,5-Trichlorophenol	ug/L	ND	1.0	06/08/10 15:16	
2,4,6-Trichlorophenol	ug/L	ND	1.0	06/08/10 15:16	
2,4-Dichlorophenol	ug/L	ND	5.0	06/08/10 15:16	
2-Chlorophenol	ug/L	ND	5.0	06/08/10 15:16	
Pentachlorophenol	ug/L	ND	5.0	06/08/10 15:16	
Phenol	ug/L	ND	5.0	06/08/10 15:16	
2,4,6-Tribromophenol (S)	%	98	37-120	06/08/10 15:16	
2-Fluorobiphenyl (S)	%	67	40-110	06/08/10 15:16	
2-Fluorophenol (S)	%	50	20-120	06/08/10 15:16	
Nitrobenzene-d5 (S)	%	99	38-121	06/08/10 15:16	
Phenol-d6 (S)	%	33	11-120	06/08/10 15:16	
Terphenyl-d14 (S)	%	93	26-130	06/08/10 15:16	

LABORATORY CONTROL SAMPLE & LCSD: 29292 29293

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	20	20.6	18.3	103	92	20-160	12	30	
2,4,5-Trichlorophenol	ug/L	20	19.5	18.3	98	91	46-130	6	30	
2,4,6-Trichlorophenol	ug/L	20	19.0	17.9	95	89	38-130	6	30	
2,4-Dichlorophenol	ug/L	20	19.9	19.6	99	98	42-130	2	30	
2-Chlorophenol	ug/L	20	16.4	15.3	82	76	20-130	7	30	
Pentachlorophenol	ug/L	20	18.9	18.1	95	91	10-114	4	30	
Phenol	ug/L	20	6.9	6.4	34	32	10-127	7	30	
2,4,6-Tribromophenol (S)	%				100	96	37-120			
2-Fluorobiphenyl (S)	%				74	72	40-110			
2-Fluorophenol (S)	%				52	45	20-120			
Nitrobenzene-d5 (S)	%				103	97	38-121			
Phenol-d6 (S)	%				34	31	11-120			
Terphenyl-d14 (S)	%				100	94	26-130			

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940 South Harney
Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: RG GW Sampling
Pace Project No.: 253850

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: MSSV/1310

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given
CLIENT SAMPLE ID: 6/2/2010 MW-04S-060210
ALS SAMPLE #: -01

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Phenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
2-Chlorophenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
2,4-Dichlorophenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
2,4,6-Trichlorophenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
2,4,5-Trichlorophenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
2,3,4,6-Tetrachlorophenol	EPA-8270	ND	4.0	2	UG/L	6/8/2010	RAL
Pentachlorophenol	EPA-8270	140	10	2	UG/L	6/8/2010	RAL

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given
CLIENT SAMPLE ID: 6/2/2010 MW-07S-060210
ALS SAMPLE #: -02

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Phenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2-Chlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4-Dichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4,6-Trichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4,5-Trichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,3,4,6-Tetrachlorophenol	EPA-8270	3.2	2.0	1	UG/L	6/4/2010	RAL
Pentachlorophenol	EPA-8270	23	5.0	1	UG/L	6/4/2010	RAL

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CERTIFICATE OF ANALYSIS

CLIENT: ERM
915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given
CLIENT SAMPLE ID: 6/2/2010 MW-13-060210
ALS SAMPLE #: -03

DATA RESULTS

ANALYTE	METHOD	RESULTS*	REPORTING LIMITS	DILUTION FACTOR	UNITS**	ANALYSIS DATE	ANALYSIS BY
Phenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2-Chlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4-Dichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4,6-Trichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,4,5-Trichlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
2,3,4,6-Tetrachlorophenol	EPA-8270	ND	2.0	1	UG/L	6/4/2010	RAL
Pentachlorophenol	EPA-8270	46	5.0	1	UG/L	6/4/2010	RAL

* "ND" INDICATES ANALYTE ANALYZED FOR BUT NOT DETECTED AT LEVEL ABOVE REPORTING LIMT.
** UNITS FOR ALL NON-LIQUID SAMPLES ARE REPORTED ON A DRY WEIGHT BASIS.

APPROVED BY:

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DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

ALS SAMPLE ID	METHOD	SUR ID	% RECV
1006024-01 2X Dilution	EPA-8270	2-Fluorophenol	41%
1006024-01 2X Dilution	EPA-8270	Phenol-d5	28%
1006024-01 2X Dilution	EPA-8270	2,4,6-Tribromophenol	71%
1006024-02	EPA-8270	2-Fluorophenol	44%
1006024-02	EPA-8270	Phenol-d5	31%
1006024-02	EPA-8270	2,4,6-Tribromophenol	74%
1006024-03	EPA-8270	2-Fluorophenol	43%
1006024-03	EPA-8270	Phenol-d5	29%
1006024-03	EPA-8270	2,4,6-Tribromophenol	76%

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

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Suite 130
Bellevue, WA 98005

DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given

QUALITY CONTROL RESULTS

BLANK RESULTS

QC SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS
MB-060410W	Water	EPA-8270	Phenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	2-Chlorophenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	2,4-Dichlorophenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	2,4,6-Trichlorophenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	2,4,5-Trichlorophenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	2,3,4,6-Tetrachlorophenol	ND(<2.0)	UG/L
MB-060410W	Water	EPA-8270	Pentachlorophenol	ND(<5.0)	UG/L
MB-060410W	Water	EPA-8270	Pyrene	ND(<2.0)	UG/L

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

CERTIFICATE OF ANALYSIS

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915 118th Ave. SE
Suite 130
Bellevue, WA 98005

DATE: 6/23/2010
ALS JOB#: 1006024
DATE RECEIVED: 6/3/2010
WDOE ACCREDITATION #: C1336

CLIENT CONTACT: Mike Mendes
CLIENT PROJECT ID: None Given

QUALITY CONTROL RESULTS

BLANK SPIKE/BLANK SPIKE DUPLICATE RESULTS

QC BATCH ID	MATRIX	METHOD	ANALYTE	SPIKE AMOUNT	BLANK SPIKE RECOVERY	BLANK SPIKE DUPLICATE RECOVERY	RPD
746	Water	EPA-8270	Phenol	50	29%	28%	5
746	Water	EPA-8270	2-Chlorophenol	50	78%	72%	8
746	Water	EPA-8270	Pentachlorophenol	50	78%	76%	2
746	Water	EPA-8270	Pyrene	25	70%	69%	2

APPROVED BY:

8620 Holly Drive Suite 100 Everett, WA 98208 425 356-2600 FAX 425 356-2626 Seattle 206 292-9059

Attachment B
April 2010 and June 2010
Re-sampling Data Assessment
Review Memorandums

Memorandum

Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-2940 (fax)

To: Mike Mendes

From: Irene Lavigne

Date: 30 June 2010

Subject: Data Review of Reichhold-Glacier Site Groundwater Samples Collected April 2010

Project Number: 0112489

Data Package: Pace Analytical Services Data Packages 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631 and 253632 (includes subcontracted analyses from Columbia Analytical Services)

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. None of the sample data were qualified on the basis of holding-time exceedances.

The sample shipments were received at the laboratory within the method-prescribed temperature requirements with limited exceptions. The laboratory noted that samples from two sample delivery groups (SDG) were received at the laboratory outside of the required temperature range of 2-6ºC. Sample results for total organic carbon were qualified as estimated (J) due to this temperature exceedance. Sample results for volatile organic compound analyses were not qualified on the basis of temperature exceedances because the samples were analyzed within the 7-day holding time for unpreserved samples. The samples affected by the temperature exceedances are listed in Table 1.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes with limited exceptions. Detections of total organic halides and zinc in various method blanks required that 11 associated sample results be qualified as nondetected (U) at the report limit for these compounds. Nondetected samples results or samples with detections that exceeded 10 times an associated blank detection did not require qualification. The method blank detections and affected data are presented in Table 2.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) recoveries were within the laboratory's limits of acceptance. No sample data were qualified as a result of the LCS recoveries. The LCS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance with several exceptions. Four MS recoveries for silver were below the minimum acceptable limits for this compound. Detected and nondetected results for silver were qualified as estimated, J or UJ, respectively, for 14 samples. Additional MS outliers did not require qualification of sample data. Data were not qualified if the data could be verified using an associated, in-control LCS recovery, if the sample used to prepare the spike sample was a non-client sample, if only one recovery in a MS/MSD pair was outside control limits, or if the concentration of the unspiked sample was greater than four times the amount spiked. Outlying MS recoveries and resulting qualified data are presented in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits. No qualifications to the data were made based on the surrogate evaluation. The surrogate recoveries indicate minimal matrix interference in the samples.

FIELD DUPLICATE EVALUATION

Three samples were collected and analyzed in duplicate. ERM calculated the relative percent difference (RPD) between detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. Detected duplicate results and calculated RPDs are shown in Table 4.

ANALYTICAL DUPLICATE EVALUATION

The laboratory prepared and analyzed 11 samples as analytical duplicates. ERM calculated the RPD between detected results. All RPDs were less than 20 percent with one exception. The sample results for a duplicate analyzed for total suspended solids were less than five times the report limit for this analysis. Therefore, the sample results were not qualified on the basis of the RPD exceedance. The duplicate sample results and calculated RPDs are presented in Table 5.

CALIBRATION EVALUATION

The laboratory noted that the continuing calibration verification (CCV) recoveries associated with seven analyses for silver exceeded acceptable control limits. No data were qualified as a result of these exceedances because the CCV recoveries were biased high and the samples were nondetected for this compound. The CCV outliers are listed in Table 6.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Samples with Exceeded Preservation Requirements
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Analysis Method	Sample Temperature (°C)	Limits (°C)	ERM Qualifier
253587	MW-01S-042710	TOC	NR	2 - 6	J
253587	MW-02S-042710	TOC	NR	2 - 6	J
253587	MW-07S-042710	TOC	NR	2 - 6	J
253587	MW-17-042710	TOC	NR	2 - 6	J
253587	MW-04S-042710	TOC	NR	2 - 6	J
253608	MW-24-042810	TOC	11.9	2 - 6	J
253608	MW-21-042810	TOC	11.9	2 - 6	J
253608	MW-20-042810	TOC	11.9	2 - 6	J

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
°C = Degrees Celsius
TOC = Total organic carbon
NR = Value not reported; lab noted "samples were received outside of required temperature range"

Table 2
Blank and Associated Suspect Sample Detections
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
253587	MB 26890	NA	Iron	13	100	µg/L	--
253587	MB 27069	NA	Manganese, dissolved	0.19	15	µg/L	--
253587	K1004298-MB	See below	Halides, total organic	5	10	µg/L	--
253587	K1004298-MB	MW-01S-042710	Halides, total organic	8	10	µg/L	10 U
253587	K1004298-MB	MW-02S-042710	Halides, total organic	6	10	µg/L	10 U
253587	K1004298-MB	MW-17-042710	Halides, total organic	5	10	µg/L	10 U
253600	MB 26890	NA	Iron	13	100	µg/L	--
253600	MB 27069	NA	Manganese, dissolved	0.19	15	µg/L	--
253600	MB 784149	See below	Zinc	1.4	5.0	µg/L	--
253600	MB 784149	MW-10-042810	Zinc	3.9	5.0	µg/L	5.0 U
253600	MB 784149	MW-22-042810	Zinc	2.8	5.0	µg/L	5.0 U
253600	MB 784149	MW-23-042810	Zinc	3.1	5.0	µg/L	5.0 U
253600	MB 784149	MW-03S-042810	Zinc	2.9	5.0	µg/L	5.0 U
253602	MB 784149	See below	Zinc	1.4	5.0	µg/L	--
253602	MB 784149	MW-01D-042710	Zinc	9.1	25	µg/L	25 U
253602	MB 784149	MW-02D-042710	Zinc	4.0	5.0	µg/L	5.0 U
253606	MB 784144	See below	Zinc	1.4	5.0	µg/L	--
253606	MB 784144	MW-03D-042810	Zinc	4.7	5.0	µg/L	5.0 U
253606	MB 783539	See below	Zinc, dissolved	1.4	5.0	µg/L	--
253606	MB 783539	MW-03D-042810	Zinc, dissolved	3.0	5.0	µg/L	5.0 U

Table 2
Blank and Associated Suspect Sample Detections
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
253608	K1004296-MB	NA	Halides, total organic	5	10	µg/L	--

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
MB = Method blank
NA = Not applicable; associated data were not affected
µg/L = Micrograms per liter
U = Nondetected

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
253587	MW-07S-042710 MS	See below	Silver	62	70-130	--	--	--	--
253587	MW-07S-042710 MS	MW-01S-042710	Silver	--	--	--	--	0.072	J
253587	MW-07S-042710 MS	MW-02S-042710	Silver	--	--	--	--	< 0.50	UJ
253587	MW-07S-042710 MS	MW-07S-042710	Silver	--	--	--	--	< 0.50	UJ
253587	MW-07S-042710 MS	MW-17-042710	Silver	--	--	--	--	< 0.50	UJ
253587	MW-07S-042710 MS	DUP-042710	Silver	--	--	--	--	0.15	J
253587	MW-07S-042710 MS	MW-04S-042710	Silver	--	--	--	--	< 0.50	UJ
253587	MW-22-042810 MS/MSD	NA	Phosphorus	49/32	80-120	8	30	--	--
253600	Batch MS	NA	Silver	32	70-130	--	--	--	--
253600	MW-22-042810 MS	See below	Silver	37	70-130	--	--	--	--
253600	MW-22-042810 MS	MW-10-042810	Silver	--	--	--	--	< 0.50	UJ
253600	MW-22-042810 MS	MW-22-042810	Silver	--	--	--	--	< 0.50	UJ
253600	MW-22-042810 MS	MW-23-042810	Silver	--	--	--	--	< 0.50	UJ
253600	MW-22-042810 MS	MW-03S-042810	Silver	--	--	--	--	< 0.50	UJ
253600	MW-22-042810 MS	MW-13-042810	Silver	--	--	--	--	0.39	J
253600	MW-10-042810 MS/MSD	NA	Nitrate as N	88/99	90-110	12	10	--	--
253600	MW-10-042810 MS/MSD	NA	Chloride	86/96	90-110	8	11	--	--
253600	MW-22-042810 MS/MSD	NA	Phosphorus	49/32	80-120	8	30	--	--
253600	MW-10-042810 MS	NA	TOC	149	59-144	--	--	--	--
253602	Batch MS	NA	Silver	32	70-130	--	--	--	--
253602	MW-22-042810 MS	See below	Silver	37	70-130	--	--	--	--
253602	MW-22-042810 MS	MW-01D-042710	Silver	--	--	--	--	< 2.5	UJ
253602	MW-22-042810 MS	MW-02D-042710	Silver	--	--	--	--	< 0.50	UJ
253606	Batch MS/MSD	NA	Arsenic	42/-13	70-130	79	20	--	--
253606	Batch MS/MSD	NA	Chromium	70/45	70-130	44	20	--	--

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
253606	MW-03D-042810 MS	See below	Silver	52	70-130	--	--	--	--
253606	MW-03D-042810 MS	MW-03D-042810	Silver	--	--	--	--	< 0.50	UJ
253606	Batch MS/MSD	NA	Silver, dissolved	60/56	70-130	7	20	--	--
253606	Batch MS	NA	Silver, dissolved	57	70-130	--	--	--	--
253608	Batch MS/MSD	NA	Arsenic	42/-13	70-130	79	20	--	--
253608	MW-21-042810 MS/MSD	NA	Arsenic	539/109	75-125	10	20	--	--
253608	MW-21-042810 MS/MSD	NA	Arsenic, dissolved	199/208	70-130	0	20	4X	--
253608	MW-10-042810 MS/MSD	NA	Nitrate as N	88/99	90-110	12	10	--	--
253608	MW-10-042810 MS/MSD	NA	Chloride	86/96	90-110	8	11	--	--
253608	MW-14-042910 MS/MSD	NA	Phosphorus	85/225	80-120	38	30	--	--
253611	MW-14-042910 MS/MSD	NA	Arsenic	688/905	70-130	4	20	4X	--
253611	MW-14-042910 MS/MSD	NA	Arsenic, dissolved	-985/-996	70-130	2	20	4X	--
253611	MW-14-042910 MS/MSD	NA	Nitrate as N	52/65	90-110	23	10	--	--
253611	MW-14-042910 MS/MSD	NA	Chloride	43/46	90-110	5	11	--	--
253611	MW-14-042910 MS/MSD	NA	Sulfate	46/51	90-110	6	10	--	--
253611	MW-14-042910 MS/MSD	NA	Phosphorus	85/225	80-120	38	30	--	--
253614	MW-14-042910 MS/MSD	NA	Arsenic	688/905	70-130	4	20	4X	--
253614	MW-14-042910 MS/MSD	NA	Nitrate as N	52/65	90-110	23	10	--	--
253614	MW-14-042910 MS/MSD	NA	Chloride	43/46	90-110	5	11	--	--
253614	MW-14-042910 MS/MSD	NA	Sulfate	46/51	90-110	6	10	--	--
253614	MW-14-042910 MS/MSD	NA	Phosphorus	85/225	80-120	38	30	--	--
253619	MW-14-042910 MS/MSD	NA	Arsenic	688/905	70-130	4	20	4X	--
253619	MW-14-042910 MS/MSD	NA	Arsenic, dissolved	-985/-996	70-130	2	20	4X	--
253619	MW-14-042910 MS/MSD	NA	Nitrate as N	52/65	90-110	23	10	--	--

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
253619	MW-14-042910 MS/MSD	NA	Chloride	43/46	90-110	5	11	--	--
253619	MW-14-042910 MS/MSD	NA	Sulfate	46/51	90-110	6	10	--	--
253619	MW-14-042910 MS/MSD	NA	Phosphorus	85/225	80-120	38	30	--	--

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
MS/MSD = Matrix spike/matrix spike duplicate
RPD = Relative percent difference
Batch = Spike sample was prepared using a non-client sample
NA = Not applicable
J = Detected result qualified as estimated
UJ = Nondetected result qualified as estimated
TOC = Total organic carbon
4X = Concentration of unspiked sample was greater than 4 times the amount spiked; no qualification required

Table 4
Field Duplicate Results and Calculated Relative Percent Differences
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample/Duplicate ID	Compound	Concentration		Report Limit	Units	RPD
			Sample	Duplicate			
253587	MW-01S-042710/Dup-042710	Arsenic	15.7	17.9	0.50	µg/L	13
253587	MW-01S-042710/Dup-042710	Chromium	0.47	0.75	0.50	µg/L	46
253587	MW-01S-042710/Dup-042710	Copper	2.1	3.0	0.50	µg/L	35
253587	MW-01S-042710/Dup-042710	Silver	0.072	0.15	0.50	µg/L	70
253587	MW-01S-042710/Dup-042710	Zinc	37.1	37.5	5.0	µg/L	1.1
253587	MW-01S-042710/Dup-042710	Arsenic, dissolved	8.9	9.1	0.50	µg/L	2.2
253587	MW-01S-042710/Dup-042710	Copper, dissolved	0.70	0.60	0.50	µg/L	15
253587	MW-01S-042710/Dup-042710	Zinc, dissolved	26.9	26.7	5.0	µg/L	0.7
253608	MW-24-042810/DUP 042810	Arsenic	408	3280	2.5/25	µg/L	156
253608	MW-24-042810/DUP 042810	Arsenic, dissolved	3320	3380	50.0	µg/L	1.8
253608	MW-24-042810 RE/DUP 042810 RE	Arsenic	3280	3280	50.0/25.0	µg/L	0
253608	MW-24-042810 RE/DUP 042810 RE	Arsenic, dissolved	3370	3380	50.0	µg/L	0.3
253611	MW-14-042910/Dup-042910	Arsenic	3640	3290	5.0	µg/L	10
253611	MW-14-042910/Dup-042910	Arsenic, dissolved	1300	2700	5.0	µg/L	70

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
RPD = Relative percent difference
RE = Reanalyzed sample
µg/L = Micrograms per liter

Table 5
Analytical Duplicate Results and Calculated Relative Percent Differences
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	Concentration		Report Limit	Units	RPD
			Sample	Duplicate			
253587	MW-01S-042710	Alkalinity, bicarbonate	264	264	2.0	mg/L	0
253587	MW-04S-042710	TOC	3.0	3.0	1.0	mg/L	0
253600	MW-22-042810	Alkalinity, bicarbonate	204	202	2.0	mg/L	1.0
253600	MW-14-042910	Alkalinity, bicarbonate	226	232	2.0	mg/L	2.6
253600	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253600	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253600	MW-13-042810	TOC	13.9	13.8	2.0	mg/L	0.7
253602	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253602	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253606	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253606	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253608	MW-27-042910	Alkalinity, bicarbonate	392	396	2.0	mg/L	1.0
253608	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253608	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253608	MW-20-042810	TOC	3.8	3.5	1.0	mg/L	8.2
253611	MW-22-042810	Alkalinity, bicarbonate	204	202	2.0	mg/L	1.0
253611	MW-14-042910	Alkalinity, bicarbonate	226	232	2.0	mg/L	2.6
253611	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253611	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253611	MW-19-043010	TOC	2.8	2.5	1.0	mg/L	11
253614	MW-27-042910	Alkalinity, bicarbonate	392	396	2.0	mg/L	1.0
253614	MW-22-042810	TSS	18.0	20.0	2.0	mg/L	11
253614	MW-14-042910	TSS	9.0	7.0	2.0	mg/L	25
253614	MW-19-043010	TOC	2.8	2.5	1.0	mg/L	11
253619	MW-27-042910	Alkalinity, bicarbonate	392	396	2.0	mg/L	1.0
253619	Batch Duplicate	TSS	7.0	9.0	2.0	mg/L	25
253619	MW-19-043010	TOC	2.8	2.5	1.0	mg/L	11

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
RPD = Relative percent difference
Batch = Spike sample was prepared using a non-client sample
mg/L = Milligrams per liter
TSS = Total suspended solids
TOC = Total organic carbon

Table 6
Calibration Verification Recoveries Outside of Acceptable Limits
Groundwater Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	CCV Recovery	Reported Concentration	Units	ERM Qualifier
253600	MW-10-042810	Silver, dissolved	High	< 0.50	µg/L	--
253600	MW-22-042810	Silver, dissolved	High	< 0.50	µg/L	--
253600	MW-23-042810	Silver, dissolved	High	< 0.50	µg/L	--
253600	MW-03S-042810	Silver, dissolved	High	< 0.50	µg/L	--
253600	MW-13-042810	Silver, dissolved	High	< 0.50	µg/L	--
253602	MW-01D-042710	Silver, dissolved	High	< 0.50	µg/L	--
253602	MW-02D-042710	Silver, dissolved	High	< 0.50	µg/L	--

Data packages reviewed: 253584, 253587, 253596, 253600, 253602, 253606, 253608, 253611, 253614, 253619, 253631, 253632

Key:
CCV = Continuing calibration verification
High = CCV exceeded maximum acceptable limit
µg/L = Micrograms per liter

Memorandum

Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-4711 (fax)

To: Shira DeGrood

From: Irene Lavigne

Date: 14 June 2010

Subject: Data Review of Reichhold-Glacier, Groundwater Samples Collected June 2010

Project Number: 0112489.05

Data Package: ALS Laboratory Group Data Package 1006024
Pace Analytical Data Package 253580

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed temperature preservation requirements. None of the data were qualified based on holding time or temperature preservation exceedances.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. None of the data were qualified based on blank results.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries were within the laboratory's limits of acceptance. No sample data were qualified as a result of the LCS recoveries. The LCS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

There were no matrix spike samples presented in the laboratory reports.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits. No qualifications to the data were made. The surrogate recoveries indicate minimal matrix interference in the samples.

OVERALL ASSESSMENT

No data required qualification or were determined to be unusable. All of the data can be used for decision-making purposes. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Memorandum

Environmental Resources Management

1218 3rd Avenue
Suite 1412
Seattle, WA 98101
(425) 462-8591
(425) 455-3573 (fax)

To: Donna Ortiz de Anaya/Washington State Department of Ecology

From: Michael F. Mendes/ERM-West, Inc.
Erik Ipsen, PE/ERM-West, Inc.

CC: Ron Timm/Washington State Department of Ecology
Shawn Carter Lilley/Glacier Northwest
John J. Oldham/Reichhold
John Bjorkman/K&L Gates
Claudia Powers/Ater Wynne
Carolyn Kossik/CH2M HILL

Date: 15 February 2011

Subject: Fall 2010 Groundwater Sampling Results
Glacier Northwest, Inc. – Reichhold, Inc. Site
Seattle, Washington

ERM-West, Inc. (ERM) has prepared this Fall 2010 Groundwater Sampling Results Memorandum on behalf of Glacier Northwest, Inc., and Reichhold, Inc., for the Glacier-Reichhold site located at 5900 West Marginal Way SW, Seattle, Washington (the "Site"). A Site location Map is included as **Figure 1**. This memorandum presents the groundwater sampling objectives, scope, and results of the fall 2010 groundwater sampling event.

FALL 2010 GROUNDWATER SAMPLING OBJECTIVES

In October 2010, ERM completed a comprehensive round of groundwater sampling at the Site. The fall 2010 groundwater sampling event objectives are outlined below:

- Assess current Site groundwater conditions and the status of remedial actions completed to date; and
- Evaluate concentrations of Site constituents of primary concern, as well as other key constituents in groundwater.

The sections below describe the monitoring well sampling activities completed in fall 2010 and the analytical and field data results.

GROUNDWATER SAMPLING ACTIVITIES

On 25 October 2010, prior to initiating groundwater sampling activities, ERM personnel collected water level measurements from existing Site monitoring wells and from the Lower Duwamish Waterway measuring point at the Site.

Groundwater samples were collected from 25 through 28 October 2010 from 26 existing monitoring wells. The locations of the monitoring wells sampled, and the parameters analyzed, are summarized on **Figure 2** and **Table 1**, respectively. The monitoring wells were purged and sampled in accordance with the *Groundwater Sampling and Analysis Plan, Field Sampling Plan, and Quality Assurance Project Plan, Glacier Northwest, Inc.- Reichhold, Inc. Site, Seattle, Washington (*SAP) (ERM 2010a) using low-flow sampling methods.

Quality assurance/quality control samples were collected as prescribed in the SAP including blind duplicate samples from MW-1S, MW-14, and MW-21; and matrix spike/matrix spike duplicates from MW-14 and MW-22.

RESULTS

Groundwater Elevations

Groundwater elevations were measured on 25 October 2010, prior to initiating groundwater sampling activities. **Table 2** provides groundwater elevations recorded for the monitoring wells. Approximate shallow aquifer groundwater elevation contours for October 2010 are shown on **Figure 3**. Based on these measurements, at the time the water levels were collected in October 2010, Site groundwater flow direction in the shallow aquifer was generally to the south with easterly to southeasterly groundwater flow components along the eastern portions of the Site. Groundwater in the southern portion of the Site is expected to flow toward the City of Seattle Public Utilities 48-inch diameter stormwater pipe where southerly flow terminates and likely becomes easterly. The approximate average Site groundwater gradient was 0.015 in October 2010. In general, the October 2010 groundwater flow direction was consistent with previous quarterly monitoring events.

Field Results

Field parameters were measured during well purging in accordance with the SAP. Final field parameter values were collected after the parameters had stabilized and are presented in **Table 3**. As required in the SAP, turbidity in all wells was less than 10 nephelometric turbidity units (NTUs) prior to groundwater sample collection. The following observations were made regarding water quality parameters in shallow wells after these parameters stabilized during purging:

- Groundwater temperatures ranged from 11.97 to 16.15 degrees Celsius. The observed temperature fluctuations are attributable to ambient outdoor temperature variations.
- Groundwater alkalinity/acidity (pH) values generally ranged from 5.63 to 7.19. The measured pH values for four samples collected on 25 October (wells MW-04S, MW-07S, MW-17, and MW-20) ranged from 9.84 to 11.05 and are attributed to pH sensor malfunction. The pH sensor was replaced and subsequent measurements were within typical ranges for the Site.
- Dissolved oxygen ranged from 0.43 to 6.6 milligrams per liter (mg/L).
- Oxidation-reduction potential (ORP) values ranged from -305.1 millivolts (mV) to 172.1 mV and averaged -145.6 mV, indicative of a generally reducing groundwater geochemistry environment.
- Salinity generally ranged from 0.11 to 0.62 parts per trillion in shallow wells, with a maximum of 2.98 parts per trillion in MW-27.
- Turbidity ranged from 0.60 to 8.6 NTUs prior to groundwater sampling.
- Conductivity generally ranged from 182 to 1,155 micro Siemens per centimeter (µS/cm), with a maximum of 4,573 µS/cm in MW-27.
- Field-measured ferrous iron concentrations ranged from non-detect to 13.1 mg/L.
- Sulfide concentrations ranged from 0.01 to 0.56 mg/L.

Field measurement values for the deep aquifer wells were within the range of values reported for shallow wells, with the following exceptions:

- Conductivity was greater in the deep wells (872 to 1,525 µS/cm);
- ORP values were slightly lower (-330.6 to -80.3 mV); and
- Ferrous iron concentrations were greater in the deep wells (1.38 to 21.3 mg/L).

Analytical Results

This section presents the analytical results for the fall 2010 groundwater monitoring event. The analytical laboratory reports are provided in **Attachment A** and the analytical results are summarized in **Table 4**. Primary constituents detected in one or more groundwater samples are summarized in **Table 5** and are shown on **Figures 4** and **5**.

Selected Preliminary Screening Levels

The detected groundwater constituents have been screened against the following groundwater cleanup levels and surface water standards for comparison and data screening purposes. Except where noted, the screening levels were obtained from the Washington State Department of Ecology's online CLARC website (Ecology 2004).

Groundwater screening levels include the following:

- Method B screening levels for carcinogenic and non-carcinogenic risk (Method B); and
- Method C screening levels for carcinogenic and non-carcinogenic risk (Method C).

Surface water screening levels include the following:

- Water Quality Criteria for chronic exposure of aquatic life (SW-AL) from the Washington Administrative Code (WAC) 173-201A Water Quality Standards For Surface Waters of The State of Washington; and
- Water Quality Criteria for human health in marine environments (SW-HH) from the Federal Clean Water Act (WAC not established).

Arsenic screening levels for Method B, Method C, and SW-HH (0.058, 0.58, and 0.14 micrograms per liter [µg/L], respectively) are less than background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM 2009). Therefore, these three screening levels are not considered applicable for assessing arsenic impacts in groundwater at the Site.

These generic screening levels are provided for purposes of preliminary data screening only. Site-specific screening levels will be developed as part of the remedial investigation at the Site, as described in the *DRAFT Remedial Investigation and Feasibility Study Work Plan Glacier Northwest, Inc. – Reichhold, Inc. Site, Seattle, Washington* (ERM 2010c).

Data Validation

ERM assessed the quality of the data and applied applicable qualifiers per the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999) and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004). The data assessment review memorandum for the October 2010 sampling event is included in **Attachment B**.

Based on the data quality evaluation, the analytical results for groundwater samples collected as part of the fall 2010 sampling event are valid and usable with standard data qualifiers, as noted in the data review memo (**Attachment B**) and the data summary tables (**Tables 4** and **5**).

Analytical Results

Of the primary constituents analyzed, only pentachlorophenol (PCP) and arsenic were detected at concentrations greater than at least one of the preliminary screening levels in one or more monitoring wells. Further discussion of PCP and total and dissolved arsenic detected at concentrations greater than the preliminary screening levels are presented below.

Pentachlorophenol

The PCP analytical results are summarized and compared to the preliminary screening levels in **Table 5,** and shown on **Figure 4**. Samples from all 26 monitoring wells were analyzed for PCP in October 2010. PCP was not detected in 22 of the 26 monitoring wells and was only detected above the laboratory reporting limit in 2 of the 26 monitoring wells. In the four shallow wells where PCP was detected, concentrations ranged from 3.6 µg/L (MW-13) to 30.1 µg/L (MW-7S). In April and June 2010, abnormally elevated PCP concentrations were reported in well MW-4S (ERM 2010b). In fall 2010, PCP was not detected in this well. Consistent with previous monitoring events, PCP was not detected in any of the deep wells.

Fall 2010 PCP concentrations were considerably lower than the spring 2010 results. For example, concentrations in MW-4S and MW-13 each decreased by 99.9 percent. In general, the PCP concentrations in MW-10 and MW-16 remained relatively unchanged between the spring and fall 2010 sampling events. PCP concentrations in MW-7S showed a slight increase between the spring and fall 2010 sampling events.

Arsenic

The arsenic analytical results are summarized and compared to the preliminary screening levels in **Table 5** and shown on **Figure 5**. Samples from all 26 monitoring wells were analyzed for total and dissolved arsenic in October 2010. Total and dissolved arsenic were detected in all 23 shallow and three deep wells (**Table 5**).

Total arsenic concentrations ranged in the shallow wells from 0.15 µg/L (MW-24) to 2,530 µg/L (MW-21) and dissolved concentrations ranged from 0.12 µg/L (MW-24) to 2,310 µg/L (MW-21). In general, total and dissolved arsenic concentrations decreased in 56 percent of the samples collected from the fall to the spring 2010 sampling events. In monitoring wells MW-2s, MW-14, and MW-26, concentrations decreased by more than 68 percent between the spring and fall 2010 sampling events.

Total arsenic concentrations in the deep wells (MW-1D, MW-2D, and MW-3D) ranged from 10.3 µg/L (MW-1D) to 34.8 µg/L (MW-3D), and dissolved concentrations ranged from 8.2 µg/L (MW-1D) to 35.6 µg/L (MW-3D).

SUMMARY AND CONCLUSIONS

This section provides a summary and conclusions of results for the fall 2010 sampling event.

- Shallow groundwater at the site flows generally to the south with easterly to southeasterly flow components on the eastern portion of the Site. The approximate average Site groundwater gradient was 0.015 in October 2010. Groundwater flow direction was consistent with previous quarterly monitoring events.
- Field geochemistry parameters were collected during groundwater purging at each well. In general, groundwater geochemistry across the Site was consistent with previous sampling events.
- Groundwater samples were collected from 26 monitoring wells in October 2010.
- PCP was not detected in 22 of the 26 monitoring wells and was only detected above the laboratory reporting limit in two monitoring wells.
- Total and dissolved arsenic were detected in all 23 shallow and three deep wells.
- In general, concentrations of the constituents of primary concern (PCP, total/dissolved arsenic) detected during the fall 2010 sampling event were consistent with those detected during the March 2009 baseline sampling event (ERM 2009). Significant reductions in PCP and arsenic concentrations were observed during the fall 2010 sampling event in comparison to the spring 2010 sampling event.

REFERENCES

ENSR/AECOM. 2009. *Draft Feasibility Study, Lower Duwamish Waterway, Seattle, Washington*.

Environmental Resources Management (ERM). 2009. *Draft Summary of Existing Information and Data Gaps Report.* October 2009.

ERM. 2010a. *Groundwater Sampling and Analysis Plan, Field Sampling Plan, and Quality Assurance Project Plan, Glacier Northwest, Inc. - Reichhold, Inc. Site, Seattle, Washington*. April 2010.

ERM. 2010b. *Spring 2010 Groundwater Sampling Results, Glacier Northwest, Inc. - Reichhold, Inc. Site, Seattle, Washington.* August 2010.

ERM. 2010c. *DRAFT Remedial Investigation and Feasibility Study Work Plan Glacier Northwest, Inc. – Reichhold, Inc. Site, Seattle, Washington*. November 2010.

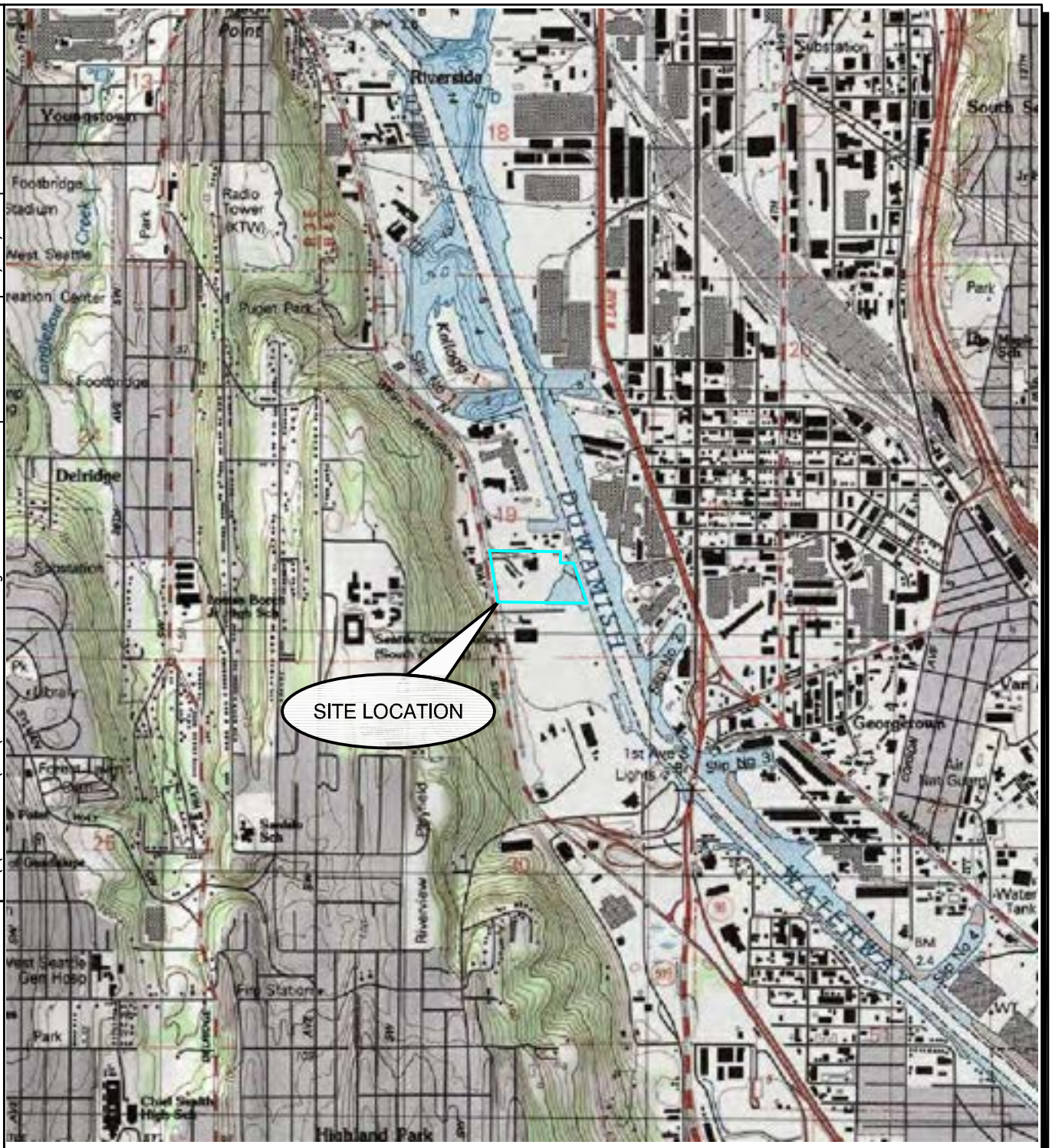
United States Environmental Protection Agency (USEPA). 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*.

USEPA. 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*.

Washington State Department of Ecology (Ecology). 2004. *Cleanup Levels and Risk Calculation (CLARC)*. Online Posting. Accessed June 2010. https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx. Updated 22 April 2010.

Figures

Project No. 0112489.05
Date: 04/13/10
Drawn By: R. Olson
CAD File: G:\0112489\05\011248905-01.dwg



SCALE 1: 24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Seattle South E, WA
Version: 1983; Current: 1978

Figure 1
Site Location Map
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington

ERM 04/10

File:	Created By:	Date:	Project Number:
\\wepordc01\data\Projects\0112489 Reichhold Glacier Site Remediation 2010\Fall2010GWMaps\F2 MonitoringWells.mxd	mike.appel	02/14/2011	0112489.5

Shallow Monitoring Well Sampled during Fall 2010

Deep Monitoring Well Sampled during Fall 2010

Monitoring Well Not Sampled during Fall 2010

Site Boundary

N

0 50 100 200 Feet

FIGURE 2

Existing Monitoring Well Network
Fall 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 12/10

Project No. 0112489.02
Date: 12/17/10
Drawn By: R.Olson
CAD File: G:\0112489\02\011248902-03.dwg

San. Sewer Easement
Property Boundary Line
ELECTRIC SHOP
WOOD SHOP
SHED
STORAGE
HAZARDOUS WASTE STORAGE AREA
OFFICE
PAINT SHOP
WASTE OIL
SOLVENT STILL
PAINT MIXING SHED
Former DSI Floating Dock
Former DSI Dry Dock
Rail Silo
Tanks
Truck Wash
Additional Parking
Storage Silos
Load-out Silos
Approximate Location of Existing DSI Storm Outfall
Float
DUST TRAP
SAND BLAST SHED
Exit
Deed Line
Paved
Parking
Maintenance Building
Existing Office
EXISTING DITCH
DOCK
9.75 (07:59)
6.31 (11:30)
Exist Conc Dock 55' x 500'
Existing Storm Outfall
Existing Transfer Tower
Docksider
Existing Piles
Line of Mean High Water (El 7.82 NAVD88)
Duwamish Waterway
Embayment
10,000 Ton Barge
WEST MARGINAL WAY
Property Boundary Line
Existing Aggregates
Former City of Seattle SPU Stormwater Discharge Location
Approximate Location of Existing Port of Seattle T115 Storm Outfall
Existing City of Seattle Storm Outfall
Property Boundary
Access to West Marginal Way
City of Seattle Storm Outfall Easement
Truck Entrance
City of Seattle Storm Outfall Easement

MW-16 12.98
MW-4S 12.93
MW-5S 12.44
MW-1D 7.09
MW-1S 11.87
MW-7S 12.19
MW-6S 11.75
MW-10 13.00*
MW-17 11.19
MW-11 NM
MW-2D 7.12
MW-12 10.59
MW-2S 11.02
MW-22 9.83
MW-13 10.12
MW-21 9.15
MW-14 9.34
MW-23 9.20
MW-19 8.76
MW-20 8.16
MW-18 10.60*
MW-24 7.83
MW-3D 6.28
MW-26 7.67
MW-25 NM
MW-3S 7.85
MW-27 5.66

12.5 12.0 11.5 11.0 10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0

0 50 100 FEET

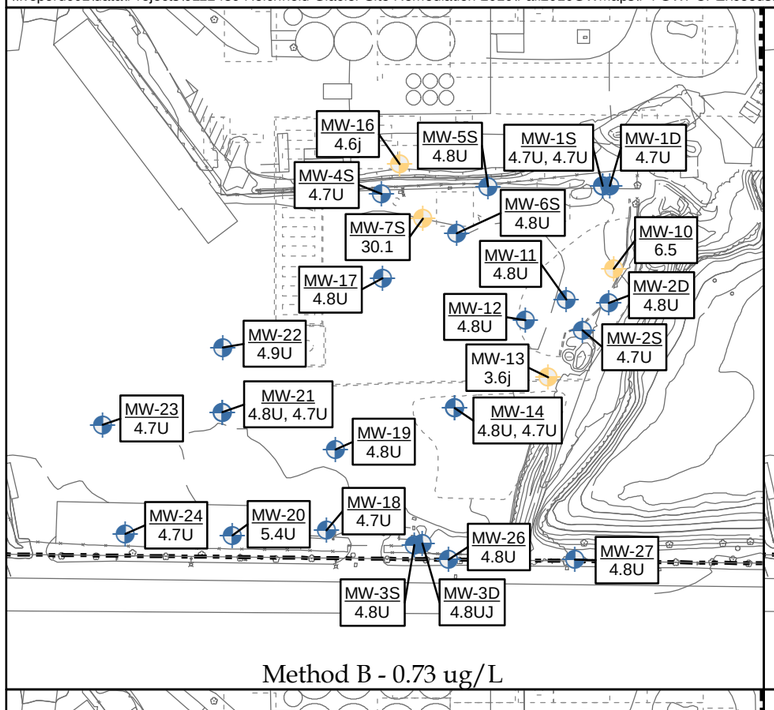
LEGEND

- Shallow Monitoring Well
- Deep Monitoring Well (Not Used for Contouring
- DOCK ■ Water Elevation Measurement of Bay Water; Time in Parentheses
- 11.75 Ground Water Elevation, Feet Above Mean Sea Level. Data Collected 25 October 2010.
- * Datum Not Used for Contouring
- NM Not Measured
- 11.5 Equal Lines of Ground Water Elevations; Dashed Where Inferred
- Approximate Ground Water Flow Direction
- Property Line
- Sewer Line

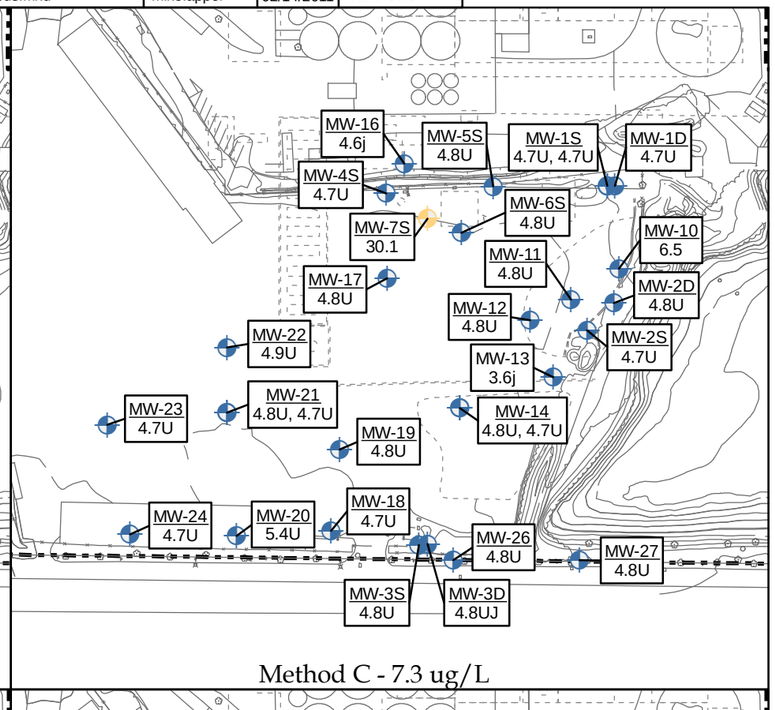
Figure 3
Shallow Groundwater Contour Map
25 October 2010
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington
ERM 12/10

File:
\\wepordc01\data\Projects\0112489 Reichhold Glacier Site Remediation 2010\Fall2010GWMaps\F4 GWPCPExceeds.mxd

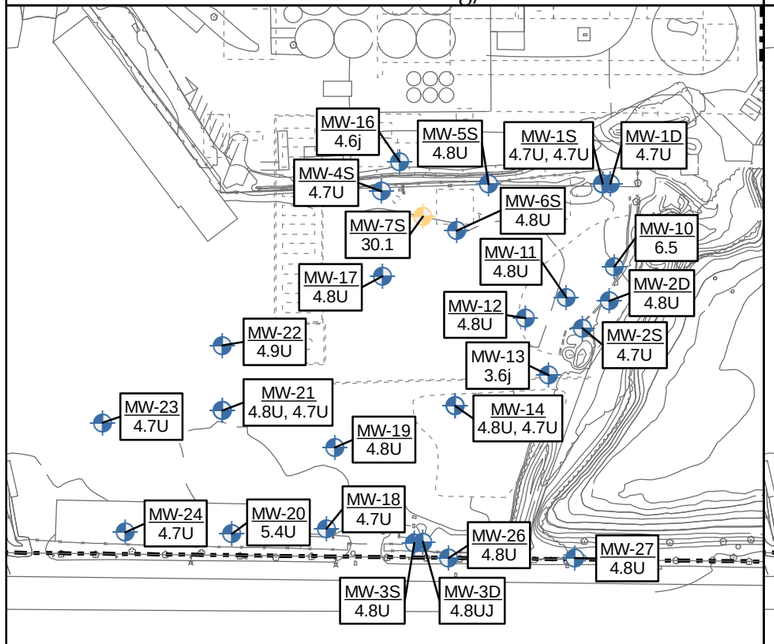
Created By: mike.appel | Date: 02/14/2011 | Project Number: 0112489.5



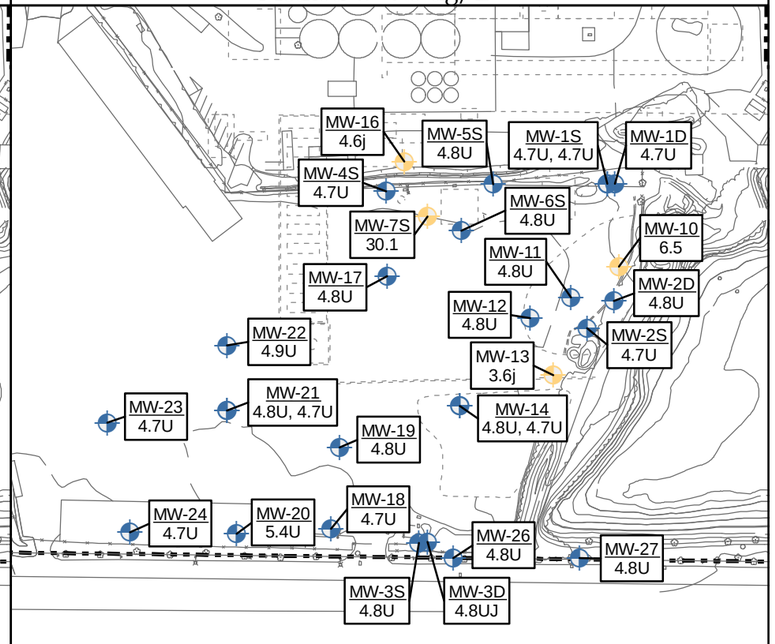
Method B - 0.73 ug/L



Method C - 7.3 ug/L



SW-AL - 7.9 ug/L



SW-HH - 3 ug/L

Legend

- Sample Result Does not Exceed the Pentachlorophenol Screening Level
- Sample Result Exceeds the Pentachlorophenol Screening Level

Notes:
All results in micrograms per liter.
48.3 , 25.8 - Primary Sample, Field Duplicate Sample
If the primary or field duplicate sample concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Fall 2010 Groundwater Sampling Results Memorandum.*
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC)
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established)
Samples collected October 2010.

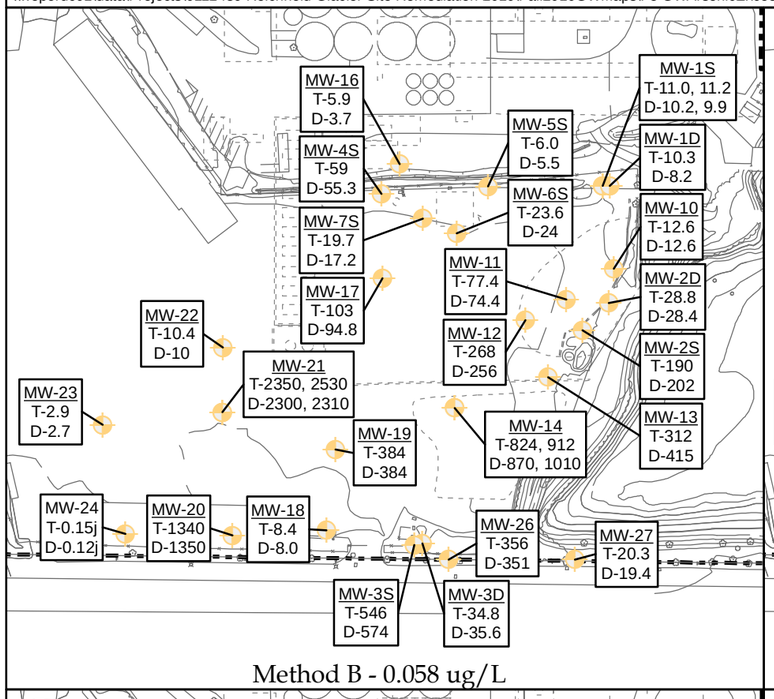
FIGURE 4
Screening Level Exceedences
Pentachlorophenol in Groundwater
Fall 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

File:
\\wepordc01\data\Projects\0112489 Reichhold Glacier Site Remediation 2010\Fall2010GWMaps\F5 GWArsenicExceeds.mxd

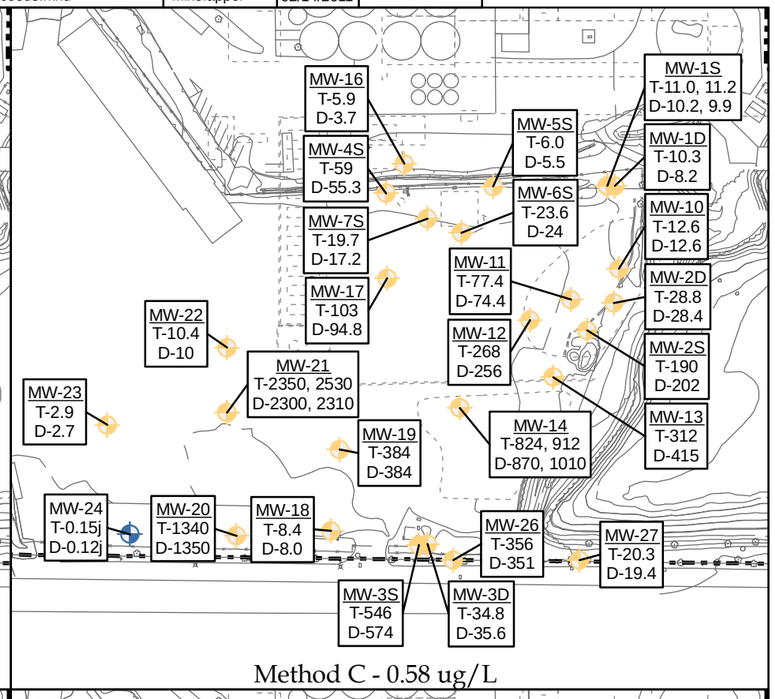
Created By:
mike.appel

Date:
02/14/2011

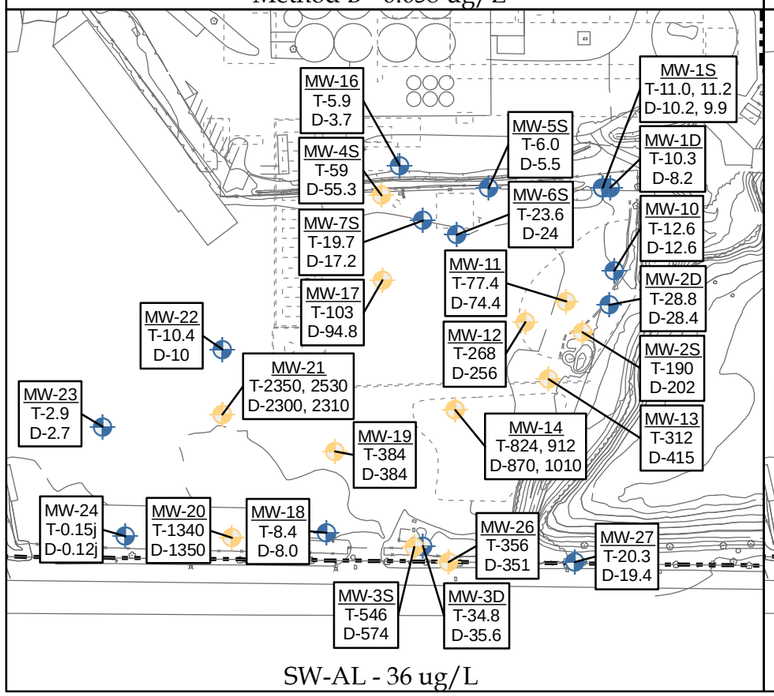
Project Number:
0112489.5



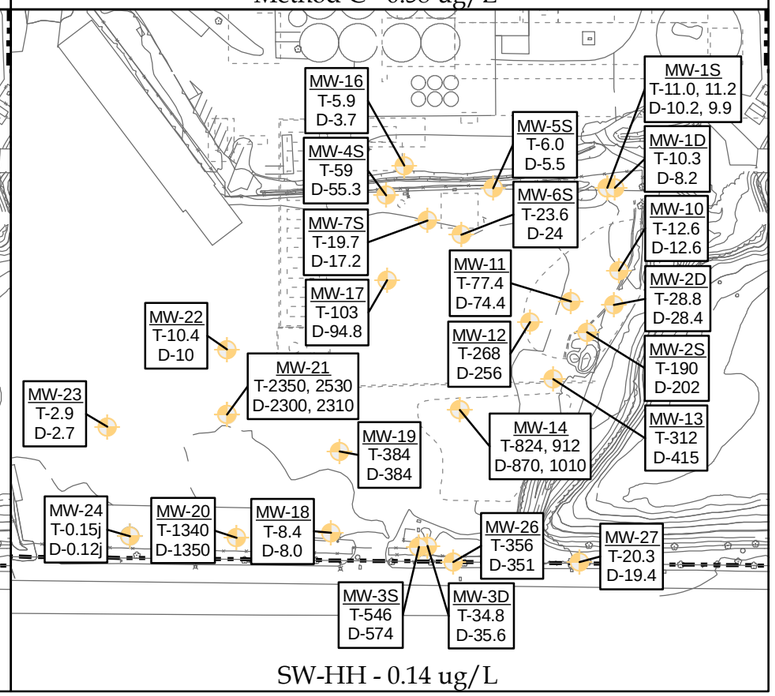
Method B - 0.058 ug/L



Method C - 0.58 ug/L



SW-AL - 36 ug/L



SW-HH - 0.14 ug/L

Legend

Sample Result Did Not Exceed the Arsenic Screening Level

Sample Result Exceeds the Arsenic Screening Level

Notes:

All results in micrograms per liter.
25.8, 20.7 - Primary Sample Result, Field Duplicate Result.
T- Total metal concentration.
D - Dissolved metal concentration.
If either the total or dissolved concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Fall 2010 Groundwater Sampling Results Memorandum.*
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC).
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established).
*Arsenic screening levels for Method B, Method C, and SW-HH are less than anthropogenic background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM, 2009).
Samples collected October 2010.

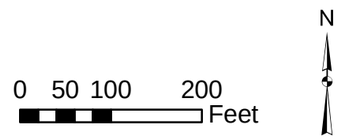


FIGURE 5

Screening Level Exceedences
Arsenic in Groundwater
Fall 2010 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

Tables

Attachment A
Analytical Laboratory Reports

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 23, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on October 25, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

The Total and Dissolved Manganese results for sample 002 were confirmed by reanalysis.

Amended report, REV-1 12/23/10. 2,4-Dimethylphenol & 2,4-Dinitrophenol were removed from the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255461001	**MW-17-102510**	Water	10/25/10 12:36	10/25/10 15:55
255461002	**MW-07S-102510**	Water	10/25/10 13:38	10/25/10 15:55
255461003	**MW-04S-102510**	Water	10/25/10 14:36	10/25/10 15:55

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Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255461001	**MW-17-102510**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	TL1	5	PASI-M
		EPA 6020	TL1	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255461002	**MW-07S-102510**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	TL1	5	PASI-M
		EPA 6020	TL1	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255461003	**MW-04S-102510**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	TL1	5	PASI-M
		EPA 6020	TL1	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23192

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255461001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 881870)
  - Chromium
  - Silver
- MSD (Lab ID: 881871)
  - Chromium
  - Silver

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23189

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255461001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 881854)
  - Chromium, Dissolved
  - Silver, Dissolved
- MSD (Lab ID: 881855)
  - Chromium, Dissolved
  - Silver, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1768

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255435001,255473005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 47598)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Method: **SM 5310C**
Description: 5310C TOC
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
3 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Sample: MW-17-102510 **Lab ID: 255461001** Collected: 10/25/10 12:36 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**191**	mg/L	1.0		1		11/03/10 08:18		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:18	7429-90-5	
Calcium	**68100**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:18	7440-70-2	
Iron	**5080**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:18	7439-89-6	
Magnesium	**4980J**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:18	7439-95-4	
Manganese	**253**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:18	7439-96-5	
Potassium	**5490**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:18	7440-09-7	
Sodium	**12100**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:18	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:17	7429-90-5	
Iron, Dissolved	**5280**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:17	7439-89-6	
Manganese, Dissolved	**256**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:17	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**103**	ug/L	0.50	0.062	1	11/01/10 12:57	11/03/10 23:13	7440-38-2	
Chromium	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/04/10 13:49	7440-47-3	M1
Copper	ND	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 13:49	7440-50-8	
Silver	**1.2**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 13:49	7440-22-4	B,M1
Zinc	ND	ug/L	5.0	1.3	1	11/01/10 12:57	11/03/10 23:13	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**94.8**	ug/L	0.50	0.062	1	11/01/10 12:57	11/04/10 14:34	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/04/10 14:34	7440-47-3	M1
Copper, Dissolved	ND	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 14:34	7440-50-8	
Silver, Dissolved	**1.0**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 14:34	7440-22-4	B,M1
Zinc, Dissolved	**6.4**	ug/L	5.0	1.3	1	11/01/10 12:57	11/04/10 14:34	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/08/10 23:27	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/08/10 23:27	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/08/10 23:27	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/08/10 23:27	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/08/10 23:27	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/08/10 23:27	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/08/10 23:27	108-95-2	
Nitrobenzene-d5 (S)	69	%	38-121		1	10/29/10 15:20	11/08/10 23:27	4165-60-0	
2-Fluorobiphenyl (S)	61	%	40-110		1	10/29/10 15:20	11/08/10 23:27	321-60-8	
Terphenyl-d14 (S)	68	%	26-130		1	10/29/10 15:20	11/08/10 23:27	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	10/29/10 15:20	11/08/10 23:27	13127-88-3	
2-Fluorophenol (S)	29	%	20-120		1	10/29/10 15:20	11/08/10 23:27	367-12-4	
2,4,6-Tribromophenol (S)	71	%	37-120		1	10/29/10 15:20	11/08/10 23:27	118-79-6	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Sample: MW-17-102510 **Lab ID: 255461001** Collected: 10/25/10 12:36 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**168**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**4.0**	mg/L	2.0	1.0	1		10/29/10 16:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 01:34	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**38.1**	mg/L	10.0	0.30	10		10/29/10 20:28	16887-00-6	
Sulfate	**0.22J**	mg/L	1.0	0.10	1		10/27/10 01:34	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.49**	mg/L	0.020	0.0056	2		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.2**	mg/L	1.0	0.080	1		10/28/10 12:30	7440-44-0	

Sample: MW-07S-102510 **Lab ID: 255461002** Collected: 10/25/10 13:38 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**165**	mg/L	1.0		1		11/03/10 08:21		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:21	7429-90-5	
Calcium	**58200**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:21	7440-70-2	
Iron	**2210**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:21	7439-89-6	
Magnesium	**4770J**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:21	7439-95-4	
Manganese	**254**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:21	7439-96-5	
Potassium	**4280J**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:21	7440-09-7	
Sodium	**13200**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:21	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:26	7429-90-5	
Iron, Dissolved	**2210**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:26	7439-89-6	
Manganese, Dissolved	**297**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:26	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**19.7**	ug/L	0.50	0.062	1	11/01/10 12:57	11/03/10 23:25	7440-38-2	
Chromium	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/03/10 23:25	7440-47-3	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Sample: MW-07S-102510 **Lab ID: 255461002** Collected: 10/25/10 13:38 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Copper	**0.71**	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 14:03	7440-50-8	
Silver	**0.37J**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 14:03	7440-22-4	B
Zinc	**3.9J**	ug/L	5.0	1.3	1	11/01/10 12:57	11/03/10 23:25	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**17.2**	ug/L	0.50	0.062	1	11/01/10 12:57	11/04/10 14:47	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/04/10 14:47	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 14:47	7440-50-8	
Silver, Dissolved	**0.30J**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 14:47	7440-22-4	B
Zinc, Dissolved	**4.5J**	ug/L	5.0	1.3	1	11/01/10 12:57	11/04/10 14:47	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	**2.5J**	ug/L	4.8	0.46	1	10/29/10 15:20	11/08/10 23:50	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/08/10 23:50	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/08/10 23:50	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/08/10 23:50	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/08/10 23:50	95-57-8	
Pentachlorophenol	**30.1**	ug/L	4.8	0.44	1	10/29/10 15:20	11/08/10 23:50	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/08/10 23:50	108-95-2	
Nitrobenzene-d5 (S)	76	%	38-121		1	10/29/10 15:20	11/08/10 23:50	4165-60-0	
2-Fluorobiphenyl (S)	66	%	40-110		1	10/29/10 15:20	11/08/10 23:50	321-60-8	
Terphenyl-d14 (S)	69	%	26-130		1	10/29/10 15:20	11/08/10 23:50	1718-51-0	
Phenol-d6 (S)	20	%	11-120		1	10/29/10 15:20	11/08/10 23:50	13127-88-3	
2-Fluorophenol (S)	29	%	20-120		1	10/29/10 15:20	11/08/10 23:50	367-12-4	
2,4,6-Tribromophenol (S)	66	%	37-120		1	10/29/10 15:20	11/08/10 23:50	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**157**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	1.0	1		10/29/10 16:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 02:26	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.6**	mg/L	1.0	0.030	1		10/27/10 02:26	16887-00-6	
Sulfate	**49.4**	mg/L	5.0	0.50	5		10/29/10 21:20	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.25**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.8**	mg/L	1.0	0.080	1		10/28/10 12:30	7440-44-0	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Sample: MW-04S-102510 **Lab ID: 255461003** Collected: 10/25/10 14:36 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**181**	mg/L	1.0		1		11/03/10 08:24		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:24	7429-90-5	
Calcium	**67200**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:24	7440-70-2	
Iron	ND	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:24	7439-89-6	
Magnesium	**3170J**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:24	7439-95-4	
Manganese	**2.6J**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:24	7439-96-5	
Potassium	**2140J**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:24	7440-09-7	
Sodium	**10200**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:24	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:29	7429-90-5	
Iron, Dissolved	ND	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:29	7439-89-6	
Manganese, Dissolved	ND	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:29	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**59.0**	ug/L	0.50	0.062	1	11/01/10 12:57	11/03/10 23:28	7440-38-2	
Chromium	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/03/10 23:28	7440-47-3	
Copper	**3.0**	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 14:06	7440-50-8	
Silver	**0.094J**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 14:06	7440-22-4	B
Zinc	**5.3**	ug/L	5.0	1.3	1	11/01/10 12:57	11/03/10 23:28	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**55.3**	ug/L	0.50	0.062	1	11/01/10 12:57	11/04/10 14:51	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	11/01/10 12:57	11/04/10 14:51	7440-47-3	
Copper, Dissolved	**3.0**	ug/L	0.50	0.20	1	11/01/10 12:57	11/04/10 14:51	7440-50-8	
Silver, Dissolved	**0.079J**	ug/L	0.50	0.071	1	11/01/10 12:57	11/04/10 14:51	7440-22-4	B
Zinc, Dissolved	**9.3**	ug/L	5.0	1.3	1	11/01/10 12:57	11/04/10 14:51	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	10/29/10 15:20	11/09/10 00:14	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	10/29/10 15:20	11/09/10 00:14	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	10/29/10 15:20	11/09/10 00:14	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	10/29/10 15:20	11/09/10 00:14	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	10/29/10 15:20	11/09/10 00:14	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	10/29/10 15:20	11/09/10 00:14	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	10/29/10 15:20	11/09/10 00:14	108-95-2	
Nitrobenzene-d5 (S)	75	%	38-121		1	10/29/10 15:20	11/09/10 00:14	4165-60-0	
2-Fluorobiphenyl (S)	66	%	40-110		1	10/29/10 15:20	11/09/10 00:14	321-60-8	
Terphenyl-d14 (S)	73	%	26-130		1	10/29/10 15:20	11/09/10 00:14	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	10/29/10 15:20	11/09/10 00:14	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	10/29/10 15:20	11/09/10 00:14	367-12-4	
2,4,6-Tribromophenol (S)	64	%	37-120		1	10/29/10 15:20	11/09/10 00:14	118-79-6	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

Sample: MW-04S-102510 **Lab ID: 255461003** Collected: 10/25/10 14:36 Received: 10/25/10 15:55 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**160**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**1.0J**	mg/L	2.0	1.0	1		10/29/10 16:30		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 02:43	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.1**	mg/L	1.0	0.030	1		10/27/10 02:43	16887-00-6	
Sulfate	**43.2**	mg/L	5.0	0.50	5		10/29/10 21:37	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.10**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.1**	mg/L	1.0	0.080	1		10/28/10 12:30	7440-44-0	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: MPRP/1858 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47744 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	11/03/10 08:12	
Calcium	ug/L	ND	5000	11/03/10 08:12	
Iron	ug/L	ND	100	11/03/10 08:12	
Magnesium	ug/L	33.2J	5000	11/03/10 08:12	
Manganese	ug/L	ND	15.0	11/03/10 08:12	
Potassium	ug/L	ND	5000	11/03/10 08:12	
Sodium	ug/L	ND	5000	11/03/10 08:12	

LABORATORY CONTROL SAMPLE: 47745

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9210	92	80-120	
Calcium	ug/L	10000	9520	95	80-120	
Iron	ug/L	10000	9350	94	80-120	
Magnesium	ug/L	10000	9360	94	80-120	
Manganese	ug/L	500	480	96	80-120	
Potassium	ug/L	10000	9120	91	80-120	
Sodium	ug/L	10000	9560	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47746 47747

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9960	9140	100	91	75-125	9	20	
Calcium	ug/L	36000	10000	10000	47300	44100	114	82	75-125	7	20	
Iron	ug/L	9470	10000	10000	20100	18100	107	87	75-125	10	20	
Magnesium	ug/L	10900	10000	10000	21200	19400	102	85	75-125	9	20	
Manganese	ug/L	343	500	500	872	812	106	94	75-125	7	20	
Potassium	ug/L	10500	10000	10000	21000	19300	105	88	75-125	9	20	
Sodium	ug/L	29100	10000	10000	41100	38500	120	93	75-125	7	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: MPRP/1859 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47754 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	11/03/10 09:10	
Iron, Dissolved	ug/L	ND	100	11/03/10 09:10	
Manganese, Dissolved	ug/L	1.6J	15.0	11/03/10 09:10	

LABORATORY CONTROL SAMPLE: 47755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9820	98	80-120	
Iron, Dissolved	ug/L	10000	10100	101	80-120	
Manganese, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47756 47757

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9930	9920	99	99	75-125	.1	20	
Iron, Dissolved	ug/L	9990	10000	10000	20000	20000	100	100	75-125	.1	20	
Manganese, Dissolved	ug/L	350	500	500	831	827	96	95	75-125	.5	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: ICPM/23192 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 881868 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	11/03/10 23:07	
Chromium	ug/L	ND	0.50	11/03/10 23:07	
Copper	ug/L	ND	0.50	11/04/10 13:42	
Silver	ug/L	0.16J	0.50	11/04/10 13:42	
Zinc	ug/L	ND	5.0	11/03/10 23:07	

LABORATORY CONTROL SAMPLE: 881869

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	83.3	104	80-120	
Chromium	ug/L	80	82.9	104	80-120	
Copper	ug/L	80	89.0	111	80-120	
Silver	ug/L	80	87.4	109	80-120	
Zinc	ug/L	80	80.8	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 881870 881871

Parameter	Units	255461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	103	80	80	189	187	107	105	75-125	.9	20	
Chromium	ug/L	ND	80	80	ND	ND	0	0	75-125		20	M1
Copper	ug/L	ND	80	80	92.8	87.7	116	109	75-125	6	20	
Silver	ug/L	1.2	80	80	39.1	44.3	47	54	75-125	12	20	M1
Zinc	ug/L	ND	80	80	75.5	71.8	93	88	75-125	5	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: ICPM/23189 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 881852 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/04/10 14:27	
Chromium, Dissolved	ug/L	ND	0.50	11/04/10 14:27	
Copper, Dissolved	ug/L	ND	0.50	11/04/10 14:27	
Silver, Dissolved	ug/L	0.087J	0.50	11/04/10 14:27	
Zinc, Dissolved	ug/L	ND	5.0	11/04/10 14:27	

LABORATORY CONTROL SAMPLE: 881853

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.4	103	85-115	
Chromium, Dissolved	ug/L	80	83.4	104	85-115	
Copper, Dissolved	ug/L	80	87.6	110	85-115	
Silver, Dissolved	ug/L	80	86.1	108	85-115	
Zinc, Dissolved	ug/L	80	85.6	107	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 881854 881855

Parameter	Units	255461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	94.8	80	80	178	181	104	107	70-130	1	20	
Chromium, Dissolved	ug/L	ND	80	80	ND	ND	0	0	70-130		20	M1
Copper, Dissolved	ug/L	ND	80	80	85.8	87.0	107	109	70-130	1	20	
Silver, Dissolved	ug/L	1.0	80	80	35.4	37.4	43	45	70-130	5	20	M1
Zinc, Dissolved	ug/L	6.4	80	80	89.6	89.3	104	104	70-130	.3	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: OEXT/2887 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47394 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,5-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4,6-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4-Dichlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2-Chlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Pentachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Phenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,6-Tribromophenol (S)	%	75	37-120	11/08/10 22:41	
2-Fluorobiphenyl (S)	%	66	40-110	11/08/10 22:41	
2-Fluorophenol (S)	%	38	20-120	11/08/10 22:41	
Nitrobenzene-d5 (S)	%	85	38-121	11/08/10 22:41	
Phenol-d6 (S)	%	28	11-120	11/08/10 22:41	
Terphenyl-d14 (S)	%	79	26-130	11/08/10 22:41	

LABORATORY CONTROL SAMPLE: 47395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorophenol	ug/L	40	29.9	75	61-108	
Pentachlorophenol	ug/L	40	28.3	71	45-119	
Phenol	ug/L	40	11.5	29	25-50	
2,4,6-Tribromophenol (S)	%			69	37-120	
2-Fluorobiphenyl (S)	%			68	40-110	
2-Fluorophenol (S)	%			37	20-120	
Nitrobenzene-d5 (S)	%			84	38-121	
Phenol-d6 (S)	%			27	11-120	
Terphenyl-d14 (S)	%			73	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47396 47397

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	37.7	38.8	23.1	24.2	61	62	20-130	5	30	
Pentachlorophenol	ug/L	ND	37.7	38.8	29.8	32.0	79	82	10-114	7	30	
Phenol	ug/L	ND	37.7	38.8	8.4	8.9	22	23	10-127	6	30	
2,4,6-Tribromophenol (S)	%						72	83	37-120			
2-Fluorobiphenyl (S)	%						64	64	40-110			
2-Fluorophenol (S)	%						29	31	20-120			
Nitrobenzene-d5 (S)	%						72	72	38-121			
Phenol-d6 (S)	%						20	21	11-120			
Terphenyl-d14 (S)	%						66	73	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47398 47399

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	38.1	38.1	25.9	25.7	68	67	20-130	.6	30	
Pentachlorophenol	ug/L	ND	38.1	38.1	31.7	30.8	83	81	10-114	3	30	
Phenol	ug/L	ND	38.1	38.1	9.1	9.0	24	24	10-127	1	30	
2,4,6-Tribromophenol (S)	%						81	81	37-120			
2-Fluorobiphenyl (S)	%						65	68	40-110			
2-Fluorophenol (S)	%						33	33	20-120			
Nitrobenzene-d5 (S)	%						76	76	38-121			
Phenol-d6 (S)	%						22	21	11-120			
Terphenyl-d14 (S)	%						68	70	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WET/2375 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47400 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	11/01/10 14:00	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	11/01/10 14:00	

SAMPLE DUPLICATE: 47402

Parameter	Units	255404001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	110	109	1	10	

SAMPLE DUPLICATE: 47608

Parameter	Units	255473005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	208	210	.5	10	

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WET/2373 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47249 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	1.0J	2.0	10/29/10 16:30	

SAMPLE DUPLICATE: 47250

Parameter	Units	255464001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	7.0	7.0	0	20	

SAMPLE DUPLICATE: 47251

Parameter	Units	255434004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	9.0	9.0	0	20	

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940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WETA/1754 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 46991 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	10/26/10 18:05	

LABORATORY CONTROL SAMPLE: 46992

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.6	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 46993 46994

Parameter	Units	255461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.6	2.6	104	102	90-110	1	10	

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Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WETA/1765 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47415 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	0.030J	1.0	10/26/10 18:05	
Sulfate	mg/L	0.18J	1.0	10/26/10 18:05	

LABORATORY CONTROL SAMPLE: 47416

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Sulfate	mg/L	15	15.5	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47417 47418

Parameter	Units	255461001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	38.1	50	50	87.3	86.6	99	97	90-110	.8	11	
Sulfate	mg/L	0.22J	15	15	15.6	15.5	103	102	90-110	.7	10	

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Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WETA/1768 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 47594 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	0.0042J	0.010	11/02/10 13:33	

LABORATORY CONTROL SAMPLE: 47595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.1	0.099	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47596 47597

Parameter	Units	255435001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.12	.1	.1	0.21	0.21	89	88	80-120	.6	20	

MATRIX SPIKE SAMPLE: 47598

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.60	.1	0.65	53	80-120	M1

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(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

QC Batch: WETA/1751 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 255461001, 255461002, 255461003

METHOD BLANK: 46802 Matrix: Water
Associated Lab Samples: 255461001, 255461002, 255461003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.37J	1.0	10/28/10 12:30	

LABORATORY CONTROL SAMPLE & LCSD: 46803 46806

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	10	10.6	10.8	106	108	90-110	2	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 46804 46805

Parameter	Units	255348002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	1.3	10	10	11.7	11.7	104	105	70-119	.2	11	

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Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255461

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

November 5, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 126185
Purchase Order: 255461
Project Name: Water
Samples Received: Three (3) Samples
Date Received: 10/27/2010

Attn: Jennifer Gross

Analysis	Page
Formaldehyde by EPA 8315 A	2

Samina N. Hussain
Senior Chemist

Patricia Metzger
Senior Chemist

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All samples will be disposed of 30 days past invoice unless prior arrangements have been made.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). Due to matrix interference, samples required further dilution of 1:50 with DI water. The resulting test solutions were analyzed by HPLC with UV detection at 360 nm. The detection limit was adjusted for the final dilution.

Parts per Million (mg/L)

Sample ID	Formaldehyde
MW-17-102510	ND
MW-7S-102510	ND
MW-4S-102510	ND
Method Blank	ND
Detection Limit	0.3

Date Derivatized: 10-27-10
Date Analyzed: 10-29-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.0	0.5	50	0.4	40	NA*
QC Guidelines				39 - 153		39 - 153	25

*RPD is not applicable when sample result is less than 10 times detection limit

Sample ID: Laboratory Fortified Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.98	98
QC Guideline				80-115

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Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 255461 **Workorder Name:** Reichold-Glacier GWM 112489.6 **Results Requested** 11/4/2010

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	Excova Eric Lindsay Santa Fe Springs, Ca P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCl	Unpreserved	Requested Analysis: Formaldehyde 8315	LAB USE ONLY
1	MW-17-102510 ~	10/25/2010 12:36	255461001	Water		X	X	
2	MW-7S-102510 *	10/25/2010 13:38	255461002	Water		X	X	
3	MW-4S-102510 *	10/25/2010 14:36	255461003	Water		X	X	
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	Jenn Gross/Pace FedEx	10/26/10 13:40	FedEx	
2			Theresa M Ry	10-27-10/A8:40
3				
4				
5				

Comments:
EIM + Equis 4-file EDD needed,
Sampled 10/25/10
SHORT HOLD

Samples 2 & 3 are MW-7S & MW-4S

* 10-27-10 VM: Rec'd as
MW-07S-102510
MW-04S-102510

126185

Columbia Analytical Services

November 18, 2010 Analytical Report for Service Request No: K1012075

Jennifer Gross
Pace Analytical Services
940 S. Harney St.
Seattle, WA 98108

RE: Reichold-Glacier GWM 112489.6/255461

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 28, 2010. For your reference, these analyses have been assigned our service request number K1012075.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at MShelton@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mike Shelton
Project Chemist

MS/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

K101075

Chain of Custody

Pace Analytical
www.pacelabs.com

Standard TAT

Workorder: 255461 **Workorder Name:** Reichold-Glacier GWM 112489.6 **Results Requested** ~~11/4/2010~~

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	CAS - Kelso Attn: Pradeep P.O. _____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers						Requested Analysis												LAB USE ONLY
					HNO3	unpreserved					TOX												
1	MW-17-102510	10/25/2010 12:36	255461001	Water	X						X												
2	MW-7S-102510	10/25/2010 13:38	255461002	Water	X						X												
3	MW-4S-102510	10/25/2010 14:36	255461003	Water	X						X												
4																							
5																							

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2				
3				
4				
5				

Comments

Elm + Equis 4-file EDD

PC M.S.

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client / Project: Paco Service Request K10 12075

Received: 10/28/10 Opened: 10/28/10 By: SA

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? one, front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.0	3.6	294		7963 8742 6051	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1012075
Project:	Reichold-Glacier GWM 112489.6/255461	**Date Collected:**	10/25/2010
Sample Matrix:	Water	**Date Received:**	10/28/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-1T-102510	K1012075-001	10	4	1	11/10/2010	ND	
MW-7S-102510	K1012075-002	10	4	1	11/10/2010	42	
MW-4S-102510	K1012075-003	10	4	1	11/10/2010	8	J
Method Blank	K1012075-MB	10	4	1	11/10/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012075
Project:	Reichold-Glacier GWM 112489.6/255461	**Date Collected:**	10/25/2010
Sample Matrix:	Water	**Date Received:**	10/28/2010
		Date Extracted:	NA
		Date Analyzed:	11/10/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-17-102510	Units:	ug/L (ppb)
Lab Code:	K1012075-001MS, K1012075-001DMS	Basis:	NA
Test Notes:			

									Percent Recovery				
				Spike Level		Sample	Spike Result				CAS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	ND	100	100	100	95	82-121	5	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold-Glacier GWM 112489.6/255461
Sample Matrix: Water

Service Request: K1012075
Date Collected: NA
Date Received: NA
Date Analyzed: 11/10/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.43	9.3	93	ND
Percent Recovery	94	93	93	ND
Run B	3.58	9.5	103	ND
Percent Recovery	98	95	103	ND

Sample Condition Upon Receipt

Pace Analytical

Client Name: ERM

Project # 2554461

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank Yes X No _____

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: (Wet) Blue None ☑ Samples on ice, cooling process has begun

Cooler Temperature 1.4, 8.5, 4.1c Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: 10.25.10 CW

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☐Yes	☑No	☐N/A	8. per Regina transferred into a 250 mL poly with H_2SO_4 using 1L poly
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: water				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
Exceptions: VOA, coliform, TOC, O&G				Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blanks Present:	☐Yes	☐No	☑N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 10/26/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# 255446.1

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4049

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 2

PROJECT #	PROJECT NAME
112489.6	Reichhold - Steilacoom

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Debroy	

RECEIVING LABORATORY: PACE, Seattle, WA

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TPH 8100	BTEX 8021B Fluoride/Chloride/Sulphate	Ammonia, Cl, SO4 as N 300.0	TSS 160.1/A	VOCs 8260B	PAHs 8270C SIM	Total As, Cu, Ni, Pb, Zn 6010B	Hardness	Diss. As, Al, Fe, Mn 6010B	Diss. Cu, Cu, Ag, Zn 6010B	
MW-17-102516	10/25/10	1136		X	Perist	2	Y	1.55 L	10		X		X	X	X	X	X	X	X	X	X	X	
MW-75-102516		1338		X	Perist	Hcl pH<2	Y	1.55 L	10		X		X	X	X	X	X	X	X	X	X	X	
MW-95-102516		1430		X	"	"	Y	1.55 L	10		X		X	X	X	X	X	X	X	X	X	X	

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/25/10	1530	Tom Boucot	10/25/10	1530
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Tom Boucot	10/25/10	1555	Matt Weaver/PACE	10/25/10	1555
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS:
* Field-filtered
① sample for PAHs must be extracted within 7 days of receipt
1 VOA, 8 SGs, 4 ICs on ice

REMARKS ON SAMPLE RECEIPT:
☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS:

SEND REPORT TO:
Cyprus Gorman & Mike Mendoza

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Environmental Resources Management

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

WO# 2554161

CHAIN OF CUSTODY RECORD

NO: 4050

Page 2 of 2

PROJECT #	PROJECT NAME
11289.6	R-C GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shiva Delwood	

RECEIVING LABORATORY: PACE, Seattle, WA

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: Formaldehyde 8315A
MW-17-102510	10-25-10	1230		X	Peri	X	Y	1L	1		X		X
MW-73-102510		1355		X	Peri	X	Y	1L	1		X		X
MW-45-102510		1455		X	Peri	X	Y	1L	1		X		X

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/25/10			10/25	1535
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/25/10	1555	Colette Weaver / PACE	10/25/10	1555
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS: 1.4c, 8.5c, 4.1c on ice

REMARKS ON SAMPLE RECEIPT

- ☐ BOTTLE INTACT
- ☐ CUSTODY SEALS
- ☐ CHILLED
- ☐ PRESERVED
- ☐ SEALS INTACT
- ☐ SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Cyrus Conner & Mike Mercer

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Sample Container Count

CLIENT: ERH WO#2554601

COC PAGE 1 of 1
COC ID# 4049 34080

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	AG2S	BP3N	BP3S	DG9W	Comments
1			2		1							1 x2	1 x2	1 x2	2	
2			↓		↓							↓	↓	↓	↓	
3			↓		↓							↓	↓	↓	↓	
4																
5																
6																
7																
8																
9																
10																
11																
12																Trip Blank? NO

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial			
BP2O	500mL NaOH plastic			Wipe/Swab			

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 23, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Dissolved Arsenic > Total Arsenic for 255473 003. The sample results were reconfirmed by re-analysis.

Amended report, REV-1 12/23/10. 2,4-Dimethylphenol & 2,4-Dinitrophenol were removed from the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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CERTIFICATIONS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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SAMPLE SUMMARY

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255473001	**MW-20-102510**	Water	10/25/10 16:00	10/26/10 14:50
255473002	**MW-10-102610**	Water	10/26/10 10:41	10/26/10 14:50
255473003	**MW-13-102610**	Water	10/26/10 11:40	10/26/10 14:50
255473004	**MW-24-102610**	Water	10/26/10 12:53	10/26/10 14:50
255473005	**MW-22-102610**	Water	10/26/10 13:41	10/26/10 14:50

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255473001	**MW-20-102510**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	TL1	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255473002	**MW-10-102610**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	5	PASI-M
		EPA 6020	TL1	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255473003	**MW-13-102610**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	5	PASI-M
		EPA 6020	TL1	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255473004	**MW-24-102610**	SM 2340B	BGA	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	TL1	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255473005	**MW-22-102610**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	TL1	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	KMT	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23190

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10141781001,255473005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 883409)
  - Chromium, Dissolved
- MSD (Lab ID: 883410)
  - Chromium, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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(206)767-5060

PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1768

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255435001,255473005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 47598)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Method: **SM 5310C**
Description: 5310C TOC
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-20-102510 **Lab ID: 255473001** Collected: 10/25/10 16:00 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**137**	mg/L	1.0		1		11/03/10 08:27		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:27	7429-90-5	
Calcium	**23400**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:27	7440-70-2	
Iron	**19800**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:27	7439-89-6	
Magnesium	**19100**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:27	7439-95-4	
Manganese	**576**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:27	7439-96-5	
Potassium	**14300**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:27	7440-09-7	
Sodium	**19800**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:27	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:32	7429-90-5	
Iron, Dissolved	**19000**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:32	7439-89-6	
Manganese, Dissolved	**565**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:32	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**1340**	ug/L	0.50	0.062	1	11/02/10 12:54	11/05/10 21:33	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1350**	ug/L	2.5	0.31	5	11/02/10 12:57	11/05/10 18:07	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	5.4	0.52	1	10/29/10 15:20	11/09/10 00:37	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	1.1	0.47	1	10/29/10 15:20	11/09/10 00:37	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	1.1	0.22	1	10/29/10 15:20	11/09/10 00:37	88-06-2	
2,4-Dichlorophenol	ND	ug/L	5.4	0.43	1	10/29/10 15:20	11/09/10 00:37	120-83-2	
2-Chlorophenol	ND	ug/L	5.4	0.41	1	10/29/10 15:20	11/09/10 00:37	95-57-8	
Pentachlorophenol	ND	ug/L	5.4	0.50	1	10/29/10 15:20	11/09/10 00:37	87-86-5	
Phenol	ND	ug/L	5.4	0.14	1	10/29/10 15:20	11/09/10 00:37	108-95-2	
Nitrobenzene-d5 (S)	73	%	38-121		1	10/29/10 15:20	11/09/10 00:37	4165-60-0	
2-Fluorobiphenyl (S)	61	%	40-110		1	10/29/10 15:20	11/09/10 00:37	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	10/29/10 15:20	11/09/10 00:37	1718-51-0	
Phenol-d6 (S)	24	%	11-120		1	10/29/10 15:20	11/09/10 00:37	13127-88-3	
2-Fluorophenol (S)	35	%	20-120		1	10/29/10 15:20	11/09/10 00:37	367-12-4	
2,4,6-Tribromophenol (S)	78	%	37-120		1	10/29/10 15:20	11/09/10 00:37	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**195**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**42.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-20-102510 **Lab ID: 255473001** Collected: 10/25/10 16:00 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 13:56	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**7.4**	mg/L	1.0	0.030	1		10/27/10 13:56	16887-00-6	
Sulfate	**2.2**	mg/L	1.0	0.10	1		10/27/10 13:56	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.2**	mg/L	0.050	0.014	5		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.2**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-10-102610 **Lab ID: 255473002** Collected: 10/26/10 10:41 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**213**	mg/L	1.0		1		11/03/10 08:30		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:30	7429-90-5	
Calcium	**81300**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:30	7440-70-2	
Iron	**217**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:30	7439-89-6	
Magnesium	ND	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:30	7439-95-4	
Manganese	**57.3**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:30	7439-96-5	
Potassium	ND	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:30	7440-09-7	
Sodium	**8480**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:30	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:35	7429-90-5	
Iron, Dissolved	**248**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:35	7439-89-6	
Manganese, Dissolved	**63.7**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:35	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**12.6**	ug/L	0.50	0.062	1	11/02/10 12:54	11/05/10 21:37	7440-38-2	
Chromium	**0.48J**	ug/L	0.50	0.24	1	11/02/10 12:54	11/05/10 21:37	7440-47-3	
Copper	**2.3**	ug/L	0.50	0.20	1	11/02/10 12:54	11/05/10 21:37	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	11/02/10 12:54	11/08/10 16:22	7440-22-4	
Zinc	**2.3J**	ug/L	5.0	1.3	1	11/02/10 12:54	11/05/10 21:37	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**12.6**	ug/L	0.50	0.062	1	11/02/10 12:57	11/05/10 01:11	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	11/02/10 12:57	11/05/10 18:21	7440-47-3	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-10-102610 **Lab ID: 255473002** Collected: 10/26/10 10:41 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Copper, Dissolved	**1.4**	ug/L	0.50	0.20	1	11/02/10 12:57	11/05/10 01:11	7440-50-8	
Silver, Dissolved	**0.17J**	ug/L	0.50	0.071	1	11/02/10 12:57	11/05/10 01:11	7440-22-4	
Zinc, Dissolved	**2.2J**	ug/L	5.0	1.3	1	11/02/10 12:57	11/05/10 01:11	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	10/29/10 15:20	11/09/10 01:00	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	10/29/10 15:20	11/09/10 01:00	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	10/29/10 15:20	11/09/10 01:00	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	10/29/10 15:20	11/09/10 01:00	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	10/29/10 15:20	11/09/10 01:00	95-57-8	
Pentachlorophenol	**6.5**	ug/L	4.7	0.43	1	10/29/10 15:20	11/09/10 01:00	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	10/29/10 15:20	11/09/10 01:00	108-95-2	
Nitrobenzene-d5 (S)	71	%	38-121		1	10/29/10 15:20	11/09/10 01:00	4165-60-0	
2-Fluorobiphenyl (S)	59	%	40-110		1	10/29/10 15:20	11/09/10 01:00	321-60-8	
Terphenyl-d14 (S)	71	%	26-130		1	10/29/10 15:20	11/09/10 01:00	1718-51-0	
Phenol-d6 (S)	18	%	11-120		1	10/29/10 15:20	11/09/10 01:00	13127-88-3	
2-Fluorophenol (S)	26	%	20-120		1	10/29/10 15:20	11/09/10 01:00	367-12-4	
2,4,6-Tribromophenol (S)	62	%	37-120		1	10/29/10 15:20	11/09/10 01:00	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**193**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 16:14	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.9**	mg/L	1.0	0.030	1		10/27/10 16:14	16887-00-6	
Sulfate	**30.6**	mg/L	5.0	0.50	5		10/29/10 19:37	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.017**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.3**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-13-102610 **Lab ID: 255473003** Collected: 10/26/10 11:40 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**487**	mg/L	1.0		1		11/03/10 08:33		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:33	7429-90-5	
Calcium	**182000**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:33	7440-70-2	
Iron	**1340**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:33	7439-89-6	
Magnesium	**8090**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:33	7439-95-4	
Manganese	**142**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:33	7439-96-5	
Potassium	ND	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:33	7440-09-7	
Sodium	**11800**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:33	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:39	7429-90-5	
Iron, Dissolved	**1480**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:39	7439-89-6	
Manganese, Dissolved	**148**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:39	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**312**	ug/L	0.50	0.062	1	11/02/10 12:54	11/05/10 21:41	7440-38-2	
Chromium	**3.6**	ug/L	0.50	0.24	1	11/02/10 12:54	11/05/10 21:41	7440-47-3	
Copper	**12.3**	ug/L	0.50	0.20	1	11/02/10 12:54	11/05/10 21:41	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	11/02/10 12:54	11/08/10 16:26	7440-22-4	
Zinc	**18.6**	ug/L	5.0	1.3	1	11/02/10 12:54	11/05/10 21:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**415**	ug/L	0.50	0.062	1	11/02/10 12:57	11/05/10 01:15	7440-38-2	
Chromium, Dissolved	ND	ug/L	0.50	0.24	1	11/02/10 12:57	11/05/10 18:24	7440-47-3	
Copper, Dissolved	**2.9**	ug/L	0.50	0.20	1	11/02/10 12:57	11/05/10 01:15	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/02/10 12:57	11/05/10 01:15	7440-22-4	
Zinc, Dissolved	**15.8**	ug/L	5.0	1.3	1	11/02/10 12:57	11/05/10 01:15	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	10/29/10 15:20	11/09/10 01:23	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	10/29/10 15:20	11/09/10 01:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	10/29/10 15:20	11/09/10 01:23	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	10/29/10 15:20	11/09/10 01:23	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	10/29/10 15:20	11/09/10 01:23	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	10/29/10 15:20	11/09/10 01:23	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	10/29/10 15:20	11/09/10 01:23	108-95-2	
Nitrobenzene-d5 (S)	78	%	38-121		1	10/29/10 15:20	11/09/10 01:23	4165-60-0	
2-Fluorobiphenyl (S)	65	%	40-110		1	10/29/10 15:20	11/09/10 01:23	321-60-8	
Terphenyl-d14 (S)	73	%	26-130		1	10/29/10 15:20	11/09/10 01:23	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	10/29/10 15:20	11/09/10 01:23	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	10/29/10 15:20	11/09/10 01:23	367-12-4	
2,4,6-Tribromophenol (S)	66	%	37-120		1	10/29/10 15:20	11/09/10 01:23	118-79-6	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-13-102610 **Lab ID: 255473003** Collected: 10/26/10 11:40 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**533**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**5.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 16:32	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.1**	mg/L	1.0	0.030	1		10/27/10 16:32	16887-00-6	
Sulfate	**55.1**	mg/L	5.0	0.50	5		10/29/10 19:54	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.23**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**7.4**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-24-102610 **Lab ID: 255473004** Collected: 10/26/10 12:53 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**194**	mg/L	1.0		1		11/03/10 08:36		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:36	7429-90-5	
Calcium	**36300**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:36	7440-70-2	
Iron	**12600**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:36	7439-89-6	
Magnesium	**25200**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:36	7439-95-4	
Manganese	**325**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:36	7439-96-5	
Potassium	**10700**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:36	7440-09-7	
Sodium	**26900**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:36	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:42	7429-90-5	
Iron, Dissolved	**13100**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:42	7439-89-6	
Manganese, Dissolved	**315**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:42	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**0.15J**	ug/L	0.50	0.062	1	11/02/10 12:54	11/05/10 21:46	7440-38-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-24-102610 **Lab ID: 255473004** Collected: 10/26/10 12:53 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**0.12J**	ug/L	0.50	0.062	1	11/02/10 12:57	11/05/10 01:18	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	10/29/10 15:20	11/09/10 01:46	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	10/29/10 15:20	11/09/10 01:46	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	10/29/10 15:20	11/09/10 01:46	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	10/29/10 15:20	11/09/10 01:46	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	10/29/10 15:20	11/09/10 01:46	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	10/29/10 15:20	11/09/10 01:46	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	10/29/10 15:20	11/09/10 01:46	108-95-2	
Nitrobenzene-d5 (S)	75	%	38-121		1	10/29/10 15:20	11/09/10 01:46	4165-60-0	
2-Fluorobiphenyl (S)	66	%	40-110		1	10/29/10 15:20	11/09/10 01:46	321-60-8	
Terphenyl-d14 (S)	79	%	26-130		1	10/29/10 15:20	11/09/10 01:46	1718-51-0	
Phenol-d6 (S)	21	%	11-120		1	10/29/10 15:20	11/09/10 01:46	13127-88-3	
2-Fluorophenol (S)	31	%	20-120		1	10/29/10 15:20	11/09/10 01:46	367-12-4	
2,4,6-Tribromophenol (S)	75	%	37-120		1	10/29/10 15:20	11/09/10 01:46	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**251**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**6.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 16:49	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**31.5**	mg/L	5.0	0.15	5		10/29/10 20:11	16887-00-6	
Sulfate	**7.3**	mg/L	1.0	0.10	1		10/27/10 16:49	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.51**	mg/L	0.020	0.0056	2		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.2**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-22-102610 **Lab ID: 255473005** Collected: 10/26/10 13:41 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**135**	mg/L	1.0		1		11/03/10 08:40		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-22-102610 **Lab ID: 255473005** Collected: 10/26/10 13:41 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:40	7429-90-5	
Calcium	**36000**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:40	7440-70-2	
Iron	**9470**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:40	7439-89-6	
Magnesium	**10900**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:40	7439-95-4	
Manganese	**343**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:40	7439-96-5	
Potassium	**10500**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:40	7440-09-7	
Sodium	**29100**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:40	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:45	7429-90-5	
Iron, Dissolved	**9990**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:45	7439-89-6	
Manganese, Dissolved	**350**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:45	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**10.4**	ug/L	0.50	0.062	1	11/02/10 12:54	11/05/10 21:49	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**10.0**	ug/L	0.50	0.062	1	11/02/10 12:57	11/05/10 01:22	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.9	0.47	1	10/29/10 15:20	11/09/10 02:09	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.98	0.42	1	10/29/10 15:20	11/09/10 02:09	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.98	0.20	1	10/29/10 15:20	11/09/10 02:09	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.9	0.39	1	10/29/10 15:20	11/09/10 02:09	120-83-2	
2-Chlorophenol	ND	ug/L	4.9	0.37	1	10/29/10 15:20	11/09/10 02:09	95-57-8	
Pentachlorophenol	ND	ug/L	4.9	0.45	1	10/29/10 15:20	11/09/10 02:09	87-86-5	
Phenol	ND	ug/L	4.9	0.13	1	10/29/10 15:20	11/09/10 02:09	108-95-2	
Nitrobenzene-d5 (S)	76	%	38-121		1	10/29/10 15:20	11/09/10 02:09	4165-60-0	
2-Fluorobiphenyl (S)	66	%	40-110		1	10/29/10 15:20	11/09/10 02:09	321-60-8	
Terphenyl-d14 (S)	75	%	26-130		1	10/29/10 15:20	11/09/10 02:09	1718-51-0	
Phenol-d6 (S)	21	%	11-120		1	10/29/10 15:20	11/09/10 02:09	13127-88-3	
2-Fluorophenol (S)	32	%	20-120		1	10/29/10 15:20	11/09/10 02:09	367-12-4	
2,4,6-Tribromophenol (S)	79	%	37-120		1	10/29/10 15:20	11/09/10 02:09	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**208**	mg/L	2.0	2.0	1		11/01/10 14:00		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/01/10 14:00		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**13.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/27/10 17:06	14797-55-8	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

Sample: MW-22-102610 **Lab ID: 255473005** Collected: 10/26/10 13:41 Received: 10/26/10 14:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.2**	mg/L	1.0	0.030	1		10/27/10 17:06	16887-00-6	
Sulfate	**17.8**	mg/L	1.0	0.10	1		10/27/10 17:06	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.60**	mg/L	0.020	0.0056	2		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.5**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: MPRP/1858 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47744 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	11/03/10 08:12	
Calcium	ug/L	ND	5000	11/03/10 08:12	
Iron	ug/L	ND	100	11/03/10 08:12	
Magnesium	ug/L	ND	5000	11/03/10 08:12	
Manganese	ug/L	ND	15.0	11/03/10 08:12	
Potassium	ug/L	ND	5000	11/03/10 08:12	
Sodium	ug/L	ND	5000	11/03/10 08:12	

LABORATORY CONTROL SAMPLE: 47745

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9210	92	80-120	
Calcium	ug/L	10000	9520	95	80-120	
Iron	ug/L	10000	9350	94	80-120	
Magnesium	ug/L	10000	9360	94	80-120	
Manganese	ug/L	500	480	96	80-120	
Potassium	ug/L	10000	9120	91	80-120	
Sodium	ug/L	10000	9560	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47746 47747

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9960	9140	100	91	75-125	9	20	
Calcium	ug/L	36000	10000	10000	47300	44100	114	82	75-125	7	20	
Iron	ug/L	9470	10000	10000	20100	18100	107	87	75-125	10	20	
Magnesium	ug/L	10900	10000	10000	21200	19400	102	85	75-125	9	20	
Manganese	ug/L	343	500	500	872	812	106	94	75-125	7	20	
Potassium	ug/L	10500	10000	10000	21000	19300	105	88	75-125	9	20	
Sodium	ug/L	29100	10000	10000	41100	38500	120	93	75-125	7	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: MPRP/1859 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47754 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	11/03/10 09:10	
Iron, Dissolved	ug/L	ND	100	11/03/10 09:10	
Manganese, Dissolved	ug/L	ND	15.0	11/03/10 09:10	

LABORATORY CONTROL SAMPLE: 47755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9820	98	80-120	
Iron, Dissolved	ug/L	10000	10100	101	80-120	
Manganese, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47756 47757

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9930	9920	99	99	75-125	.1	20	
Iron, Dissolved	ug/L	9990	10000	10000	20000	20000	100	100	75-125	.1	20	
Manganese, Dissolved	ug/L	350	500	500	831	827	96	95	75-125	.5	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: ICPM/23193 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 881872 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	11/05/10 21:25	
Chromium	ug/L	ND	0.50	11/05/10 21:25	
Copper	ug/L	ND	0.50	11/05/10 21:25	
Silver	ug/L	ND	0.50	11/08/10 16:14	
Zinc	ug/L	ND	5.0	11/05/10 21:25	

LABORATORY CONTROL SAMPLE: 881873

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	83.4	104	80-120	
Chromium	ug/L	80	83.5	104	80-120	
Copper	ug/L	80	87.0	109	80-120	
Silver	ug/L	80	77.0	96	80-120	
Zinc	ug/L	80	84.8	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 881874 881875

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	10.4	80	80	82.5	80.4	90	88	75-125	3	20	
Chromium	ug/L		80	80	73.5	74.0	91	92	75-125	.6	20	
Copper	ug/L		80	80	75.8	76.9	93	94	75-125	2	20	
Silver	ug/L		80	80	76.5	76.4	96	96	75-125	.07	20	
Zinc	ug/L		80	80	73.4	73.0	88	88	75-125	.5	20	

MATRIX SPIKE SAMPLE: 881876

Parameter	Units	9280763006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L		80	70.4	88	75-125	
Chromium	ug/L		80	71.2	89	75-125	
Copper	ug/L		80	74.8	92	75-125	
Silver	ug/L		80	76.1	95	75-125	
Zinc	ug/L		80	97.0	89	75-125	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: ICPM/23698 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples:

METHOD BLANK: 896923 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	11/24/10 10:58	
Chromium	ug/L	ND	0.50	11/24/10 10:58	
Zinc	ug/L	ND	5.0	11/24/10 10:58	

LABORATORY CONTROL SAMPLE: 896924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	79.9	100	80-120	
Chromium	ug/L	80	80.9	101	80-120	
Zinc	ug/L	80	82.4	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 896925 896926

Parameter	Units	10141821006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	328	80	80	480	466	190	172	75-125	3	20	M1
Chromium	ug/L	4.0	80	80	104	98.1	125	118	75-125	6	20	
Zinc	ug/L	ND	80	80	119	114	128	121	75-125	5	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: ICPM/23190 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 881862 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/05/10 21:11	
Chromium, Dissolved	ug/L	ND	0.50	11/04/10 16:47	
Copper, Dissolved	ug/L	ND	0.50	11/04/10 16:47	
Silver, Dissolved	ug/L	ND	0.50	11/05/10 21:11	
Zinc, Dissolved	ug/L	ND	5.0	11/04/10 16:47	

LABORATORY CONTROL SAMPLE: 881863

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	86.6	108	85-115	
Chromium, Dissolved	ug/L	80	82.7	103	85-115	
Copper, Dissolved	ug/L	80	85.6	107	85-115	
Silver, Dissolved	ug/L	80	84.3	105	85-115	
Zinc, Dissolved	ug/L	80	85.1	106	85-115	

MATRIX SPIKE SAMPLE: 881864

Parameter	Units	10141781001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	ND	80	88.2	110	70-130	
Chromium, Dissolved	ug/L	1.9	80	84.8	104	70-130	
Copper, Dissolved	ug/L	0.63	80	83.4	103	70-130	
Silver, Dissolved	ug/L	ND	80	62.0	77	70-130	
Zinc, Dissolved	ug/L	ND	80	87.2	106	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 883409 883410

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	10.0	80	80	96.2	95.5	108	107	70-130	.8	20	
Chromium, Dissolved	ug/L		80	80	ND	ND	0	0	70-130		20	M1
Copper, Dissolved	ug/L		80	80	84.4	84.2	106	105	70-130	.2	20	
Silver, Dissolved	ug/L		80	80	83.0	82.8	104	103	70-130	.2	20	
Zinc, Dissolved	ug/L		80	80	87.6	87.7	108	109	70-130	.2	20	

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(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: ICPM/23697
QC Batch Method: EPA 6020
Analysis Method: EPA 6020
Analysis Description: 6020 MET Dissolved
Associated Lab Samples:

METHOD BLANK: 896917 Matrix: Water
Associated Lab Samples:

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/24/10 11:21	
Chromium, Dissolved	ug/L	ND	0.50	11/24/10 11:21	
Zinc, Dissolved	ug/L	ND	5.0	11/24/10 11:21	

LABORATORY CONTROL SAMPLE: 896918

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	79.8	100	85-115	
Chromium, Dissolved	ug/L	80	80.5	101	85-115	
Zinc, Dissolved	ug/L	80	81.2	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 896919 896920

Parameter	Units	10141821006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	501	80	80	607	510	132	11	70-130	17	20	M1
Chromium, Dissolved	ug/L	4.8	80	80	105	89.6	125	106	70-130	16	20	
Zinc, Dissolved	ug/L	ND	80	80	125	102	132	103	70-130	20	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: OEXT/2887 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47394 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,5-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4,6-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4-Dichlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2-Chlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Pentachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Phenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,6-Tribromophenol (S)	%	75	37-120	11/08/10 22:41	
2-Fluorobiphenyl (S)	%	66	40-110	11/08/10 22:41	
2-Fluorophenol (S)	%	38	20-120	11/08/10 22:41	
Nitrobenzene-d5 (S)	%	85	38-121	11/08/10 22:41	
Phenol-d6 (S)	%	28	11-120	11/08/10 22:41	
Terphenyl-d14 (S)	%	79	26-130	11/08/10 22:41	

LABORATORY CONTROL SAMPLE: 47395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorophenol	ug/L	40	29.9	75	61-108	
Pentachlorophenol	ug/L	40	28.3	71	45-119	
Phenol	ug/L	40	11.5	29	25-50	
2,4,6-Tribromophenol (S)	%			69	37-120	
2-Fluorobiphenyl (S)	%			68	40-110	
2-Fluorophenol (S)	%			37	20-120	
Nitrobenzene-d5 (S)	%			84	38-121	
Phenol-d6 (S)	%			27	11-120	
Terphenyl-d14 (S)	%			73	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47396 47397

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	37.7	38.8	23.1	24.2	61	62	20-130	5	30	
Pentachlorophenol	ug/L	ND	37.7	38.8	29.8	32.0	79	82	10-114	7	30	
Phenol	ug/L	ND	37.7	38.8	8.4	8.9	22	23	10-127	6	30	
2,4,6-Tribromophenol (S)	%						72	83	37-120			
2-Fluorobiphenyl (S)	%						64	64	40-110			
2-Fluorophenol (S)	%						29	31	20-120			
Nitrobenzene-d5 (S)	%						72	72	38-121			
Phenol-d6 (S)	%						20	21	11-120			
Terphenyl-d14 (S)	%						66	73	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47398 47399

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	38.1	38.1	25.9	25.7	68	67	20-130	.6	30	
Pentachlorophenol	ug/L	ND	38.1	38.1	31.7	30.8	83	81	10-114	3	30	
Phenol	ug/L	ND	38.1	38.1	9.1	9.0	24	24	10-127	1	30	
2,4,6-Tribromophenol (S)	%						81	81	37-120			
2-Fluorobiphenyl (S)	%						65	68	40-110			
2-Fluorophenol (S)	%						33	33	20-120			
Nitrobenzene-d5 (S)	%						76	76	38-121			
Phenol-d6 (S)	%						22	21	11-120			
Terphenyl-d14 (S)	%						68	70	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WET/2375 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47400 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	2.0	11/01/10 14:00	
Alkalinity,Bicarbonate (CaCO3)	mg/L	ND	2.0	11/01/10 14:00	

SAMPLE DUPLICATE: 47402

Parameter	Units	255404001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	110	109	1	10	

SAMPLE DUPLICATE: 47608

Parameter	Units	255473005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	208	210	.5	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WET/2376 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47599 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	11/01/10 14:00	

SAMPLE DUPLICATE: 47600

Parameter	Units	255473005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	13.0	15.0	14	20	

SAMPLE DUPLICATE: 47601

Parameter	Units	255488007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WETA/1756 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47091 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	10/27/10 10:59	

LABORATORY CONTROL SAMPLE: 47092

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.6	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47093 47094

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.6	2.6	104	103	90-110	1	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WETA/1766 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47419 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/27/10 10:59	
Sulfate	mg/L	ND	1.0	10/27/10 10:59	

LABORATORY CONTROL SAMPLE: 47420

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	103	90-110	
Sulfate	mg/L	15	15.8	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47421 47422

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.2	5	5	11.5	11.3	108	103	90-110	2	11	
Sulfate	mg/L	17.8	15	15	34.2	34.0	109	108	90-110	.7	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WETA/1768 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47594 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	11/02/10 13:33	

LABORATORY CONTROL SAMPLE: 47595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.1	0.099	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47596 47597

Parameter	Units	255435001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.12	.1	.1	0.21	0.21	89	88	80-120	.6	20	

MATRIX SPIKE SAMPLE: 47598

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.60	.1	0.65	53	80-120	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

QC Batch: WETA/1762 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

METHOD BLANK: 47385 Matrix: Water
Associated Lab Samples: 255473001, 255473002, 255473003, 255473004, 255473005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	10/29/10 11:55	

LABORATORY CONTROL SAMPLE & LCSD: 47386 47387

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	10	10.2	9.8	102	98	90-110	4	20	

MATRIX SPIKE SAMPLE: 47388

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	3.5	10	12.9	93	70-119	

MATRIX SPIKE SAMPLE: 47389

Parameter	Units	255498001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	4.6	10	14.1	95	70-119	

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QUALIFIERS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255473

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Sample Condition Upon Receipt

Pace Analytical

Client Name: ERM Project # 255473

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ Yes ☐ No Seals intact: ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank Yes (No)

Thermometer Used 132013 or 101731962 or 226099 Type of ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.0, 4.0, 6.9, 9.3, 11.1 °C Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C

Date and Initials of person examining contents: NS 10/26/10

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes	☐No	☐N/A	6. Formaldehyde
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A	11. all metals NS 10/26/10
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: NS 10/26/10 Water	☑Yes	☑No	☐N/A	12. Received one amber MS/MSD. Not on COC. Added to MW-22-102610 RSM 10/27/10.
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. Exceptions: VOA, coliform, TOC, O&G	☑Yes	☐No	☐N/A	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☑N/A	15.
Trip Blanks Present:	☐Yes	☑No	☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: RSM Date: 10/27/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Environmental Resources Management

CHAIN OF CUSTODY RECORD

255473

NO: 4051

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 2

PROJECT #	PROJECT NAME
112489.6	R-G GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Oelwood	

RECEIVING LABORATORY: PACE Seattle, WA

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TOC	Phenol/Chlorinated Phenols	Amines, Cl, NO3, Sulf, POA	TSS/AIR	TOX	Total As, Ca, K, Al, Fe, Mn, Na; Total Cr, Cu, Ag, Zn		Hardness	*Diss As, Al, Fe, Mn	*Diss Cr, Cu, Ag, Zn		
MW-20	10-25-10	1600		X	Perist	H_2SO_4 H_2SO_4	Y	4.55	6		X		X	X	X	X	X	X		X	X			-001
MW-10-10	10-26-10	1041		X		HNO3	Y		6		X		X	X	X	X	X	X	X	X	X	X		002
MW-13-10	10/26/10	1140		X					6		X		X	X	X	X		X	X	X	X	X		003
~~MW-20-10-26-10~~																								
MW-24		1358		X					6		X		X	X	X	X	X	X		X	X			004
① MW-22	10	1341		X					15		X		X	X		X	X	X		X	X			005

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10-26-10	1430	Paul Pace	10/26/10	1430
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Paul Pace	10/26/10	1450	Jyothi Swamy	10/26/10	1450
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS:
* Field-filtered
① Project-specific MS/MSD for metals
total As, diss As

REMARKS ON SAMPLE RECEIPT:
- [x] BOTTLE INTACT
- [x] PRESERVED
- [ ] CUSTODY SEALS
- [ ] SEALS INTACT
- [x] CHILLED
- [ ] SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Cyrus Overman + Mike Mendes

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Received with ice at 4.0°C, 1.0°C, 9.3°C, 11.1°C, 6.9°C.

Environmental Resources Management

CHAIN OF CUSTODY RECORD

255473

NO: 4052

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Page _____ of _____

PROJECT #	PROJECT NAME
112489.6	R-G GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Bellwood	

RECEIVING LABORATORY

PACE
Seattle, WA

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: Formaldehyde 8315A										
MW-10-10	10/26/10	1041		X	Peri	X	Y	1L	1		X		X										002
[illegible]	[illegible]	[illegible]																					003

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/26/10	1430	Pace	10/26/10	1430
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Pace	10/26/10	1450	Jyotsna Swamy	10/26/10	1450
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS

REMARKS ON SAMPLE RECEIPT

- [x] BOTTLE INTACT
- [x] PRESERVED
- [ ] CUSTODY SEALS
- [ ] SEALS INTACT
- [x] CHILLED
- [ ] SEE REMARKS

ERM REMARKS

SEND REPORT TO:

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Received with ice at 4.0°C, 1.0°C, 9.3°C, 11.1°C, 6.9°C.

Sample Container Count

CLIENT: ERM

Pace Analytical
www.pacelabs.com

COC PAGE 1 of 2
COC ID# 4051

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S (BP3S MS 10/26/10)	WGFU	WGKU	DG9H	BP3N	AG2S	Comments
1			1		1				1 <C2			2	4 <C2	1 <C2	MW-20
2			2 1		1				1 <C2			2	4 <C2	1 <C2	MW-10
3			2 1		1				1 <C2			2	4 <C2	1 <C2	MW-13
4			1		1				1 <C2			2	4 <C2	1 <C2	MW-24
5			2		1				8 1 <C2			2	8 <C2	1 <C2	MW-22
6			1						MS 10/26/10						MS/MSD1 1341
7															
8															
9															
10															
11															
12															Trip Blank?

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		1	Wipe/Swab		

Sample Container Count

CLIENT: ERM

Pace Analytical
www.pacelabs.com

COC PAGE 2 of 2
COC ID# 4052

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU				Comments
1			1												
2			1												
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial			
BP2O	500mL NaOH plastic		I	Wipe/Swab			

Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

Testing. Advising. Assuring.

Certificate of Analysis

November 5, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 126186
Purchase Order: 255473
Project Name: Water
Samples Received: Two (2) Samples
Date Received: 10/27/2010

Attn: Jennifer Gross

Analysis	Page
Formaldehyde by EPA 8315 A	2

Samina N. Hussain
Senior Chemist

Patricia Metzger
Senior Chemist

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All samples will be disposed of 30 days past invoice unless prior arrangements have been made.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). Due to matrix interference, samples required further dilution of 1:50 with DI water. The resulting test solutions were analyzed by HPLC with UV detection at 360 nm. The detection limit was adjusted for the final dilution.

Parts per Million (mg/L)

Sample ID	Formaldehyde
MW-10-102610	ND
MW-13-102610	ND
Method Blank	ND
Detection Limit	0.3

Date Derivatized: 10-27-10
Date Analyzed: 10-29-10

Quality Control Summary

Sample ID: MW-13-102610

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	ND	1.0	0.5	50	0.4	40	NA*
QC Guidelines				39 - 153		39 - 153	25

*RPD is not applicable when sample result is less than 10 times detection limit

Sample ID: Laboratory Fortified Blank

Analyte	Blank Result	Spike Conc.	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.98	98
QC Guideline				80-115

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

EXOJ9

Page: of

1318723

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: Pace Analytical	Report To:	Attention: Jennifer Gross
Address:	Copy To:	Company Name: PACE ANALYTICAL
		Address: 9140 S Harney St Seattle
Email To: jennifer.gross@pacelabs.com	Purchase Order No.:	Pace Quote Reference:
Phone: Fax:	Project Name:	Pace Project Manager:
Requested Due Date/TAT:	Project Number:	Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Requested Analysis Filtered (Y/N)

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / -)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: FORMALDEHYDE * 8315A	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-10-102610 ~	WT				10/26/10	1041			X									X		
2	MW-13-102610 ~	WT				10/26/10	1140			X									X		
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* EIM or EQUIS 4-file EDD needed.	Evan Dorman	10/26/10	3:25	FedEx			
	FedEx			Theresa M Ry	10-27-10	08:45	
Sampled 10/26/10							126166

Short hold.

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Columbia Analytical Services

November 18, 2010 Analytical Report for Service Request No: K1012073

Jennifer Gross
Pace Analytical Services
940 S. Harney St.
Seattle, WA 98108

RE: R-G GWM 112489.6/255473

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 28, 2010. For your reference, these analyses have been assigned our service request number K1012073.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at MShelton@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mike Shelton
Project Chemist

MS/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

K10120 75

Chain of Custody

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Workorder: 255473 Workorder Name: R-G GWM 112489.6 Results Requested ~~11/8/2010~~ standard TAT

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	CAS - Kelso Attn: Pradeep P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis	LAB USE ONLY
1	MW-20-102510	10/25/2010 16:00	255473001	Water	X	X X X TOX	
2	MW-19-102610	10/26/2010 10:41	255473002	Water	X		
3	MW-18-102610	10/25/2010 11:49	255473003	Water	X		
4	MW-24-102610	10/25/2010 12:53	255473004	Water	X		
5	MW-22-102610	10/25/2010 13:41	255473005	Water	X		

Transfers	Released By	Date/Time	Received By	Date/Time
1			[illegible]	[illegible]
2				
3				
4				
5				

Comments

EDM & EQUIS 4-file EDD

Report to MDL

5

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC 14.5

Client / Project: Pace Service Request K10 1207-73

Received: 10/28/10 Opened: 10/28/10 By: SZN

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? One, front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
6.6	5.6	294		[illegible]	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1012073
Project:	R-GGWM 112489.6/255473	**Date Collected:**	10/25/2010
Sample Matrix:	Water	**Date Received:**	10/28/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-20-102510	K1012073-001	10	4	1	11/12/2010	1	
MW-10-102610	K1012073-002	10	4	1	11/12/2010	9	J
MW-13-102610	K1012073-003	10	4	1	11/12/2010	12	
MW-24-102610	K1012073-004	10	4	1	11/12/2010	1	
MW-22-102610	K1012073-005	10	4	1	11/12/2010	2	
Method Blank	K1012073-MB	10	4	1	11/12/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012073
Project:	R-G GWM 112489.6.255473	**Date Collected:**	10/25/2010
Sample Matrix:	Water	**Date Received:**	10/28/2010
		Date Extracted:	NA
		Date Analyzed:	11/12/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-20-102510	Units:	ug/L (ppb)
Lab Code:	K1012073-001MS, K1012073-001DMS	Basis:	NA
Test Notes:			

									Percent Recovery				
	Prep	Analysis		Spike Level		Sample	Spike Result				CAS Acceptance	Relative Percent	Result
Analyte	**Method**	**Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	1	95	95	95	95	82-121	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: R-G GWM 112489.6/255473
Sample Matrix: Water

Service Request: K1012073
Date Collected: NA
Date Received: NA
Date Analyzed: 11/10/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.60	9.5	9.1	ND
Percent Recovery	99	95	9.1	ND
Run B	3.56	9.7	10.5	
Percent Recovery	98	97	105	

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 23, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on October 27, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Amended report, REV-1 12/23/10. 2,4-Dimethylphenol & 2,4-Dinitrophenol were removed from the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255488001	**MW-23-102610**	Water	10/26/10 14:44	10/27/10 15:00
255488002	**MW-21-102610**	Water	10/26/10 15:35	10/27/10 15:00
255488003	**MW-02S-102710**	Water	10/27/10 09:22	10/27/10 15:00
255488004	**MW-01S-102710**	Water	10/27/10 10:14	10/27/10 15:00
255488005	**MW-18-102710**	Water	10/27/10 11:08	10/27/10 15:00
255488006	**DUP-102610**	Water	10/26/10 08:00	10/27/10 15:00
255488007	**MW-01D-102710**	Water	10/27/10 07:45	10/27/10 15:00
255488008	**MW-02D-102710**	Water	10/27/10 08:36	10/27/10 15:00
255488009	**DUP-102710**	Water	10/27/10 08:00	10/27/10 15:00

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255488001	**MW-23-102610**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255488002	**MW-21-102610**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255488003	**MW-02S-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255488004	**MW-01S-102710**	SM 2340B	BGA	1	PASI-S

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255488005	**MW-18-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255488006	**DUP-102610**	EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
255488007	**MW-01D-102710**	EPA 6020	CJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2540D	CMS	1	PASI-S
255488008	**MW-02D-102710**	EPA 6020	CJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2540D	CMS	1	PASI-S
255488009	**DUP-102710**	EPA 6020	CJS	5	PASI-M
		EPA 6020	CJS	5	PASI-M
		EPA 8270	DMT	13	PASI-S

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
9 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23211

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255488009,5042859006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 882363)
  - Silver
- MSD (Lab ID: 882364)
  - Silver

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
9 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23221

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255488009

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 882852)
  - Zinc, Dissolved
- MSD (Lab ID: 882853)
  - Zinc, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
9 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/2896

S0: Surrogate recovery outside laboratory control limits.

- MW-18-102710 (Lab ID: 255488005)
  - 2-Fluorophenol (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/1429

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

Analyte Comments:

QC Batch: OEXT/2896

P2: Re-extraction or re-analysis could not be performed due to insufficient sample amount.

- MW-18-102710 (Lab ID: 255488005)
  - 2-Fluorophenol (S)

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
7 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1768

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255435001,255473005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 47598)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Method: **SM 5310C**
Description: 5310C TOC
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
5 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-23-102610 **Lab ID: 255488001** Collected: 10/26/10 14:44 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**279**	mg/L	1.0		1		11/03/10 08:55		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:55	7429-90-5	
Calcium	**67300**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:55	7440-70-2	
Iron	**15700**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:55	7439-89-6	
Magnesium	**26900**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:55	7439-95-4	
Manganese	**469**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:55	7439-96-5	
Potassium	**13000**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:55	7440-09-7	
Sodium	**30400**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:55	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:54	7429-90-5	
Iron, Dissolved	**16000**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:54	7439-89-6	
Manganese, Dissolved	**472**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:54	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**2.9**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:00	7440-38-2	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**2.7**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 17:48	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 03:38	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	11/02/10 15:20	11/19/10 03:38	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	11/02/10 15:20	11/19/10 03:38	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 03:38	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 03:38	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	11/02/10 15:20	11/19/10 03:38	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 03:38	108-95-2	
Nitrobenzene-d5 (S)	69	%	38-121		1	11/02/10 15:20	11/19/10 03:38	4165-60-0	
2-Fluorobiphenyl (S)	50	%	40-110		1	11/02/10 15:20	11/19/10 03:38	321-60-8	
Terphenyl-d14 (S)	72	%	26-130		1	11/02/10 15:20	11/19/10 03:38	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	11/02/10 15:20	11/19/10 03:38	13127-88-3	
2-Fluorophenol (S)	24	%	20-120		1	11/02/10 15:20	11/19/10 03:38	367-12-4	
2,4,6-Tribromophenol (S)	65	%	37-120		1	11/02/10 15:20	11/19/10 03:38	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**333**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**22.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-23-102610 **Lab ID: 255488001** Collected: 10/26/10 14:44 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 17:10	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.3**	mg/L	1.0	0.030	1		10/28/10 17:10	16887-00-6	
Sulfate	**12.6**	mg/L	1.0	0.10	1		10/28/10 17:10	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.53**	mg/L	0.020	0.0056	2		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**8.2**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

Sample: MW-21-102610 **Lab ID: 255488002** Collected: 10/26/10 15:35 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**153**	mg/L	1.0		1		11/03/10 08:58		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 08:58	7429-90-5	
Calcium	**40800**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 08:58	7440-70-2	
Iron	**14600**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 08:58	7439-89-6	
Magnesium	**12400**	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 08:58	7439-95-4	
Manganese	**453**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 08:58	7439-96-5	
Potassium	**11800**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 08:58	7440-09-7	
Sodium	**28500**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 08:58	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 10:03	7429-90-5	
Iron, Dissolved	**15000**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 10:03	7439-89-6	
Manganese, Dissolved	**459**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 10:03	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**2350**	ug/L	5.0	0.62	10	11/02/10 18:01	11/05/10 11:20	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**2300**	ug/L	5.0	0.62	10	11/03/10 13:20	11/05/10 11:13	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	11/02/10 15:20	11/19/10 04:01	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 04:01	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 04:01	88-06-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-21-102610 **Lab ID: 255488002** Collected: 10/26/10 15:35 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	11/02/10 15:20	11/19/10 04:01	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	11/02/10 15:20	11/19/10 04:01	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	11/02/10 15:20	11/19/10 04:01	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	11/02/10 15:20	11/19/10 04:01	108-95-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	11/02/10 15:20	11/19/10 04:01	4165-60-0	
2-Fluorobiphenyl (S)	47	%	40-110		1	11/02/10 15:20	11/19/10 04:01	321-60-8	
Terphenyl-d14 (S)	87	%	26-130		1	11/02/10 15:20	11/19/10 04:01	1718-51-0	
Phenol-d6 (S)	20	%	11-120		1	11/02/10 15:20	11/19/10 04:01	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	11/02/10 15:20	11/19/10 04:01	367-12-4	
2,4,6-Tribromophenol (S)	71	%	37-120		1	11/02/10 15:20	11/19/10 04:01	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**187**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**18.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 18:02	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**6.1**	mg/L	1.0	0.030	1		10/28/10 18:02	16887-00-6	
Sulfate	**30.9**	mg/L	5.0	0.50	5		10/29/10 16:10	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.2**	mg/L	0.050	0.014	5		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.5**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

Sample: MW-02S-102710 **Lab ID: 255488003** Collected: 10/27/10 09:22 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**273**	mg/L	1.0		1		11/03/10 09:01		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:01	7429-90-5	
Calcium	**106000**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 09:01	7440-70-2	
Iron	**1800**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:01	7439-89-6	
Magnesium	ND	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 09:01	7439-95-4	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-02S-102710 **Lab ID: 255488003** Collected: 10/27/10 09:22 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**84.9**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:01	7439-96-5	
Potassium	**5340**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 09:01	7440-09-7	
Sodium	**13100**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 09:01	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 10:06	7429-90-5	
Iron, Dissolved	**1920**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 10:06	7439-89-6	
Manganese, Dissolved	**83.7**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 10:06	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**190**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:09	7440-38-2	B
Chromium	**0.48J**	ug/L	0.50	0.24	1	11/02/10 18:01	11/04/10 19:09	7440-47-3	
Copper	**1.1**	ug/L	0.50	0.20	1	11/02/10 18:01	11/04/10 19:09	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	11/02/10 18:01	11/04/10 19:09	7440-22-4	
Zinc	**4.6J**	ug/L	5.0	1.3	1	11/02/10 18:01	11/04/10 19:09	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**202**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 17:57	7440-38-2	
Chromium, Dissolved	**0.48J**	ug/L	0.50	0.24	1	11/03/10 13:20	11/04/10 17:57	7440-47-3	
Copper, Dissolved	**0.52**	ug/L	0.50	0.20	1	11/03/10 13:20	11/04/10 17:57	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/03/10 13:20	11/04/10 17:57	7440-22-4	
Zinc, Dissolved	**2.2J**	ug/L	5.0	1.3	1	11/03/10 13:20	11/04/10 17:57	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 04:23	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	11/02/10 15:20	11/19/10 04:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	11/02/10 15:20	11/19/10 04:23	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 04:23	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 04:23	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	11/02/10 15:20	11/19/10 04:23	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 04:23	108-95-2	
Nitrobenzene-d5 (S)	63	%	38-121		1	11/02/10 15:20	11/19/10 04:23	4165-60-0	
2-Fluorobiphenyl (S)	47	%	40-110		1	11/02/10 15:20	11/19/10 04:23	321-60-8	
Terphenyl-d14 (S)	77	%	26-130		1	11/02/10 15:20	11/19/10 04:23	1718-51-0	
Phenol-d6 (S)	18	%	11-120		1	11/02/10 15:20	11/19/10 04:23	13127-88-3	
2-Fluorophenol (S)	24	%	20-120		1	11/02/10 15:20	11/19/10 04:23	367-12-4	
2,4,6-Tribromophenol (S)	60	%	37-120		1	11/02/10 15:20	11/19/10 04:23	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**277**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-02S-102710 **Lab ID: 255488003** Collected: 10/27/10 09:22 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 18:19	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.5**	mg/L	1.0	0.030	1		10/28/10 18:19	16887-00-6	
Sulfate	**27.8**	mg/L	2.0	0.20	2		10/29/10 16:27	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.18**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.7**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

Sample: MW-01S-102710 **Lab ID: 255488004** Collected: 10/27/10 10:14 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**153**	mg/L	1.0		1		11/03/10 09:04		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:04	7429-90-5	
Calcium	**57400**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 09:04	7440-70-2	
Iron	**1630**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:04	7439-89-6	
Magnesium	ND	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 09:04	7439-95-4	
Manganese	**30.9**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:04	7439-96-5	
Potassium	**6560**	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 09:04	7440-09-7	
Sodium	**19600**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 09:04	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 10:09	7429-90-5	
Iron, Dissolved	**1610**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 10:09	7439-89-6	
Manganese, Dissolved	**27.7**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 10:09	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**11.0**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:14	7440-38-2	B
Chromium	**0.94**	ug/L	0.50	0.24	1	11/02/10 18:01	11/04/10 19:14	7440-47-3	
Copper	**2.4**	ug/L	0.50	0.20	1	11/02/10 18:01	11/04/10 19:14	7440-50-8	
Silver	**0.16J**	ug/L	0.50	0.071	1	11/02/10 18:01	11/04/10 19:14	7440-22-4	
Zinc	**45.9**	ug/L	5.0	1.3	1	11/02/10 18:01	11/04/10 19:14	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**10.2**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 18:01	7440-38-2	
Chromium, Dissolved	**0.75**	ug/L	0.50	0.24	1	11/03/10 13:20	11/04/10 18:01	7440-47-3	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-01S-102710 **Lab ID: 255488004** Collected: 10/27/10 10:14 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	11/03/10 13:20	11/04/10 18:01	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/03/10 13:20	11/04/10 18:01	7440-22-4	
Zinc, Dissolved	**45.3**	ug/L	5.0	1.3	1	11/03/10 13:20	11/04/10 18:01	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 04:46	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 04:46	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 04:46	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 04:46	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 04:46	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	11/02/10 15:20	11/19/10 04:46	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 04:46	108-95-2	
Nitrobenzene-d5 (S)	66	%	38-121		1	11/02/10 15:20	11/19/10 04:46	4165-60-0	
2-Fluorobiphenyl (S)	48	%	40-110		1	11/02/10 15:20	11/19/10 04:46	321-60-8	
Terphenyl-d14 (S)	70	%	26-130		1	11/02/10 15:20	11/19/10 04:46	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	11/02/10 15:20	11/19/10 04:46	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	11/02/10 15:20	11/19/10 04:46	367-12-4	
2,4,6-Tribromophenol (S)	61	%	37-120		1	11/02/10 15:20	11/19/10 04:46	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**177**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**2.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 18:37	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.4**	mg/L	1.0	0.030	1		10/28/10 18:37	16887-00-6	
Sulfate	**20.5**	mg/L	2.0	0.20	2		10/29/10 16:44	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.085**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.7**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-18-102710 **Lab ID: 255488005** Collected: 10/27/10 11:08 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**174**	mg/L	1.0		1		11/03/10 09:07		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 09:07	7429-90-5	
Calcium	**64200**	ug/L	5000	37.8	1	11/02/10 11:53	11/03/10 09:07	7440-70-2	
Iron	**692**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 09:07	7439-89-6	
Magnesium	ND	ug/L	5000	30.0	1	11/02/10 11:53	11/03/10 09:07	7439-95-4	
Manganese	**15.0**	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 09:07	7439-96-5	
Potassium	ND	ug/L	5000	76.2	1	11/02/10 11:53	11/03/10 09:07	7440-09-7	
Sodium	**14400**	ug/L	5000	29.4	1	11/02/10 11:53	11/03/10 09:07	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/02/10 11:53	11/03/10 10:13	7429-90-5	
Iron, Dissolved	**647**	ug/L	100	29.9	1	11/02/10 11:53	11/03/10 10:13	7439-89-6	
Manganese, Dissolved	ND	ug/L	15.0	0.82	1	11/02/10 11:53	11/03/10 10:13	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**8.4**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:18	7440-38-2	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**8.0**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 18:06	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 05:08	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 05:08	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 05:08	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 05:08	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 05:08	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	11/02/10 15:20	11/19/10 05:08	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 05:08	108-95-2	
Nitrobenzene-d5 (S)	57	%	38-121		1	11/02/10 15:20	11/19/10 05:08	4165-60-0	
2-Fluorobiphenyl (S)	45	%	40-110		1	11/02/10 15:20	11/19/10 05:08	321-60-8	
Terphenyl-d14 (S)	61	%	26-130		1	11/02/10 15:20	11/19/10 05:08	1718-51-0	
Phenol-d6 (S)	14	%	11-120		1	11/02/10 15:20	11/19/10 05:08	13127-88-3	
2-Fluorophenol (S)	16	%	20-120		1	11/02/10 15:20	11/19/10 05:08	367-12-4	P2,S0
2,4,6-Tribromophenol (S)	44	%	37-120		1	11/02/10 15:20	11/19/10 05:08	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**160**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-18-102710 **Lab ID: 255488005** Collected: 10/27/10 11:08 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 18:54	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.4**	mg/L	1.0	0.030	1		10/28/10 18:54	16887-00-6	
Sulfate	**30.0**	mg/L	5.0	0.50	5		10/29/10 17:01	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.024**	mg/L	0.010	0.0028	1		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.5**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

Sample: DUP-102610 **Lab ID: 255488006** Collected: 10/26/10 08:00 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**2530**	ug/L	5.0	0.62	10	11/02/10 18:01	11/05/10 11:24	7440-38-2	B
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**2310**	ug/L	5.0	0.62	10	11/03/10 13:20	11/05/10 11:16	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 05:31	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 05:31	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 05:31	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 05:31	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 05:31	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	11/02/10 15:20	11/19/10 05:31	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 05:31	108-95-2	
Nitrobenzene-d5 (S)	71	%	38-121		1	11/02/10 15:20	11/19/10 05:31	4165-60-0	
2-Fluorobiphenyl (S)	52	%	40-110		1	11/02/10 15:20	11/19/10 05:31	321-60-8	
Terphenyl-d14 (S)	72	%	26-130		1	11/02/10 15:20	11/19/10 05:31	1718-51-0	
Phenol-d6 (S)	20	%	11-120		1	11/02/10 15:20	11/19/10 05:31	13127-88-3	
2-Fluorophenol (S)	30	%	20-120		1	11/02/10 15:20	11/19/10 05:31	367-12-4	
2,4,6-Tribromophenol (S)	65	%	37-120		1	11/02/10 15:20	11/19/10 05:31	118-79-6	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-01D-102710 **Lab ID: 255488007** Collected: 10/27/10 07:45 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**10.3**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:41	7440-38-2	B
Chromium	**31.7**	ug/L	0.50	0.24	1	11/02/10 18:01	11/04/10 19:41	7440-47-3	
Copper	**36.9**	ug/L	0.50	0.20	1	11/02/10 18:01	11/04/10 19:41	7440-50-8	
Silver	**0.16J**	ug/L	0.50	0.071	1	11/02/10 18:01	11/04/10 19:41	7440-22-4	
Zinc	**13.7**	ug/L	5.0	1.3	1	11/02/10 18:01	11/04/10 19:41	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**8.2**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 18:10	7440-38-2	
Chromium, Dissolved	**16.9**	ug/L	0.50	0.24	1	11/03/10 13:20	11/04/10 18:10	7440-47-3	
Copper, Dissolved	**1.9**	ug/L	0.50	0.20	1	11/03/10 13:20	11/04/10 18:10	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/03/10 13:20	11/04/10 18:10	7440-22-4	
Zinc, Dissolved	**1.9J**	ug/L	5.0	1.3	1	11/03/10 13:20	11/04/10 18:10	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 05:53	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 05:53	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 05:53	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 05:53	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 05:53	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	11/02/10 15:20	11/19/10 05:53	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 05:53	108-95-2	
Nitrobenzene-d5 (S)	60	%	38-121		1	11/02/10 15:20	11/19/10 05:53	4165-60-0	
2-Fluorobiphenyl (S)	45	%	40-110		1	11/02/10 15:20	11/19/10 05:53	321-60-8	
Terphenyl-d14 (S)	56	%	26-130		1	11/02/10 15:20	11/19/10 05:53	1718-51-0	
Phenol-d6 (S)	20	%	11-120		1	11/02/10 15:20	11/19/10 05:53	13127-88-3	
2-Fluorophenol (S)	31	%	20-120		1	11/02/10 15:20	11/19/10 05:53	367-12-4	
2,4,6-Tribromophenol (S)	66	%	37-120		1	11/02/10 15:20	11/19/10 05:53	118-79-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	1.0	1		11/01/10 14:00		

Sample: MW-02D-102710 **Lab ID: 255488008** Collected: 10/27/10 08:36 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**28.8**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:50	7440-38-2	B
Chromium	**7.0**	ug/L	0.50	0.24	1	11/02/10 18:01	11/04/10 19:50	7440-47-3	
Copper	**1.4**	ug/L	0.50	0.20	1	11/02/10 18:01	11/04/10 19:50	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	11/02/10 18:01	11/04/10 19:50	7440-22-4	
Zinc	**1.5J**	ug/L	5.0	1.3	1	11/02/10 18:01	11/04/10 19:50	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**28.4**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 18:19	7440-38-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: MW-02D-102710 **Lab ID: 255488008** Collected: 10/27/10 08:36 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Chromium, Dissolved	**5.5**	ug/L	0.50	0.24	1	11/03/10 13:20	11/04/10 18:19	7440-47-3	
Copper, Dissolved	**0.24J**	ug/L	0.50	0.20	1	11/03/10 13:20	11/04/10 18:19	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/03/10 13:20	11/04/10 18:19	7440-22-4	
Zinc, Dissolved	**3.2J**	ug/L	5.0	1.3	1	11/03/10 13:20	11/04/10 18:19	7440-66-6	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	11/02/10 15:20	11/19/10 06:16	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 06:16	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 06:16	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	11/02/10 15:20	11/19/10 06:16	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	11/02/10 15:20	11/19/10 06:16	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	11/02/10 15:20	11/19/10 06:16	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	11/02/10 15:20	11/19/10 06:16	108-95-2	
Nitrobenzene-d5 (S)	57	%	38-121		1	11/02/10 15:20	11/19/10 06:16	4165-60-0	
2-Fluorobiphenyl (S)	48	%	40-110		1	11/02/10 15:20	11/19/10 06:16	321-60-8	
Terphenyl-d14 (S)	56	%	26-130		1	11/02/10 15:20	11/19/10 06:16	1718-51-0	
Phenol-d6 (S)	18	%	11-120		1	11/02/10 15:20	11/19/10 06:16	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	11/02/10 15:20	11/19/10 06:16	367-12-4	
2,4,6-Tribromophenol (S)	64	%	37-120		1	11/02/10 15:20	11/19/10 06:16	118-79-6	
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

Sample: DUP-102710 **Lab ID: 255488009** Collected: 10/27/10 08:00 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**11.2**	ug/L	0.50	0.062	1	11/02/10 18:01	11/04/10 19:59	7440-38-2	B
Chromium	**1.0**	ug/L	0.50	0.24	1	11/02/10 18:01	11/04/10 19:59	7440-47-3	
Copper	**2.5**	ug/L	0.50	0.20	1	11/02/10 18:01	11/04/10 19:59	7440-50-8	
Silver	**0.17J**	ug/L	0.50	0.071	1	11/02/10 18:01	11/04/10 19:59	7440-22-4	M1
Zinc	**48.9**	ug/L	5.0	1.3	1	11/02/10 18:01	11/04/10 19:59	7440-66-6	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**9.9**	ug/L	0.50	0.062	1	11/03/10 13:20	11/04/10 18:42	7440-38-2	
Chromium, Dissolved	**0.79**	ug/L	0.50	0.24	1	11/03/10 13:20	11/04/10 18:42	7440-47-3	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	11/03/10 13:20	11/04/10 18:42	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/03/10 13:20	11/04/10 18:42	7440-22-4	
Zinc, Dissolved	**43.1**	ug/L	5.0	1.3	1	11/03/10 13:20	11/04/10 18:42	7440-66-6	M1
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	11/02/10 15:20	11/19/10 06:38	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.94	0.41	1	11/02/10 15:20	11/19/10 06:38	95-95-4	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

Sample: DUP-102710 **Lab ID: 255488009** Collected: 10/27/10 08:00 Received: 10/27/10 15:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4,6-Trichlorophenol	ND	ug/L	0.94	0.19	1	11/02/10 15:20	11/19/10 06:38	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	11/02/10 15:20	11/19/10 06:38	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	11/02/10 15:20	11/19/10 06:38	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.43	1	11/02/10 15:20	11/19/10 06:38	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	11/02/10 15:20	11/19/10 06:38	108-95-2	
Nitrobenzene-d5 (S)	83	%	38-121		1	11/02/10 15:20	11/19/10 06:38	4165-60-0	
2-Fluorobiphenyl (S)	64	%	40-110		1	11/02/10 15:20	11/19/10 06:38	321-60-8	
Terphenyl-d14 (S)	85	%	26-130		1	11/02/10 15:20	11/19/10 06:38	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	11/02/10 15:20	11/19/10 06:38	13127-88-3	
2-Fluorophenol (S)	26	%	20-120		1	11/02/10 15:20	11/19/10 06:38	367-12-4	
2,4,6-Tribromophenol (S)	71	%	37-120		1	11/02/10 15:20	11/19/10 06:38	118-79-6	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: MPRP/1858 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 47744 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	11/03/10 08:12	
Calcium	ug/L	ND	5000	11/03/10 08:12	
Iron	ug/L	ND	100	11/03/10 08:12	
Magnesium	ug/L	ND	5000	11/03/10 08:12	
Manganese	ug/L	ND	15.0	11/03/10 08:12	
Potassium	ug/L	ND	5000	11/03/10 08:12	
Sodium	ug/L	ND	5000	11/03/10 08:12	

LABORATORY CONTROL SAMPLE: 47745

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9210	92	80-120	
Calcium	ug/L	10000	9520	95	80-120	
Iron	ug/L	10000	9350	94	80-120	
Magnesium	ug/L	10000	9360	94	80-120	
Manganese	ug/L	500	480	96	80-120	
Potassium	ug/L	10000	9120	91	80-120	
Sodium	ug/L	10000	9560	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47746 47747

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9960	9140	100	91	75-125	9	20	
Calcium	ug/L	36000	10000	10000	47300	44100	114	82	75-125	7	20	
Iron	ug/L	9470	10000	10000	20100	18100	107	87	75-125	10	20	
Magnesium	ug/L	10900	10000	10000	21200	19400	102	85	75-125	9	20	
Manganese	ug/L	343	500	500	872	812	106	94	75-125	7	20	
Potassium	ug/L	10500	10000	10000	21000	19300	105	88	75-125	9	20	
Sodium	ug/L	29100	10000	10000	41100	38500	120	93	75-125	7	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: MPRP/1859 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 47754 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	11/03/10 09:10	
Iron, Dissolved	ug/L	ND	100	11/03/10 09:10	
Manganese, Dissolved	ug/L	ND	15.0	11/03/10 09:10	

LABORATORY CONTROL SAMPLE: 47755

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9820	98	80-120	
Iron, Dissolved	ug/L	10000	10100	101	80-120	
Manganese, Dissolved	ug/L	500	493	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47756 47757

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9930	9920	99	99	75-125	.1	20	
Iron, Dissolved	ug/L	9990	10000	10000	20000	20000	100	100	75-125	.1	20	
Manganese, Dissolved	ug/L	350	500	500	831	827	96	95	75-125	.5	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: ICPM/23211 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

METHOD BLANK: 882361 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	0.11J	0.50	11/04/10 19:32	
Chromium	ug/L	ND	0.50	11/04/10 19:32	
Copper	ug/L	ND	0.50	11/04/10 19:32	
Silver	ug/L	ND	0.50	11/04/10 19:32	
Zinc	ug/L	ND	5.0	11/04/10 19:32	

LABORATORY CONTROL SAMPLE: 882362

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	83.7	105	80-120	
Chromium	ug/L	80	83.5	104	80-120	
Copper	ug/L	80	86.7	108	80-120	
Silver	ug/L	80	82.8	104	80-120	
Zinc	ug/L	80	86.1	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 882363 882364

Parameter	Units	255488009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	11.2	80	80	97.9	98.5	108	109	75-125	.6	20	
Chromium	ug/L	1.0	80	80	84.8	86.2	105	106	75-125	2	20	
Copper	ug/L	2.5	80	80	88.0	88.8	107	108	75-125	1	20	
Silver	ug/L	0.17J	80	80	55.1	49.4	69	62	75-125	11	20	M1
Zinc	ug/L	48.9	80	80	140	139	114	113	75-125	.4	20	

MATRIX SPIKE SAMPLE: 882365

Parameter	Units	5042859006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	ND	80	82.8	103	75-125	
Chromium	ug/L	ND	80	82.6	103	75-125	
Copper	ug/L	ND	80	86.3	108	75-125	
Silver	ug/L	ND	80	80.5	101	75-125	
Zinc	ug/L	ND	80	89.4	109	75-125	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: ICPM/23221 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

METHOD BLANK: 882850 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/04/10 17:43	
Chromium, Dissolved	ug/L	ND	0.50	11/04/10 17:43	
Copper, Dissolved	ug/L	ND	0.50	11/04/10 17:43	
Silver, Dissolved	ug/L	ND	0.50	11/04/10 17:43	
Zinc, Dissolved	ug/L	ND	5.0	11/04/10 17:43	

LABORATORY CONTROL SAMPLE: 882851

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	82.7	103	85-115	
Chromium, Dissolved	ug/L	80	83.2	104	85-115	
Copper, Dissolved	ug/L	80	84.5	106	85-115	
Silver, Dissolved	ug/L	80	81.2	102	85-115	
Zinc, Dissolved	ug/L	80	85.0	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 882852 882853

Parameter	Units	255488009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	9.9	80	80	109	110	124	125	70-130	.7	20	
Chromium, Dissolved	ug/L	0.79	80	80	98.6	98.2	122	122	70-130	.4	20	
Copper, Dissolved	ug/L	1.1	80	80	101	100	125	124	70-130	.2	20	
Silver, Dissolved	ug/L	ND	80	80	92.0	92.2	115	115	70-130	.3	20	
Zinc, Dissolved	ug/L	43.1	80	80	154	156	138	141	70-130	1	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: OEXT/2896 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

METHOD BLANK: 47671 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488006, 255488007, 255488008, 255488009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	11/19/10 02:08	
2,4,5-Trichlorophenol	ug/L	ND	1.0	11/19/10 02:08	
2,4,6-Trichlorophenol	ug/L	ND	1.0	11/19/10 02:08	
2,4-Dichlorophenol	ug/L	ND	5.0	11/19/10 02:08	
2-Chlorophenol	ug/L	ND	5.0	11/19/10 02:08	
Pentachlorophenol	ug/L	ND	5.0	11/19/10 02:08	
Phenol	ug/L	ND	5.0	11/19/10 02:08	
2,4,6-Tribromophenol (S)	%	72	37-120	11/19/10 02:08	
2-Fluorobiphenyl (S)	%	57	40-110	11/19/10 02:08	
2-Fluorophenol (S)	%	41	20-120	11/19/10 02:08	
Nitrobenzene-d5 (S)	%	86	38-121	11/19/10 02:08	
Phenol-d6 (S)	%	27	11-120	11/19/10 02:08	
Terphenyl-d14 (S)	%	76	26-130	11/19/10 02:08	

LABORATORY CONTROL SAMPLE & LCSD: 47672 47673

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2-Chlorophenol	ug/L	40	26.2	26.7	66	67	61-108	2	30	
Pentachlorophenol	ug/L	40	31.0	32.5	77	81	45-119	5	30	
Phenol	ug/L	40	11.1	11.5	28	29	25-50	4	30	
2,4,6-Tribromophenol (S)	%				62	69	37-120			
2-Fluorobiphenyl (S)	%				62	55	40-110			
2-Fluorophenol (S)	%				34	38	20-120			
Nitrobenzene-d5 (S)	%				85	81	38-121			
Phenol-d6 (S)	%				24	26	11-120			
Terphenyl-d14 (S)	%				74	71	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WET/2387 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

SAMPLE DUPLICATE: 47947

Parameter	Units	255488001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	333	334	.3	10	

SAMPLE DUPLICATE: 47948

Parameter	Units	255498001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	222	224	.9	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WET/2376 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488007, 255488008

METHOD BLANK: 47599 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005, 255488007, 255488008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	11/01/10 14:00	

SAMPLE DUPLICATE: 47600

Parameter	Units	255473005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	13.0	15.0	14	20	

SAMPLE DUPLICATE: 47601

Parameter	Units	255488007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WETA/1758 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 47207 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47209 47210

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.5	2.5	101	102	90-110	1	10	

MATRIX SPIKE SAMPLE: 47211

Parameter	Units	255483001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	6.6	5	11.3	94	90-110	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WETA/1767 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 47444 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/28/10 16:53	
Sulfate	mg/L	ND	1.0	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Sulfate	mg/L	15	15.9	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47446 47447

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.3	5	5	11.1	11.3	97	99	90-110	1	11	
Sulfate	mg/L	12.6	15	15	27.4	27.8	98	101	90-110	2	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WETA/1768 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 47594 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	11/02/10 13:33	

LABORATORY CONTROL SAMPLE: 47595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.1	0.099	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47596 47597

Parameter	Units	255435001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.12	.1	.1	0.21	0.21	89	88	80-120	.6	20	

MATRIX SPIKE SAMPLE: 47598

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.60	.1	0.65	53	80-120	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

QC Batch: WETA/1780 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

METHOD BLANK: 48378 Matrix: Water
Associated Lab Samples: 255488001, 255488002, 255488003, 255488004, 255488005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	ND	1.0	11/05/10 14:18	

LABORATORY CONTROL SAMPLE & LCSD: 48379 48380

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	10	9.9	10.6	99	106	90-110	7	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 48381 48382

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	8.2	10	10	18.8	18.8	106	106	70-119	.1	11	

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QUALIFIERS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255488

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: MSSV/1429

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B	Analyte was detected in the associated method blank.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P2	Re-extraction or re-analysis could not be performed due to insufficient sample amount.
S0	Surrogate recovery outside laboratory control limits.

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Sample Condition Upon Receipt

Pace Analytical

Client Name: ERM Project # 255488

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank Yes / No

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.1c, 5.2c, 1.0c, 1.4c, 1.4c, Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C 1.5c, 1.0c, 2.2c Comments:

Date and Initials of person examining contents: 10/27/10 CN

Chain of Custody Present:	☑Yes	☐No	☐N/A
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A
Sufficient Volume:	☑Yes	☐No	☐N/A
Correct Containers Used:	☑Yes	☐No	☐N/A
-Pace Containers Used:	☑Yes	☐No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: Water	☑Yes	☑No	☐N/A
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A
All containers needing preservation are found to be in compliance with EPA recommendation. Exceptions: VOA, coliform, TOC, O&G	☑Yes	☐No	☐N/A
Samples checked for dechlorination:	☐Yes	☐No	☑N/A
Headspace in VOA Vials (>6mm):	☐Yes	☑No	☐N/A
Trip Blanks Present:	☐Yes	☐No	☑N/A
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

	Initial when completed	Lot # of added preservative
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12. Bottles on COC # 4054 is already added to COC 4053. 1/2 Pegs with HNO3 has a different time than COC for DUP 102610		
13.		
14.		
15.		
16.		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNI GROSS Date: 10/29/10 11:46

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

255488

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4053

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 2

PROJECT #	PROJECT NAME
112896	A-C Gum

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shiva Attwood	

RECEIVING LABORATORY: Pace Seattle, WA

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS
001	MW-3-102610	10/26/10	1444		X	Pen	HNO3	Y	4.55L	10		X		TOC, Phenol (Chromatography Method), Anions (Cl, SO4, NO3, F), TSS, TOX, N/A, Total As, Ca, K, Al, Fe, Mn, mg, Pb, Total Ca, Mg, Zn, Hardness, Dissolved As, Fe, Ca, Mn, Field Filtered, Dissolved As, Ca, Mn, Mg, Zn, Total As, Dissolved As
002	MW-21-102610		1535		X			Y	4.55L	10		X		
006	DUP-102610								2L	3		X		
007	MW-01B-102610	10/27/10	0745		X					5		X		
008	MW-04A-102710		0825		X					5		X		
003	MW-03S-102710		0922		X			Y	3.05L	10		X		
004	MW-01S-102710		1017		X			Y	3.85L	10		X		
009	DUP-102710		0822		X			Y	2L	5		X		
005	MW-18-102710		1108		X			Y	3.85	10		X		

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	102710	1200	Pace	10-27-10	1430
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Pace	10-27-10	1500	Client Courier PACE	10-27-10	1500
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS: 1.4c, 5.2c, 1.0c, 1.4c, 1.4c, 1.5c, 1.0c, 2.2c on ice

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS

SEND REPORT TO: cyrus & Mike Mercer

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

255488

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4054

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 2 of 2

PROJECT #	PROJECT NAME
112489.6	R-C GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Deborod	

RECEIVING LABORATORY: Pace, Seattle, WA

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: 8015A Ferrous/dissolved	
007	MW-010-10	10/27/10	0745		X	Peri	X	Y	1L	1		X		X	
008	MW-020-10	10/27/10	0830		X		X	Y		1		X		X	
003	MW-025-10	10/27/10	0922		X		X	Y		1		X		X	
004	MW-015-10	10/27/10	1014		X		X	Y		1		X		X	

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/27/10	1200	Pace	10-27-10	1430
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Pace	10-27-10	1500	Catie Weaver PACE	10/27/10	1500
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS:

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Cyrus & Mike M

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Sample Container Count

CLIENT: ERM WO#2554588

COC PAGE 1 of 1
COC ID# 4053 & 4054

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	DG9V	AG3S	BP2S	BP3N	Comments
1			1		1							2	1	1	4	
2			1		1							2	1	1	4	
3			1												2	
4			2		1										2	
5			2		1										2	
6			X2		1							2	1	1	4	
7			X2		1							2	1	1	4	
8			2		X										2	
9			X2		1							2	1	1	4	
10																
11																
12																Trip Blank? NO

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial			
BP2O	500mL NaOH plastic		I	Wipe/Swab			

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

November 18, 2010 Analytical Report for Service Request No: K1012127

Jennifer Gross
Pace Analytical Services
940 S. Harney St.
Seattle, WA 98108

RE: Reichold Glacier/255488

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 29, 2010. For your reference, these analyses have been assigned our service request number K1012127.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at MShelton@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mike Shelton
Project Chemist

MS/ln

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Chain of Custody

* Watch Hold Times

K1012127

Pace Analytical®
www.pacelabs.com

Workorder: 255488 **Workorder Name:** Reichold Glacier **Results Requested** ~~11/8/2010~~ Standard TAT

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	CAS - Kelso Attn: Pradeep P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: H2SO4	Unpreserved					Requested Analysis: TOX												LAB USE ONLY
1	MW-23-102610	10/26/2010 14:44	255488001	Water	X						X												
2	MW-21-102610	10/26/2010 15:35	255488002	Water	X						X												
3	MW-02S-102710	10/27/2010 09:22	255488003	Water	X						X												
4	MW-01S-102710	10/27/2010 10:14	255488004	Water	X						X												
5	MW-018-102710	10/27/2010 11:08	255488005	Water	X						X												
6	~~MW-02D-102710~~	~~10/27/2010 08:36~~	~~255488006~~	~~Water~~																			

NDS 10/27/10

5

Transfers	Released By	Date/Time	Received By	Date/Time
1			KSmith	10/29/10 0930
2				
3				
4				
5				

Comments

EIM + EQUIS 4-file EDD

Report to MDL

PC M.S

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client / Project: Pace Analytical Service Request K10 12127

Received: 10/29/10 Opened: 10/29/10 By: HO

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where?_____

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
3C	—	294			✓
1.6C		292			

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Sleeves* *Other*_____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1012127
Project:	Reichold Glacier/255488	**Date Collected:**	10/26-10/27/2010
Sample Matrix:	Water	**Date Received:**	10/29/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-23-102610	K1012127-001	10	4	1	11/12/2010	ND	
MW-21-102610	K1012127-002	10	4	1	11/12/2010	ND	
MW-02S-102710	K1012127-003	10	4	1	11/12/2010	5	J
MW-01S-102710	K1012127-004	10	4	1	11/12/2010	ND	
MW-018-102710	K1012127-005	10	4	1	11/12/2010	5	J
Method Blank	K1012127-MB	10	4	1	11/12/2010	ND	

1A/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012127
Project:	Reichold Glacier/255488	**Date Collected:**	10/26/2010
Sample Matrix:	Water	**Date Received:**	10/29/2010
		Date Extracted:	NA
		Date Analyzed:	11/12/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-23-102610	Units:	ug/L (ppb)
Lab Code:	K1012127-001MS, K1012127-001DMS	Basis:	NA
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Result Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	ND	87	111	87	111	82-121	-	

DMS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: Reichold Glacier/255488
Sample Matrix: Water

Service Request: K1012127
Date Collected: NA
Date Received: NA
Date Analyzed: 11/12/2010

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.67	10.2	9.5	ND
Percent Recovery	101	102	9.5	ND
Run B	3.55	10.3	10.6	ND
Percent Recovery	98	103	10.6	ND

Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

November 5, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 126234
Purchase Order: 255488
Project Name: Water
Samples Received: Four (4) Samples
Date Received: 10/29/2010

Attn: Jennifer Gross

Analysis	Page
Formaldehyde by EPA 8315 A	2

Samina N. Hussain
Senior Chemist

Patricia Metzger
Senior Chemist

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All samples will be disposed of 30 days past invoice unless prior arrangements have been made.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde
MW-02S-102710	ND
MW-01S-102710	ND
MW-01D-102710	0.010
MW-02D-102710	0.010
Method Blank	ND
Detection Limit	0.005

Date Derivatized: 10-29-10
Date Analyzed: 10-29-10

Quality Control Summary

Sample ID: Batch QC

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	0.006	1.00	0.742	74	0.733	73	1
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Laboratory Fortified Blank

Analyte	Blank Result	Spike Conc	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.851	85
QC Guideline				80-115

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All samples will be disposed of 30 days past invoice unless prior arrangements have been made.

Chain of Custody

(*) Watch Hold Times (*)

Pace Analytical
www.pacelabs.com

Workorder: 255488 **Workorder Name:** Reichold Glacier **Results Requested** 11/8/2010

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	Exova P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Frozen	Unpreserved	HNO3				Requested Analysis: 8315A Formaldehyde												LAB USE ONLY
1	~~MW-23-102610~~	~~10/26/2010 14:44~~	~~255488001~~	~~Water~~																			
2	~~MW-21-102610~~	~~10/26/2010 15:35~~	~~255488002~~	~~Water~~																			
3	MW-02S-102710 ~	10/27/2010 09:22	255488003	Water		1					X												
4	MW-01S-102710 ~	10/27/2010 10:14	255488004	Water		1					X												
5	~~MW-018-102710~~	~~10/27/2010 11:00~~	~~255488005~~	~~Water~~																			
6	MW-01D-102710 ~	10/27/2010 07:45	255488007	Water		1					X												
7	MW-02D-102710 ~	10/27/2010 08:36	255488008	Water		1					X												

NJS 10/27

NJS 10/27

Transfers	Released By	Date/Time	Received By	Date/Time
1	FedEx		Vanessa Ury	10-29-10/ 11:05
2				
3				
4				
5				

Comments

EIM + EQUIS 4-file EDD.

Report to MDL.

126234

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 23, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on October 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Amended report, REV-1 12/23/10. 2,4-Dimethylphenol & 2,4-Dinitrophenol were removed from the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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(206)767-5060

SAMPLE SUMMARY

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255497001	**MW-12-102810**	Water	10/28/10 10:35	10/28/10 12:05
255497002	**MW-19-102810**	Water	10/28/10 11:18	10/28/10 12:05

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255497001	**MW-12-102810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255497002	**MW-19-102810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	DMT	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	CMS	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23262

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255498001,9280726016

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 883639)
  - Arsenic

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23261

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255498001,255498010

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 883635)
  - Arsenic, Dissolved
- MSD (Lab ID: 883634)
  - Arsenic, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/1429

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1768

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255435001,255473005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 47598)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Method: **SM 5310C**
Description: 5310C TOC
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
2 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Sample: MW-12-102810 **Lab ID: 255497001** Collected: 10/28/10 10:35 Received: 10/28/10 12:05 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**104**	mg/L	1.0		1		11/03/10 15:18		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:18	7429-90-5	
Calcium	**35600**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:18	7440-70-2	
Iron	**2310**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:18	7439-89-6	
Magnesium	**3740J**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:18	7439-95-4	
Manganese	**65.3**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:18	7439-96-5	
Potassium	**4190J**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:18	7440-09-7	
Sodium	**36600**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:18	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:12	7429-90-5	
Iron, Dissolved	**2150**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:12	7439-89-6	
Manganese, Dissolved	**63.2**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:12	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**268**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 18:25	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**256**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 02:33	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	11/02/10 15:20	11/19/10 07:01	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 07:01	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 07:01	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	11/02/10 15:20	11/19/10 07:01	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	11/02/10 15:20	11/19/10 07:01	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	11/02/10 15:20	11/19/10 07:01	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	11/02/10 15:20	11/19/10 07:01	108-95-2	
Nitrobenzene-d5 (S)	98	%	38-121		1	11/02/10 15:20	11/19/10 07:01	4165-60-0	
2-Fluorobiphenyl (S)	71	%	40-110		1	11/02/10 15:20	11/19/10 07:01	321-60-8	
Terphenyl-d14 (S)	91	%	26-130		1	11/02/10 15:20	11/19/10 07:01	1718-51-0	
Phenol-d6 (S)	25	%	11-120		1	11/02/10 15:20	11/19/10 07:01	13127-88-3	
2-Fluorophenol (S)	35	%	20-120		1	11/02/10 15:20	11/19/10 07:01	367-12-4	
2,4,6-Tribromophenol (S)	74	%	37-120		1	11/02/10 15:20	11/19/10 07:01	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity,Bicarbonate (CaCO3)	**120**	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**2.0**	mg/L	2.0	1.0	1		11/01/10 14:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Sample: MW-12-102810 **Lab ID: 255497001** Collected: 10/28/10 10:35 Received: 10/28/10 12:05 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 22:21	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**13.6**	mg/L	5.0	0.15	5		10/29/10 17:19	16887-00-6	
Sulfate	**44.7**	mg/L	5.0	0.50	5		10/29/10 17:19	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.75**	mg/L	0.050	0.014	5		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.0**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

Sample: MW-19-102810 **Lab ID: 255497002** Collected: 10/28/10 11:18 Received: 10/28/10 12:05 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**113**	mg/L	1.0		1		11/03/10 15:22		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:22	7429-90-5	
Calcium	**28300**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:22	7440-70-2	
Iron	**10900**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:22	7439-89-6	
Magnesium	**10300**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:22	7439-95-4	
Manganese	**411**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:22	7439-96-5	
Potassium	**10400**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:22	7440-09-7	
Sodium	**28500**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:22	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:15	7429-90-5	
Iron, Dissolved	**10100**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:15	7439-89-6	
Manganese, Dissolved	**390**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:15	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**384**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 18:29	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**384**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 02:37	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	11/02/10 15:20	11/19/10 07:23	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	11/02/10 15:20	11/19/10 07:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	11/02/10 15:20	11/19/10 07:23	88-06-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

Sample: MW-19-102810 **Lab ID: 255497002** Collected: 10/28/10 11:18 Received: 10/28/10 12:05 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	11/02/10 15:20	11/19/10 07:23	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	11/02/10 15:20	11/19/10 07:23	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	11/02/10 15:20	11/19/10 07:23	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	11/02/10 15:20	11/19/10 07:23	108-95-2	
Nitrobenzene-d5 (S)	87	%	38-121		1	11/02/10 15:20	11/19/10 07:23	4165-60-0	
2-Fluorobiphenyl (S)	69	%	40-110		1	11/02/10 15:20	11/19/10 07:23	321-60-8	
Terphenyl-d14 (S)	87	%	26-130		1	11/02/10 15:20	11/19/10 07:23	1718-51-0	
Phenol-d6 (S)	24	%	11-120		1	11/02/10 15:20	11/19/10 07:23	13127-88-3	
2-Fluorophenol (S)	35	%	20-120		1	11/02/10 15:20	11/19/10 07:23	367-12-4	
2,4,6-Tribromophenol (S)	86	%	37-120		1	11/02/10 15:20	11/19/10 07:23	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**170**	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**10.0**	mg/L	2.0	1.0	1		11/01/10 14:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 22:38	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**9.5**	mg/L	2.0	0.060	2		10/29/10 17:36	16887-00-6	
Sulfate	**0.12J**	mg/L	1.0	0.10	1		10/28/10 22:38	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.92**	mg/L	0.050	0.014	5		11/02/10 13:33	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.2**	mg/L	1.0	0.080	1		11/05/10 14:18	7440-44-0	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: MPRP/1862
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47885 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	11/03/10 15:12	
Calcium	ug/L	ND	5000	11/03/10 15:12	
Iron	ug/L	ND	100	11/03/10 15:12	
Magnesium	ug/L	ND	5000	11/03/10 15:12	
Manganese	ug/L	ND	15.0	11/03/10 15:12	
Potassium	ug/L	ND	5000	11/03/10 15:12	
Sodium	ug/L	ND	5000	11/03/10 15:12	

LABORATORY CONTROL SAMPLE: 47886

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9720	97	80-120	
Calcium	ug/L	10000	9980	100	80-120	
Iron	ug/L	10000	10000	100	80-120	
Magnesium	ug/L	10000	9800	98	80-120	
Manganese	ug/L	500	495	99	80-120	
Potassium	ug/L	10000	9690	97	80-120	
Sodium	ug/L	10000	9930	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47887 47888

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9710	9750	97	98	75-125	.4	20	
Calcium	ug/L	52400	10000	10000	61100	62000	88	96	75-125	1	20	
Iron	ug/L	17600	10000	10000	27100	27000	95	94	75-125	.3	20	
Magnesium	ug/L	10700	10000	10000	20100	20200	94	95	75-125	.5	20	
Manganese	ug/L	562	500	500	1040	1070	96	101	75-125	2	20	
Potassium	ug/L	10300	10000	10000	19900	20000	96	97	75-125	.8	20	
Sodium	ug/L	50200	10000	10000	59000	61000	88	108	75-125	3	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: MPRP/1863
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47891 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	11/03/10 16:05	
Iron, Dissolved	ug/L	ND	100	11/03/10 16:05	
Manganese, Dissolved	ug/L	ND	15.0	11/03/10 16:05	

LABORATORY CONTROL SAMPLE: 47892

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9200	92	80-120	
Iron, Dissolved	ug/L	10000	9290	93	80-120	
Manganese, Dissolved	ug/L	500	462	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47893 47894

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9290	9330	93	93	75-125	.4	20	
Iron, Dissolved	ug/L	16200	10000	10000	25700	25700	96	95	75-125	.2	20	
Manganese, Dissolved	ug/L	530	500	500	1010	1010	96	96	75-125	0	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: ICPM/23262 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 883637 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	11/06/10 04:06	

LABORATORY CONTROL SAMPLE: 883638

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	84.9	106	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 883639 883640

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	824	80	80	874	890	62	82	75-125	2	20	M1

MATRIX SPIKE SAMPLE: 883641

Parameter	Units	9280726016 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	69.6	87	75-125	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: ICPM/23261 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 883631 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/06/10 02:25	

LABORATORY CONTROL SAMPLE: 883632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	85.0	106	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 883633 883634

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	870	80	80	930	922	74	64	70-130	.8	20	M1

MATRIX SPIKE SAMPLE: 883635

Parameter	Units	255498010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1010	80	983	-34	70-130	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: OEXT/2896
QC Batch Method: EPA 3510
Analysis Method: EPA 8270
Analysis Description: 8270 Water MSSV
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47671 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	11/19/10 02:08	
2,4,5-Trichlorophenol	ug/L	ND	1.0	11/19/10 02:08	
2,4,6-Trichlorophenol	ug/L	ND	1.0	11/19/10 02:08	
2,4-Dichlorophenol	ug/L	ND	5.0	11/19/10 02:08	
2-Chlorophenol	ug/L	ND	5.0	11/19/10 02:08	
Pentachlorophenol	ug/L	ND	5.0	11/19/10 02:08	
Phenol	ug/L	ND	5.0	11/19/10 02:08	
2,4,6-Tribromophenol (S)	%	72	37-120	11/19/10 02:08	
2-Fluorobiphenyl (S)	%	57	40-110	11/19/10 02:08	
2-Fluorophenol (S)	%	41	20-120	11/19/10 02:08	
Nitrobenzene-d5 (S)	%	86	38-121	11/19/10 02:08	
Phenol-d6 (S)	%	27	11-120	11/19/10 02:08	
Terphenyl-d14 (S)	%	76	26-130	11/19/10 02:08	

LABORATORY CONTROL SAMPLE & LCSD: 47672 47673

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
2-Chlorophenol	ug/L	40	26.2	26.7	66	67	61-108	2	30	
Pentachlorophenol	ug/L	40	31.0	32.5	77	81	45-119	5	30	
Phenol	ug/L	40	11.1	11.5	28	29	25-50	4	30	
2,4,6-Tribromophenol (S)	%				62	69	37-120			
2-Fluorobiphenyl (S)	%				62	55	40-110			
2-Fluorophenol (S)	%				34	38	20-120			
Nitrobenzene-d5 (S)	%				85	81	38-121			
Phenol-d6 (S)	%				24	26	11-120			
Terphenyl-d14 (S)	%				74	71	26-130			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WET/2387
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255497001, 255497002

SAMPLE DUPLICATE: 47947

Parameter	Units	255488001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	333	334	.3	10	

SAMPLE DUPLICATE: 47948

Parameter	Units	255498001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	222	224	.9	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WET/2376 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47599 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	11/01/10 14:00	

SAMPLE DUPLICATE: 47600

Parameter	Units	255473005 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	13.0	15.0	14	20	

SAMPLE DUPLICATE: 47601

Parameter	Units	255488007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	ND	ND		20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WETA/1758 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47207 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47209 47210

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.5	2.5	101	102	90-110	1	10	

MATRIX SPIKE SAMPLE: 47211

Parameter	Units	255483001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	6.6	5	11.3	94	90-110	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WETA/1767
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47444 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/28/10 16:53	
Sulfate	mg/L	0.20J	1.0	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47445

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Sulfate	mg/L	15	15.9	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47446 47447

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	6.3	5	5	11.1	11.3	97	99	90-110	1	11	
Sulfate	mg/L	12.6	15	15	27.4	27.8	98	101	90-110	2	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WETA/1768
QC Batch Method: SM 4500-P E
Analysis Method: SM 4500-P E
Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 47594 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	0.0042J	0.010	11/02/10 13:33	

LABORATORY CONTROL SAMPLE: 47595

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.1	0.099	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47596 47597

Parameter	Units	255435001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.12	.1	.1	0.21	0.21	89	88	80-120	.6	20	

MATRIX SPIKE SAMPLE: 47598

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.60	.1	0.65	53	80-120	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

QC Batch: WETA/1780 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 255497001, 255497002

METHOD BLANK: 48378 Matrix: Water
Associated Lab Samples: 255497001, 255497002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.095J	1.0	11/05/10 14:18	

LABORATORY CONTROL SAMPLE & LCSD: 48379 48380

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	10	9.9	10.6	99	106	90-110	7	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 48381 48382

Parameter	Units	255488001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	mg/L	8.2	10	10	18.8	18.8	106	106	70-119	.1	11	

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QUALIFIERS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255497

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

BATCH QUALIFIERS

Batch: MSSV/1429

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Sample Condition Upon Receipt

Pace Analytical

Client Name: ERM Project # 255497

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank (Yes) ____ No ____

Thermometer Used 132015 or 101731962 or 226099 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 1.8, 3.8°C Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: NJS 10/28/10

Temp should be above freezing ≤ 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☐No ☐N/A	6. Anions
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: Water		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
Exceptions: VOA, coliform, TOC, O&G		Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blanks Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNIFER ROSS Date: 10/28/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

255497

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4061

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 1

PROJECT #	PROJECT NAME
112489.6	K-G GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Dermond	

RECEIVING LABORATORY: Pace, Seattle, WA

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TOC	Phenol (with Kjeldahl digest)	Arsenic, dissolved, and PCP	TSS	TOX / AIK	Hardness	Total As / Diss As (with digest)	Total Cu, Ag, Al, Fe, Mn (mg/L)	Diss Al, Fe, Mn (with digest)	Total Cu, Ag, Zn	Diss Cu, Ag, Zn (with digest)
MW-12-102810	10-28-10	1035		X	Perl	HCl, H2SO4	Y	3.83L	10		X		X	X	X	X	X	X	X/X	X	X		
MW-19-102810	10	1118		X			Y	3.83L	10		X		X	X	X	X	X	X	X/X	X	X		

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10-28-10	1211	Mai Teras	10-28	12:37
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS:

REMARKS ON SAMPLE RECEIPT

- [x] BOTTLE INTACT
- [ ] CUSTODY SEALS
- [x] CHILLED
- [x] PRESERVED
- [ ] SEALS INTACT
- [ ] SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Cyrus G + Mike M

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Received with ice at 1.8, 3.8 °C.

Sample Container Count

CLIENT: ERM WO# 255497

Pace Analytical

COC PAGE 1 of 1
COC ID# 4061

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP3S, ~~BP2S~~	WGFU	WGKU	DG9N	AG2S	AG9U	Comments
1			1		1				1 x2			4 x2	1 x2	2	MW-12
2			1		1				1 x2			4	1 x2	2	MW-19
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial			
BP2O	500mL NaOH plastic		I	Wipe/Swab			

November 15, 2010 Analytical Report for Service Request No: K1012135

Jennifer Gross
Pace Analytical Services
940 S. Harney St.
Seattle, WA 98108

RE: R-G GWM 112489.6/255497

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 29, 2010. For your reference, these analyses have been assigned our service request number K1012135.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at MShelton@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mike Shelton
Project Chemist

MS/dlm

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Colorado DPHE	-
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Utah DOH	COLU
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Chain of Custody

Pace Analytical®
www.pacelabs.com

Workorder: 255497 Workorder Name: R-G GWM 112489.6 Results Requested ~~11/9/2010~~ Standard TAT

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	CAS - Kelso Attn: Pradeep P.O. _____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers	Requested Analysis	LAB USE ONLY
1	MW-12-102810	10/28/2010 10:35	255497001	Water	1	X	
2	MW-19-102810	10/28/2010 11:18	255497002	Water	1	X	
3							
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1	Justin Sing	10/29/10 1500	[illegible]	[illegible]
2				
3				
4				
5				

Comments

EIM + EQUIS 4-file EDD needed

Report to MDL.

5

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Mike

Client / Project: Pace Analytical Service Request K10 12195

Received: 10/19/10 Opened: 10/19/10 By: HO

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where?_____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
3C	—	294			✓
1.6C		292			

7. Packing material used. *Inserts* *Baggies* (*Bubble Wrap*) *Gel Packs* *Wet Ice* *Sleeves* *Other*_____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1012135
Project:	R-G GWM 112489.6/255497	**Date Collected:**	10/28/2010
Sample Matrix:	Water	**Date Received:**	10/29/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-12-102810	K1012135-001	10	4	1	11/10/2010	5	J
MW-19-102810	K1012135-002	10	4	1	11/10/2010	ND	
Method Blank	K1012135-MB	10	4	1	11/10/2010	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012135
Project:	R-G GWM 112489.6/255497	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	11/10/2010

Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	Batch QC	Units:	ug/L (ppb)
Lab Code:	K1012073-001MS	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Halides, Total Organic (TOX)	NONE	9020B	10	100	ND	95	95	82-121	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012135
Project:	R-G GWM 112489.6/255497	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	11/10/2010

Laboratory Control Sample Summary
Halides, Total Organic (TOX)

Sample Name:	Lab Control Sample	Units:	ug/L (ppb)
Lab Code:	K1012135-LCS	Basis:	NA
Test Notes:			

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits	Result Notes
Halides, Total Organic (TOX)	NONE	9020B	10	9	91	83-117	

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

December 23, 2010

Mike Mendes
ERM - West
915 118th Avenue SE
Suite 130
Bellevue, WA 98005

RE: Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on October 28, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

Amended report, REV-1 12/23/10. 2,4-Dimethylphenol & 2,4-Dinitrophenol were removed from the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

CERTIFICATIONS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Washington Certification IDs

940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
Alaska Drinking Water VOC Certification #: WA01230
Alaska Drinking Water Micro Certification #: WA01230
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C1229

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE SUMMARY

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Lab ID	Sample ID	Matrix	Date Collected	Date Received
255498001	**MW-14-102710**	Water	10/27/10 12:00	10/28/10 10:20
255498002	**MW-06S-102710**	Water	10/27/10 13:01	10/28/10 10:20
255498003	**MW-26-102710**	Water	10/27/10 13:47	10/28/10 10:20
255498004	**MW-27-102710**	Water	10/27/10 14:37	10/28/10 10:20
255498005	**MW-16-102710**	Water	10/27/10 15:20	10/28/10 10:20
255498006	**MW-05S-102710**	Water	10/27/10 16:04	10/28/10 10:20
255498007	**MW-11-102810**	Water	10/28/10 08:44	10/28/10 10:20
255498008	**MW-03S-102810**	Water	10/28/10 09:29	10/28/10 10:20
255498009	**MW-03D-102810**	Water	10/28/10 08:04	10/28/10 10:20
255498010	**DUP-102710-B**	Water	10/27/10 09:00	10/28/10 10:20

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
255498001	**MW-14-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498002	**MW-06S-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498003	**MW-26-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498004	**MW-27-102710**	SM 2340B	BGA	1	PASI-S

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498005	**MW-16-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498006	**MW-05S-102710**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498007	**MW-11-102810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S

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SAMPLE ANALYTE COUNT

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498008	**MW-03S-102810**	SM 2340B	BGA	1	PASI-S
		EPA 6010	BGA	7	PASI-S
		EPA 6010	BGA	3	PASI-S
		EPA 6020	CJS, RJS	5	PASI-M
		EPA 6020	CJS, RJS	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2320B	BPR	2	PASI-S
		SM 2540D	KMT	1	PASI-S
		EPA 300.0	CMS	1	PASI-S
		EPA 300.0	CMS	2	PASI-S
		SM 4500-P E	CMS	1	PASI-S
		SM 5310C	KMT	1	PASI-S
255498009	**MW-03D-102810**	EPA 6020	CJS, RJS	5	PASI-M
		EPA 6020	CJS, RJS	5	PASI-M
		EPA 8270	ERB	13	PASI-S
		SM 2540D	KMT	1	PASI-S
255498010	**DUP-102710-B**	EPA 6020	CJS	1	PASI-M
		EPA 6020	CJS	1	PASI-M
		EPA 8270	ERB	13	PASI-S

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **SM 2340B**
Description: 2340B Hardness, Total (Calc.)
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for SM 2340B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 6020**
Description: 6020 MET ICPMS
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
10 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23262

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255498001,9280726016

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 883639)
  - Arsenic
  - Silver
- MSD (Lab ID: 883640)
  - Silver

QC Batch: ICPM/23698

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10141821006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 896925)
  - Zinc

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
10 samples were analyzed for EPA 6020. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: ICPM/23697

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10141821006

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 896919)
  - Zinc, Dissolved

QC Batch: ICPM/23261

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255498001,255498010

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 883633)
  - Silver, Dissolved
- MS (Lab ID: 883635)
  - Arsenic, Dissolved
  - Silver, Dissolved
- MSD (Lab ID: 883634)
  - Arsenic, Dissolved
  - Silver, Dissolved

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 6020**
Description: 6020 MET ICPMS, Dissolved
Client: ERM-PORTLAND
Date: December 23, 2010

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
10 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/2887

S0: Surrogate recovery outside laboratory control limits.

- MW-03D-102810 (Lab ID: 255498009)
  - 2,4,6-Tribromophenol (S)
  - 2-Fluorobiphenyl (S)
  - 2-Fluorophenol (S)
  - Nitrobenzene-d5 (S)
  - Phenol-d6 (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: December 23, 2010

Analyte Comments:

QC Batch: OEXT/2887

P2: Re-extraction or re-analysis could not be performed due to insufficient sample amount.

- MW-03D-102810 (Lab ID: 255498009)
  - Nitrobenzene-d5 (S)

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **SM 2320B**
Description: 2320B Alkalinity
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **SM 2540D**
Description: 2540D Total Suspended Solids
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
9 samples were analyzed for SM 2540D. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 300.0**
Description: 300.0 IC Anions
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **EPA 300.0**
Description: 300.0 IC Anions 28 Days
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **SM 4500-P E**
Description: 4500PE Total Phosphorus
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for SM 4500-P E. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: WETA/1776

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 255498001,255539001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 48176)
  - Phosphorus
- MS (Lab ID: 48178)
  - Phosphorus
- MSD (Lab ID: 48177)
  - Phosphorus

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Method: **SM 5310C**
Description: 5310C TOC
Client: ERM-PORTLAND
Date: December 23, 2010

General Information:
8 samples were analyzed for SM 5310C. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-14-102710 **Lab ID: 255498001** Collected: 10/27/10 12:00 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**175**	mg/L	1.0		1		11/03/10 15:25		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:25	7429-90-5	
Calcium	**52400**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:25	7440-70-2	
Iron	**17600**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:25	7439-89-6	
Magnesium	**10700**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:25	7439-95-4	
Manganese	**562**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:25	7439-96-5	
Potassium	**10300**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:25	7440-09-7	
Sodium	**50200**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:25	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:18	7429-90-5	
Iron, Dissolved	**16200**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:18	7439-89-6	
Manganese, Dissolved	**530**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:18	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**824**	ug/L	2.5	0.31	5	11/04/10 14:26	11/06/10 04:30	7440-38-2	M1
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**870**	ug/L	2.5	0.31	5	11/04/10 14:27	11/06/10 02:45	7440-38-2	M1
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 03:19	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 03:19	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 03:19	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 03:19	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 03:19	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 03:19	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 03:19	108-95-2	
Nitrobenzene-d5 (S)	79	%	38-121		1	10/29/10 15:20	11/09/10 03:19	4165-60-0	
2-Fluorobiphenyl (S)	64	%	40-110		1	10/29/10 15:20	11/09/10 03:19	321-60-8	
Terphenyl-d14 (S)	71	%	26-130		1	10/29/10 15:20	11/09/10 03:19	1718-51-0	
Phenol-d6 (S)	21	%	11-120		1	10/29/10 15:20	11/09/10 03:19	13127-88-3	
2-Fluorophenol (S)	32	%	20-120		1	10/29/10 15:20	11/09/10 03:19	367-12-4	
2,4,6-Tribromophenol (S)	70	%	37-120		1	10/29/10 15:20	11/09/10 03:19	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/03/10 16:30		
Alkalinity,Bicarbonate (CaCO3)	**222**	mg/L	2.0	2.0	1		11/03/10 16:30		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**20.0**	mg/L	2.0	1.0	1		11/02/10 16:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-14-102710 **Lab ID: 255498001** Collected: 10/27/10 12:00 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/28/10 22:56	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**11.0**	mg/L	5.0	0.15	5		10/29/10 22:47	16887-00-6	
Sulfate	**60.3**	mg/L	5.0	0.50	5		10/29/10 22:47	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.99**	mg/L	0.050	0.014	5		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**4.6**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-06S-102710 **Lab ID: 255498002** Collected: 10/27/10 13:01 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**179**	mg/L	1.0		1		11/03/10 15:34		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:34	7429-90-5	
Calcium	**59000**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:34	7440-70-2	
Iron	**940**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:34	7439-89-6	
Magnesium	**7760**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:34	7439-95-4	
Manganese	**50.8**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:34	7439-96-5	
Potassium	**14200**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:34	7440-09-7	
Sodium	**30200**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:34	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:33	7429-90-5	
Iron, Dissolved	**836**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:33	7439-89-6	
Manganese, Dissolved	**43.1**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:33	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**23.6**	ug/L	0.50	0.062	1	11/04/10 14:26	11/06/10 04:43	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**24.0**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 02:58	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 04:28	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 04:28	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 04:28	88-06-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-06S-102710 **Lab ID: 255498002** Collected: 10/27/10 13:01 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 04:28	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 04:28	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 04:28	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 04:28	108-95-2	
Nitrobenzene-d5 (S)	74	%	38-121		1	10/29/10 15:20	11/09/10 04:28	4165-60-0	
2-Fluorobiphenyl (S)	61	%	40-110		1	10/29/10 15:20	11/09/10 04:28	321-60-8	
Terphenyl-d14 (S)	74	%	26-130		1	10/29/10 15:20	11/09/10 04:28	1718-51-0	
Phenol-d6 (S)	20	%	11-120		1	10/29/10 15:20	11/09/10 04:28	13127-88-3	
2-Fluorophenol (S)	31	%	20-120		1	10/29/10 15:20	11/09/10 04:28	367-12-4	
2,4,6-Tribromophenol (S)	68	%	37-120		1	10/29/10 15:20	11/09/10 04:28	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**217**	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**3.0**	mg/L	2.0	1.0	1		11/02/10 16:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 00:39	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**3.9**	mg/L	1.0	0.030	1		10/29/10 00:39	16887-00-6	
Sulfate	**42.3**	mg/L	5.0	0.50	5		10/29/10 23:38	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.11**	mg/L	0.010	0.0028	1		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.5**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-26-102710 **Lab ID: 255498003** Collected: 10/27/10 13:47 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**111**	mg/L	1.0		1		11/03/10 15:37		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:37	7429-90-5	
Calcium	**33400**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:37	7440-70-2	
Iron	**21300**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:37	7439-89-6	
Magnesium	**6660**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:37	7439-95-4	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-26-102710 **Lab ID: 255498003** Collected: 10/27/10 13:47 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**323**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:37	7439-96-5	
Potassium	**9280**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:37	7440-09-7	
Sodium	**56700**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:37	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:36	7429-90-5	
Iron, Dissolved	**21300**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:36	7439-89-6	
Manganese, Dissolved	**324**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:36	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**356**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 18:41	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**351**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:03	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 04:51	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 04:51	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 04:51	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 04:51	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 04:51	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 04:51	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 04:51	108-95-2	
Nitrobenzene-d5 (S)	67	%	38-121		1	10/29/10 15:20	11/09/10 04:51	4165-60-0	
2-Fluorobiphenyl (S)	57	%	40-110		1	10/29/10 15:20	11/09/10 04:51	321-60-8	
Terphenyl-d14 (S)	69	%	26-130		1	10/29/10 15:20	11/09/10 04:51	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	10/29/10 15:20	11/09/10 04:51	13127-88-3	
2-Fluorophenol (S)	30	%	20-120		1	10/29/10 15:20	11/09/10 04:51	367-12-4	
2,4,6-Tribromophenol (S)	75	%	37-120		1	10/29/10 15:20	11/09/10 04:51	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**236**	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**34.0**	mg/L	2.0	1.0	1		11/02/10 16:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 00:56	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**14.2**	mg/L	2.0	0.060	2		10/29/10 23:56	16887-00-6	
Sulfate	**13.9**	mg/L	1.0	0.10	1		10/29/10 00:56	14808-79-8	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-26-102710 **Lab ID: 255498003** Collected: 10/27/10 13:47 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**1.2**	mg/L	0.050	0.014	5		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**7.3**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-27-102710 **Lab ID: 255498004** Collected: 10/27/10 14:37 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**712**	mg/L	1.0		1		11/03/10 15:40		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:40	7429-90-5	
Calcium	**153000**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:40	7440-70-2	
Iron	**7600**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:40	7439-89-6	
Magnesium	**80100**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:40	7439-95-4	
Manganese	**444**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:40	7439-96-5	
Potassium	**32000**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:40	7440-09-7	
Sodium	**747000**	ug/L	25000	147	5	11/03/10 09:02	11/03/10 16:02	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:39	7429-90-5	
Iron, Dissolved	**7460**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:39	7439-89-6	
Manganese, Dissolved	**432**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:39	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**20.3**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 18:44	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**19.4**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:19	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 05:14	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 05:14	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 05:14	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 05:14	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 05:14	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 05:14	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 05:14	108-95-2	
Nitrobenzene-d5 (S)	64	%	38-121		1	10/29/10 15:20	11/09/10 05:14	4165-60-0	
2-Fluorobiphenyl (S)	55	%	40-110		1	10/29/10 15:20	11/09/10 05:14	321-60-8	
Terphenyl-d14 (S)	69	%	26-130		1	10/29/10 15:20	11/09/10 05:14	1718-51-0	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-27-102710 **Lab ID: 255498004** Collected: 10/27/10 14:37 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
Phenol-d6 (S)	17	%	11-120		1	10/29/10 15:20	11/09/10 05:14	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	10/29/10 15:20	11/09/10 05:14	367-12-4	
2,4,6-Tribromophenol (S)	63	%	37-120		1	10/29/10 15:20	11/09/10 05:14	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity,Bicarbonate (CaCO3)	**415**	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**16.0**	mg/L	2.0	1.0	1		11/02/10 16:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 01:14	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**1170**	mg/L	200	6.0	200		11/03/10 17:17	16887-00-6	
Sulfate	**152**	mg/L	50.0	5.0	50		11/03/10 17:00	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.51**	mg/L	0.020	0.0056	2		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**5.3**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-16-102710 **Lab ID: 255498005** Collected: 10/27/10 15:20 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**302**	mg/L	1.0		1		11/03/10 15:50		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:50	7429-90-5	
Calcium	**112000**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:50	7440-70-2	
Iron	**11600**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:50	7439-89-6	
Magnesium	**5480**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:50	7439-95-4	
Manganese	**693**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:50	7439-96-5	
Potassium	**6020**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:50	7440-09-7	
Sodium	**9180**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:50	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:43	7429-90-5	
Iron, Dissolved	**10600**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:43	7439-89-6	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-16-102710 **Lab ID: 255498005** Collected: 10/27/10 15:20 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese, Dissolved	**660**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:43	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**5.9**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:15	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**3.7**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:23	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	**4.3J**	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 05:37	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 05:37	95-95-4	
2,4,6-Trichlorophenol	**1.6J**	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 05:37	88-06-2	
2,4-Dichlorophenol	**0.95J**	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 05:37	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 05:37	95-57-8	
Pentachlorophenol	**4.6J**	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 05:37	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 05:37	108-95-2	
Nitrobenzene-d5 (S)	65	%	38-121		1	10/29/10 15:20	11/09/10 05:37	4165-60-0	
2-Fluorobiphenyl (S)	53	%	40-110		1	10/29/10 15:20	11/09/10 05:37	321-60-8	
Terphenyl-d14 (S)	61	%	26-130		1	10/29/10 15:20	11/09/10 05:37	1718-51-0	
Phenol-d6 (S)	25	%	11-120		1	10/29/10 15:20	11/09/10 05:37	13127-88-3	
2-Fluorophenol (S)	35	%	20-120		1	10/29/10 15:20	11/09/10 05:37	367-12-4	
2,4,6-Tribromophenol (S)	73	%	37-120		1	10/29/10 15:20	11/09/10 05:37	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity,Bicarbonate (CaCO3)	**317**	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**10.0**	mg/L	2.0	1.0	1		11/02/10 16:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 01:31	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**8.9**	mg/L	1.0	0.030	1		10/29/10 01:31	16887-00-6	
Sulfate	**1.8**	mg/L	1.0	0.10	1		10/29/10 01:31	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.49**	mg/L	0.020	0.0056	2		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**25.5**	mg/L	2.0	0.16	1		10/29/10 11:55	7440-44-0	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-05S-102710 **Lab ID: 255498006** Collected: 10/27/10 16:04 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**81.4**	mg/L	1.0		1		11/03/10 15:53		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:53	7429-90-5	
Calcium	**27700**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:53	7440-70-2	
Iron	ND	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:53	7439-89-6	
Magnesium	**2960J**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:53	7439-95-4	
Manganese	**19.9**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:53	7439-96-5	
Potassium	**1160J**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:53	7440-09-7	
Sodium	**8440**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:53	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:46	7429-90-5	
Iron, Dissolved	**32.8J**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:46	7439-89-6	
Manganese, Dissolved	**18.7**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:46	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**6.0**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:19	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**5.5**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:28	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 06:00	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 06:00	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 06:00	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 06:00	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 06:00	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 06:00	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 06:00	108-95-2	
Nitrobenzene-d5 (S)	77	%	38-121		1	10/29/10 15:20	11/09/10 06:00	4165-60-0	
2-Fluorobiphenyl (S)	64	%	40-110		1	10/29/10 15:20	11/09/10 06:00	321-60-8	
Terphenyl-d14 (S)	73	%	26-130		1	10/29/10 15:20	11/09/10 06:00	1718-51-0	
Phenol-d6 (S)	18	%	11-120		1	10/29/10 15:20	11/09/10 06:00	13127-88-3	
2-Fluorophenol (S)	27	%	20-120		1	10/29/10 15:20	11/09/10 06:00	367-12-4	
2,4,6-Tribromophenol (S)	61	%	37-120		1	10/29/10 15:20	11/09/10 06:00	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity,Bicarbonate (CaCO3)	**60.7**	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	1.0	1		11/02/10 16:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-05S-102710 **Lab ID: 255498006** Collected: 10/27/10 16:04 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	**0.031J**	mg/L	0.20	0.030	1		10/29/10 01:48	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.6**	mg/L	1.0	0.030	1		10/29/10 01:48	16887-00-6	
Sulfate	**38.2**	mg/L	5.0	0.50	5		10/30/10 00:30	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.024**	mg/L	0.010	0.0028	1		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**2.1**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-11-102810 **Lab ID: 255498007** Collected: 10/28/10 08:44 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**135**	mg/L	1.0		1		11/03/10 15:56		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:56	7429-90-5	
Calcium	**51000**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:56	7440-70-2	
Iron	ND	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:56	7439-89-6	
Magnesium	**1790J**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:56	7439-95-4	
Manganese	**25.2**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:56	7439-96-5	
Potassium	**1410J**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:56	7440-09-7	
Sodium	**12700**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:56	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:49	7429-90-5	
Iron, Dissolved	ND	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:49	7439-89-6	
Manganese, Dissolved	**26.1**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:49	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**77.4**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:23	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**74.4**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:32	7440-38-2	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 06:23	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.96	0.41	1	10/29/10 15:20	11/09/10 06:23	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.96	0.19	1	10/29/10 15:20	11/09/10 06:23	88-06-2	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-11-102810 **Lab ID: 255498007** Collected: 10/28/10 08:44 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 06:23	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.37	1	10/29/10 15:20	11/09/10 06:23	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 06:23	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 06:23	108-95-2	
Nitrobenzene-d5 (S)	78	%	38-121		1	10/29/10 15:20	11/09/10 06:23	4165-60-0	
2-Fluorobiphenyl (S)	69	%	40-110		1	10/29/10 15:20	11/09/10 06:23	321-60-8	
Terphenyl-d14 (S)	74	%	26-130		1	10/29/10 15:20	11/09/10 06:23	1718-51-0	
Phenol-d6 (S)	19	%	11-120		1	10/29/10 15:20	11/09/10 06:23	13127-88-3	
2-Fluorophenol (S)	30	%	20-120		1	10/29/10 15:20	11/09/10 06:23	367-12-4	
2,4,6-Tribromophenol (S)	63	%	37-120		1	10/29/10 15:20	11/09/10 06:23	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity,Bicarbonate (CaCO3)	**149**	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**2.0**	mg/L	2.0	1.0	1		11/02/10 16:00		
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 02:05	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**4.8**	mg/L	1.0	0.030	1		10/29/10 02:05	16887-00-6	
Sulfate	**20.9**	mg/L	2.0	0.20	2		10/30/10 00:47	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.068**	mg/L	0.010	0.0028	1		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**3.5**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-03S-102810 **Lab ID: 255498008** Collected: 10/28/10 09:29 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
2340B Hardness, Total (Calc.)	Analytical Method: SM 2340B								
Total Hardness	**116**	mg/L	1.0		1		11/03/10 15:59		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 15:59	7429-90-5	
Calcium	**29200**	ug/L	5000	37.8	1	11/03/10 09:02	11/03/10 15:59	7440-70-2	
Iron	**18300**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 15:59	7439-89-6	
Magnesium	**10400**	ug/L	5000	30.0	1	11/03/10 09:02	11/03/10 15:59	7439-95-4	

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-03S-102810 **Lab ID: 255498008** Collected: 10/28/10 09:29 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Manganese	**356**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 15:59	7439-96-5	
Potassium	**9740**	ug/L	5000	76.2	1	11/03/10 09:02	11/03/10 15:59	7440-09-7	
Sodium	**22600**	ug/L	5000	29.4	1	11/03/10 09:02	11/03/10 15:59	7440-23-5	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Aluminum, Dissolved	ND	ug/L	500	31.0	1	11/03/10 09:02	11/03/10 16:52	7429-90-5	
Iron, Dissolved	**19100**	ug/L	100	29.9	1	11/03/10 09:02	11/03/10 16:52	7439-89-6	
Manganese, Dissolved	**360**	ug/L	15.0	0.82	1	11/03/10 09:02	11/03/10 16:52	7439-96-5	
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**546**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:28	7440-38-2	
Chromium	**0.77**	ug/L	0.50	0.24	1	11/23/10 09:38	11/24/10 03:48	7440-47-3	
Copper	**4.7**	ug/L	0.50	0.20	1	11/04/10 14:26	11/08/10 19:28	7440-50-8	
Zinc	ND	ug/L	5.0	1.3	1	11/23/10 09:38	11/24/10 03:48	7440-66-6	
Silver	ND	ug/L	0.50	0.071	1	11/04/10 14:26	11/08/10 19:28	7440-22-4	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Chromium, Dissolved	**0.83**	ug/L	0.50	0.24	1	11/23/10 09:37	11/24/10 11:43	7440-47-3	
Arsenic, Dissolved	**574**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:37	7440-38-2	
Zinc, Dissolved	ND	ug/L	5.0	1.3	1	11/23/10 09:37	11/24/10 11:43	7440-66-6	
Copper, Dissolved	**1.1**	ug/L	0.50	0.20	1	11/04/10 14:27	11/06/10 03:37	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/04/10 14:27	11/08/10 17:38	7440-22-4	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 06:46	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 06:46	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 06:46	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 06:46	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.36	1	10/29/10 15:20	11/09/10 06:46	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 06:46	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 06:46	108-95-2	
Nitrobenzene-d5 (S)	80	%	38-121		1	10/29/10 15:20	11/09/10 06:46	4165-60-0	
2-Fluorobiphenyl (S)	68	%	40-110		1	10/29/10 15:20	11/09/10 06:46	321-60-8	
Terphenyl-d14 (S)	74	%	26-130		1	10/29/10 15:20	11/09/10 06:46	1718-51-0	
Phenol-d6 (S)	21	%	11-120		1	10/29/10 15:20	11/09/10 06:46	13127-88-3	
2-Fluorophenol (S)	34	%	20-120		1	10/29/10 15:20	11/09/10 06:46	367-12-4	
2,4,6-Tribromophenol (S)	77	%	37-120		1	10/29/10 15:20	11/09/10 06:46	118-79-6	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Carbonate (CaCO3)	ND	mg/L	2.0	2.0	1		11/06/10 19:35		
Alkalinity,Bicarbonate (CaCO3)	**172**	mg/L	2.0	2.0	1		11/06/10 19:35		
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	**20.0**	mg/L	2.0	1.0	1		11/02/10 16:00		

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-03S-102810 **Lab ID: 255498008** Collected: 10/28/10 09:29 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
300.0 IC Anions	Analytical Method: EPA 300.0								
Nitrate as N	ND	mg/L	0.20	0.030	1		10/29/10 02:23	14797-55-8	
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Chloride	**14.5**	mg/L	2.0	0.060	2		10/30/10 01:05	16887-00-6	
Sulfate	**0.19J**	mg/L	1.0	0.10	1		10/29/10 02:23	14808-79-8	
4500PE Total Phosphorus	Analytical Method: SM 4500-P E								
Phosphorus	**0.98**	mg/L	0.050	0.014	5		11/05/10 15:49	7723-14-0	
5310C TOC	Analytical Method: SM 5310C								
Total Organic Carbon	**6.3**	mg/L	1.0	0.080	1		10/29/10 11:55	7440-44-0	

Sample: MW-03D-102810 **Lab ID: 255498009** Collected: 10/28/10 08:04 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Zinc	ND	ug/L	5.0	1.3	1	11/23/10 09:38	11/24/10 03:53	7440-66-6	
Arsenic	**34.8**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:32	7440-38-2	
Chromium	**4.4**	ug/L	0.50	0.24	1	11/04/10 14:26	11/08/10 19:32	7440-47-3	
Copper	**0.25J**	ug/L	0.50	0.20	1	11/04/10 14:26	11/08/10 19:32	7440-50-8	
Silver	ND	ug/L	0.50	0.071	1	11/04/10 14:26	11/08/10 19:32	7440-22-4	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Zinc, Dissolved	ND	ug/L	5.0	1.3	1	11/23/10 09:37	11/24/10 11:48	7440-66-6	
Arsenic, Dissolved	**35.6**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:40	7440-38-2	
Chromium, Dissolved	**4.1**	ug/L	0.50	0.24	1	11/04/10 14:27	11/06/10 03:40	7440-47-3	
Copper, Dissolved	ND	ug/L	0.50	0.20	1	11/04/10 14:27	11/06/10 03:40	7440-50-8	
Silver, Dissolved	ND	ug/L	0.50	0.071	1	11/04/10 14:27	11/08/10 17:42	7440-22-4	
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.8	0.46	1	10/29/10 15:20	11/09/10 07:09	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.96	0.41	1	10/29/10 15:20	11/09/10 07:09	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.96	0.19	1	10/29/10 15:20	11/09/10 07:09	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.8	0.38	1	10/29/10 15:20	11/09/10 07:09	120-83-2	
2-Chlorophenol	ND	ug/L	4.8	0.37	1	10/29/10 15:20	11/09/10 07:09	95-57-8	
Pentachlorophenol	ND	ug/L	4.8	0.44	1	10/29/10 15:20	11/09/10 07:09	87-86-5	
Phenol	ND	ug/L	4.8	0.12	1	10/29/10 15:20	11/09/10 07:09	108-95-2	
Nitrobenzene-d5 (S)	37	%	38-121		1	10/29/10 15:20	11/09/10 07:09	4165-60-0	P2,S0
2-Fluorobiphenyl (S)	33	%	40-110		1	10/29/10 15:20	11/09/10 07:09	321-60-8	S0
Terphenyl-d14 (S)	33	%	26-130		1	10/29/10 15:20	11/09/10 07:09	1718-51-0	
Phenol-d6 (S)	10	%	11-120		1	10/29/10 15:20	11/09/10 07:09	13127-88-3	S0
2-Fluorophenol (S)	17	%	20-120		1	10/29/10 15:20	11/09/10 07:09	367-12-4	S0

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ANALYTICAL RESULTS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

Sample: MW-03D-102810 **Lab ID: 255498009** Collected: 10/28/10 08:04 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,4,6-Tribromophenol (S)	35	%	37-120		1	10/29/10 15:20	11/09/10 07:09	118-79-6	S0
2540D Total Suspended Solids	Analytical Method: SM 2540D								
Total Suspended Solids	ND	mg/L	2.0	1.0	1		11/02/10 16:00		

Sample: DUP-102710-B **Lab ID: 255498010** Collected: 10/27/10 09:00 Received: 10/28/10 10:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020 MET ICPMS	Analytical Method: EPA 6020								
Arsenic	**912**	ug/L	0.50	0.062	1	11/04/10 14:26	11/08/10 19:35	7440-38-2	
6020 MET ICPMS, Dissolved	Analytical Method: EPA 6020								
Arsenic, Dissolved	**1010**	ug/L	0.50	0.062	1	11/04/10 14:27	11/06/10 03:44	7440-38-2	M1
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	10/29/10 15:20	11/09/10 07:32	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	10/29/10 15:20	11/09/10 07:32	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	10/29/10 15:20	11/09/10 07:32	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	10/29/10 15:20	11/09/10 07:32	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	10/29/10 15:20	11/09/10 07:32	95-57-8	
Pentachlorophenol	ND	ug/L	4.7	0.44	1	10/29/10 15:20	11/09/10 07:32	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	10/29/10 15:20	11/09/10 07:32	108-95-2	
Nitrobenzene-d5 (S)	73	%	38-121		1	10/29/10 15:20	11/09/10 07:32	4165-60-0	
2-Fluorobiphenyl (S)	63	%	40-110		1	10/29/10 15:20	11/09/10 07:32	321-60-8	
Terphenyl-d14 (S)	75	%	26-130		1	10/29/10 15:20	11/09/10 07:32	1718-51-0	
Phenol-d6 (S)	18	%	11-120		1	10/29/10 15:20	11/09/10 07:32	13127-88-3	
2-Fluorophenol (S)	29	%	20-120		1	10/29/10 15:20	11/09/10 07:32	367-12-4	
2,4,6-Tribromophenol (S)	69	%	37-120		1	10/29/10 15:20	11/09/10 07:32	118-79-6	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: MPRP/1862 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 47885 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	500	11/03/10 15:12	
Calcium	ug/L	ND	5000	11/03/10 15:12	
Iron	ug/L	ND	100	11/03/10 15:12	
Magnesium	ug/L	ND	5000	11/03/10 15:12	
Manganese	ug/L	ND	15.0	11/03/10 15:12	
Potassium	ug/L	ND	5000	11/03/10 15:12	
Sodium	ug/L	ND	5000	11/03/10 15:12	

LABORATORY CONTROL SAMPLE: 47886

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	10000	9720	97	80-120	
Calcium	ug/L	10000	9980	100	80-120	
Iron	ug/L	10000	10000	100	80-120	
Magnesium	ug/L	10000	9800	98	80-120	
Manganese	ug/L	500	495	99	80-120	
Potassium	ug/L	10000	9690	97	80-120	
Sodium	ug/L	10000	9930	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47887 47888

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	ND	10000	10000	9710	9750	97	98	75-125	.4	20	
Calcium	ug/L	52400	10000	10000	61100	62000	88	96	75-125	1	20	
Iron	ug/L	17600	10000	10000	27100	27000	95	94	75-125	.3	20	
Magnesium	ug/L	10700	10000	10000	20100	20200	94	95	75-125	.5	20	
Manganese	ug/L	562	500	500	1040	1070	96	101	75-125	2	20	
Potassium	ug/L	10300	10000	10000	19900	20000	96	97	75-125	.8	20	
Sodium	ug/L	50200	10000	10000	59000	61000	88	108	75-125	3	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: MPRP/1863 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 47891 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	500	11/03/10 16:05	
Iron, Dissolved	ug/L	ND	100	11/03/10 16:05	
Manganese, Dissolved	ug/L	ND	15.0	11/03/10 16:05	

LABORATORY CONTROL SAMPLE: 47892

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	10000	9200	92	80-120	
Iron, Dissolved	ug/L	10000	9290	93	80-120	
Manganese, Dissolved	ug/L	500	462	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47893 47894

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	10000	10000	9290	9330	93	93	75-125	.4	20	
Iron, Dissolved	ug/L	16200	10000	10000	25700	25700	96	95	75-125	.2	20	
Manganese, Dissolved	ug/L	530	500	500	1010	1010	96	96	75-125	0	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: ICPM/23262 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

METHOD BLANK: 883637 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	0.50	11/06/10 04:06	
Chromium	ug/L	ND	0.50	11/06/10 04:06	
Copper	ug/L	ND	0.50	11/06/10 04:06	
Silver	ug/L	ND	0.50	11/08/10 18:21	

LABORATORY CONTROL SAMPLE: 883638

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	80	84.9	106	80-120	
Chromium	ug/L	80	85.3	107	80-120	
Copper	ug/L	80	86.6	108	80-120	
Silver	ug/L	80	73.0	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 883639 883640

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	824	80	80	874	890	62	82	75-125	2	20	M1
Chromium	ug/L		80	80	75.3	74.0	93	91	75-125	2	20	
Copper	ug/L		80	80	79.8	78.3	91	89	75-125	2	20	
Silver	ug/L		80	80	41.9	41.3	52	52	75-125	1	20	M1

MATRIX SPIKE SAMPLE: 883641

Parameter	Units	9280726016 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	0.35J	80	69.6	87	75-125	
Chromium	ug/L	0.60	80	71.0	88	75-125	
Copper	ug/L	0.83	80	70.4	87	75-125	
Silver	ug/L	ND	80	60.8	76	75-125	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: ICPM/23698 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET
Associated Lab Samples: 255498008, 255498009

METHOD BLANK: 896923 Matrix: Water
Associated Lab Samples: 255498008, 255498009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium	ug/L	ND	0.50	11/24/10 10:58	
Zinc	ug/L	ND	5.0	11/24/10 10:58	

LABORATORY CONTROL SAMPLE: 896924

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium	ug/L	80	80.9	101	80-120	
Zinc	ug/L	80	82.4	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 896925 896926

Parameter	Units	10141821006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium	ug/L	4.0	80	80	104	98.1	125	118	75-125	6	20	
Zinc	ug/L	ND	80	80	119	114	128	121	75-125	5	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: ICPM/23261 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

METHOD BLANK: 883631 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	0.50	11/06/10 02:25	
Chromium, Dissolved	ug/L	ND	0.50	11/06/10 02:25	
Copper, Dissolved	ug/L	ND	0.50	11/06/10 02:25	
Silver, Dissolved	ug/L	ND	0.50	11/08/10 17:30	

LABORATORY CONTROL SAMPLE: 883632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	80	85.0	106	85-115	
Chromium, Dissolved	ug/L	80	85.2	107	85-115	
Copper, Dissolved	ug/L	80	85.7	107	85-115	
Silver, Dissolved	ug/L	80	78.0	97	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 883633 883634

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	870	80	80	930	922	74	64	70-130	.8	20	M1
Chromium, Dissolved	ug/L		80	80	72.7	71.6	90	89	70-130	1	20	
Copper, Dissolved	ug/L		80	80	72.6	73.2	78	79	70-130	.8	20	
Silver, Dissolved	ug/L		80	80	44.0	43.5	55	54	70-130	1	20	M1

MATRIX SPIKE SAMPLE: 883635

Parameter	Units	255498010 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	1010	80	983	-34	70-130	M1
Chromium, Dissolved	ug/L		80	72.8	90	70-130	
Copper, Dissolved	ug/L		80	73.2	91	70-130	
Silver, Dissolved	ug/L		80	40.7	51	70-130	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: ICPM/23697 Analysis Method: EPA 6020
QC Batch Method: EPA 6020 Analysis Description: 6020 MET Dissolved
Associated Lab Samples: 255498008, 255498009

METHOD BLANK: 896917 Matrix: Water
Associated Lab Samples: 255498008, 255498009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chromium, Dissolved	ug/L	ND	0.50	11/24/10 11:21	
Zinc, Dissolved	ug/L	1.8J	5.0	11/24/10 11:21	

LABORATORY CONTROL SAMPLE: 896918

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Dissolved	ug/L	80	80.5	101	85-115	
Zinc, Dissolved	ug/L	80	81.2	102	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 896919 896920

Parameter	Units	10141821006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chromium, Dissolved	ug/L	4.8	80	80	105	89.6	125	106	70-130	16	20	
Zinc, Dissolved	ug/L	ND	80	80	125	102	132	103	70-130	20	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: OEXT/2887 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

METHOD BLANK: 47394 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009, 255498010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,5-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4,6-Trichlorophenol	ug/L	ND	1.0	11/08/10 22:41	
2,4-Dichlorophenol	ug/L	ND	5.0	11/08/10 22:41	
2-Chlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Pentachlorophenol	ug/L	ND	5.0	11/08/10 22:41	
Phenol	ug/L	ND	5.0	11/08/10 22:41	
2,4,6-Tribromophenol (S)	%	75	37-120	11/08/10 22:41	
2-Fluorobiphenyl (S)	%	66	40-110	11/08/10 22:41	
2-Fluorophenol (S)	%	38	20-120	11/08/10 22:41	
Nitrobenzene-d5 (S)	%	85	38-121	11/08/10 22:41	
Phenol-d6 (S)	%	28	11-120	11/08/10 22:41	
Terphenyl-d14 (S)	%	79	26-130	11/08/10 22:41	

LABORATORY CONTROL SAMPLE: 47395

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorophenol	ug/L	40	29.9	75	61-108	
Pentachlorophenol	ug/L	40	28.3	71	45-119	
Phenol	ug/L	40	11.5	29	25-50	
2,4,6-Tribromophenol (S)	%			69	37-120	
2-Fluorobiphenyl (S)	%			68	40-110	
2-Fluorophenol (S)	%			37	20-120	
Nitrobenzene-d5 (S)	%			84	38-121	
Phenol-d6 (S)	%			27	11-120	
Terphenyl-d14 (S)	%			73	26-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47396 47397

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	37.7	38.8	23.1	24.2	61	62	20-130	5	30	
Pentachlorophenol	ug/L	ND	37.7	38.8	29.8	32.0	79	82	10-114	7	30	
Phenol	ug/L	ND	37.7	38.8	8.4	8.9	22	23	10-127	6	30	
2,4,6-Tribromophenol (S)	%						72	83	37-120			
2-Fluorobiphenyl (S)	%						64	64	40-110			
2-Fluorophenol (S)	%						29	31	20-120			
Nitrobenzene-d5 (S)	%						72	72	38-121			

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47396 47397

Parameter	Units	255473005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phenol-d6 (S)	%						20	21	11-120			
Terphenyl-d14 (S)	%						66	73	26-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47398 47399

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2-Chlorophenol	ug/L	ND	38.1	38.1	25.9	25.7	68	67	20-130	.6	30	
Pentachlorophenol	ug/L	ND	38.1	38.1	31.7	30.8	83	81	10-114	3	30	
Phenol	ug/L	ND	38.1	38.1	9.1	9.0	24	24	10-127	1	30	
2,4,6-Tribromophenol (S)	%						81	81	37-120			
2-Fluorobiphenyl (S)	%						65	68	40-110			
2-Fluorophenol (S)	%						33	33	20-120			
Nitrobenzene-d5 (S)	%						76	76	38-121			
Phenol-d6 (S)	%						22	21	11-120			
Terphenyl-d14 (S)	%						68	70	26-130			

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Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WET/2387
QC Batch Method: SM 2320B
Analysis Method: SM 2320B
Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255498001

SAMPLE DUPLICATE: 47947

Parameter	Units	255488001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	333	334	.3	10	

SAMPLE DUPLICATE: 47948

Parameter	Units	255498001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	222	224	.9	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WET/2391 Analysis Method: SM 2320B
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity
Associated Lab Samples: 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

SAMPLE DUPLICATE: 48206

Parameter	Units	255498002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Carbonate (CaCO3)	mg/L	ND	ND		10	
Alkalinity,Bicarbonate (CaCO3)	mg/L	217	222	2	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WET/2379 Analysis Method: SM 2540D
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009

METHOD BLANK: 47724 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008, 255498009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	ND	2.0	11/02/10 16:00	

SAMPLE DUPLICATE: 47725

Parameter	Units	255498001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	20.0	21.0	5	20	

SAMPLE DUPLICATE: 47782

Parameter	Units	255528001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	70.0	72.0	3	20	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WETA/1761 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 47318 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.20	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47319

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2.5	2.6	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47320 47321

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	2.5	2.5	2.5	2.4	99	98	90-110	1	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WETA/1764 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 47409 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	10/28/10 16:53	
Sulfate	mg/L	0.20J	1.0	10/28/10 16:53	

LABORATORY CONTROL SAMPLE: 47410

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	5.2	104	90-110	
Sulfate	mg/L	15	15.9	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 47411 47412

Parameter	Units	255498001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	11.0	25	25	35.7	36.0	99	100	90-110	.9	11	
Sulfate	mg/L	60.3	75	75	135	136	100	101	90-110	.9	10	

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WETA/1776 Analysis Method: SM 4500-P E
QC Batch Method: SM 4500-P E Analysis Description: 4500PE Total Phosphorus
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 48174 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	ND	0.010	11/05/10 15:49	

LABORATORY CONTROL SAMPLE: 48175

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	.1	0.099	99	90-110	

MATRIX SPIKE SAMPLE: 48176

Parameter	Units	255498001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.99	.1	1.1	155	80-120	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 48178 48177

Parameter	Units	255539001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	0.039	.1	.1	0.12	0.12	76	79	80-120	2	20	M1

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QUALITY CONTROL DATA

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

QC Batch: WETA/1762 Analysis Method: SM 5310C
QC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

METHOD BLANK: 47385 Matrix: Water
Associated Lab Samples: 255498001, 255498002, 255498003, 255498004, 255498005, 255498006, 255498007, 255498008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	mg/L	0.27J	1.0	10/29/10 11:55	

LABORATORY CONTROL SAMPLE & LCSD: 47386 47387

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Organic Carbon	mg/L	10	10.2	9.8	102	98	90-110	4	20	

MATRIX SPIKE SAMPLE: 47388

Parameter	Units	255473005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	3.5	10	12.9	93	70-119	

MATRIX SPIKE SAMPLE: 47389

Parameter	Units	255498001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	mg/L	4.6	10	14.1	95	70-119	

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Seattle, WA 98108
(206)767-5060

QUALIFIERS

Project: Reichhold- Glacier GWM112489.6
Pace Project No.: 255498

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-S	Pace Analytical Services - Seattle

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P2	Re-extraction or re-analysis could not be performed due to insufficient sample amount.
S0	Surrogate recovery outside laboratory control limits.

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Exova
9240 Santa Fe Springs Road
Santa Fe Springs
California
USA
90670

T: +1 (562) 948-2225
F: +1 (562) 948-5850
E: info400@exova.com
W: www.exova.com

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Certificate of Analysis

November 5, 2010

Pace Analytical Services Inc
940 S Harney St
Seattle, WA 98108

Exova Job No: 126235
Purchase Order: 255498
Project Name: Water
Samples Received: Two (2) Samples
Date Received: 10/29/2010

Attn: Jennifer Gross

Analysis	Page
Formaldehyde by EPA 8315 A	2

Samina N. Hussain
Senior Chemist

Patricia Metzger
Senior Chemist

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All samples will be disposed of 30 days past invoice unless prior arrangements have been made.

EXOVA

Formaldehyde by EPA 8315 A

Sample Preparation: The samples (10.0 mL) were derivatized with 1.0 mL of 2,4-dinitrophenylhydrazine (DNPH). The resulting test solutions were analyzed by HPLC with UV detection at 360 nm.

Parts per Million (mg/L)

Sample ID	Formaldehyde
MW-03S-102810	ND
MW-03D-102810	0.006
Method Blank	ND
Detection Limit	0.005

Date Derivatized: 10-29-10
Date Analyzed: 10-29-10

Quality Control Summary

Sample ID: MW-03D-102810

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Result	Spike % Rec	Spike RPD
Formaldehyde	0.006	1.00	0.742	74	0.733	73	1
QC Guidelines				39 - 153		39 - 153	25

Sample ID: Laboratory Fortified Blank

Analyte	Blank Result	Spike Conc	Spike Result	Spike % Rec
Formaldehyde	ND	1.00	0.851	85
QC Guideline				80-115

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Chain of Custody

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Workorder: 255498 **Workorder Name:** R-G GWM 112489.6 **Results Requested** ~~11/9/2010~~ standard TAT

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	Exova P.O._____

NJS 10/28/10

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: HCl		ASH	4 Preserved Vol		8315A formaldehyde	Requested Analysis	LAB USE ONLY
1	~~MW-14-102710~~	~~10/27/2010 12:00~~	~~255498001~~	~~Water~~								
2	~~MW-6S-102710~~	~~10/27/2010 13:01~~	~~255498002~~	~~Water~~								
3	~~MW-2S-102710~~	~~10/27/2010 13:47~~	~~255498003~~	~~Water~~								
4	~~MW-27-102710~~	~~10/27/2010 14:37~~	~~255498004~~	~~Water~~								
5	~~MW-16-102710~~	~~10/27/2010 15:20~~	~~255498005~~	~~Water~~								
6	~~MW-05S-102710~~	~~10/27/2010 16:04~~	~~255498006~~	~~Water~~								
7	~~MW-11-102810~~	~~10/28/2010 08:44~~	~~255498007~~	~~Water~~								
8	MW-3S-102810 *	10/28/2010 09:29	255498008	Water				X		X		
9	MW-03D-102810 ~	10/28/2010 08:04	255498009	Water				X		X		
10												
11												
12												
13												

Transfers	Released By	Date/Time	Received By	Date/Time
1	FedEx		Vanessa M Ry	10-29-10/19:08
2				
3				
4				
5				

Comments

EIM & EQuIS 4-file EDD needed.

Report to MDL.

Thursday, October 28, 2010 3:08:57 PM

FMT-ALL-C-002rev.00 24March2009

Page 1 of 1

*10-29-10 VL: Recd as MW-03S-102810

126235

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 | 360.577.7222 | 360.636.1068 (fax) | www.caslab.com

November 18, 2010 Analytical Report for Service Request No: K1012136

Jennifer Gross
Pace Analytical Services
940 S. Harney St.
Seattle, WA 98108

RE: R-G GWM 112489.6/255498

Dear Jennifer:

Enclosed are the results of the samples submitted to our laboratory on October 29, 2010. For your reference, these analyses have been assigned our service request number K1012136.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3281. You may also contact me via Email at MShelton@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Mike Shelton

Mike Shelton
Project Chemist

MS/dlm

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value that was detected outside the quantitation range.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value that was detected outside the quantitation range.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Program	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DHS	WA200001
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

K1012134

Chain of Custody

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Workorder: 255498 **Workorder Name:** R-G GWM 112489.6 **Results Requested** ~~11/9/2010~~ Standard TAT

Report / Invoice To	Subcontract To
Jennifer Gross Pace Analytical Seattle 940 South Harney Seattle, WA 98108 Phone (206)767-5060 Email: jennifer.gross@pacelabs.com	CAS- Kelso Attn: Pradeep P.O._____

Item	Sample ID	Collect Date/Time	Lab ID	Matrix	Preserved Containers: H2SO4	Preserved Containers: #325	Requested Analysis: TOX	LAB USE ONLY
1	MW-14-102710	10/27/2010 12:00	255498001	Water	X	X	X	
2	MW-6S-102710	10/27/2010 13:01	255498002	Water	X		X	
3	MW-26-102710	10/27/2010 13:47	255498003	Water	X		X	
4	MW-27-102710	10/27/2010 14:37	255498004	Water	X		X	
5	MW-16-102710	10/27/2010 15:20	255498005	Water	X		X	
6	MW-05S-102710	10/27/2010 16:04	255498006	Water	X		X	
7	MW-11-102810	10/28/2010 08:44	255498007	Water	X		X	
8	MW-3S-102810	10/28/2010 09:29	255498008	Water	X		X	
9	~~MW-03D-102810~~	~~10/28/2010 08:04~~	~~255498009~~	~~Water~~				
10								
11								
12								
13								

NSS 10/28/10

Transfers	Released By	Date/Time	Received By	Date/Time
1		10/29/10	Rosmith	10/29/10 0950
2				
3				
4				
5				

Comments

EIM & EQUIS 4-file EDD needed

Report to MDL.

5

Columbia Analytical Services, Inc. PC MS
Cooler Receipt and Preservation Form

Client / Project: Pace Analytical Service Request *K10* 12136

Received: 10/29/10 Opened: 10/29/10 By: HO

1. Samples were received via? *Mail* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where?_____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
3C	—	294			✓
1C		292			

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Sleeves* *Other*_____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Pace Analytical Services	**Service Request:**	K1012136
Project:	R-G GWM 112489.6/255498	**Date Collected:**	10/27-10/28/2010
Sample Matrix:	Water	**Date Received:**	10/29/2010

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Analyzed	Result	Result Notes
MW-14-102710	K1012136-001	10	4	1	11/11/2010	6	J
MW-6S-102710	K1012136-002	10	4	1	11/11/2010	ND	
MW-26-102710	K1012136-003	10	4	1	11/11/2010	6	J
MW-27-102710	K1012136-004	10	4	1	11/11/2010	8	J
MW-16-102710	K1012136-005	10	4	4	11/11/2010	90	
MW-05S-102710	K1012136-006	10	4	1	11/11/2010	ND	
MW-11-102810	K1012136-007	10	4	1	11/12/2010	9	J
MW-3S-102810	K1012136-008	10	4	1	11/12/2010	ND	
Method Blank	K1012136-MB	10	4	1	11/11/2010	ND	
Method Blank	K1012136-MB	10	4	1	11/12/2010	ND	

1A/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Pace Analytical Services	**Service Request:**	K1012136
Project:	R-G GWM 112489.6/255498	**Date Collected:**	10/27/2010
Sample Matrix:	Water	**Date Received:**	10/29/2010
		Date Extracted:	NA
		Date Analyzed:	11/11/2010

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	MW-14-102710	Units:	ug/L (ppb)
Lab Code:	K1012136-001MS, K1012136-001DMS	Basis:	NA
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Result Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	6	104	102	98	96	82-121	17	

DMS/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Pace Analytical Services
Project: R-G GWM 112489.6/255498
Sample Matrix: Water

Service Request: K1012136
Date Collected: NA
Date Received: NA
Date Analyzed: 11/11-11/12/10

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.66	10.1	10.0	ND
Percent Recovery	101	101	100	ND
Run B	3.59	10.2	9.9	ND
Percent Recovery	99	102	100	ND

Sample Condition Upon Receipt

Pace Analytical

Client Name: ERM Project # 255498

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other _____ Temp. Blank Yes X No X

Received 1 cooler with no Temp blk

Thermometer Used 132013 or 101731962 or 226099 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 2.6c, 1.2c, 1.0c, 2.4c, 1.5c, Biological Tissue is Frozen: Yes No

Temp should be above freezing ≤ 6°C 2.6c, 1.9c, 4.3c, 4.0c, 4.9c

Date and Initials of person examining contents: 102810 CW

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A
Sufficient Volume:	☑Yes	☐No	☐N/A
Correct Containers Used:	☑Yes	☐No	☐N/A
-Pace Containers Used:	☑Yes	☐No	☐N/A
Containers Intact:	☑Yes	☐No	☐N/A
Filtered volume received for Dissolved tests	☑Yes	☐No	☐N/A
Sample Labels match COC:	☑Yes	☐No	☐N/A
-Includes date/time/ID/Analysis Matrix: water			
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A
Exceptions: VOA, coliform, TOC, O&G			
Samples checked for dechlorination:	☐Yes	☐No	☑N/A
Headspace in VOA Vials (>6mm):	☑Yes	☐No	☐N/A
Trip Blanks Present:	☐Yes	☐No	☑N/A
Trip Blank Custody Seals Present	☐Yes	☐No	☑N/A
Pace Trip Blank Lot # (if purchased):			

	Initial when completed	Lot # of added preservative
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15. 1/2 vials for MW-16 - 102710 has bubble		
16.		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: JENNY GROSS Date: 10/28/10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

255498

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4055

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 2

PROJECT #	PROJECT NAME
112789.6	12-G GWM

SAMPLER: (PRINT NAME)	(SIGNATURE)
Shira Uelmen	

RECEIVING LABORATORY: PACE, Seattle, WA

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TOC	Phenol / Chlorinated phenol	Anions Cl, S, ON, NO3 PO4	TSS	TDN / TAN	Total As	Diss As - field filtered	Total Cu, Ni, Al, Fe, Mn, Mg, Na	Diss Al, Fe, Mn Field Filtered	Total Cu, Cu, As, Zn	Diss Cu, Cu, As, Zn Field Filtered	Hardness
001	(1) MW-14-102710	10/27/10	1200		X	Perl		Y	3.83L	TB		X		X	X	X	X	X	X	X	X	X			X
010	DUP-102710-B		0900		X		HNO3		1.5L	3		X			X				X	X					
002	MW-65-102710		1301		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
003	MW-26-102710		1347		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
004	MW-27-102710		1437		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
005	MW-16-102710		1520		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
006	MW-055-102710		1607		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
009	MW-038-102810	10/28/10	0804		X		HNO3		2.5L	4		X			X		X		X				X	X	
007	MW-11-102810		0844		X				3.83L	10		X		X	X	X	X	X	X	X	X	X			X
008	MW-35-102810		0929		X				3.83L	10		X		X	X	X	X	X	X	X	X	X	X	X	X

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	10/28/10	1000	Pace	10/29/10	1000
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Pace	10/29/10	1020	Christie Weaver PACE	10/29/10	1020
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS: (1) Project-specific MS/MSD for Phenol, Total As, Diss As

2.0c, 1.2c, 1.0c, 2.4c, 1.5c, 2.0c, 1.9c, 4.3c, 4.0c, 4.8c On ice

REMARKS ON SAMPLE RECEIPT: ☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED ☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS:

SEND REPORT TO: Cyrus G + Mike M

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4056

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 2 of 2

PROJECT #	PROJECT NAME
112489.6	R-G GWM

SAMPLER: (PRINT NAME): Shira Delwood

(SIGNATURE)

RECEIVING LABORATORY: Pace Seattle, WA

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: 8315A Formaldehyde/Hydr.
009	MW-030-10	10-28-10	0930		X	peri	X	Y	1L	1		X		X
008	MW-035-10	10-28-10	0919		X	↓	X	Y	1L	1		X		X

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME	FIELD REMARKS
	10/29/10	1000				
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME	
Burk Pace	10/29/10	1020	Colette Weaver	10/29/10	1020	
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME	

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS

SEND REPORT TO: Cyrus Rice

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Sample Container Count

CLIENT: ERM

COC PAGE 1 of 1
COC ID# ~~9460~~ 4055 & 4056

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	BP2N	BP2S	WGFU	WGKU	DG9V	BP3N	AG2S	BP3S	Comments
1			3		1							2	10[2]	1[22]	1[22]	
2			1										2[22]			
3			1		1							2	4	1[22]	1[22]	
4			1		1							2	4	1	1	
5			1		1							2	4	1	1	
6			1		1							2	4	1	1	
7			1		1							2	4	1	1	
8			2		1								2			
9			1		1							2	4	1[22]	1[22]	
10			2		1								2			
11																
12																Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic	JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic	R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac	U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic	VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic	VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic	VG9U	40mL unpreserved clear vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic	VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial	VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial	WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial	WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial	ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved amber vial		
BP2O	500mL NaOH plastic		I	Wipe/Swab		

Attachment B
Data Assessment Review
Memorandum

Memorandum

Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-2940 (fax)

To: Mike Mendes

From: Irene Lavigne

Date: 23 December 2010

Subject: Data Review of Reichhold-Glacier Site Groundwater Monitoring Samples Collected October 2010

Project Number: 0112489.06

Data Package: Pace Analytical Services Data Packages 255461, 255473, 255497, 255488 and 255498 (includes subcontracted analyses from Columbia Analytical Services)

The quality of the data was assessed and any necessary qualifiers were applied following the United States Environmental Protection Agency (USEPA) *Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and USEPA *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed preservation requirements. None of the data were qualified based on holding time or temperature preservation exceedances.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes with a number of exceptions. Detections of several compounds in nine method blanks required that 15 associated sample results be qualified as nondetected (U) for these compounds. Nondetected sample results, or samples with detections that exceeded 10 times an associated blank detection, did not require qualification. The method blank detections and affected data are presented in Table 1.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) recoveries were within the laboratory's limits of acceptance. No sample data were qualified as a result of the LCS recoveries. The LCS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate recoveries were within the laboratory's limits of acceptance with several exceptions. Four MS recoveries for chromium were below the minimum acceptable limits for this compound. Nondetected sample results for chromium were qualified as estimated (UJ) for eight samples. Low MS recoveries for silver in three spike samples resulted in qualification of nine samples as estimated (J or UJ). Recoveries that exceeded the maximum acceptable limits for zinc and phosphorus resulted in qualification of 10 sample results as estimated (J). Additional MS outliers did not require qualification of sample data. Data were not qualified if the sample used to prepare the spike sample was a non-client sample, or if the concentration of the unspiked sample was greater than four times the amount spiked. Outlying MS recoveries and resulting qualified data are presented in Table 2.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with limited exceptions. Nondetected sample results for one sample submitted for semivolatile organic compounds analysis were qualified as estimated (UJ) due to low recoveries for this sample's surrogate compounds. The outlying surrogate recoveries are shown in Table 3.

FIELD DUPLICATE EVALUATION

Three samples were collected and analyzed in duplicate. ERM calculated the relative percent difference (RPD) between detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. Detected duplicate results and calculated RPDs are shown in Table 4.

ANALYTICAL DUPLICATE EVALUATION

The laboratory prepared and analyzed 10 samples as analytical duplicates. ERM calculated the RPD between detected results. The RPDs were less than 20 percent, indicating acceptable precision. The duplicate sample results and calculated RPDs are shown in Table 5.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Tables

Table 1

Blank and Associated Suspect Sample Detections
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Blank ID	Associated Samples	Detected Compound	Reported Concentration	Report Limit	Units	ERM Qualifier
255461	MB 47744	NA	Magnesium	33.2	5000	µg/L	--
255461	MB 47754	NA	Manganese, dissolved	1.6	15	µg/L	--
255461	MB 881868	See below	Silver	0.16	0.50	µg/L	--
255461	MB 881868	MW-17-102510	Silver	1.2	0.50	µg/L	1.2 U
255461	MB 881868	MW-07S-102510	Silver	0.37	0.50	µg/L	0.50 U
255461	MB 881868	MW-04S-102510	Silver	0.094	0.50	µg/L	0.50 U
255461	MB 881852	See below	Silver, dissolved	0.087	0.50	µg/L	--
255461	MB 881852	MW-07S-102510	Silver, dissolved	0.30	0.50	µg/L	0.50 U
255461	MB 881852	MW-04S-102510	Silver, dissolved	0.079	0.50	µg/L	0.50 U
255461	MB 47249	See below	TSS	1.0	2.0	mg/L	--
255461	MB 47249	MW-17-102510	TSS	4.0	2.0	mg/L	4.0 U
255461	MB 47249	MW-07S-102510	TSS	3.0	2.0	mg/L	3.0 U
255461	MB 47249	MW-04S-102510	TSS	1.0	2.0	mg/L	2.0 U
255461	MB 47415	NA	Chloride	0.030	1.0	mg/L	--
255461	MB 47415	See below	Sulfate	0.18	1.0	mg/L	--
255461	MB 47415	MW-17-102510	Sulfate	0.22	1.0	mg/L	1.0 U
255461	MB 47594	NA	Phosphorus	0.0042	0.010	mg/L	--
255461	MB 46802	NA	TOC	0.37	1.0	mg/L	--
255473	MB 47744	NA	Magnesium	33.2	5000	µg/L	--
255473	MB 47754	NA	Manganese, dissolved	1.6	15	µg/L	--
255473	MB 47419	NA	Sulfate	0.18	1.0	mg/L	--
255473	MB 47594	See below	Phosphorus	0.0042	0.010	mg/L	--
255473	MB 47594	MW-10-102610	Phosphorus	0.017	0.010	mg/L	0.017 U
255473	MB 47385	NA	TOC	0.27	1.0	mg/L	--
255497	MB 47444	See below	Sulfate	0.20	1.0	mg/L	--
255497	MB 47444	MW-19-102810	Sulfate	0.12	1.0	mg/L	1.0 U
255497	MB 47594	NA	Phosphorus	0.0042	0.0010	mg/L	--
255497	MB 48378	NA	TOC	0.095	1.0	mg/L	--
255488	MB 47744	NA	Magnesium	33.2	5000	µg/L	--
255488	MB 47754	See below	Manganese, dissolved	1.6	15	µg/L	--
255488	MB 47754	MW-18-102710	Manganese, dissolved	14.2	15	µg/L	15 U
255488	MB 882361	NA	Arsenic	0.11	0.50	µg/L	--
255488	MB 47444	NA	Sulfate	0.20	1.0	mg/L	--
255488	MB 47594	See below	Phosphorus	0.0042	0.0010	mg/L	--
255488	MB 47594	MW-18-102710	Phosphorus	0.024	0.0010	mg/L	0.024 U
255488	MB 48378	NA	TOC	0.095	1.0	mg/L	--
255498	MB 896917	NA	Zinc, dissolved	1.8	5.0	µg/L	--
255498	MB 47409	See below	Sulfate	0.20	1.0	mg/L	--
255498	MB 47409	MW-16-102710	Sulfate	1.8	1.0	mg/L	1.8 U
255498	MB 47409	MW-03S-102810	Sulfate	0.19	1.0	mg/L	1.0 U
255498	MB 48385	NA	TOC	0.27	1.0	mg/L	--

Key:
MB = Method blank
NA = Not applicable; associated data were not affected
TSS = Total suspended solids
TOC = Total organic carbon
µg/L = Micrograms per liter
mg/L = Milligrams per liter
U = Nondetected

Table 2

Matrix Spike Recoveries Outside of Acceptable Limits
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
255461	MW-17-102510 MS/MSD	See below	Chromium	0/0	75-125	NR	20	--	--
255461	MW-17-102510 MS/MSD	MW-17-102510	Chromium	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	MW-07S-102510	Chromium	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	MW-04S-102510	Chromium	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	NA	Silver	47/54	75-125	12	20	4X	--
255461	MW-17-102510 MS/MSD	See below	Chromium, dissolved	0/0	70-130	NR	20	--	--
255461	MW-17-102510 MS/MSD	MW-17-102510	Chromium, dissolved	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	MW-07S-102510	Chromium, dissolved	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	MW-04S-102510	Chromium, dissolved	--	--	--	--	< 0.50	UJ
255461	MW-17-102510 MS/MSD	NA	Silver, dissolved	43/45	70-130	5	20	4X	--
255461	MW-22-102610 MS	NA	Phosphorus	53	80-120	--	--	4X	--
255473	Batch MS/MSD	NA	Arsenic	190/172	75-125	3	20	--	--
255473	Batch MS/MSD	NA	Zinc	128/121	75-125	5	20	--	--
255473	MW-22-102610 MS/MSD	See below	Chromium, dissolved	0/0	70-130	NR	20	--	--
255473	MW-22-102610 MS/MSD	MW-10-102610	Chromium, dissolved	--	--	--	--	< 0.50	UJ
255473	MW-22-102610 MS/MSD	MW-13-102610	Chromium, dissolved	--	--	--	--	< 0.50	UJ
255473	Batch MS/MSD	NA	Arsenic, dissolved	132/11	70-130	17	20	--	--
255473	Batch MS/MSD	NA	Zinc, dissolved	132/103	70-130	20	20	--	--
255473	MW-22-102610 MS	NA	Phosphorus	53	80-120	--	--	4X	--
255497	MW-14-102710 MS/MSD	NA	Arsenic	62/82	75-125	2	20	--	--
255497	MW-14-102710 MS/MSD	NA	Arsenic, dissolved	74/64	70-130	0.8	20	--	--
255497	DUP-102710-B MS	NA	Arsenic, dissolved	-34	70-130	--	--	4X	--
255497	MW-22-102610 MS	NA	Phosphorus	53	80-120	--	--	4X	--
255488	DUP-102710 MS/MSD	See below	Silver	69/62	75-125	11	20	--	--
255488	DUP-102710 MS/MSD	MW-02S-102710	Silver	--	--	--	--	< 0.50	UJ
255488	DUP-102710 MS/MSD	MW-01S-102710	Silver	--	--	--	--	< 0.50	UJ
255488	DUP-102710 MS/MSD	MW-01D-102710	Silver	--	--	--	--	< 0.50	UJ
255488	DUP-102710 MS/MSD	MW-02D-102710	Silver	--	--	--	--	< 0.50	UJ
255488	DUP-102710 MS/MSD	DUP-102710	Silver	--	--	--	--	< 0.50	UJ
255488	DUP-102710 MS/MSD	See below	Zinc, dissolved	138/141	70-130	1	20	--	--
255488	DUP-102710 MS/MSD	MW-01S-102710	Zinc, dissolved	--	--	--	--	45.3	J
255488	DUP-102710 MS/MSD	DUP-102710	Zinc, dissolved	--	--	--	--	43.1	J
255488	MW-22-102610 MS	NA	Phosphorus	53	80-120	--	--	4X	--
255498	MW-14-102710 MS/MSD	NA	Arsenic	62/82	75-125	2	20	--	--
255498	MW-14-102710 MS/MSD	See below	Silver	52/52	75-125	1	20	--	--
255498	MW-14-102710 MS/MSD	MW-03S-102810	Silver	--	--	--	--	< 0.50	UJ
255498	MW-14-102710 MS/MSD	MW-03D-102810	Silver	--	--	--	--	< 0.50	UJ
255498	Batch MS/MSD	NA	Zinc	128/121	75-125	5	20	--	--
255498	MW-14-102710 MS/MSD	NA	Arsenic, dissolved	74/64	70-130	0.8	20	--	--
255498	MW-14-102710 MS/MSD	See below	Silver, dissolved	55/54	70-130	1	20	--	--
255498	MW-14-102710 MS/MSD	MW-03S-102810	Silver, dissolved	--	--	--	--	< 0.50	UJ
255498	MW-14-102710 MS/MSD	MW-03D-102810	Silver, dissolved	--	--	--	--	< 0.50	UJ
255498	DUP-102710-B MS	NA	Arsenic, dissolved	-34	70-130	--	--	--	--
255498	DUP-102710-B MS	NA	Silver, dissolved	51	70-130	--	--	--	--
255498	Batch MS/MSD	NA	Zinc, dissolved	132/103	70-130	20	20	--	--

Table 2

Matrix Spike Recoveries Outside of Acceptable Limits
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
255498	MW-14-102710 MS	See below	Phosphorus	155	80-120	--	--	--	--
255498	MW-14-102710 MS	MW-14-102710	Phosphorus	--	--	--	--	0.99	J
255498	MW-14-102710 MS	MW-06S-102710	Phosphorus	--	--	--	--	0.11	J
255498	MW-14-102710 MS	MW-26-102710	Phosphorus	--	--	--	--	1.2	J
255498	MW-14-102710 MS	MW-27-102710	Phosphorus	--	--	--	--	0.51	J
255498	MW-14-102710 MS	MW-16-102710	Phosphorus	--	--	--	--	0.49	J
255498	MW-14-102710 MS	MW-05S-102710	Phosphorus	--	--	--	--	0.024	J
255498	MW-14-102710 MS	MW-11-102810	Phosphorus	--	--	--	--	0.068	J
255498	MW-14-102710 MS	MW-03S-102810	Phosphorus	--	--	--	--	0.98	J
255498	Batch MS/MSD	NA	Phosphorus	76/79	80-120	2	20	--	--

Data packages reviewed: 255461, 255473, 255497, 255488, 255498

Key:
MS/MSD = Matrix spike/matrix spike duplicate
RPD = Relative percent difference
NR = Not reported
NA = Not applicable
Batch = Spike sample was prepared using a non-client sample
4X = Concentration of unspiked sample was greater than 4 times the amount spiked; no qualification required
UJ = Nondetected result qualified as estimated
J = Detected result qualified as estimated

Table 3

Surrogate Recovery Results out of Acceptable Limits
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	ERM Qualifier
255488	MW-18-102710	SVOC	2-Fluorophenol	16	20-120	--
255498	MW-03D-102810	SVOC	Nitrobenzene-d5	37	38-121	UJ
255498	MW-03D-102810	SVOC	2-Fluorobiphenyl	33	40-110	UJ
255498	MW-03D-102810	SVOC	Phenol-d6	10	11-120	UJ
255498	MW-03D-102810	SVOC	2-Fluorophenol	17	20-120	UJ
255498	MW-03D-102810	SVOC	2,4,6-Tribromophenol	35	37-120	UJ

Data packages reviewed: 255461, 255473, 255497, 255488, 255498

Key:
SVOC = Semivolatile organic compounds
UJ = Nondetected result qualified as estimated

Table 4

Field Duplicate Results and Calculated Relative Percent Differences
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample/Duplicate ID	Compound	Concentration		Report Limit	Units	RPD
			Sample	Duplicate			
255488	MW-21-102610/DUP-102610	Arsenic	2350	2530	5.0	µg/L	7.4
255488	MW-21-102610/DUP-102610	Arsenic, dissolved	2300	2310	5.0	µg/L	0.4
255488	MW-01S-102710/DUP-102710	Arsenic	11.0	11.2	0.50	µg/L	1.8
255488	MW-01S-102710/DUP-102710	Chromium	0.94	1.0	0.50	µg/L	6.2
255488	MW-01S-102710/DUP-102710	Copper	2.4	2.5	0.50	µg/L	4.1
255488	MW-01S-102710/DUP-102710	Silver	0.16	0.17	0.50	µg/L	6.1
255488	MW-01S-102710/DUP-102710	Zinc	45.9	48.9	5.0	µg/L	6.3
255488	MW-01S-102710/DUP-102710	Arsenic, dissolved	10.2	9.9	0.50	µg/L	3.0
255488	MW-01S-102710/DUP-102710	Chromium, dissolved	0.75	0.79	0.50	µg/L	5.2
255488	MW-01S-102710/DUP-102710	Copper, dissolved	1.1	1.1	0.50	µg/L	0
255488	MW-01S-102710/DUP-102710	Zinc, dissolved	45.3	43.1	5.0	µg/L	5.0
255498	MW-14-102710/DUP-102710-B	Arsenic	824	912	0.50	µg/L	10
255498	MW-14-102710/DUP-102710-B	Arsenic, dissolved	870	1010	0.50	µg/L	15

Data packages reviewed: 255461, 255473, 255497, 255488, 255498

Key:
RPD = Relative percent difference
µg/L = Micrograms per liter

Table 5

Analytical Duplicate Results and Calculated Relative Percent Differences
October 2010 Groundwater Monitoring Samples
Reichhold-Glacier Site
Seattle, Washington

Lab			Concentration		Report		
Package	Sample ID	Compound	Sample	Duplicate	Limit	Units	RPD
255461	Batch Duplicate	Alkalinity, bicarbonate	110	109	2.0	mg/L	0.9
255461	MW-22-102610	Alkalinity, bicarbonate	208	210	2.0	mg/L	1.0
255461	Batch Duplicate	TSS	7.0	7.0	2.0	mg/L	0
255461	Batch Duplicate	TSS	9.0	9.0	2.0	mg/L	0
255473	Batch Duplicate	Alkalinity, bicarbonate	110	109	2.0	mg/L	0.9
255473	MW-22-102610	Alkalinity, bicarbonate	208	210	2.0	mg/L	1.0
255473	MW-22-102610	TSS	13.0	15.0	2.0	mg/L	14
255497	MW-23-102610	Alkalinity, bicarbonate	333	334	2.0	mg/L	0.3
255497	MW-14-102710	Alkalinity, bicarbonate	222	224	2.0	mg/L	0.9
255497	MW-22-102610	TSS	13.0	15.0	2.0	mg/L	14
255488	MW-23-102610	Alkalinity, bicarbonate	333	334	2.0	mg/L	0.3
255488	MW-14-102710	Alkalinity, bicarbonate	222	224	2.0	mg/L	0.9
255488	MW-22-102610	TSS	13.0	15.0	2.0	mg/L	14
255498	MW-23-102610	Alkalinity, bicarbonate	333	334	2.0	mg/L	0.3
255498	MW-14-102710	Alkalinity, bicarbonate	222	224	2.0	mg/L	0.9
255498	MW-06S-102710	Alkalinity, bicarbonate	217	222	2.0	mg/L	2.3
255498	MW-14-102710	TSS	20.0	21.0	2.0	mg/L	4.9
255498	Batch Duplicate	TSS	70.0	72.0	2.0	mg/L	2.8

Data packages reviewed: 255461, 255473, 255497, 255488, 255498

Key:
RPD = Relative percent difference
Batch = Spike sample was prepared using a non-client sample
mg/L = Milligrams per liter
TSS = Total suspended solids

Memorandum

Environmental Resources Management

1218 3rd Avenue
Suite 1412
Seattle, WA 98101
(425) 462-8591
(425) 455-3573 (fax)

To: Donna Ortiz De Anaya/Washington State Department of Ecology

From: Michael Mendes, PG/ERM-West, Inc.
Erik Ipsen, PE/ERM-West, Inc.

CC: Ron Timm/Washington State Department of Ecology
Scott Isaacson/Glacier Northwest
John J. Oldham/Reichhold
John Bjorkman/K&L Gates
Claudia Powers/Ater Wynne
Carolyn Kossik/CH2M HILL
Pete Stoltz/Glacier Northwest

Date: 3 November 2011

Subject: Spring 2011 Groundwater Sampling Results
Glacier Northwest, Inc. – Reichhold, Inc. Site
Seattle, Washington

ERM-West, Inc. (ERM) has prepared this Spring 2011 Groundwater Sampling Results Memorandum on behalf of Glacier Northwest, Inc. and Reichhold, Inc., for the Glacier-Reichhold site located at 5900 West Marginal Way SW, Seattle, Washington (the "site"). **Figure 1** provides a site location map. This memorandum presents the groundwater sampling objectives, scope, and results of the Spring 2011 groundwater sampling event.

The analytical results presented in this memorandum were previously provided to the Washington State Department of Ecology (Ecology) on 15 August 2011 in the July 2011 Monthly Progress Report.

SPRING 2011 GROUNDWATER SAMPLING OBJECTIVES

In April 2011, ERM completed a comprehensive round of groundwater sampling at the site. The Spring 2011 groundwater sampling objectives are outlined below:

- Assess the site's current groundwater conditions and the status of remedial actions completed to date; and
- Evaluate concentrations of the site constituents of primary concern, as well as other key constituents in groundwater.

The sections below describe the monitoring well sampling activities completed in Spring 2011 as well as the analytical and field data results.

GROUNDWATER SAMPLING ACTIVITIES

On 25 April 2011, prior to initiating groundwater sampling activities, ERM personnel collected water level measurements from existing site monitoring wells and from the Lower Duwamish Waterway measuring point at the site.

Groundwater samples were collected from 25 April 2011 through 28 April 2011 from 26 existing monitoring wells. The locations of the monitoring wells sampled and the parameters analyzed are summarized in **Figure 2** and in **Table 1**, respectively. The monitoring wells were purged and sampled in accordance with the *Draft Remedial Investigation and Feasibility Study Work Plan, Glacier Northwest, Inc. – Reichhold, Inc. Site, 5900 West Marginal Way SW, Seattle, Washington* (Work Plan; ERM 2010*).*

Quality assurance/quality control samples were collected as prescribed in the Work Plan and included blind duplicate samples from MW-1S, MW-3S, MW-14, and MW-21.

Confirmation Sampling

On 14 July 2011, monitoring wells MW-4S, MW-7S, MW-13, and MW-14 were re-sampled. Monitoring wells MW-4S, MW-7S, and MW-13 were re-sampled to confirm the April 2011 results of pentachlorophenol (PCP) because the April 2011 analytical results for those wells were inconsistent with the previous baseline and semiannual monitoring PCP results. Monitoring well MW-14 was re-sampled to confirm the April 2011 results for total and dissolved arsenic because concentrations were inconsistent with those historically reported in that well.

Prior to the re-sampling effort, the April 2011 results were reviewed with the analytical laboratory, which reported that there were no errors in detection limits, errors in reported concentration units, or potential laboratory cross-contamination of the samples. The groundwater sampling field staff did not report any anomalies during the sample collection or in the field documentation. Based on the results of this cross-checking, and the fact that the PCP and arsenic concentrations appeared to be anomalous, the re-sampling event was conducted and a confirmation sample was collected from each well. To assess potential laboratory procedure issues, a duplicate (split) sample was also collected from each well during the re-sampling and sent to a second laboratory for analysis. During re-sampling, each well was purged using low-flow methods, as described in the Work Plan. Monitoring well re-sampling was carried out as follows:

- Samples collected from monitoring wells MW-4S, MW-7S, and MW-13 were analyzed for phenol, PCP, and chlorinated phenol breakdown products (2-chlorophenol; 2,4-dichlorophenol; 2,4,5-trichlorophenol; 2,4,6-trichlorophenol; and 2,3,4,6-tetrachlorophenol) by United States Environmental Protection Agency (USEPA) Method 8270C;
- Samples collected from MW-14 were analyzed for total and dissolved arsenic by USEPA Method 200.8 (confirmation sample) or USEPA Method 6010 (split sample);
- Ferrous iron and sulfide field measurements using field test kits provided by Hach Company; and
- Field measurements for temperature, pH, oxidation reduction potential (ORP), specific conductivity, dissolved oxygen field measurements, and turbidity using a flow-through cell.

The confirmation samples were delivered to Analytical Resources, Inc., in Tukwila, Washington and the split samples were delivered to Pace Analytical Services, Inc., in Seattle, Washington. Results of the groundwater sampling and re-sampling are presented below.

RESULTS

Groundwater Elevations

Groundwater elevations were measured on 25 April 2011 and on 14 July 2011, prior to initiating groundwater sampling activities. **Table 2** provides groundwater elevations for the monitoring wells as recorded on the collection dates. Approximate shallow aquifer groundwater elevation contours for April 2011 are shown on **Figure 3** and contours for July 2011 are shown on **Figure 4.** Based on these measurements, at the time the water levels were collected, site groundwater flow direction on 25 April 2011 and on 14 July 2011 was generally to the south with easterly to southeasterly groundwater flow components along the eastern portions of the site. Groundwater in the southern portion of the site is expected to flow toward the City of Seattle Public Utilities 48-inch diameter storm water pipe where southerly flow terminates and likely becomes easterly. The approximate average gradients were 0.0064 and 0.0041 in April and July, respectively. In general, the April and July 2011 groundwater flow directions were consistent with previous quarterly monitoring events.

Field Results

Field parameters were measured during well purging in accordance with the Work Plan. Final field parameter values were collected after the parameters had stabilized and are presented in **Table 3**. As required in the Work Plan, turbidity in all wells was less than 10 nephelometric turbidity units (NTUs) prior to groundwater sample collection. The following observations were made regarding water quality parameters in shallow wells after these parameters stabilized during purging:

- Groundwater temperatures ranged from 9.11 to 15.0 degrees Celsius. The observed temperature fluctuations are attributable to ambient outdoor temperature variations.
- Groundwater alkalinity/acidity (pH) values ranged from 5.71 to 7.09 and averaged 6.52 across the site.
- Dissolved oxygen ranged from 0.29 to 5.29 milligrams per Liter (mg/L).
- ORP values ranged from -99 millivolts (mV) to 157 mV and averaged -9.3 mV, indicative of a slightly reducing groundwater geochemistry environment.
- Salinity ranged from 0.0 to 0.5 parts per trillion (ppt) in shallow wells.
- Turbidity ranged from 0.0 to 5.8 NTUs prior to groundwater sampling.
- Conductivity ranged from 206 to 1,090 microsiemens per centimeter (µS/cm).
- Field-measured ferrous iron concentrations ranged from non-detect to 3.30 mg/L. The average concentration was 1.43 mg/L.
- Sulfide concentrations ranged from non-detect to 0.29 mg/L.

Field measurement values for the deep aquifer wells were within the range of values reported for shallow wells, with the following exceptions:

- Field-measured ferrous iron concentrations in deep wells were slightly greater, on average, than in shallow wells. Concentrations ranged from 1.86 to 3.30 mg/L.
- Conductivity was generally greater in the deep wells (905 to 1,240 µS/cm).
- Salinity was reported at 0.66 to 1.31 ppt, slightly greater than the general range of values reported for the shallow wells.

Analytical Results

This section presents the analytical results for the Spring 2011 groundwater monitoring event. The analytical laboratory reports are provided in **Attachment A** and the analytical results are summarized in **Table 4**. Constituents detected in one or more groundwater samples are summarized in **Table 5** and on **Figures 5** and **6**.

Selected Preliminary Screening Levels

The detected groundwater constituents have been screened against the following groundwater cleanup levels and surface water standards for comparison and data screening purposes. Except where noted, the screening levels were obtained from the Ecology's online CLARC website (Ecology 2004).

Groundwater screening levels include the following:

- Method B screening levels for carcinogenic and non-carcinogenic risk (Method B); and
- Method C screening levels for carcinogenic and non-carcinogenic risk (Method C).

Surface water screening levels include the following:

- Water Quality Criteria for chronic exposure of aquatic life (SW-AL) from the Washington Administrative Code (WAC) 173-201A Water Quality Standards For Surface Waters of The State of Washington; and
- Water Quality Criteria for human health in marine environments (SW-HH) from the Federal Clean Water Act (WAC not established).

Arsenic screening levels for Method B, Method C, and SW-HH [0.058, 0.58, and 0.14 micrograms per Liter (µg/L), respectively] are less than background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM 2009).

These generic screening levels are provided for purposes of preliminary data screening only. Site-specific cleanup levels will be developed as part of the remedial investigation and feasibility study at the site, as described in the Final RI/FS Work Plan (ERM 2011).

Data Validation

ERM assessed the quality of the data and applied any necessary qualifiers per the *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999) and the *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004). The data assessment review memorandums for the April 2011 and July 2011 re-sampling are included in **Attachment B**. Based on the data quality evaluation, the analytical results for groundwater samples collected as part of the Spring 2011 sampling are valid and usable with standard data qualifiers as noted in the associated data review packages **(Attachment B)** and as noted in data summary **Tables 4** and **5**.

Analytical Results

Of the constituents analyzed, concentrations of PCP as well as total and dissolved arsenic were the only analytes greater than at least one of the preliminary screening levels in one or more monitoring wells. Further discussion of PCP and total and dissolved arsenic detected at concentrations greater than the preliminary screening levels are detailed in the following sections.

The following constituents were either not-detected or detected but did not exceed preliminary screening levels (**Tables 4** and **5)**. These analytes are not discussed in this memorandum.

- Constituents that were analyzed, but that did not exhibit detectable concentrations at or above the laboratory reporting limits included the following:
  - Nine total and dissolved metals (antimony, beryllium, cadmium, lead, mercury, selenium, silver, thallium, and zinc);
  - Hexavalent chromium; and
  - Total Petroleum Hydrocarbons - diesel range (TPH-D), heavy oil range (TPH-O), and gasoline range (TPH-G).
- Constituents that were analyzed and exhibited detections, but did not exceed the preliminary screening levels included the following:
  - Four total and dissolved metals (chromium, copper, nickel, and zinc); and
  - 2,3,4,6-tetrachlorophenol.

Pentachlorophenol

The PCP analytical results are summarized and compared to preliminary screening levels in **Table 5** and shown on **Figure 5.** Samples from all 26 monitoring wells were analyzed for PCP in April 2011. PCP was not detected in 23 of the 26 monitoring wells. In the three shallow wells where PCP was detected, concentrations ranged from 60 µg/L (MW-7) to 1,100 µg/L (MW-13) during the primary sampling event. Consistent with previous monitoring events, PCP was not detected in any of the deep wells.

The three wells with detections during the April sampling event were MW-4S (120 µg/L) and MW-7S (60 µg/L), located in the north-central portion of the site, and MW-13 (1,100 µg/L), located near the eastern boundary of the site. The April 2011 PCP detection of 1,100 µg/L in MW-13 was an increase from the October 2010 PCP detection of 3.6 µg/L. Given the anomalous result, monitoring well MW-13 was re-sampled in July 2011 along with MW-4S and MW-7S which also had detectable concentrations of PCP. The re-sampling event included the collection of confirmation and split samples at all three wells.

The re-sampling results are presented in **Tables 4** and **5** and are shown in **Figure 5**. For well MW-13, the concentrations reported in the confirmation sample (380 µg/L) and split sample (307 µg/L) were less than the primary sample (1,100 µg/L). For well MW-4S, PCP was not detected in the confirmation sample or split sample, but was reported at 120 µg/L in the primary sample. For MW-7S, the primary sample (60 µg/L) contained PCP at a lower concentration than the confirmation (280 µg/L) or split (234 µg/L) samples collected in July 2011.

Concentrations of PCP in each pair of confirmation and split samples showed very good correlation. However, the re-sampling concentrations did show variability as compared to the April 2011 results. The PCP concentration in the confirmation sample collected in July 2011 at MW-4S was over 95 percent less than the April 2011 sample and at MW-13 was over 65 percent less. The PCP concentration in the primary sample at MW-7S was similar to the confirmation and split samples.

Arsenic

The arsenic analytical results are summarized and compared to the preliminary screening levels in **Table 5** and shown on **Figure 6**. Samples from all 26 monitoring wells were analyzed for total and dissolved arsenic in April 2011.

Total and dissolved arsenic was detected in all 23 shallow and three deep wells (**Table 5**).

Total arsenic concentrations in the shallow wells ranged from 0.70 µg/L (MW-24) to 4,300 µg/L (MW-14) and dissolved concentrations ranged from 0.7 µg/L (MW-24) to 4,490 µg/L (MW-14). Total arsenic concentrations in the deep wells (MW-1D, MW-2D, and MW-3D) ranged from 10.9 µg/L (MW-1D) to 36.1 µg/L (MW-2D), and dissolved concentrations ranged from 9.6 µg/L (MW-1D) to 39.4 µg/L (MW-3D). In general, arsenic concentrations increased from October 2010 to April 2011 in most monitoring wells.

The maximum total (4,140 µg/L) and dissolved (3,790 µg/L) arsenic concentrations were detected at MW-14. Arsenic concentrations in MW-14 in April 2011 were approximately four times greater than in October 2010. To confirm the elevated arsenic concentrations reported in April 2011, MW-14 was re-sampled in July 2011.

Arsenic concentrations for the primary and duplicate samples collected April 2011, and the confirmation and split samples collected July 2011 at MW-14 are presented in **Tables 4** and **5** and shown in **Figure 6**. Concentrations of both total and dissolved arsenic in the confirmation sample were each 116 µg/L, respectively. In the split sample, total and dissolved arsenic concentrations were 120 µg/L and 119 µg/L, respectively. The significantly lower concentrations observed in the July 2011 confirmation and split samples as compared to the April 2011 primary samples from MW-14, confirm the temporal and seasonal variability in arsenic concentrations that have been observed previously at the site.

Concentrations of arsenic in each pair of confirmation and split samples showed very good correlation. However, the re-sampling concentrations did show variability as compared to the April 2011 results. The July 2011 confirmation sample contained over 96 percent less total and dissolved arsenic than the primary sample.

SUMMARY AND CONCLUSIONS

This section provides a summary and conclusions of results for the Spring 2011 sampling event.

- Shallow groundwater at the site flows generally to the south with easterly to southeasterly flow components on the eastern portion of the site. The

approximate average gradient of 0.0064 in April 2011 and 0.0041 in July 2011. Groundwater flow direction was consistent with previous quarterly monitoring events.

- Field geochemistry parameters were collected during groundwater purging at each well. In general, groundwater geochemistry across the site in Spring 2011 was consistent with previous sampling events.
- Groundwater samples were collected from 26 monitoring wells in April 2011. Four wells were re-sampled in July 2011.
- Hexavalent chromium and total petroleum hydrocarbons, which were analyzed in MW-1S, were not detected.
- Nine total and dissolved metals (antimony, beryllium, cadmium, lead, mercury, selenium, silver, thallium, and zinc) were not detected in groundwater during the April 2011 monitoring event.
- Four total and dissolved metals (chromium, copper, nickel, and zinc) were detected in groundwater; however, did not exceed preliminary screening levels.
- PCP was not detected in 23 of the 26 monitoring wells. Monitoring wells MW-4S, MW-7S, and MW-13 were re-sampled for PCP in July 2011 due to an outlier concentration of PCP in MW-13. The PCP concentration in the confirmation and split samples collected at each well in July 2011 decreased relative to primary sample except for MW-7S, which increased slightly. The PCP concentration at MW-4S in the July 2011 confirmation sample was over 95 percent less than the April 2011 sample and at MW-13 the confirmation sample was over 65 percent less.
- Total and dissolved arsenic were detected in all 23 shallow and three deep wells. Monitoring well MW-14 was re-sampled for total and dissolved arsenic, due to an outlier concentration. Arsenic concentrations were similar between the confirmation and split samples. The July 2011 confirmation sample contained over 96 percent less total and dissolved arsenic than the primary sample.
- In general, concentrations of the constituents of primary concern (PCP, total/dissolved arsenic) detected in the Spring 2011 sampling event are consistent with the March 2009 baseline sampling event (ERM 2009). Seasonal variability in concentrations continues to be observed in the site monitoring wells between the spring and fall monitoring events.

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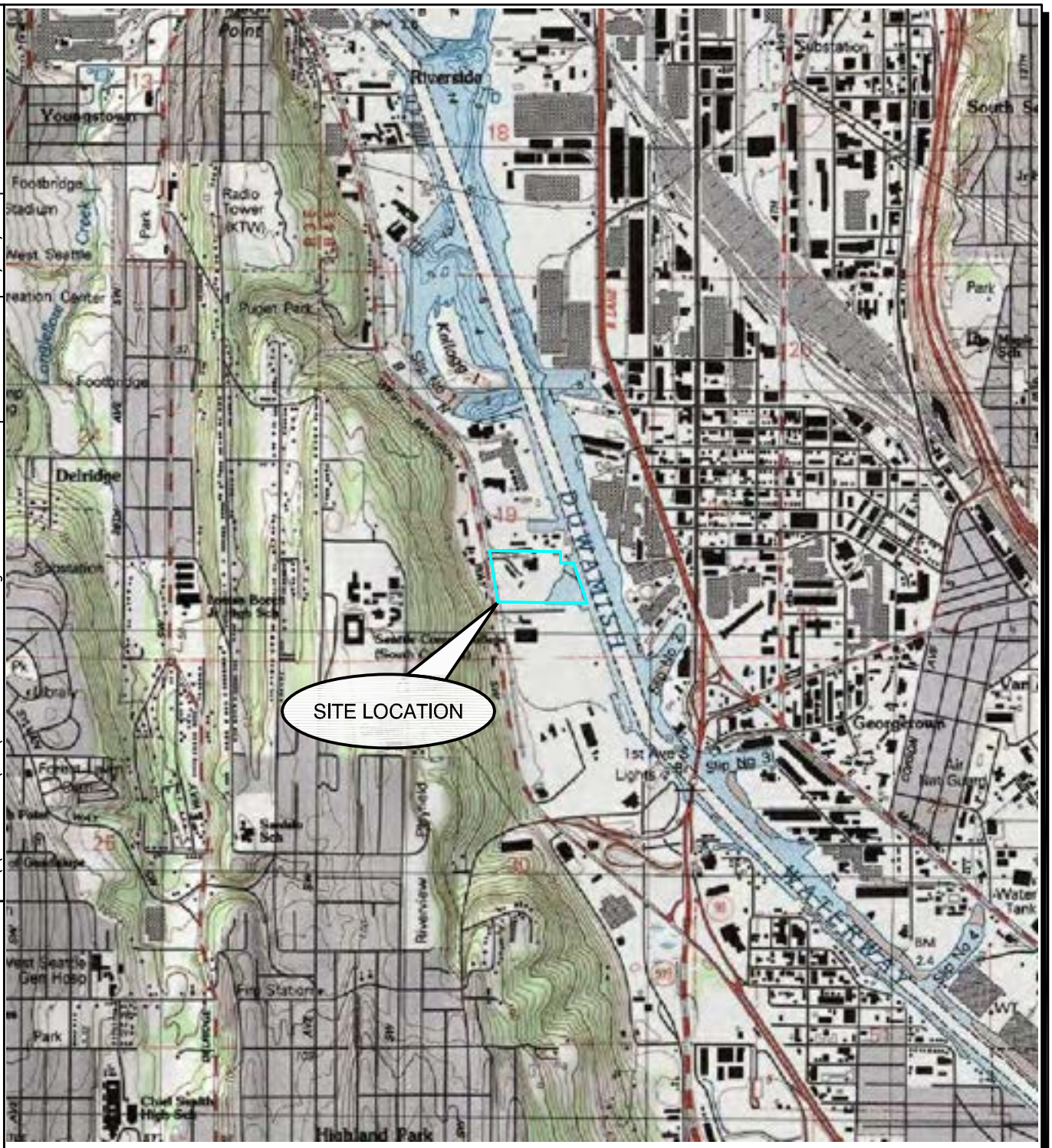
Figures

Project No. 0112489.05
Date: 04/13/10
Drawn By: R. Olson
CAD File: G:\0112489\05\011248905-01.dwg



SCALE 1: 24,000

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1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Seattle South E, WA
Version: 1983; Current: 1978

Figure 1
Site Location Map
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington

ERM 04/10

File: \\wepordc01\data\Projects\128296 - Reichhold-Glacier Portland Tasks (2011)\Spring 2011 figs\F2 MonitoringWells.mxd	Created By: s.degrood	Date: 08/08/2011	Project Number: 128296.5

- Shallow Monitoring Well Sampled during Spring 2011
- Deep Monitoring Well Sampled during Spring 2011
- Monitoring Well Not Sampled during Spring 2011
- Site Boundary

N

0 50 100 200 Feet

FIGURE 2
Existing Monitoring Well Network
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 08/11

Project No. 0112489.02
Date: 09/15/11
Drawn By: R.Olson
CAD File: G:\0112489\02\011248902-05.dwg

San. Sewer Easement
Property Boundary Line
ELECTRIC SHOP
WOOD SHOP
SHED
STORAGE
HAZARDOUS WASTE STORAGE AREA
OFFICE
PAINT SHOP
WASTE OIL
SOLVENT STILL
PAINT MIXING SHED
Former DSI Floating Dock
Former DSI Dry Dock
Approximate Location of Existing DSI Storm Outfall
Float
DUST TRAP
SAND BLAST SHED
Rail Silo
Tanks
Truck Wash
Additional Parking
Storage Silos
Load-out Silos
Paved
Parking
Deed Line
Exit
Maintenance Building
Existing Office
EXISTING DITCH
DOCK
4.47 (07:40)
5.66 (12:45)
Exist Conc Dock 55' x 500'
Existing Storm Outfall
Existing Transfer Tower
Docksider
Existing Piles
Line of Mean High Water (El 7.82 NAVD88)
Duwamish Waterway
Embayment
10,000 Ton Barge
Approximate Location of Existing Port of Seattle T115 Storm Outfall
Former City of Seattle SPU Stormwater Discharge Location
Existing City of Seattle Storm Outfall
City of Seattle Storm Outfall Easement
WEST MARGINAL WAY
Property Boundary
Access to West Marginal Way
City of Seattle Storm Outfall Easement
Existing Aggregates
Truck Entrance
N
0 50 100
FEET

MW-16 12.05
MW-5S 11.41
MW-1D 5.38
MW-1S 10.86
MW-4S 12.01
MW-7S 11.66
MW-6S 11.45
MW-10 10.64
MW-17 11.51
MW-11 10.78
MW-2D 5.44
MW-12 11.09
MW-2S 10.55
MW-22 11.09
MW-13 10.67
MW-14 10.59
MW-21 10.59
MW-23 10.74
MW-19 10.13
MW-24 9.20
MW-20 9.51
MW-18 9.26
MW-3S 9.11
MW-3D 5.81
MW-26 8.80
MW-27 5.45
MW-25 NM

12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5

LEGEND

- Shallow Monitoring Well
- Deep Monitoring Well (Not Used for Contouring)
- DOCK ■ Water Elevation Measurement of Bay Water; Time in Parentheses
- 11.58 Groundwater Elevation, Feet Above Mean Sea Level. Data Collected 25 April 2011
- NM Not Measured
- 11.5 Inferred Groundwater Isoelevation Contours
- Approximate Groundwater Flow Direction
- Property Line
- City of Seattle Public Utilities Stormwater Pipe

Figure 3
Shallow Groundwater Contour Map
25 April 2011
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington
ERM 09.11

Project No. 0128296.02
Date: 10/05/11
Drawn By: R.Olson
CAD File: G:\\0128296\02\012829602-01.dwg

San. Sewer Easement
Property Boundary Line
ELECTRIC SHOP
WOOD SHOP
SHED
STORAGE
HAZARDOUS WASTE STORAGE AREA
OFFICE
PAINT SHOP
WASTE OIL
SOLVENT STILL
PAINT MIXING SHED
Former DSI Floating Dock
Former DSI Dry Dock
Rail Silo
Tanks
Truck Wash
Additional Parking
Storage Silos
Approximate Location of Existing DSI Storm Outfall
Float
DUST TRAP
SAND BLAST SHED
Exit
Deed Line
Paved
Parking
Maintenance Building
Load-out Silos
EXISTING DITCH
Existing Office
DOCK
DRY (<1.20) (08:14)
8.27 (16:38)
Exist Conc Dock 55' x 500'
Existing Storm Outfall
Existing Transfer Tower
Docksider
Existing Piles
Duwamish Waterway
Line of Mean High Water (El 7.82 NAVD88)
Embayment
10,000 Ton Barge
Approximate Location of Existing Port of Seattle T115 Storm Outfall
Former City of Seattle SPU Stormwater Discharge Location
Existing City of Seattle Storm Outfall
WEST MARGINAL WAY
Property Boundary Line
Existing Aggregates
Property Boundary
Access to West Marginal Way
City of Seattle Storm Outfall Easement
Truck Entrance
City of Seattle Storm Outfall Easement
N
0 50 100
FEET

MW-16 9.65
MW-4S 9.64
MW-5S 9.40
MW-7S 9.59
MW-6S 9.51
MW-1S 9.06
MW-1D 3.71
MW-10 8.94
MW-17 9.62
MW-11 9.11
MW-2D 2.64
MW-12 9.42
MW-2S 8.94
MW-13 9.18
MW-22 9.61
MW-14 9.20
MW-23 9.51
MW-21 9.34
MW-19 8.95
MW-24 8.21
MW-20 8.53
MW-18 8.25
MW-3S 8.11
MW-3D 3.76
MW-26 .86
MW-27 5.32
MW-25 NM

9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5

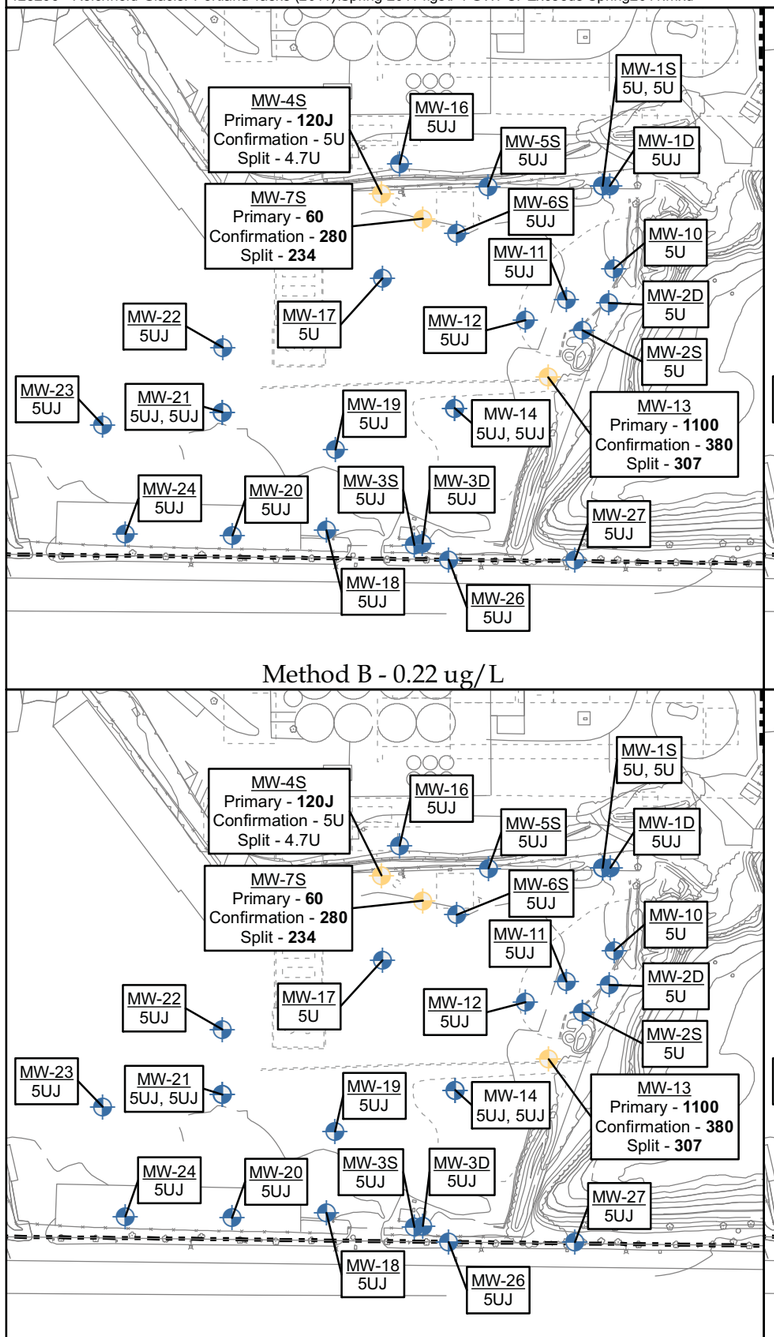
LEGEND

- Shallow Monitoring Well
- Deep Monitoring Well (Not Used for Contouring)
- DOCK Water Elevation Measurement of Bay Water; Time in Parentheses
- 9.51 Groundwater Elevation, Feet Above Mean Sea Level. Data Collected 14 July 2011
- NM Not Measured
- DRY Duwamish River Water Surface Elevation is Below the Land Surface Elevation at the Dock Measuring Point (i.e., 1.20 Feet Above Mean Sea Level)
- 9.5 Groundwater Isoelevation Contours
- Approximate Groundwater Flow Direction
- Property Line
- City of Seattle Public Utilities Stormwater Pipe

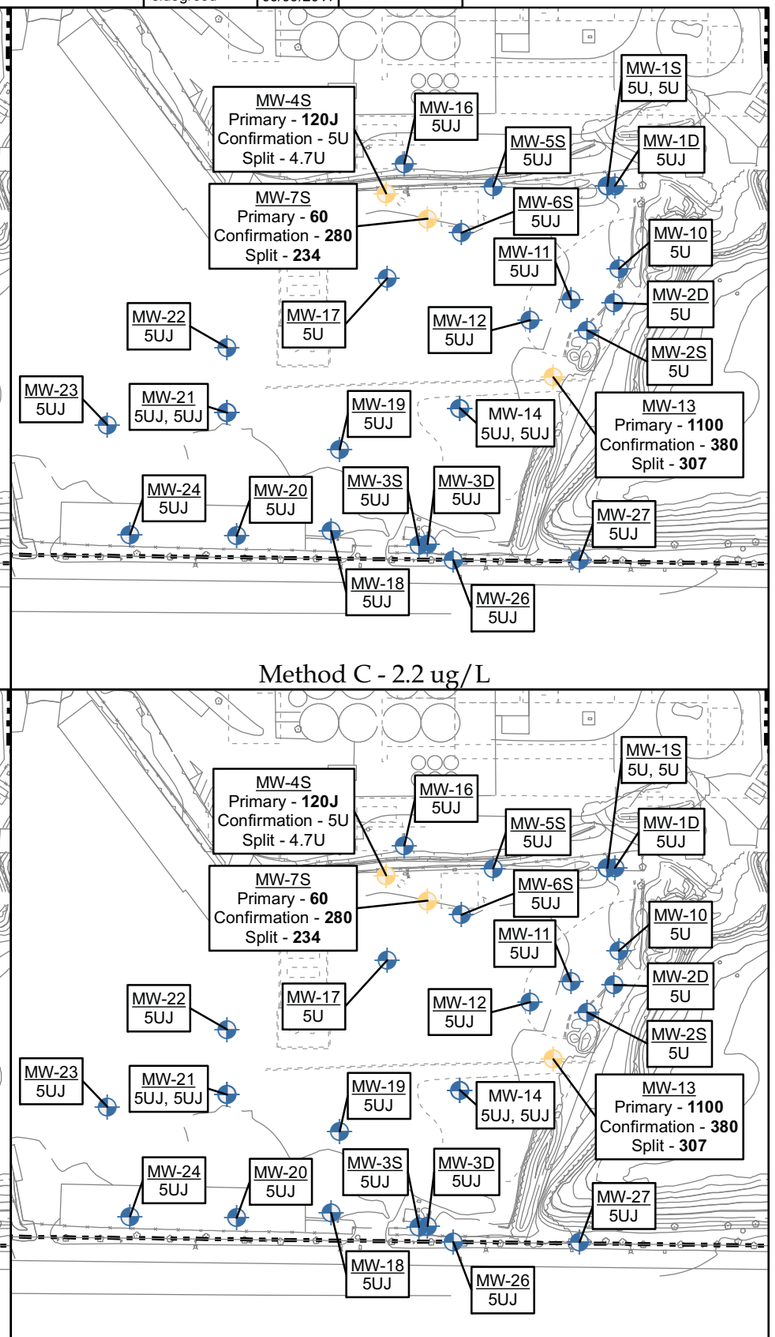
Figure 4
Shallow Groundwater Contour Map
14 July 2011
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington
ERM 1011

File: \\wdpordc02\dataPOR\Projects\
128296 - Reichhold-Glacier Portland Tasks (2011)\Spring 2011 figs\F4 GWPCPExceeds Spring2011.mxd

Created By:	Date:	Project Number:
s.degrood	06/09/2011	0128296.05



Method B - 0.22 ug/L



Method C - 2.2 ug/L

SW-AL - 7.9 ug/L

SW-HH - 3 ug/L

Legend

- Sample Result Does not Exceed the Pentachlorophenol Screening Level
- Sample Result Exceeds the Pentachlorophenol Screening Level

Notes:
All results in micrograms per liter.
48.3 , 25.8 - Primary Sample, Field Duplicate Sample
If the primary, field duplicate, confirmation, or split sample concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Spring 2011 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC)
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established)
Primary and field duplicate samples collected April 2011. Confirmation and split samples collected July 2011.

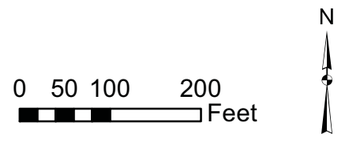


FIGURE 5
Screening Level Exceedences
Pentachlorophenol in Groundwater
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

File: \\wdpordc02\dataPOR\Projects\
128296 - Reichhold-Glacier Portland Tasks (2011)\Spring 2011 figs\F5 GWArsenicExceeds Spring2011.mxd

Created By:	Date:	Project Number:
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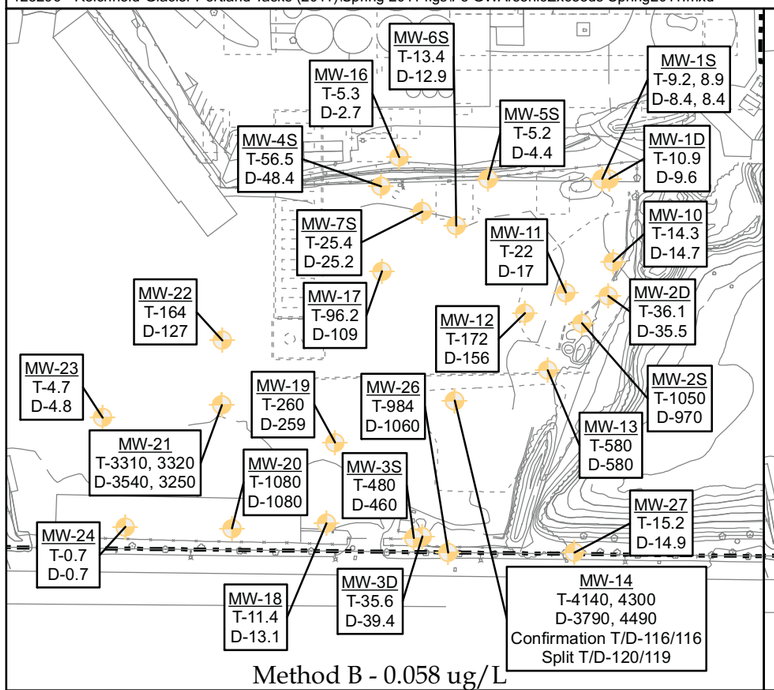

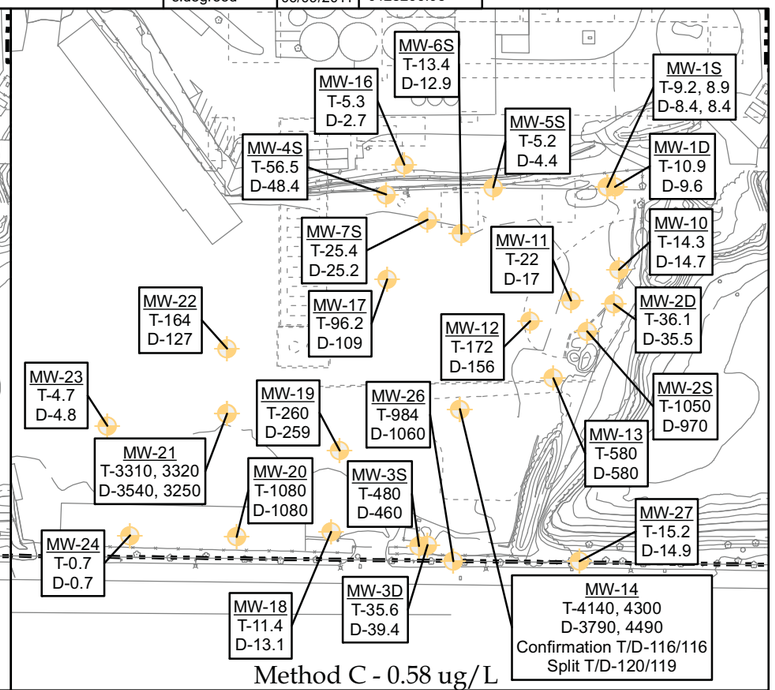

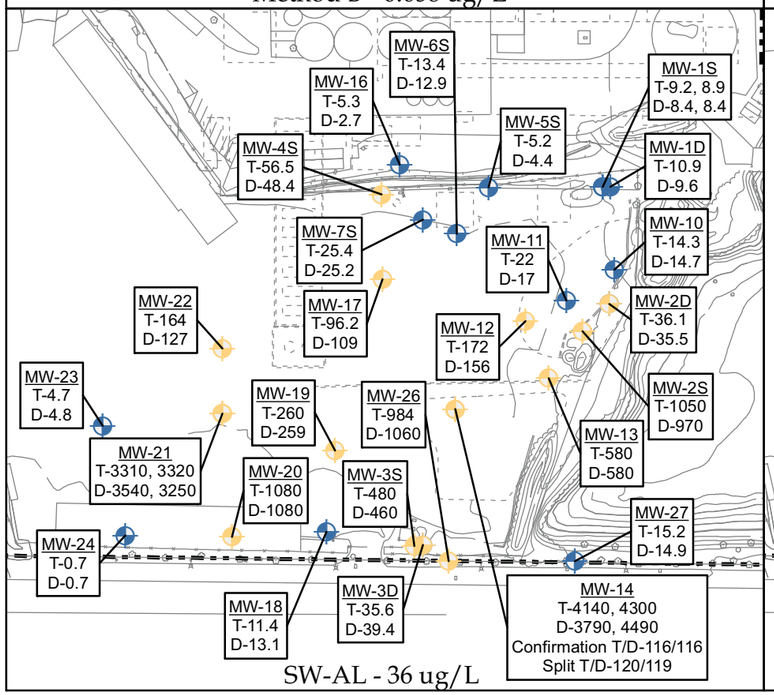

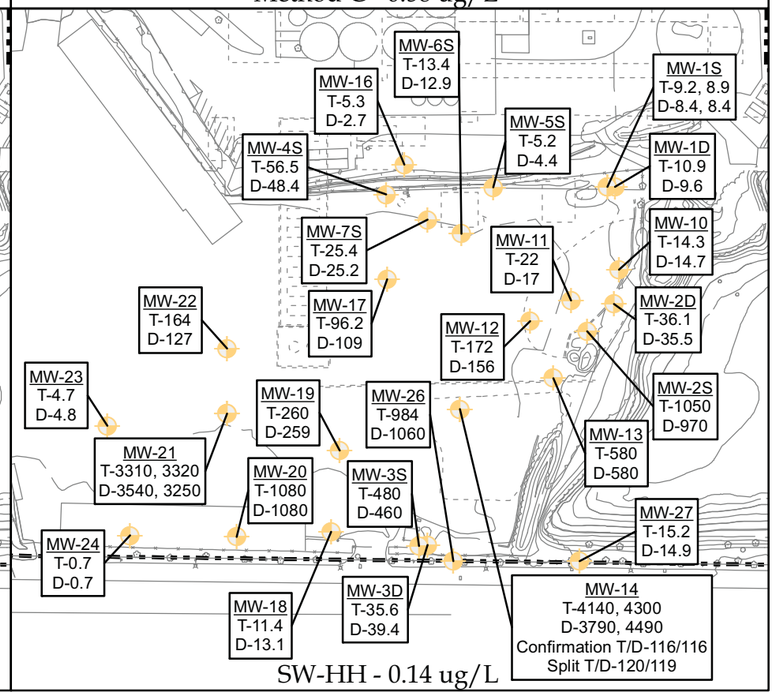

Legend

- Location where Arsenic did not Exceed the Screening Level
- Location where Arsenic Exceeds the Screening Level

Notes:
All results in micrograms per liter.
25.8, 20.7 - Primary Sample Result, Field Duplicate Result.
T- Total metal concentration.
D - Dissolved metal concentration.
116/116 - Total and Dissolved Metal Concentrations for confirmation and split samples.
If either the total or dissolved concentration of primary, field duplicate, confirmation, or split samples exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 and 5 of *Spring 2011 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC).
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established).
*Arsenic screening levels for Method B, Method C, and SW-HH are less than anthropogenic background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM, 2009).
Primary and field duplicate samples collected April 2011. Confirmation and split samples collected July 2011.

FIGURE 6
Screening Level Exceedences
Arsenic in Groundwater
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

Tables

Table 1

Groundwater Sampling Parameters
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Sample Name	Location	Sample Date	Phenol/ Chlorinated Phenols	Metals														TSS	TPH	TPH	Field Measurements
				As*	Cr*	Cu*	Ag*	Zn*	Cr VI*	Sb*	Be*	Cd*	Pb*	Ni*	Se*	Tl*	Hg*				
USEPA Method			USEPA 8270C Phenol	USEPA 6020					USEPA 7196A	USEPA 6010						USEPA 6020	USEPA 7470A	SM 2450D	NWTPH-Dx	NWTPH-Gx	Various
MW-01S-042511	MW-1S	4/25/2011	X	X	X	X	X	X	X										X	X	X
DUP042511-1	MW-1S (dup)	4/25/2011	X	X					X										X	X	
MS/MSD	MW-1S	4/25/2011							X										X	X	
MW-01S-042511-F	MW-1S field blank	4/25/2011																		X	
MW-01D-042511	MW-1D	4/25/2011	X	X																	X
MW-02S-042611	MW-2S	4/26/2011	X	X																	X
MW-02D-042611	MW-2D	4/26/2011	X	X																	X
MW-03S-042711	MW-3S	4/27/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
DUP042711-3	MW-3S (dup)	4/27/2011			X	X	X	X		X	X	X	X	X	X	X	X				
MW-03D-042711	MW-3D	4/27/2011	X	X	X	X	X	X													X
MW-04S-042611	MW-4S	4/26/2011	X	X																	X
MW-04S-071411-C	MW-4S	7/14/2011	X																		X
MW-04S-071411-S	MW-4S	7/14/2011	X																		X
MW-05S-042811	MW-5S	4/28/2011	X	X																	X
MW-06S-042711	MW-6S	4/27/2011	X	X																	X
MW-07S-042611	MW-7S	4/26/2011	X	X														X			X
MW-07S-071411-C	MW-7S	7/14/2011	X																		X
MW-07S-071411-S	MW-7S	7/14/2011	X																		X
MW-10-042611	MW-10	4/26/2011	X	X														X			X
MW-11-042811	MW-11	4/28/2011	X	X																	X
MW-12-042811	MW-12	4/28/2011	X	X																	X
MW-13-042611	MW-13	4/26/2011	X	X														X			X
MW-13-071411-C	MW-13	7/14/2011	X																		X
MW-13-071411-S	MW-13	7/14/2011	X																		X
MW-14-042711	MW-14	4/27/2011	X	X																	X
DUP042711-2	MW-14 (dup)	4/27/2011	X	X																	
MS/MSD	MW-14	4/27/2011	X	X																	
MW-14-071411-C	MW-14	7/14/2011		X																	X
MW-14-071411-S	MW-14	7/14/2011		X																	X
MW-16-042811	MW-16	4/28/2011	X	X																	X
MW-17-042511	MW-17	4/25/2011	X	X																	X
MW-18-042711	MW-18	4/27/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
MW-19-042811	MW-19	4/28/2011	X	X																	X
MW-20-042711	MW-20	4/27/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
MW-21-042711	MW-21	4/27/2011	X	X																	X
DUP042711-1	MW-21 (dup)	4/27/2011	X	X																	
MW-22-042611	MW-22	4/26/2011	X	X																	X
MS/MSD	MW-22	4/26/2011	X	X																	
MW-23-042611	MW-23	4/26/2011	X	X																	X
MW-24-042711	MW-24	4/27/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
MW-26-042811	MW-26	4/28/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
MW-27-042811	MW-27	4/28/2011	X	X	X	X	X	X		X	X	X	X	X	X	X	X				X
Total			**37**	**33**	**9**	**9**	**9**	**9**	**3**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**7**	**3**	**3**	**4**	**34**

Notes:
- Field measurements include: ferrous iron, sulfide, dissolved oxygen, temperature, pH, oxidation reduction potential, specific conductivity, and turbidity.
* = Collect total (unfiltered) and dissolved (filtered) metals samples
USEPA = United States Environmental Protection Agency
SM = Standard Method
TSS = Total Suspended Solids
dup = Duplicate sample
MS/MSD = Matrix Spike/Matrix Spike Duplicate

Abbreviations

Sb	Antimony	Pb	Lead
As	Arsenic	Hg	Mercury
Be	Beryllim	Ni	Nickel
Cd	Cadmium	Se	Selenium
Cr	Chromium	Ag	Silver
Cu	Copper	Tl	Thallium
Cu VI	Hexavalent Chromium	Zn	Zinc

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-01S	17.69	204056.54384	1267772.56387	3/23/2009	8:28	6.49	11.20
				6/25/2009	10:06	8.52	9.17
				10/7/2009	9:21	9.37	8.32
				1/28/2010	9:41	6.24	11.45
				4/26/2010	7:44	6.84	10.85
				8/5/2010	9:05	8.89	8.80
				10/25/2010	8:12	5.83	11.87
				4/25/2011	7:52	6.83	10.86
				7/14/2011	8:21	8.63	9.06
MW-01D	17.16	204056.58750	1267780.48417	3/23/2009	8:30	12.02	5.14
				6/25/2009	10:37	13.22	3.94
				10/7/2009	9:22	11.15	6.01
				1/28/2010	9:37	10.48	6.68
				4/26/2010	7:38	12.43	4.73
				8/5/2010	9:00	15.86	1.30
				10/25/2010	8:18	10.07	7.09
				4/25/2011	7:55	11.78	5.38
				7/14/2011	8:24	13.45	3.71
MW-02S	17.42	203897.54374	1267750.17664	3/23/2009	8:32	6.82	10.60
				6/25/2009	11:03	8.39	9.03
				10/7/2009	10:42	9.26	8.16
				1/28/2010	10:44	6.41	11.01
				4/26/2010	8:51	6.94	10.48
				8/5/2010	9:40	8.72	8.70
				10/25/2010	8:54	6.40	11.02
				4/25/2011	8:20	6.87	10.55
				7/14/2011	8:48	8.48	8.94
MW-02D	17.43	203927.36169	1267779.32250	3/23/2009	8:36	12.43	5.00
				6/25/2009	11:01	14.70	2.73
				10/7/2009	10:46	11.71	5.72
				1/28/2010	10:29	10.68	6.75
				4/26/2010	8:18	13.96	3.47
				8/5/2010	9:35	15.83	1.60
				10/25/2010	8:50	10.31	7.12
				4/25/2011	8:17	11.99	5.44
				7/14/2011	8:44	14.79	2.64
MW-03S	19.62	203661.20996	1267565.26400	3/23/2009	8:50	10.71	8.91
				6/25/2009	11:19	11.22	8.40
				10/7/2009	11:03	12.20	7.42
				1/28/2010	12:31	9.84	9.78
				4/26/2010	10:09	10.89	8.73
				8/5/2010	10:57	11.80	7.82
				10/25/2010	10:45	11.77	7.85
				4/25/2011	9:17	10.51	9.11
				7/14/2011	9:47	11.51	8.11
MW-03D	19.51	203662.55602	1267574.28418	3/23/2009	8:52	14.23	5.28
				6/25/2009	11:22	15.21	4.30
				10/7/2009	11:03	14.20	5.31
				1/28/2010	12:34	12.49	7.02
				4/26/2010	10:13	15.75	3.76
				8/5/2010	11:00	15.94	3.57
				10/25/2010	10:48	13.23	6.28
				4/25/2011	9:14	13.70	5.81
				7/14/2011	9:44	15.75	3.76

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-04S	18.81	204047.96657	1267528.70925	3/23/2009	8:16	7.09	11.72
				6/25/2009	10:21	9.09	9.72
				10/7/2009	9:04	9.86	8.95
				1/28/2010	10:04	6.64	12.17
				4/26/2010	8:06	7.17	11.64
				8/5/2010	9:18	9.49	9.32
				10/25/2010	8:34	5.88	12.93
				4/25/2011	9:50	6.80	12.01
				7/14/2011	10:15	9.17	9.64
MW-05S	18.42	204055.92275	1267646.61849	3/23/2009	8:25	6.87	11.55
				6/25/2009	10:11	8.93	9.49
				10/7/2009	9:16	9.71	8.71
				1/28/2010	9:47	6.57	11.85
				4/26/2010	7:47	7.04	11.38
				8/5/2010	10:02	6.31	12.11
				10/25/2010	8:23	5.98	12.44
				4/25/2011	9:24	7.01	11.41
				7/14/2011	9:56	9.02	9.40
MW-06S	18.50	204004.58908	1267611.92486	3/23/2009	8:23	6.98	11.52
				6/25/2009	10:15	8.90	9.60
				10/7/2009	9:12	9.73	8.77
				1/28/2010	9:58	6.60	11.90
				4/26/2010	8:01	7.11	11.39
				8/5/2010	9:09	9.29	9.21
				10/25/2010	8:27	6.75	11.75
				4/25/2011	9:30	7.05	11.45
				7/14/2011	10:02	8.99	9.51
MW-07S	18.50	204020.49534	1267574.41961	3/23/2009	8:18	6.90	11.60
				6/25/2009	10:18	8.81	9.69
				10/7/2009	9:09	9.64	8.86
				1/28/2010	9:54	6.47	12.03
				4/26/2010	7:56	6.98	11.52
				8/5/2010	9:14	9.21	9.29
				10/25/2010	8:29	6.31	12.19
				4/25/2011	9:35	6.84	11.66
				7/14/2011	10:22	8.91	9.59
MW-10	15.51	203965.45545	1267785.06206	3/23/2009	8:33	4.74	10.77
				6/25/2009	10:56	6.49	9.02
				10/7/2009	10:37	7.33	8.18
				1/28/2010	10:38	4.32	11.19
				4/26/2010	8:31	4.82	10.69
				8/5/2010	9:30	6.81	8.70
				10/25/2010	8:43	2.51	13.00
				4/25/2011	8:10	4.87	10.64
				7/14/2011	8:37	6.57	8.94
MW-11	15.34	203931.25080	1267732.36107	3/23/2009	8:40	4.49	10.85
				6/25/2009	10:47	6.19	9.15
				10/7/2009	10:29	7.05	8.29
				1/28/2010	10:21	3.47	11.87
				4/26/2010	8:39	4.59	10.75
				8/5/2010	9:57	6.49	8.85
				10/25/2010	*	*	*
				4/25/2011	8:56	4.56	10.78
				7/14/2011	9:28	6.23	9.11

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-12	15.92	203908.83835	1267687.31078	3/23/2009	8:05	4.84	11.08
				6/25/2009	10:33	6.39	9.53
				10/7/2009	10:26	7.36	8.56
				1/28/2010	10:55	4.35	11.57
				4/26/2010	8:59	4.91	11.01
				8/5/2010	9:49	6.79	9.13
				10/25/2010	9:34	5.33	10.59
				4/25/2011	9:00	4.83	11.09
				7/14/2011	9:33	6.50	9.42
MW-13	15.95	203845.60548	1267712.70978	3/23/2009	8:44	5.43	10.52
				6/25/2009	11:07	6.67	9.28
				10/7/2009	10:46	7.64	8.31
				1/28/2010	11:27	4.62	11.33
				4/26/2010	8:56	5.45	10.50
				8/5/2010	9:45	7.04	8.91
				10/25/2010	9:29	5.83	10.12
				4/25/2011	8:26	5.28	10.67
				7/14/2011	8:53	6.77	9.18
MW-14	16.38	203812.11685	1267609.88790	3/23/2009	8:48	6.09	10.29
				6/25/2009	11:14	7.08	9.30
				10/7/2009	10:51	8.07	8.31
				1/28/2010	11:10	5.40	10.98
				4/26/2010	9:04	6.05	10.33
				8/5/2010	9:52	7.45	8.93
				10/25/2010	9:40	7.04	9.34
				4/25/2011	9:10	5.79	10.59
				7/14/2011	9:38	7.18	9.20
MW-16	13.80	204080.65296	1267549.20703	3/23/2009	9:51	2.09	11.71
				6/25/2009	9:54	4.08	9.72
				10/7/2009	9:34	4.82	8.98
				1/28/2010	9:25	1.64	12.16
				4/26/2010	7:28	2.19	11.61
				8/5/2010	8:47	4.47	9.33
				10/25/2010	11:23	0.82	12.98
				4/25/2011	9:42	1.75	12.05
				7/14/2011	10:10	4.15	9.65
MW-17	16.24	203954.60493	1267530.00292	3/23/2009	7:59	4.92	11.32
				6/25/2009	10:27	6.53	9.71
				10/7/2009	8:57	7.42	8.82
				1/28/2010	10:12	4.40	11.84
				4/26/2010	9:14	4.90	11.34
				8/5/2010	10:09	6.93	9.31
				10/25/2010	9:44	5.05	11.19
				4/25/2011	9:55	4.73	11.51
				7/14/2011	10:32	6.62	9.62
MW-18	17.21	203677.06233	1267468.56680	3/23/2009	8:56	6.97	10.24
				6/25/2009	11:27	8.71	8.50
				10/7/2009	11:11	9.72	7.49
				1/28/2010	12:26	7.41	9.80
				4/26/2010	10:05	8.38	8.83
				8/5/2010	10:43	9.32	7.89
				10/25/2010	10:41	6.61	10.60
				4/25/2011	10:13	7.95	9.26
				7/14/2011	10:47	8.96	8.25

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-19	16.84	203766.18777	1267478.08281	3/23/2009	9:01	7.04	9.80
				6/25/2009	12:17	7.75	9.09
				10/7/2009	10:56	8.73	8.11
				1/28/2010	12:40	6.26	10.58
				4/26/2010	9:43	7.03	9.81
				8/5/2010	10:37	8.17	8.67
				10/25/2010	11:05	8.08	8.76
				4/25/2011	10:04	6.71	10.13
				7/14/2011	10:39	7.89	8.95
MW-20	17.46	203671.59840	1267364.59998	3/23/2009	9:05	8.21	9.25
				6/25/2009	11:55	8.75	8.71
				10/7/2009	11:19	9.84	7.62
				1/28/2010	12:18	7.37	10.09
				4/26/2010	9:58	8.44	9.02
				8/5/2010	10:54	9.41	8.05
				10/25/2010	10:35	9.30	8.16
				4/25/2011	10:19	7.95	9.51
				7/14/2011	10:54	8.93	8.53
MW-21	17.22	203807.20569	1267353.70698	3/23/2009	9:15	7.04	10.18
				6/25/2009	11:33	7.78	9.44
				10/7/2009	11:45	8.75	8.47
				1/28/2010	12:01	6.25	10.97
				4/26/2010	9:35	6.95	10.27
				8/5/2010	10:22	8.19	9.03
				10/25/2010	10:00	8.07	9.15
				4/25/2011	10:26	6.63	10.59
				7/14/2011	11:00	7.88	9.34
MW-22	16.79	203878.42265	1267354.09852	3/23/2009	9:22	6.11	10.68
				6/25/2009	12:03	7.12	9.67
				10/7/2009	8:45	8.04	8.75
				1/28/2010	11:41	5.39	11.40
				4/26/2010	9:21	5.96	10.83
				8/5/2010	10:15	7.76	9.03
				10/25/2010	9:52	6.96	9.83
				4/25/2011	10:34	5.70	11.09
				7/14/2011	11:07	7.18	9.61
MW-23	16.72	203793.38141	1267222.11951	3/23/2009	9:40	6.41	10.31
				6/25/2009	11:45	7.10	9.62
				10/7/2009	11:38	8.13	8.59
				1/28/2010	11:49	5.65	11.07
				4/26/2010	9:28	6.34	10.38
				8/5/2010	10:29	7.52	9.20
				10/25/2010	10:09	7.52	9.20
				4/25/2011	10:46	5.98	10.74
				7/14/2011	11:16	7.21	9.51
MW-24	16.78	203673.20066	1267247.14526	3/23/2009	9:09	7.87	8.91
				6/25/2009	11:39	8.42	8.37
				10/7/2009	11:31	9.50	7.28
				1/28/2010	12:12	7.05	9.73
				4/26/2010	9:51	8.07	8.71
				8/5/2010	10:49	9.04	7.74
				10/25/2010	10:18	8.95	7.83
				4/25/2011	10:40	7.58	9.20
				7/14/2011	11:22	8.57	8.21

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-26	16.62	203644.99716	1267602.70357	3/23/2009	10:03	8.01	8.61
				6/25/2009	12:37	8.50	8.13
				10/7/2009	10:16	9.45	7.17
				1/28/2010	13:02	7.15	9.47
				4/26/2010	10:39	8.22	8.40
				8/5/2010	11:13	9.15	7.47
				10/25/2010	10:53	8.95	7.67
				4/25/2011	8:36	7.82	8.80
				7/14/2011	9:09	8.76	7.86
MW-27	16.58	203644.72154	1267742.00960	3/23/2009	10:12	11.54	5.04
				6/25/2009	12:44	11.26	5.32
				10/7/2009	10:10	12.12	4.46
				1/28/2010	12:58	10.15	6.43
				4/26/2010	10:35	11.81	4.77
				8/5/2010	11:09	12.33	4.25
				10/25/2010	10:59	10.92	5.66
				4/25/2011	8:47	11.13	5.45
				7/14/2011	9:15	11.26	5.32

Notes:

ft-amsl = feet above mean sea level

ft-toc = feet below measuring point

* = Well could not be accessed due to recharging water in the well monument.

Table 3

Field Parameter Values
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location	Sample Date	Sample Time	Depth to Water (ft btoc)	Ferrous Iron (mg/L)	Sulfide (mg/L)	Temperature (°C)	pH	EC (µS/cm)	D.O. (mg/L)	Redox Potential (mV)	Salinity (ppt)	Turbidity (ntu)	Color and Odor
MW-1D	4/25/2011	12:34	11.78	1.86	0.09	10.88	6.83	*	2.04	-74	0.4	4.7	brown
MW-2D	4/26/2011	13:59	12.09	3.30	0.05	13.67	6.34	1240	0.40	-59	0.6	5.4	
MW-3D	4/27/2011	14:50	14.09	3.30	0.07	12.45	6.38	905	0.67	-48	0.4	2.2	
MW-1S	4/25/2011	13:40	6.83	1.54	0.01	9.11	6.87	345	1.41	-30	0.2	3.3	
MW-2S	4/26/2011	14:50	6.86	1.34	0.15	12.73	6.44	580	0.45	-52	0.3	1.2	
MW-3S	4/27/2011	15:48	10.65	0.15	0.00	10.61	6.45	441	0.54	-78	0.2	0.0	
MW-4S	4/26/2011	15:40	6.26	0.00	0.00	11.71	6.58	332	2.47	123	0.2	1.8	
MW-4S	7/14/2011	12:14	9.24	0.51	0.00	14.30	6.62	286	0.55	157	0.0	2.4	clear
MW-5S	4/28/2011	13:14	6.43	0.05	0.00	11.57	6.03	231	0.54	77	0.1	0.0	
MW-6S	4/27/2011	14:04	6.71	0.32	0.17	10.12	6.63	457	0.97	4	0.2	1.2	
MW-7S	4/26/2011	9:26	6.37	2.12	0.08	9.73	6.25	528	0.58	-15	0.3	0.0	
MW-7S	7/14/2011	13:29	9.00	1.85	0.03	15.00	6.78	370	0.36	34	0.0	1.9	clear
MW-10	4/26/2011	10:59	4.25	0.10	0.03	10.02	6.84	379	5.29	-16	0.2	0.0	
MW-11	4/28/2011	14:05	4.34	0.00	0.01	11.33	7.09	234	2.49	50	0.1	0.6	
MW-12	4/28/2011	14:55	4.49	0.82	0.00	10.85	5.71	206	0.52	141	0.1	1.2	
MW-13	4/26/2011	13:08	5.35	1.23	0.02	11.87	6.24	566	0.49	53	0.3	2.9	
MW-13	7/14/2011	14:23	7.82	2.97	0.04	14.70	6.58	705	0.29	38	0.0	4.7	clear
MW-14	4/27/2011	13:00	5.83	2.09	0.02	11.48	6.55	772	0.87	-88	0.4	0.7	
MW-14	7/14/2011	15:56	7.26	2.23	0.00	14.90	6.94	785	0.58	-58	0.0	0.7	clear
MW-16	4/28/2011	11:49	1.11	2.57	0.29	10.56	6.52	702	0.40	-87	0.3	3.0	
MW-17	4/25/2011	15:46	4.73	1.99	0.28	10.36	6.58	390	0.95	-53	0.2	0.0	
MW-18	4/27/2011	11:12	8.05	0.43	0.04	11.79	6.58	611	0.81	8	0.3	1.5	
MW-19	4/28/2011	15:52	6.81	1.57	0.00	11.86	6.49	467	0.39	-57	0.2	0.2	
MW-20	4/27/2011	10:30	8.50	1.00	0.08	11.07	6.59	498	0.71	-99	0.2	2.4	
MW-21	4/27/2011	9:36	6.65	2.22	0.12	10.32	6.58	475	0.56	-77	0.2	0.0	
MW-22	4/26/2011	16:49	5.67	1.91	0.05	11.49	6.66	522	1.67	-77	0.2	5.8	
MW-23	4/26/2011	7:55	6.03	2.12	0.01	10.34	6.52	845	0.62	-74	0.4	0.0	
MW-24	4/27/2011	8:46	7.66	1.83	0.18	10.01	6.24	571	0.80	-30	0.3	0.0	
MW-26	4/28/2011	10:53	8.03	3.30	0.23	11.20	6.41	786	0.41	*	0.4	0.5	clear
MW-27	4/28/2011	10:08	11.56	2.37	0.06	10.22	6.44	1090	0.50	-35	0.5	1.3	

Notes:

* = Not collected due to field ommision
°C = degrees Celsius
D.O. = dissolved oxygen
EC = electrical conductivity
ft btoc = feet below top of casing
mg/L = milligrams per liter
N/A = data not recorded
mV = millivolts
ntu = nephelometric turbidity units
ppt = parts per trillion
µS/cm = microsiemens per centimeter

Table 4

Groundwater Data Summary
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Antimony D ug/l	Antimony T ug/l	Arsenic D ug/l	Arsenic T ug/l	Beryllium D ug/l	Beryllium T ug/l	Cadmium D ug/l	Cadmium T ug/l	Chromium D ug/l	Chromium T ug/l	Chromium (VI) D mg/l	Copper D ug/l	Copper T ug/l	Lead D ug/l	Lead T ug/l	Mercury D ug/l	Mercury T ug/l	Nickel D ug/l	Nickel T ug/l	Selenium D ug/l	Selenium T ug/l	Silver D ug/l	Silver T ug/l	Thallium D ug/l	Thallium T ug/l	Zinc D ug/l	Zinc T ug/l
MW-1S	4/25/2011	MW-1S-042511	na	na	**8.4**	**9.2**	na	na	na	na	0.5 U	0.5 U	0.01 U	**0.7**	**1.5**	na	na	na	na	na	na	na	na	0.2 U	0.2 U	na	na	**20**	**20**
MW-1S (dup)	4/25/2011	DUP042511-1	na	na	**8.4**	**8.9**	na	na	na	na	na	na	0.01 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1D	4/25/2011	MW-1D-042511	na	na	**9.6**	**10.9**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2S	4/26/2011	MW-2S-042611	na	na	**970**	**1050**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2D	4/26/2011	MW-2D-042611	na	na	**35.5**	**36.1**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-3S	4/27/2011	MW-3S-042711	0.2 U	0.2 U	**460**	**480**	0.2 U	0.2 U	0.1 U	0.1 U	0.5 U	0.5 U	na	0.5 U	**2**	0.1 U	0.1 U	0.1 U	0.1 U	**0.8**	**0.8**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-3S (dup)	4/27/2011	DUP042711-3	0.2 U	0.2 U	na	na	0.2 U	0.2 U	0.1 U	0.1 U	0.5 U	0.5 U	na	**0.7**	**2**	0.1 U	0.1 U	0.1 U	0.1 U	**1.2**	0.5 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-3D	4/27/2011	MW-3D-042711	na	na	**39.4**	**35.6**	na	na	na	na	**3.4**	**3.1**	na	0.5 U	**0.7**	na	na	na	na	na	na	na	na	0.2 U	0.2 U	na	na	4 U	4 U
MW-4S	4/26/2011	MW-04S-042611	na	na	**48.4**	**56.5**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S	7/14/2011	MW-04S-071411-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S	7/14/2011	MW-04S-071411-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-5S	4/28/2011	MW-5S-042811	na	na	**4.4**	**5.2**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-6S	4/27/2011	MW-6S-042711	na	na	**12.9**	**13.4**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	4/26/2011	MW-07S-042611	na	na	**25.2**	**25.4**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	7/14/2011	MW-07S-071411-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	7/14/2011	MW-07S-071411-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-10	4/26/2011	MW-10-042611	na	na	**14.7**	**14.3**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-11	4/28/2011	MW-11-042811	na	na	**17**	**22**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-12	4/28/2011	MW-12-042811	na	na	**156**	**172**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	4/26/2011	MW-13-042611	na	na	**580**	**580**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	7/14/2011	MW-13-071411-C	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	7/14/2011	MW-13-071411-S	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	4/27/2011	MW-14-042711	na	na	**3790**	**4140**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14 (dup)	4/27/2011	DUP042711-2	na	na	**4490**	**4300**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	7/14/2011	MW-14-071411-C	na	na	**116**	**116**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	7/14/2011	MW-14-071411-S	na	na	**119**	**120**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-16	4/28/2011	MW-16-042811	na	na	**2.7**	**5.3**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-17	4/25/2011	MW-17-042511	na	na	**109**	**96.2**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-18	4/27/2011	MW-18-042711	0.2 U	0.2 U	**13.1**	**11.4**	0.2 U	0.2 U	0.1 U	0.1 U	**0.8**	**0.9**	na	**1**	**1.7**	0.1 U	0.1 U	0.1 U	0.1 U	**2.7** J	**1.2**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-19	4/28/2011	MW-19-042811	na	na	**259**	**260**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-20	4/27/2011	MW-20-042711	0.2 U	0.2 U	**1080**	**1080**	0.2 U	0.2 U	0.1 U	0.1 U	1 U	0.5 U	na	**0.8**	**1.3**	0.1 U	0.1 U	0.1 U	0.1 U	**1.4**	**0.9**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-21	4/27/2011	MW-21-042711	na	na	**3540**	**3310**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-21 (dup)	4/27/2011	DUP042711-1	na	na	**3250**	**3320**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	4/26/2011	MW-22-042611	na	na	**127**	**164**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-23	4/27/2011	MW-23-042711	na	na	**4.8**	**4.7**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-24	4/27/2011	MW-24-042711	0.2 U	0.2 U	**0.7**	**0.7**	0.2 U	0.2 U	0.1 U	0.1 U	0.5 U	0.5 U	na	**0.6**	**0.6**	0.1 U	0.1 U	0.1 U	0.1 U	0.5 U	**0.8**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-26	4/28/2011	MW-26-042811	0.2 U	0.2 U	**1060**	**984**	0.2 U	0.2 U	0.1 U	0.1 U	**0.9**	**0.8**	na	0.5 U	**0.9**	0.1 U	0.1 U	0.1 U	0.1 U	**0.8**	**0.6**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U
MW-27	4/28/2011	MW-27-042811	0.2 U	0.2 U	**14.9**	**15.2**	0.2 U	0.2 U	0.1 U	0.1 U	0.5 U	0.5 U	na	**0.5**	**0.6**	0.1 U	0.1 U	0.1 U	0.1 U	**2.6**	**2**	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	0.2 U	4 U	4 U

Notes and Key:

ug/L = micrograms per liter
mg/L = milligrams per liter
Bold text indicates that compound was detected.

T = Total
D = Dissolved
na = Not analyzed
dup = Duplicate sample
TPH = Total petroleum hydrocarbons
C = Confirmation Sample
S = Split Sample

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

U = Result is ≤ Reporting Limit (RL). Result reported as the RL and is qualified as non detected.

UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 4

Groundwater Data Summary
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Phenol ug/l	Pentachloro-phenol ug/l	2,4,6-Trichloro phenol ug/l	2-Chloro-phenol ug/l	2,4,5-Trichloro-phenol ug/l	2,3,4,6-Tetrachloro-phenol ug/l	2,4-Dichloro-phenol ug/l	Total Suspended Solids mg/l	TPH as Motor Oil mg/l	TPH as Gasoline mg/l	TPH as Diesel mg/l
MW-1S	4/25/2011	MW-1S-042511	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	0.2 U	0.25 U	0.1 U
MW-1S (dup)	4/25/2011	DUP042511-1	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	0.2 U	0.25 U	0.1 U
MW-1D	4/25/2011	MW-1D-042511	1 UJ	5 UJ	5 UJ	1 UJ	5 UJ	1 UJ	5 UJ	na	na	na	na
MW-2S	4/26/2011	MW-2S-042611	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	na	na	na
MW-2D	4/26/2011	MW-2D-042611	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	na	na	na
MW-3S	4/27/2011	MW-3S-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-3S (dup)	4/27/2011	DUP042711-3	na	na	na	na	na	na	na	na	na	na	na
MW-3D	4/27/2011	MW-3D-042711	1 UJ	5 UJ	5 UJ	1 UJ	5 UJ	1 UJ	5 UJ	na	na	na	na
MW-4S	4/26/2011	MW-04S-042611	1 U	**120** J	5 UJ	1 U	5 UJ	**1.7**	5 UJ	na	na	na	na
MW-4S	7/14/2011	MW-04S-071411-C	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	na	na	na
MW-4S	7/14/2011	MW-04S-071411-S	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	4.7 U	na	na	na	na
MW-5S	4/28/2011	MW-5S-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-6S	4/27/2011	MW-6S-042711	1 U	5 UJ	5 UJ	1 UJ	5 UJ	1 U	5 U	na	na	na	na
MW-7S	4/26/2011	MW-07S-042611	1 U	**60**	5 U	1 U	5 U	**2.7**	5 U	1 U	na	na	na
MW-7S	7/14/2011	MW-07S-071411-C	1 U	**280**	5 U	1 U	5 U	**7.9**	5 U	na	na	na	na
MW-7S	7/14/2011	MW-07S-071411-S	4.7 U	**234**	0.95 U	4.7 U	1	4.7 U	4.7 U	na	na	na	na
MW-10	4/26/2011	MW-10-042611	1 U	5 U	5 U	1 U	5 U	1 U	5 U	1 U	na	na	na
MW-11	4/28/2011	MW-11-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-12	4/28/2011	MW-12-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-13	4/26/2011	MW-13-042611	10 U	**1100**	50 U	10 U	50 U	**32**	50 U	1 U	na	na	na
MW-13	7/14/2011	MW-13-071411-C	1 U	**380**	5 U	1 U	5 U	**28**	5 U	na	na	na	na
MW-13	7/14/2011	MW-13-071411-S	4.7 U	**307**	0.95 U	4.7 U	0.95 U	**21.7**	4.7 U	na	na	na	na
MW-14	4/27/2011	MW-14-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-14 (dup)	4/27/2011	DUP042711-2	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 U	na	na	na	na
MW-14	7/14/2011	MW-14-071411-C	na	na	na	na	na	na	na	na	na	na	na
MW-14	7/14/2011	MW-14-071411-S	na	na	na	na	na	na	na	na	na	na	na
MW-16	4/28/2011	MW-16-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-17	4/25/2011	MW-17-042511	1 U	5 U	5 U	1 U	5 U	1 U	5 U	na	na	na	na
MW-18	4/27/2011	MW-18-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-19	4/28/2011	MW-19-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-20	4/27/2011	MW-20-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-21	4/27/2011	MW-21-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-21 (dup)	4/27/2011	DUP042711-1	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-22	4/26/2011	MW-22-042611	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-23	4/27/2011	MW-23-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-24	4/27/2011	MW-24-042711	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-26	4/28/2011	MW-26-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na
MW-27	4/28/2011	MW-27-042811	1 U	5 UJ	5 UJ	1 U	5 UJ	1 U	5 UJ	na	na	na	na

Notes and Key:

ug/L = micrograms per liter
mg/L = milligrams per liter
Bold text indicates that compound was detected.
T = Total
D = Dissolved
na = Not analyzed
dup = Duplicate sample
TPH = Total petroleum hydrocarbons
C = Confirmation Sample
S = Split Sample

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
U = Result is ≤ Reporting Limit (RL). Result reported as the RL and is qualified as non detected.
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Table 5

Constituents Detected in Groundwater
Spring 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID	Sample Date	Sample ID	Dissolved Metals					Total Metals					Pentachloro-phenol ug/l	2,3,4,6-Tetrachloro-phenol ug/l
			Arsenic ug/l	Chromium ug/l	Copper ug/l	Nickel ug/l	Zinc ug/l	Arsenic ug/l	Chromium ug/l	Copper ug/l	Nickel ug/l	Zinc ug/l		
MW-1S	4/25/2011	MW-1S-042511	8.4	0.5 U	0.7	na	20	9.2	0.5 U	1.5	na	20	5 U	1 U
MW-1S (dup)	4/25/2011	DUP042511-1	8.4	na	na	na	na	8.9	na	na	na	na	5 U	1 U
MW-1D	4/25/2011	MW-1D-042511	9.6	na	na	na	na	10.9	na	na	na	na	5 UJ	1 UJ
MW-2S	4/26/2011	MW-2S-042611	970	na	na	na	na	1050	na	na	na	na	5 U	1 U
MW-2D	4/26/2011	MW-2D-042611	35.5	na	na	na	na	36.1	na	na	na	na	5 U	1 U
MW-3S	4/27/2011	MW-3S-042711	460	0.5 U	0.5 U	0.8	4 U	480	0.5 U	2	0.8	4 U	5 UJ	1 U
MW-3S (dup)	4/27/2011	DUP042711-3	na	0.5 U	0.7	1.2	4 U	na	0.5 U	2	0.5 U	4 U	na	na
MW-3D	4/27/2011	MW-3D-042711	39.4	3.4	0.5 U	na	4 U	35.6	3.1	0.7	na	4 U	5 UJ	1 UJ
MW-4S	4/26/2011	MW-04S-042611	48.4	na	na	na	na	56.5	na	na	na	na	120 J	1.7
MW-4S	7/14/2011	MW-04S-071411-C	na	na	na	na	na	na	na	na	na	na	5 U	1 U
MW-4S	7/14/2011	MW-04S-071411-S	na	na	na	na	na	na	na	na	na	na	4.7 U	4.7 U
MW-5S	4/28/2011	MW-5S-042811	4.4	na	na	na	na	5.2	na	na	na	na	5 UJ	1 U
MW-6S	4/27/2011	MW-6S-042711	12.9	na	na	na	na	13.4	na	na	na	na	5 UJ	1 U
MW-7S	4/26/2011	MW-07S-042611	25.2	na	na	na	na	25.4	na	na	na	na	60	2.7
MW-7S	7/14/2011	MW-07S-071411-C	na	na	na	na	na	na	na	na	na	na	280	7.9
MW-7S	7/14/2011	MW-07S-071411-S	na	na	na	na	na	na	na	na	na	na	234	4.7 U
MW-10	4/26/2011	MW-10-042611	14.7	na	na	na	na	14.3	na	na	na	na	5 U	1 U
MW-11	4/28/2011	MW-11-042811	17	na	na	na	na	22	na	na	na	na	5 UJ	1 U
MW-12	4/28/2011	MW-12-042811	156	na	na	na	na	172	na	na	na	na	5 UJ	1 U
MW-13	4/26/2011	MW-13-042611	580	na	na	na	na	580	na	na	na	na	1100	32
MW-13	7/14/2011	MW-13-071411-C	na	na	na	na	na	na	na	na	na	na	380	28
MW-13	7/14/2011	MW-13-071411-S	na	na	na	na	na	na	na	na	na	na	307	21.7
MW-14	4/27/2011	MW-14-042711	3790	na	na	na	na	4140	na	na	na	na	5 UJ	1 U
MW-14 (dup)	4/27/2011	DUP042711-2	4490	na	na	na	na	4300	na	na	na	na	5 UJ	1 U
MW-14	7/14/2011	MW-14-071411-C	116	na	na	na	na	116	na	na	na	na	na	na
MW-14	7/14/2011	MW-14-071411-S	119	na	na	na	na	120	na	na	na	na	na	na
MW-16	4/28/2011	MW-16-042811	2.7	na	na	na	na	5.3	na	na	na	na	5 UJ	1 U
MW-17	4/25/2011	MW-17-042511	109	na	na	na	na	96.2	na	na	na	na	5 U	1 U
MW-18	4/27/2011	MW-18-042711	13.1	0.8	1	2.7 J	4 U	11.4	0.9	1.7	1.2	4 U	5 UJ	1 U
MW-19	4/28/2011	MW-19-042811	259	na	na	na	na	260	na	na	na	na	5 UJ	1 U
MW-20	4/27/2011	MW-20-042711	1080	1 U	0.8	1.4	4 U	1080	0.5 U	1.3	0.9	4 U	5 UJ	1 U
MW-21	4/27/2011	MW-21-042711	3540	na	na	na	na	3310	na	na	na	na	5 UJ	1 U
MW-21 (dup)	4/27/2011	DUP042711-1	3250	na	na	na	na	3320	na	na	na	na	5 UJ	1 U
MW-22	4/26/2011	MW-22-042611	127	na	na	na	na	164	na	na	na	na	5 UJ	1 U
MW-23	4/27/2011	MW-23-042711	4.8	na	na	na	na	4.7	na	na	na	na	5 UJ	1 U
MW-24	4/27/2011	MW-24-042711	0.7	0.5 U	0.6	0.5 U	4 U	0.7	0.5 U	0.6	0.8	4 U	5 UJ	1 U
MW-26	4/28/2011	MW-26-042811	1060	0.9	0.5 U	0.8	4 U	984	0.8	0.9	0.6	4 U	5 UJ	1 U
MW-27	4/28/2011	MW-27-042811	14.9	0.5 U	0.5	2.6	4 U	15.2	0.5 U	0.6	2	4 U	5 UJ	1 U
Maximum Detected Concentrations			4490	3.4	1	2.7	20	4300	3.1	2	2	20	1100	32
Method B			0.058 ca	50 a	640 nc	320 nc,b	4,800 nc	0.058 ca	50 a	640 nc	320 nc,b	4,800 nc	0.22 ca	480 nc
Method C			0.58	50 a	1,400 nc	700 nc,b	10,500 nc	0.58	50 a	1,400 nc	700 nc,b	10,500 nc	2.2 ca	1,050 nc
SW-AL			36	NP	3.1	8.2 b	81	36	NP	3.1	8.2 b	81	7.9	NP
SW-HH			0.14	NP	NP	4,600 b	26,000	0.14	NP	NP	4,600 b	26,000	3.0	NP

Notes and Key:

ug/L = micrograms per liter
ca = carcinogen
dup = Duplicate sample
na = Not analyzed
nc = non-carcinogen

Bold text indicates that compound was detected.
Shaded cells indicate values that exceed the Method B.
Boxed cells indicate values that exceed the Method C.
Hatched cells indicate value exceeds Surface Water, Water Quality Criteria - Aquatic Life - Marine/Chronic - Clean Water Act (SW-A
Underlined text indicate values exceed Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (SW-HH)

NP = Screening level not provided
Method B = State of Washington Model Toxics Control Act Method B Screening Level. Level provided is the lowest of the carcinogenic and non-carcinogenic.
Method C = State of Washington Model Toxics Control Act Method C Screening Level
SW-AL = • Water Quality Criteria for chronic exposure of aquatic life from Washington Administrative Code (WAC) 173-201A.
SW-HH = • Water Quality Criteria for human health in marine environments from the Federal Clean Water Act (WAC not established).
a = State of Washington Model Toxics Control Act Method A Screening Level, no Method B or C screening level available.
b = Screening level is for nickel soluble salts

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
U = Result is ≤ Method Detection Limit (MDL) or client requested reporting limit (CRRL). Result reported as the MDL or CRRL and is qualified as non detected.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Attachment A
Analytical Laboratory Reports

Table of Contents: ARI Job TE33

Client: ERM-West

Project: 128296.05 RG SW Sampling

	Page From:	Page To:
Inventory Sheet		
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Case Narrative, Data Qualifiers, Control Limits	6	15
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BC
Signature

July-27-2011
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

July 29, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job TE33

Dear Mr. Mendes:

Please find enclosed chain of custody documentation and data report for samples from the project referenced above.

Sample receipt and any issues with the analyses are discussed in the report Narrative.

Current ARI control limits are available at www.arilabs.com.

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.

Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile TE33
hardcopy to file

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: TE33

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: TE33	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: ERM	Phone: 425 214 0458	Date: 7/14/11	Ice Present?
Client Contact: Mike Mendes		No. of Coolers:	Cooler Temps:
Client Project Name: 126 GW Sampling			
Client Project #: 128296.05	Samplers: Cyrus/Matt		

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: Dissolved Chlorinated Phenols 8270C	Total As	Dissolved As *						Notes/Comments
MW-04S-071411	7/14/11	1219	W	2	X								
MW-07S-071411	7/14/11	1329	W	2	X								
MW-13-071411	7/14/11	1423	W	2	X								
MW-14-071411	7/14/11	1556	W	2		X	X						

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Matt Crandell	Printed Name: Michele Bailey	Printed Name:	Printed Name:
	Company: ERM	Company: ARI	Company:	Company:
	Date & Time: 7/15/2011, 0800	Date & Time: 7/15/2011 14:26	Date & Time	Date & Time:

TE33: 00003

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.

* filtered in the field

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM Project Name: RG MW Sampling

COC No(s): _____ (NA) Delivered by Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No. TE33 Tracking No: _____ (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)	3.0	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 90941614

Cooler Accepted by: Michelle Baxter Date: 7/15/2011 Time: 14:26

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			(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: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

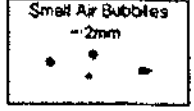
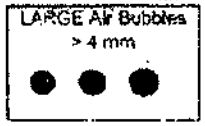
Samples Logged by: AV Date: 7/15/11 Time: 1750

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

PRESERVATION VERIFICATION 07/15/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **TE33**

Inquiry Number: NONE
Analysis Requested: 07/18/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: AV
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Sue D.
VTSR: 07/15/11

Project #: 128296.05
Project: RG SW Sampling
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM / ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-15274 TE33D	MW-14-071411						TOT Pass DIS										Y					
11-15275 TE33E	MW-14-071411																					

TE33 00005

Checked By AV Date 7/15/11

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: TE33

Narrative

Client: ERM-West, Inc.
Project: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job No.: TE33

Sample receipt

Four water samples were received on July 15, 2011 under ARI job TE33. The cooler temperatures measured by IR thermometer following ARI SOP was 3.0°C. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Semivolatiles by SW8270

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, in two separate batches.

The initial and continuing calibrations were within method requirements for target compounds. Internal standard areas were within limits.

The surrogate percent recoveries were within limits.

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

Total and Dissolved Arsenic

The samples were digested and analyzed within recommended holding times.

Initial and continuing calibrations were within limits.

The method blanks were clean at the detection limit and the LCS percent recoveries were within control limits.

The duplicate RPD were within limits for the total fractions of sample **MW-14-071411**. Matrix spike recovery calculated is invalid due to the high concentration in the parent sample relative to the spike amount. Results have been "H" flagged on the Form V.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: TE33
Client: ERM-West
Project Event: 128296.05
Project Name: RG SW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-045-071411	TE33A	11-15271	Water	07/14/11 12:14	07/15/11 14:26
2.	MW-075-071411	TE33B	11-15272	Water	07/14/11 13:29	07/15/11 14:26
3.	MW-13-071411	TE33C	11-15273	Water	07/14/11 14:23	07/15/11 14:26
4.	MW-14-071411	TE33D	11-15274	Water	07/14/11 15:56	07/15/11 14:26
5.	MW-14-071411	TE33E	11-15275	Water	07/14/11 15:56	07/15/11 14:26

Printed 07/15/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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 ≥ 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).

TE33 : 00009

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 ≥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)**

TE33 : 00010

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

TE33 : 00011

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
LCS Spike Recovery [8]				
Phenol [3]	50 - **100**	43 - 103	16 - **100**	6 - **100**
Bis-(2-chloroethyl) ether	52 - **100**	45 - 105	41 - 112	29 - 124
2-Chlorophenol	56 - **100**	49 - 103	43 - 111	32 - 122
1,3-Dichlorobenzene	23 - **100**	15 - **100**	32 - **100**	22 - 103
1,4-Dichlorobenzene	25 - **100**	17 - **100**	32 - **100**	22 - 103
Benzyl Alcohol	19 - 100	**10** - 114	22 - 100	9 - 113
1,2-Dichlorobenzene	30 - **100**	22 - **100**	34 - **100**	24 - 104
2-Methylphenol	52 - **100**	44 - 106	36 - 110	24 - 122
2,2'-oxybis(1-chloropropane)	32 - 111	19 - 124	29 - 118	14 - 133
4-Methylphenol	53 - 102	45 - 110	38 - 104	27 - 115
N-Nitroso-di-n-propylamine	43 - 104	33 - 114	38 - 115	25 - 128
Hexachloroethane	12 - **100**	**10** - **100**	24 - **100**	13 - 100
Nitrobenzene	33 - 125	18 - 140	45 - 106	35 - 116
Isophorone	57 - 115	47 - 125	55 - 119	44 - 130
2-Nitrophenol	56 - 102	48 - 110	46 - 118	34 - 130
2,4-Dimethyphenol	29 - **100**	20 - **100**	28 - 105	15 - 118
Bis-(2-chloroethoxy) methane	54 - 101	46 - 109	44 - 118	32 - 130
Benzoic Acid [3]	**10** - 131	**10** - 151	11 - **100**	**10** - **100**
2,4-Dichlorophenol	56 - 104	48 - 112	43 - 121	30 - 134
1,2,4-Trichlorobenzene	27 - **100**	18 - **100**	35 - **100**	25 - 107
Naphthalene	45 - **100**	38 - **100**	36 - 111	24 - 124
4-Chloroaniline [3]	**10** - 139	**10** - 161	10 - 174	**10** - 201
2-Chloronaphthalene	45 - **100**	37 - 105	39 - 118	26 - 131
Hexachlorobutadiene	**10** - **100**	**10** - **100**	24 - **100**	12 - 108
4-Chloro-3-methylphenol	53 - 109	44 - 118	45 - 122	32 - 135
2-Methylnaphthalene	46 - **100**	38 - 100	45 - 103	35 - 113
Hexachlorocyclopentadiene	**10** - **100**	**10** - **100**	23 - 108	**10** - 122
2,4,6-Trichlorophenol	58 - 108	50 - 116	48 - 122	36 - 134
2,4,5-Trichlorophenol	58 - 107	50 - 115	48 - 122	36 - 134
2-Nitroaniline	50 - 107	41 - 117	48 - 118	36 - 130
Dimethylphthalate	58 - 107	50 - 115	50 - 120	38 - 132
Acenaphthylene	57 - 100	50 - 107	50 - 119	39 - 131
2,6-Dinitrotoluene	58 - 112	49 - 121	48 - 133	34 - 147
3-Nitroaniline [3]	21 - 150	**10** - 172	54 - 140	40 - 154
Acenaphthene	51 - **100**	43 - 106	41 - 120	28 - 133
2,4-Dinitrophenol	12 - 169	**10** - 195	23 - 176	**10** - 202

TE33 : 00012

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Dibenzofuran	57 - 100	50 - 107	51 - 114	41 - 125
4-Nitrophenol [3]	35 - 119	21 - 133	13 - **100**	**10** - **100**
2,4-Dinitrotoluene	58 - 117	48 - 127	51 - 134	37 - 148
Fluorene	56 - 104	48 - 112	50 - 120	38 - 132
Diethylphthlalate	52 - 111	42 - 121	48 - 122	36 - 134
4-Chlorophenyl-phenyl ether	55 - 104	47 - 112	50 - 118	39 - 129
4-Nitroaniline	49 - 112	39 - 123	42 - 136	26 - 152
4,6-Dinitro-2-Methylphenol	13 - 139	**10** - 160	32 - 121	17 - 136
N-Nitrosodiphenylamine	60 - 136	47 - 149	58 - 141	44 - 155
4-Bromophenyl-phenyl ether	55 - 103	47 - 111	50 - 122	38 - 134
Hexachlorobenzene	54 - 106	45 - 115	47 - 125	34 - 138
Pentachlorophenol	46 - 114	35 - 125	35 - 130	19 - 146
Phenanthrene	56 - 102	48 - 110	49 - 120	37 - 132
Anthracene	56 - 101	49 - 109	53 - 116	43 - 127
Carbazole	60 - 108	52 - 116	57 - 122	46 - 133
Di-n-butylphthalate	56 - 112	47 - 121	57 - 121	46 - 132
Fluoranthene	57 - 110	48 - 119	56 - 119	46 - 130
Pyrene	48 - 119	36 - 131	37 - 143	19 - 161
Butylbenzylphthalate	51 - 114	41 - 125	34 - 152	14 - 172
Benzo(a)Anthracene	55 - 105	47 - 113	49 - 129	36 - 142
3,3'-Dichlorbenzidine [3]	**10** - 128	**10** - 148	50 - 128	37 - 141
Chrysene	55 - 104	47 - 112	45 - 128	31 - 142
bis(2-Ethylhexyl) phthalate	28 - 164	**10** - 187	57 - 133	44 - 146
Di-n-octylphthalate	57 - 107	49 - 115	52 - 120	41 - 131
Benzofluoranthene(s) (Total)	30 - 160 [10]	30 - 160 [10]	30 - 160 [10]	30 - 160 [10]
Benzo(a)Pyrene	45 - 103	35 - 113	46 - 109	36 - 120
Indeno(1,2,3-cd)Pyrene	35 - 118	21 - 132	34 - 136	17 - 153
Dibenz(a,h)anthracene	42 - 119	29 - 132	41 - 134	26 - 150
Benzo(g,h,i)Perylene	39 - 123	25 - 137	41 - 133	26 - 148
Aniline [3]	**10** - **100**	**10** - **100**	28 - 126	12 - 142
1,2-Diphenylhydrazine /Azobenzene	57 - 109	48 - 118	55 - 119	44 - 130
N-Nitrosodimethylamine	49 - **100**	41 - 104	31 - **100**	21 - 105
1-Methylnaphthalene	46 - **100**	37 - 107	43 - 115	31 - 127
1,4-Dioxane	40 - **100**	30 - 108	30 - 160 [4]	30 - 160 [4]
Pyridine	-	-	25 - **100**	15 - **100**
Tributyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Dibutyl Phenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]

TE33 : 00013

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Butyl Diphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Triphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Butylated Hydroxytoluene (BHT)	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
MB / LCS Surrogate Recovery				
d4-2-Chlorophenol	53 - 100	(5)	49 - 101	(5)
d4-1,2-Dichlorobenzene	38 - **100**	(5)	40 - **100**	(5)
2,4,6-Tribromophenol	52 - 123	(5)	51 - 122	(5)
2-Fluorophenol	46 - **100**	(5)	31 - **100**	(5)
d5-Phenol [3]	50 - 100	52 - 108	19 - **100**	12 - **100**
d5-Nitrobenzene	46 - 100	(5)	46 - 101	(5)
2-Fluorobiphenyl	49 - **100**	(5)	49 - 103	(5)
d14-p-Terphenyl	53 - 119	(5)	49 - 130	(5)
d8-1,4-Dioxane	45 - **100**	(5)	30 - 160 [4]	(5)
Sample Surrogate Recovery				
d4-2-Chlorophenol	44 - **100**	(5)	23 - 104	(5)
d4-1,2-Dichlorobenzene	32 - **100**	(5)	22 - **100**	(5)
2,4,6-Tribromophenol	48 - 118	(5)	22 - 125	(5)
2-Fluorophenol	38 - **100**	(5)	18 - **100**	(5)
d5-Phenol	41 - **100**	32 - 104	**10** - **100**	17 - **100**
d5-Nitrobenzene	39 - **100**	(5)	21 - 106	(5)
2-Fluorobiphenyl	42 - **100**	(5)	26 - 104	(5)
d14-p-Terphenyl	26 - 114	(5)	11 - 132	(5)
d8-1,4-Dioxane	32 - **100**	(5)	30 - 160 [4]	(5)

(1) Control Limits calculated using all data generated 1/1/07 through 12/1/07.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [6] as beyond the CL but still within the ME limits. ARI defines ME limits as between 3 and 4 standard deviations around the mean with upper limit ≥ 100%. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances in an analysis require corrective action.
(3) These are "**poor performers**" defined in the DoD QSM[7] as compounds that "produce low mean recoveries and high standard deviations, resulting in wide LCS control limits with particularly low lower control limits (sometimes-negative values). ARI does not control batch acceptance based on these compounds since there is a high level of uncertainty in their recovery."
(4) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(5) Marginal Exceedances not allowed for surrogate unless it is a "poor performer".
(6) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(7) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based On National Environmental Laboratory Accreditation Conference (NELAC) Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(9) 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.
(10) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

TE33 : 00014

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

TE33 00015

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: TE33

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-04S-071411
SAMPLE

Lab Sample ID: TE33A
LIMS ID: 11-15271
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 16:54
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	81.9%
2-Fluorophenol	76.3%
2,4,6-Tribromophenol	86.4%
d4-2-Chlorophenol	85.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-07S-071411
SAMPLE

Lab Sample ID: TE33B
LIMS ID: 11-15272
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 17:27
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**340 ES**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**7.9**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	77.3%
2-Fluorophenol	69.9%
2,4,6-Tribromophenol	78.9%
d4-2-Chlorophenol	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-07S-071411
DILUTION

Lab Sample ID: TE33B
LIMS ID: 11-15272
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 21:16
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 25.0

CAS Number	Analyte	RL	Result
108-95-2	Phenol	25	< 25 U
95-57-8	2-Chlorophenol	25	< 25 U
120-83-2	2,4-Dichlorophenol	120	< 120 U
88-06-2	2,4,6-Trichlorophenol	120	< 120 U
95-95-4	2,4,5-Trichlorophenol	120	< 120 U
87-86-5	**Pentachlorophenol**	**120**	**280**
58-90-2	2,3,4,6-Tetrachlorophenol	25	< 25 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	80.0%
2-Fluorophenol	78.7%
2,4,6-Tribromophenol	90.0%
d4-2-Chlorophenol	91.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-13-071411
SAMPLE

Lab Sample ID: TE33C
LIMS ID: 11-15273
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 18:00
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**540 ES**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**28**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	69.3%
2-Fluorophenol	62.4%
2,4,6-Tribromophenol	76.5%
d4-2-Chlorophenol	71.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-13-071411
DILUTION

Lab Sample ID: TE33C
LIMS ID: 11-15273
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 21:49
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 25.0

CAS Number	Analyte	RL	Result
108-95-2	Phenol	25	< 25 U
95-57-8	2-Chlorophenol	25	< 25 U
120-83-2	2,4-Dichlorophenol	120	< 120 U
88-06-2	2,4,6-Trichlorophenol	120	< 120 U
95-95-4	2,4,5-Trichlorophenol	120	< 120 U
87-86-5	**Pentachlorophenol**	**120**	**380**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**25**	**26**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	66.7%
2-Fluorophenol	68.0%
2,4,6-Tribromophenol	86.0%
d4-2-Chlorophenol	74.0%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-071911	70.9%	66.9%	86.1%	76.8%	0
LCS-071911	80.0%	67.7%	92.3%	80.0%	0
LCSD-071911	82.4%	71.7%	87.2%	81.1%	0
MW-04S-071411	81.9%	76.3%	86.4%	85.1%	0
MW-07S-071411	77.3%	69.9%	78.9%	80.0%	0
MW-07S-071411 DL	80.0%	78.7%	90.0%	91.3%	0
MW-13-071411	69.3%	62.4%	76.5%	71.5%	0
MW-13-071411 DL	66.7%	68.0%	86.0%	74.0%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-15271 to 11-15273

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-071911
LCS/LCSD

Lab Sample ID: LCS-071911
LIMS ID: 11-15271
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Date Extracted LCS/LCSD: 07/19/11

Date Analyzed LCS: 07/21/11 15:49
LCSD: 07/21/11 16:21
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	20.1	25.0	80.4%	20.6	25.0	82.4%	2.5%
2-Chlorophenol	19.9	25.0	79.6%	21.1	25.0	84.4%	5.9%
2,4-Dichlorophenol	63.8	75.0	85.1%	63.7	75.0	84.9%	0.2%
2,4,6-Trichlorophenol	66.2	75.0	88.3%	66.5	75.0	88.7%	0.5%
2,4,5-Trichlorophenol	71.7	75.0	95.6%	73.0	75.0	97.3%	1.8%
Pentachlorophenol	74.6	75.0	99.5%	80.4	75.0	107%	7.5%
2,3,4,6-Tetrachlorophenol	17.8	25.0	71.2%	16.8	25.0	67.2%	5.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	80.0%	82.4%
2-Fluorophenol	67.7%	71.7%
2,4,6-Tribromophenol	92.3%	87.2%
d4-2-Chlorophenol	80.0%	81.1%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

TE33MBW1

Lab Name: ANALYTICAL RESOURCES INC

Client: ERM-WEST

ARI Job No: TE33

Project: RG SW SAMPLING

Lab File ID: 07211107

Date Extracted: 07/19/11

Instrument ID: NT6

Date Analyzed: 07/21/11

Matrix: LIQUID

Time Analyzed: 1516

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	TE33LCSW1	TE33LCSW1	07211108	07/21/11
02	TE33LCSDW1	TE33LCSDW1	07211109	07/21/11
03	MW-04S-071411	TE33A	07211110	07/21/11
04	MW-07S-071411	TE33B	07211111	07/21/11
05	MW-13-071411	TE33C	07211112	07/21/11
06	MW-07S-071411	TE33B	07211118	07/21/11
07	MW-13-071411	TE33C	07211119	07/21/11
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-071911
METHOD BLANK

Lab Sample ID: MB-071911
LIMS ID: 11-15271
Matrix: Water
Data Release Authorized:
Reported: 07/27/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 07/19/11
Date Analyzed: 07/21/11 15:16
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	70.9%
2-Fluorophenol	66.9%
2,4,6-Tribromophenol	86.1%
d4-2-Chlorophenol	76.8%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SW SAMPLING

DFTPP Injection Date: 05/24/11 DFTPP Injection Time: 1626

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.0
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	50.4
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	21.1
365	Greater than 1.0% of mass 198	2.45
441	0.0 - 24.0% of mass 442	9.7 (14.3)2
442	50.0 - 200.0% of mass 198	68.0
443	15.0 - 24.0% of mass 442	13.3 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250524	IC250524	05231101	05/24/11	1626
02	IC10524	IC10524	05231102	05/24/11	1659
03	IC50524	IC50524	05231103	05/24/11	1732
04	IC100524	IC100524	05231104	05/24/11	1805
05	IC400524	IC400524	05231105	05/24/11	1838
06	IC600524	IC600524	05231106	05/24/11	1910
07	IC800524	IC800534	05231107	05/24/11	1943
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09					
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FORM V SV

TE33:00026

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SW SAMPLING

DFTPP Injection Date: 07/21/11 DFTPP Injection Time: 1158

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	39.9
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	50.2
197	Less than 2.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	22.6
365	Greater than 1.0% of mass 198	2.49
441	0.0 - 24.0% of mass 442	10.9 (14.2)2
442	50.0 - 200.0% of mass 198	77.2
443	15.0 - 24.0% of mass 442	14.8 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0721	CC0721	07211101	07/21/11	1158
02	TE33MBW1	TE33MBW1	07211107	07/21/11	1516
03	TE33LCSW1	TE33LCSW1	07211108	07/21/11	1549
04	TE33LCSDW1	TE33LCSDW1	07211109	07/21/11	1621
05	MW-04S-071411	TE33A	07211110	07/21/11	1654
06	MW-07S-071411	TE33B	07211111	07/21/11	1727
07	MW-13-071411	TE33C	07211112	07/21/11	1800
08	MW-07S-071411	TE33B	07211118	07/21/11	2116
09	MW-13-071411	TE33C	07211119	07/21/11	2149
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6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	___ RRF	%RSD /R^2
Phenol	1.430	1.244	1.390	1.296	1.364	1.321	1.287	1.333	4.9
Bis(2-Chloroethyl)ether	1.135	0.998	1.052	1.117	1.083	1.080	1.057	1.074	4.2
2-Chlorophenol	1.191	1.048	1.149	1.110	1.170	1.138	1.110	1.131	4.1
1,3-Dichlorobenzene	1.492	1.242	1.274	1.404	1.340	1.342	1.305	1.343	6.3
1,4-Dichlorobenzene	1.485	1.281	1.350	1.450	1.368	1.365	1.324	1.375	5.2
1,2-Dichlorobenzene	1.393	1.171	1.218	1.311	1.245	1.221	1.194	1.250	6.1
Benzyl alcohol	1.052	1.009	1.003	1.076	1.118	1.108	1.089	1.065	4.3
2,2'-oxybis(1-Chloropropane)	0.866	0.735	0.760	0.807	0.800	0.807	0.799	0.796	5.2
2-Methylphenol	1.068	0.927	1.017	0.956	1.032	1.005	0.974	0.997	4.8
Hexachloroethane	0.507	0.451	0.471	0.520	0.497	0.492	0.473	0.487	4.8
N-Nitroso-di-n-propylamine	0.774	0.689	0.712	0.764	0.727	0.740	0.728	0.733	4.0
4-Methylphenol	1.056	0.953	1.066	1.009	1.066	1.033	0.998	1.026	4.1
Nitrobenzene	0.364	0.320	0.322	0.353	0.348	0.329	0.327	0.338	5.1
Isophorone	0.548	0.489	0.496	0.544	0.506	0.511	0.518	0.516	4.4
2-Nitrophenol	0.190	0.157	0.183	0.178	0.189	0.180	0.183	0.180	6.1
2,4-Dimethylphenol	0.341	0.285	0.307	0.295	0.315	0.292	0.294	0.304	6.3
Bis(2-Chloroethoxy)methane	0.419	0.349	0.355	0.390	0.352	0.360	0.360	0.369	7.0
2,4-Dichlorophenol	0.294	0.252	0.280	0.269	0.285	0.273	0.277	0.276	4.8
1,2,4-Trichlorobenzene	0.331	0.273	0.273	0.302	0.292	0.283	0.288	0.292	7.0
Naphthalene	0.991	0.827	0.826	0.903	0.863	0.814	0.790	0.859	8.0
Benzoic acid		0.159	0.188	0.212	0.220	0.226	0.232	0.206	13.4
4-Chloroaniline	0.592	0.524	0.520	0.555	0.520	0.503	0.485	0.528	6.6
Hexachlorobutadiene	0.173	0.146	0.141	0.158	0.152	0.151	0.153	0.153	6.7
4-Chloro-3-methylphenol	0.260	0.228	0.248	0.246	0.247	0.248	0.241	0.245	3.9
2-Methylnaphthalene	0.802	0.658	0.668	0.701	0.688	0.679	0.676	0.696	7.0
Hexachlorocyclopentadiene	0.191	0.239	0.254	0.323	0.327	0.320	0.319	0.282	19.1
2,4,6-Trichlorophenol	0.329	0.281	0.332	0.318	0.363	0.356	0.356	0.334	8.6
2,4,5-Trichlorophenol	0.300	0.289	0.340	0.338	0.356	0.337	0.331	0.327	7.3
2-Chloronaphthalene	1.183	0.991	0.988	1.065	1.026	0.985	0.951	1.027	7.5
2-Nitroaniline	0.378	0.334	0.369	0.382	0.399	0.378	0.358	0.371	5.5
Acenaphthylene	1.597	1.428	1.430	1.552	1.462	1.416	1.350	1.462	5.8
Dimethylphthalate	1.196	0.993	1.016	1.100	1.059	1.026	0.996	1.055	6.9
2,6-Dinitrotoluene	0.255	0.241	0.247	0.272	0.270	0.259	0.259	0.258	4.4
Acenaphthene	1.031	0.856	0.851	0.941	0.888	0.852	0.827	0.892	8.0
3-Nitroaniline	0.407	0.388	0.393	0.409	0.368	0.308	0.271	0.363	14.7
2,4-Dinitrophenol		0.086	0.123	0.155	0.174	0.178	0.179	0.149	0.993
Dibenzofuran	2.178	1.858	1.855	1.918	1.969	1.870	1.727	1.911	7.3

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.099	0.117	0.132	0.158	0.169	0.157	0.149	0.140	18.0
2,4-Dinitrotoluene	0.308	0.301	0.314	0.351	0.350	0.343	0.339	0.329	6.4
Fluorene	1.238	1.024	1.042	1.125	1.093	1.055	1.006	1.083	7.3
4-Chlorophenyl-phenylether	0.608	0.484	0.502	0.536	0.511	0.508	0.505	0.522	7.9
Diethylphthalate	1.152	0.962	0.979	1.026	1.012	0.960	0.923	1.002	7.4
4-Nitroaniline	0.349	0.363	0.357	0.405	0.411	0.394	0.386	0.381	6.4
4,6-Dinitro-2-methylphenol	0.093	0.110	0.126	0.130	0.145	0.140	0.144	0.127	15.2
N-Nitrosodiphenylamine (1)	0.629	0.500	0.505	0.543	0.518	0.507	0.500	0.529	8.8
4-Bromophenyl-phenylether	0.220	0.169	0.170	0.183	0.177	0.182	0.182	0.183	9.4
Hexachlorobenzene	0.223	0.179	0.191	0.202	0.197	0.196	0.200	0.198	6.7
Pentachlorophenol		0.075	0.097	0.110	0.123	0.125	0.133	0.110	19.6
Phenanthrene	1.103	0.871	0.868	0.941	0.911	0.860	0.846	0.914	9.8
Anthracene	1.094	0.936	0.933	1.014	0.969	0.907	0.879	0.962	7.6
Carbazole	1.032	0.900	0.892	0.967	0.927	0.890	0.851	0.923	6.5
Di-n-butylphthalate	1.174	1.020	1.047	1.156	1.123	1.030	0.986	1.076	6.8
Fluoranthene	1.014	0.900	0.897	1.020	0.986	0.927	0.895	0.948	5.9
Pyrene	1.244	1.054	1.046	1.087	1.030	0.993	0.966	1.060	8.5
Butylbenzylphthalate	0.479	0.476	0.500	0.529	0.513	0.495	0.490	0.497	3.7
Benzo(a)anthracene	1.074	0.830	0.839	0.926	0.899	0.887	0.875	0.904	9.1
3,3'-Dichlorobenzidine	0.376	0.351	0.339	0.365	0.346	0.335	0.322	0.348	5.3
Chrysene	1.008	0.819	0.814	0.877	0.850	0.833	0.810	0.859	8.1
bis(2-Ethylhexyl)phthalate	0.461	0.450	0.471	0.511	0.493	0.483	0.490	0.480	4.3
Di-n-octylphthalate	1.004	0.826	0.831	0.890	0.844	0.817	0.798	0.858	8.2
Benzo(b)fluoranthene	1.167	0.932	0.994	1.091	1.052	1.027	1.087	1.050	7.2
Benzo(k)fluoranthene	1.183	1.022	1.014	1.086	1.099	1.049	0.981	1.062	6.3
Benzo(a)pyrene	1.024	0.889	0.934	1.016	1.008	0.981	0.981	0.976	5.0
Indeno(1,2,3-cd)pyrene	1.209	1.068	1.061	1.144	1.142	1.210	1.192	1.146	5.5
Dibenzo(a,h)anthracene	1.006	0.875	0.867	0.956	0.951	1.005	0.964	0.946	5.9
Benzo(g,h,i)perylene	1.056	0.938	0.917	0.989	0.987	1.067	1.032	0.998	5.7
N-Nitrosodimethylamine	0.677	0.627	0.628	0.705	0.694	0.696	0.676	0.672	4.8
Aniline	2.599	2.230	2.282	2.369	2.389	2.330	2.200	2.343	5.7
Benzidine	0.491	0.518	0.462	0.472	0.430	0.381	0.370	0.446	12.4
Pyridine	1.060	1.094	1.177	1.298	1.265	1.282	1.248	1.203	7.9
1-methylnaphthalene	0.787	0.624	0.630	0.675	0.621	0.620	0.613	0.653	9.6
Azobenzene (1,2-DP-Hydrazine	1.272	1.070	1.051	1.139	1.088	1.032	0.958	1.087	9.1
2,3,4,6-Tetrachlorophenol	0.274	0.253	0.289	0.282	0.315	0.306	0.308	0.290	7.6
1,2,4,5-Tetrachlorobenzene	0.549	0.438	0.447	0.488	0.482	0.461	0.458	0.475	7.8

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	___ RRF	%RSD /R^2
Total Benzofluoranthenes	1.113	0.921	0.960	1.040	1.014	0.982	0.972	1.000	6.2
2-Fluorophenol	1.224	1.088	1.263	1.249	1.269	1.203		1.216	5.5
Phenol-d5	1.479	1.297	1.488	1.453	1.498	1.436		1.442	5.2
2-Chlorophenol-d4	1.292	1.069	1.227	1.235	1.233	1.181		1.206	6.3
1,2-Dichlorobenzene-d4	0.886	0.752	0.837	0.818	0.833	0.797		0.820	5.4
Nitrobenzene-d5	0.352	0.329	0.354	0.370	0.373	0.351		0.355	4.4
2-Fluorobiphenyl	1.312	1.084	1.238	1.230	1.231	1.162		1.210	6.4
2,4,6-Tribromophenol	0.152	0.126	0.134	0.138	0.149	0.141		0.140	6.7
Terphenyl-d14		0.590	0.672	0.658	0.664	0.632		0.643	5.2

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Cont. Calib. Date: 07/21/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1158

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.333	1.364	0.800	AVRG	2.3	
Bis(2-Chloroethyl)ether	1.074	1.027	0.700	AVRG	-4.4	
2-Chlorophenol	1.131	1.205	0.800	AVRG	6.5	
1,3-Dichlorobenzene	1.343	1.343	0.010	AVRG	0.0	
1,4-Dichlorobenzene	1.375	1.409	0.010	AVRG	2.5	
1,2-Dichlorobenzene	1.250	1.309	0.010	AVRG	4.7	
Benzyl alcohol	1.065	0.933	0.010	AVRG	-12.4	
2,2'-oxybis(1-Chloropropane)	0.796	0.654	0.010	AVRG	-17.8	
2-Methylphenol	0.997	1.000	0.700	AVRG	0.3	
Hexachloroethane	0.487	0.517	0.300	AVRG	6.2	
N-Nitroso-di-n-propylamine	0.733	0.731	0.500	AVRG	-0.3	
4-Methylphenol	1.026	1.075	0.600	AVRG	4.8	
Nitrobenzene	0.338	0.314	0.200	AVRG	-7.1	
Isophorone	0.516	0.522	0.400	AVRG	1.2	
2-Nitrophenol	0.180	0.182	0.100	AVRG	1.1	
2,4-Dimethylphenol	0.304	0.297	0.200	AVRG	-2.3	
Bis(2-Chloroethoxy)methane	0.369	0.359	0.300	AVRG	-2.7	
2,4-Dichlorophenol	0.276	0.284	0.200	AVRG	2.9	
1,2,4-Trichlorobenzene	0.292	0.305	0.010	AVRG	4.4	
Naphthalene	0.859	0.867	0.700	AVRG	0.9	
Benzoic acid	0.206	0.196	0.010	AVRG	-4.8	
4-Chloroaniline	0.528	0.538	0.010	AVRG	1.9	
Hexachlorobutadiene	0.153	0.163	0.010	AVRG	6.5	
4-Chloro-3-methylphenol	0.245	0.262	0.200	AVRG	6.9	
2-Methylnaphthalene	0.696	0.740	0.400	AVRG	6.3	
Hexachlorocyclopentadiene	0.282	0.219	0.050	AVRG	-22.3	<- LTC
2,4,6-Trichlorophenol	0.334	0.318	0.200	AVRG	-4.8	
2,4,5-Trichlorophenol	0.327	0.313	0.200	AVRG	-4.3	
2-Chloronaphthalene	1.027	0.997	0.800	AVRG	-2.9	
2-Nitroaniline	0.371	0.336	0.010	AVRG	-9.4	
Acenaphthylene	1.462	1.402	0.900	AVRG	-4.1	D 07/22/11
Dimethylphthalate	1.055	1.012	0.010	AVRG	-4.1	
2,6-Dinitrotoluene	0.258	0.241	0.200	AVRG	-6.6	
Acenaphthene	0.892	0.878	0.900	AVRG	-1.6	*
3-Nitroaniline	0.363	0.380	0.010	AVRG	4.7	
2,4-Dinitrophenol	50.00	40.32	0.010	LINR	-19.4	
Dibenzofuran	1.911	1.800	0.800	AVRG	-5.8	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Cont. Calib. Date: 07/21/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1158

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.140	0.111	0.010	AVRG	-20.7	<- NTC
2,4-Dinitrotoluene	0.329	0.316	0.200	AVRG	-4.0	
Fluorene	1.083	1.022	0.900	AVRG	-5.6	
4-Chlorophenyl-phenylether	0.522	0.477	0.400	AVRG	-8.6	
Diethylphthalate	1.002	0.954	0.010	AVRG	-4.8	
4-Nitroaniline	0.381	0.346	0.010	AVRG	-9.2	
4,6-Dinitro-2-methylphenol	0.127	0.130	0.010	AVRG	2.4	
N-Nitrosodiphenylamine(1)	0.529	0.528	0.010	AVRG	-0.2	
4-Bromophenyl-phenylether	0.183	0.187	0.100	AVRG	2.2	
Hexachlorobenzene	0.198	0.205	0.100	AVRG	3.5	
Pentachlorophenol	0.110	0.089	0.050	AVRG	-19.1	
Phenanthrene	0.914	0.900	0.700	AVRG	-1.5	
Anthracene	0.962	0.934	0.700	AVRG	-2.9	
Carbazole	0.923	0.847	0.010	AVRG	-8.2	
Di-n-butylphthalate	1.076	1.083	0.010	AVRG	0.6	
Fluoranthene	0.948	0.951	0.600	AVRG	0.3	
Pyrene	1.060	0.994	0.600	AVRG	-6.2	
Butylbenzylphthalate	0.497	0.465	0.010	AVRG	-6.4	
Benzo(a)anthracene	0.904	0.904	0.800	AVRG	0.0	
3,3'-Dichlorobenzidine	0.348	0.383	0.010	AVRG	10.0	
Chrysene	0.859	0.894	0.700	AVRG	4.1	
bis(2-Ethylhexyl)phthalate	0.480	0.487	0.010	AVRG	1.4	
Di-n-octylphthalate	0.858	0.876	0.010	AVRG	2.1	
Benzo(b)fluoranthene	1.050	1.072	0.700	AVRG	2.1	
Benzo(k)fluoranthene	1.062	1.065	0.700	AVRG	0.3	
Benzo(a)pyrene	0.976	1.014	0.700	AVRG	3.9	
Indeno(1,2,3-cd)pyrene	1.146	1.065	0.500	AVRG	-7.1	
Dibenzo(a,h)anthracene	0.946	0.909	0.400	AVRG	-3.9	
Benzo(g,h,i)perylene	0.998	0.848	0.500	AVRG	-15.0	
N-Nitrosodimethylamine	0.672	0.611	0.010	AVRG	-9.1	
Aniline	2.343	2.060	0.010	AVRG	-12.1	
Benzidine	0.446	0.329	0.010	AVRG	-26.2	<- NTC
Pyridine	1.203	0.998	0.010	AVRG	-17.0	
1-methylnaphthalene	0.653	0.660	0.010	AVRG	1.1	
Azobenzene (1,2-DP-Hydrazine	1.087	1.069	0.010	AVRG	-1.6	
2,3,4,6-Tetrachlorophenol	0.290	0.237	0.010	AVRG	-18.3	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

07/23/11

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Instrument ID: NT6 Cont. Calib. Date: 07/21/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1158

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.475	0.472	0.010	AVRG	-0.6
Total Benzofluoranthenes	1.000	1.004	0.010	AVRG	0.4
2-Fluorophenol	1.216	1.126	0.010	AVRG	-7.4
Phenol-d5	1.442	1.469	0.010	AVRG	1.9
2-Chlorophenol-d4	1.206	1.206	0.010	AVRG	0.0
1,2-Dichlorobenzene-d4	0.820	0.816	0.010	AVRG	-0.5
Nitrobenzene-d5	0.355	0.337	0.010	AVRG	-5.1
2-Fluorobiphenyl	1.210	1.109	0.010	AVRG	-8.3
2,4,6-Tribromophenol	0.140	0.120	0.010	AVRG	-14.3
Terphenyl-d14	0.643	0.556	0.010	AVRG	-13.5

<- Exceeds QC limit of 20% D
* RF less than minimum RF

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 07/21/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	456172	7.54	1543110	9.60	877580	12.46
	UPPER LIMIT	912344		3086220		1755160	
	LOWER LIMIT	228086		771555		438790	
	CCAL	482642	6.81	1685697	8.88	1043288	11.71
	UPPER LIMIT		7.31		9.38		12.21
	LOWER LIMIT		6.31		8.38		11.21
01	TE33MBW1	405369	6.81	1342198	8.87	758151	11.71
02	TE33LCSW1	513777	6.81	1752316	8.87	1034275	11.71
03	TE33LCSDW1	450541	6.81	1561622	8.87	875721	11.71
04	MW-04S-07141	390703	6.81	1342311	8.87	780809	11.71
05	MW-07S-07141	419363	6.81	1459075	8.87	877040	11.71
06	MW-13-071411	422655	6.81	1439105	8.87	820487	11.70
07	MW-07S-07141	432184	6.81	1442767	8.87	805434	11.71
08	MW-13-071411	509402	6.81	1711478	8.87	981905	11.70
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25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 07/21/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1359082	14.82	1278044	19.11	1061693	21.26
	UPPER LIMIT	2718164		2556088		2123386	
	LOWER LIMIT	679541		639022		530846	
	CCAL	1448448	14.04	1452648	18.28	1406514	20.41
	UPPER LIMIT		14.54		18.78		20.91
	LOWER LIMIT		13.54		17.78		19.91
01	TE33MBW1	1103738	14.03	1146415	18.28	1112615	20.40
02	TE33LCSW1	1451918	14.04	1473432	18.29	1414073	20.40
03	TE33LCSDW1	1206726	14.03	1370880	18.28	1375929	20.40
04	MW-04S-07141	1062375	14.03	1207164	18.28	1180206	20.40
05	MW-07S-07141	1175360	14.04	1264949	18.28	1221111	20.40
06	MW-13-071411	1058336	14.04	1221425	18.28	1200242	20.40
07	MW-07S-07141	1122206	14.03	1309641	18.28	1296851	20.40
08	MW-13-071411	1408923	14.03	1538038	18.28	1519980	20.40
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TE33 Project: RG SW SAMPLING

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 07/21/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1795129	20.32				
	UPPER LIMIT	3590258					
	LOWER LIMIT	897564					
	CCAL	1851744	19.56				
	UPPER LIMIT		20.06				
	LOWER LIMIT		19.06				
01	TE33MBW1	1441820	19.56				
02	TE33LCSW1	1873716	19.56				
03	TE33LCSDW1	1722976	19.56				
04	MW-04S-07141	1575728	19.56				
05	MW-07S-07141	1669300	19.56				
06	MW-13-071411	1639555	19.56				
07	MW-07S-07141	1640545	19.56				
08	MW-13-071411	1936956	19.56				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

Metals Analysis
Report and Summary QC Forms

ARI Job ID: TE33

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
MW-14-071411	TE33D	11-15274	
MW-14-071411D	TE33DDUP	11-15274	
MW-14-071411S	TE33DSPK	11-15274	
PBW	TE33MB1	11-15274	
LCSW	TE33MB1SPK	11-15274	
MW-14-071411	TE33E	11-15275	
PBW	TE33MB2	11-15275	
LCSW	TE33MB2SPK	11-15275	

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: 7/22/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-14-071411**
Page 1 of 1 **SAMPLE**

Lab Sample ID: TE33D
LIMS ID: 11-15274
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	07/19/11	200.8	07/21/11	**7440-38-2**	**Arsenic**	0.2	**116**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-14-071411
DUPLICATE

Lab Sample ID: TE33D
LIMS ID: 11-15274
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	116	121	4.2%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-14-071411
MATRIX SPIKE

Lab Sample ID: TE33D
LIMS ID: 11-15274
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	116	146	25.0	120%	H

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**
Page 1 of 1

Lab Sample ID: TE33MB
LIMS ID: 11-15274
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	07/19/11	200.8	07/21/11	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: TE33LCS
LIMS ID: 11-15274
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	26.4	25.0	106%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-14-071411
SAMPLE

Lab Sample ID: TE33E
LIMS ID: 11-15275
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: 07/14/11
Date Received: 07/15/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	07/19/11	200.8	07/21/11	**7440-38-2**	**Arsenic**	0.2	**116**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: TE33MB
LIMS ID: 11-15275
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	07/19/11	200.8	07/21/11	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: TE33LCS
LIMS ID: 11-15275
Matrix: Water
Data Release Authorized:
Reported: 07/22/11

QC Report No: TE33-ERM-West
Project: RG SW Sampling
128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	26.3	25.0	105%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS072182	50.0	49.37	98.7	50.0	50.28	100.6	50.07	100.1	50.10	100.2	50.00	100.0	50.35	100.7

TE33:00047

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

UNITS:ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS072182	50.0	50.06	100.1	50.41	100.8	50.10	100.2	50.32	100.6				

TE33:00048

Control Limits: Mercury 80-120; Other Metals 90-110

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

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
Arsenic	AS	PMS	MS072182		0.2	0.22	110.0										

Control Limits: no control limits have been established by the EPA at this time.

TE33:000649

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS072182	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

TE33:00050

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS072182	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U				

TE33:00051

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG SW Sampling

RUNID: MS072182

SDG: TE33

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Arsenic		20	0.0	20.0	**100.0**						
Cadmium		20	0.0	20.4	**102.0**						
Chromium		20	0.6	20.6	**103.0**						
Cobalt		20	0.0	20.1	**100.5**						
Copper		20	0.5	20.3	**101.5**						
Manganese		20	0.1	20.4	**102.0**						
Molybdenum	400	400	429.8	434.5	**108.6**						
Nickel		20	0.5	19.5	**97.5**						
Silver		20	0.0	20.3	**101.5**						
Thorium			0.1	0.1							
Vanadium			0.0	-0.5							
Zinc		20	1.2	20.5	**102.5**						

TE33:00052

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33 UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling

SDG: TE33

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 7/19/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-14-071411	TE33D	0.000	50.0	25.0
MW-14-071411D	TE33DDUP	0.000	50.0	25.0
MW-14-071411S	TE33DSPK	0.000	50.0	25.0
MW-14-071411	TE33E	0.000	50.0	25.0
PBW	TE33MB1	0.000	50.0	25.0
LCSW	TE33MB1SPK	0.000	50.0	25.0
PBW	TE33MB2	0.000	50.0	25.0
LCSW	TE33MB2SPK	0.000	50.0	25.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 7/21/2011

SDG: TE33 | RUNID: MS072182 | METHOD: PMS | END DATE: 7/21/2011

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	10450				X																										
S1	S1	1.00	10520				X																										
S2	S2	1.00	11000				X																										
S3	S3	1.00	11080				X																										
S4	S4	1.00	11160				X																										
ZZZZZZ	Rinse Samp1	1.00	11230																														
ICV	MICV	1.00	11310				X																										
ICB	ICB	1.00	11380				X																										
CCV	MCCV1	1.00	11450				X																										
CCB	CCB1	1.00	11520				X																										
CRI	MCRI	1.00	12000				X																										
ICSA	ICSAI	1.00	12070				X																										
ICSAB	ICSABI	1.00	12140				X																										
CCV	MCCV2	1.00	12220				X																										
CCB	CCB2	1.00	12290				X																										
ZZZZZZ	TE69MB	2.00	12360																														
ZZZZZZ	TE69MBSPK	2.00	12430																														
ZZZZZZ	TE69A	2.00	12490																														
ZZZZZZ	TE69B	2.00	12560																														
ZZZZZZ	TE69C	2.00	13020																														
S0	S0	1.00	13100				X																										
CCV	MCCV3	1.00	13170				X																										
CCB	CCB3	1.00	13240				X																										
S0	S0	1.00	13320				X																										
CCV	MCCV4	1.00	13390				X																										
CCB	CCB4	1.00	13460				X																										
ZZZZZZ	TE69MB	2.00	13560																														
S0	S0	1.00	14030				X																										
CCV	MCCV5	1.00	14110				X																										
CCB	CCB5	1.00	14180				X																										
ZZZZZZ	TE69MB	2.00	14250																														
ZZZZZZ	TE69MBSPK	2.00	14320																														
ZZZZZZ	TE69A	5.00	14380																														
ZZZZZZ	TE69B	5.00	14450																														
ZZZZZZ	TE69C	5.00	14510																														

FORM XIV

TE33 00055

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG SW Sampling | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 7/21/2011

SDG: TE33 | RUNID: MS072182 METHOD: PMS | END DATE: 7/21/2011

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	TE69D	5.00	14580																														
ZZZZZZ	TE69E	5.00	15050																														
ZZZZZZ	TE69F	5.00	15110																														
ZZZZZZ	TE69G	5.00	15180																														
ZZZZZZ	TE69D	5.00	15250																														
CCV	MCCV6	1.00	15320				X																										
CCB	CCB6	1.00	15390				X																										
ZZZZZZ	TE69B	10.00	15460																														
ZZZZZZ	TE69C	10.00	15520																														
CCV	MCCV7	1.00	16000				X																										
CCB	CCB7	1.00	16070				X																										
S0	S0	1.00	16240				X																										
CCV	MCCV8	1.00	16320				X																										
CCB	CCB8	1.00	16390				X																										
PBW	TE33MB1	2.00	16460				X																										
PBW	TE33MB2	2.00	16530				X																										
LCSW	TE33MB2SPK	2.00	16590				X																										
LCSW	TE33MB1SPK	2.00	17060				X																										
MW-14-071411D	TE33DDUP	2.00	17120				X																										
MW-14-071411	TE33D	2.00	17190				X																										
MW-14-071411S	TE33DSPK	2.00	17250				X																										
MW-14-071411	TE33E	2.00	17320				X																										
ZZZZZZ	LR200	1.00	17400																														
ZZZZZZ	LR300	1.00	17470																														
CCV	MCCV9	1.00	17530				X																										
CCB	CCB9	1.00	18010				X																										

TE33:0005

Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 31, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job SY05

Dear Mr. Mendes:

Please find enclosed chain of custody documentation and data report for samples from the project referenced above.

Sample receipt and any issues with the analyses are discussed in the report Narrative.

Please note that current ARI control limits are available at www.arilabs.com.

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.

Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile SY05
hardcopy to file

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

ANALYTICAL
RESOURCES
INCORPORATED

Narrative

Client: ERM-West, Inc.
Project: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job No.: SY05

Sample receipt

Six water samples were received on April 26, 2011 under ARI job SU13. The cooler temperatures measured by IR thermometer following ARI SOP were 1.9 and 4.7°C. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Samples were analyzed and reported under ARI Job SU13.

On May 20, ARI was instructed to re-extract and reanalyze sample **MW-13-042611** for phenols by SW8270.

Semivolatiles by SW8270

The sample was extracted outside recommended holding times.

The initial and continuing calibrations were within method requirements for target compounds. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The sample required analysis at dilution due to response above the calibrated range of the instrument. Both sets of results have been included here.

Environmental Resources Management

1218 3rd Ave Ste 1412 Seattle WA 98101

~~915 118th Avenue S.E. Suite 100~~ ● ~~Bellevue, WA 98005~~ ● (425) 462-8591 ● FAX (425) 455-3573

CHAIN OF CUSTODY RECORD

NO: 4047

Page 1 of 1

128296.05	RE Seattle 2011 GW Sampling
Cyrus Gorman	
AIZI 4611 S. 134th Pl Tukwila WA 98168	206-695-6200

	Date	Time	# of Containers	Soil	Water	Gas	Phenol / chlor. / ether / phenoxy herbicides 8270C	Total As	Dissolved As	TSS
MW-17-042511	4/25/11	1546	4		X		X	X	X	
MW-07S-042611	4/26/11	0926	6		X		X	X	X	X
MW-10-042611	4/26/11	1059	6		X		X	X	X	X
MW-13-042611	4/26/11	1308	6		X		X	X	X	X
MW-20-042611	4/26/11	1359	4		X		X	X	X	
MW-25-042611	4/26/11	1456	4		X		X	X	X	
CR	4/26/11	1500	Natalie Bottone					4/26/11	15:00	

- Dissolved metal samples filtered in the field

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

Standard TAT

SEND REPORT TO:
cyrus.gorman@erm.com
mike.mendes@erm.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

SU13:00003
SY05:00003

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SRM
COC No(s): 4047 NA
Assigned ARI Job No: SU13

Project Name: RG Spring GW Sampling
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Tracking No: 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): 4.7 1.9 — — —
If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 9069

Cooler Accepted by: Natasha Barling Date: 4/26/2011 Time: 15:00

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 : NA YES Date/Time: Equipment: Split by:

Samples Logged by: JM Date: 4/27/11 Time: 1421

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
MW17-042511	MW-17-042511		
MW-7S-042611	MW-07S-042611		

Additional Notes, Discrepancies, & Resolutions:

By: Date:

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

SU13 : 00004
SY05 : 00004

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SY05
Client: ERM-West
Project Event: 128296.05
Project Name: RG Spring 2011 GW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-13-042611	SY05A	11-11560	Water	04/26/11 13:08	04/26/11 10:27

Printed 05/23/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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 ≥ 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).

SY05 : 00006

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 ≥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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-13-042611
SAMPLE

Lab Sample ID: SY05A
LIMS ID: 11-11560
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SY05-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 05/24/11
Date Analyzed: 05/25/11 16:56
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**1,300 E**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**34**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	77.3%
2-Fluorophenol	73.1%
2,4,6-Tribromophenol	87.7%
d4-2-Chlorophenol	77.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-13-042611
DILUTION

Lab Sample ID: SY05A
LIMS ID: 11-11560
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SY05-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 05/24/11
Date Analyzed: 05/26/11 14:23
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 20.0

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
95-57-8	2-Chlorophenol	20	< 20 U
120-83-2	2,4-Dichlorophenol	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
87-86-5	**Pentachlorophenol**	**100**	**1,300**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**20**	**23**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	59.2%
2-Fluorophenol	69.3%
2,4,6-Tribromophenol	66.7%
d4-2-Chlorophenol	72.5%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: SY05-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-052411	70.7%	68.8%	70.7%	72.0%	0
LCS-052411	75.2%	72.0%	81.9%	74.7%	0
LCSD-052411	66.7%	63.5%	88.0%	66.4%	0
MW-13-042611	77.3%	73.1%	87.7%	77.1%	0
MW-13-042611 DL	59.2%	69.3%	66.7%	72.5%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-11560 to 11-11560

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-052411
LCS/LCSD

Lab Sample ID: LCS-052411
LIMS ID: 11-11560
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SY05-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted LCS/LCSD: 05/24/11

Date Analyzed LCS: 05/25/11 15:18
LCSD: 05/25/11 15:51
Instrument/Analyst LCS: NT6/VTS
LCSD: NT6/VTS
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	22.6	25.0	90.4%	20.7	25.0	82.8%	8.8%
2-Chlorophenol	22.0	25.0	88.0%	20.1	25.0	80.4%	9.0%
2,4-Dichlorophenol	66.8	75.0	89.1%	64.1	75.0	85.5%	4.1%
2,4,6-Trichlorophenol	69.6	75.0	92.8%	72.6	75.0	96.8%	4.2%
2,4,5-Trichlorophenol	75.9	75.0	101%	80.2	75.0	107%	5.5%
Pentachlorophenol	88.5	75.0	118%	93.0	75.0	124%	5.0%
2,3,4,6-Tetrachlorophenol	20.0	25.0	80.0%	22.5	25.0	90.0%	11.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	75.2%	66.7%
2-Fluorophenol	72.0%	63.5%
2,4,6-Tribromophenol	81.9%	88.0%
d4-2-Chlorophenol	74.7%	66.4%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO. SX49MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Lab File ID: 05251108 Date Extracted: 05/24/11

Instrument ID: NT6 Date Analyzed: 05/25/11

Matrix: LIQUID Time Analyzed: 1445

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SX49LCSW1	SX49LCSW1	05251109	05/25/11
02	SX49LCSDW1	SX49LCSDW1	05251110	05/25/11
03	MW-13-042611	SY05A	05251112	05/25/11
04	MW-13-042611	SY05A	SY05ADL	05/26/11
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-052411
METHOD BLANK

Lab Sample ID: MB-052411
LIMS ID: 11-11560
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SY05-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/24/11
Date Analyzed: 05/25/11 14:45
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	70.7%
2-Fluorophenol	68.8%
2,4,6-Tribromophenol	70.7%
d4-2-Chlorophenol	72.0%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW

DFTPP Injection Date: 05/24/11 DFTPP Injection Time: 1626

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.0
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	50.4
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	21.1
365	Greater than 1.0% of mass 198	2.45
441	0.0 - 24.0% of mass 442	9.7 (14.3)2
442	50.0 - 200.0% of mass 198	68.0
443	15.0 - 24.0% of mass 442	13.3 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250524	IC250524	05231101	05/24/11	1626
02	IC10524	IC10524	05231102	05/24/11	1659
03	IC50524	IC50524	05231103	05/24/11	1732
04	IC100524	IC100524	05231104	05/24/11	1805
05	IC400524	IC400524	05231105	05/24/11	1838
06	IC600524	IC600524	05231106	05/24/11	1910
07	IC800524	IC800534	05231107	05/24/11	1943
08	ICV0524	ICV0524	05231108	05/24/11	2053
09					
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22					

SY05:00015

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW

DFTPP Injection Date: 05/25/11 DFTPP Injection Time: 1046

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.9
68	Less than 2.0% of mass 69	0.2 (0.6)1
69	Mass 69 relative abundance	43.0
70	Less than 2.0% of mass 69	0.5 (1.1)1
127	10.0 - 80.0% of mass 198	52.1
197	Less than 2.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 60.0% of mass 198	21.0
365	Greater than 1.0% of mass 198	2.22
441	0.0 - 24.0% of mass 442	10.0 (15.6)2
442	50.0 - 200.0% of mass 198	64.2
443	15.0 - 24.0% of mass 442	13.0 (20.3)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0525	CC0525	05251101	05/25/11	1046
02	SX49MBW1	SX49MBW1	05251108	05/25/11	1445
03	SX49LCSW1	SX49LCSW1	05251109	05/25/11	1518
04	SX49LCSDW1	SX49LCSDW1	05251110	05/25/11	1551
05	MW-13-042611	SY05A	05251112	05/25/11	1656
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW

DFTPP Injection Date: 05/26/11 DFTPP Injection Time: 1244

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.2
68	Less than 2.0% of mass 69	0.3 (0.7)1
69	Mass 69 relative abundance	40.6
70	Less than 2.0% of mass 69	0.2 (0.6)1
127	10.0 - 80.0% of mass 198	50.5
197	Less than 2.0% of mass 198	0.3
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 60.0% of mass 198	20.8
365	Greater than 1.0% of mass 198	2.30
441	0.0 - 24.0% of mass 442	10.7 (15.1)2
442	50.0 - 200.0% of mass 198	70.9
443	15.0 - 24.0% of mass 442	13.2 (18.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		CC0526	CC0526	05/26/11	1244
02	MW-13-042611	SY05A	SY05ADL	05/26/11	1423
03					
04					
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6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	$\overline{RRF}$	%RSD /R^2
Phenol	1.430	1.244	1.390	1.296	1.364	1.321	1.287	1.333	4.9
Bis(2-Chloroethyl)ether	1.135	0.998	1.052	1.117	1.083	1.080	1.057	1.074	4.2
2-Chlorophenol	1.191	1.048	1.149	1.110	1.170	1.138	1.110	1.131	4.1
1,3-Dichlorobenzene	1.492	1.242	1.274	1.404	1.340	1.342	1.305	1.343	6.3
1,4-Dichlorobenzene	1.485	1.281	1.350	1.450	1.368	1.365	1.324	1.375	5.2
1,2-Dichlorobenzene	1.393	1.171	1.218	1.311	1.245	1.221	1.194	1.250	6.1
Benzyl alcohol	1.052	1.009	1.003	1.076	1.118	1.108	1.089	1.065	4.3
2,2'-oxybis(1-Chloropropane)	0.866	0.735	0.760	0.807	0.800	0.807	0.799	0.796	5.2
2-Methylphenol	1.068	0.927	1.017	0.956	1.032	1.005	0.974	0.997	4.8
Hexachloroethane	0.507	0.451	0.471	0.520	0.497	0.492	0.473	0.487	4.8
N-Nitroso-di-n-propylamine	0.774	0.689	0.712	0.764	0.727	0.740	0.728	0.733	4.0
4-Methylphenol	1.056	0.953	1.066	1.009	1.066	1.033	0.998	1.026	4.1
Nitrobenzene	0.364	0.320	0.322	0.353	0.348	0.329	0.327	0.338	5.1
Isophorone	0.548	0.489	0.496	0.544	0.506	0.511	0.518	0.516	4.4
2-Nitrophenol	0.190	0.157	0.183	0.178	0.189	0.180	0.183	0.180	6.1
2,4-Dimethylphenol	0.341	0.285	0.307	0.295	0.315	0.292	0.294	0.304	6.3
Bis(2-Chloroethoxy)methane	0.419	0.349	0.355	0.390	0.352	0.360	0.360	0.369	7.0
2,4-Dichlorophenol	0.294	0.252	0.280	0.269	0.285	0.273	0.277	0.276	4.8
1,2,4-Trichlorobenzene	0.331	0.273	0.273	0.302	0.292	0.283	0.288	0.292	7.0
Naphthalene	0.991	0.827	0.826	0.903	0.863	0.814	0.790	0.859	8.0
Benzoic acid		0.159	0.188	0.212	0.220	0.226	0.232	0.206	13.4
4-Chloroaniline	0.592	0.524	0.520	0.555	0.520	0.503	0.485	0.528	6.6
Hexachlorobutadiene	0.173	0.146	0.141	0.158	0.152	0.151	0.153	0.153	6.7
4-Chloro-3-methylphenol	0.260	0.228	0.248	0.246	0.247	0.248	0.241	0.245	3.9
2-Methylnaphthalene	0.802	0.658	0.668	0.701	0.688	0.679	0.676	0.696	7.0
Hexachlorocyclopentadiene	0.191	0.239	0.254	0.323	0.327	0.320	0.319	0.282	19.1
2,4,6-Trichlorophenol	0.329	0.281	0.332	0.318	0.363	0.356	0.356	0.334	8.6
2,4,5-Trichlorophenol	0.300	0.289	0.340	0.338	0.356	0.337	0.331	0.327	7.3
2-Chloronaphthalene	1.183	0.991	0.988	1.065	1.026	0.985	0.951	1.027	7.5
2-Nitroaniline	0.378	0.334	0.369	0.382	0.399	0.378	0.358	0.371	5.5
Acenaphthylene	1.597	1.428	1.430	1.552	1.462	1.416	1.350	1.462	5.8
Dimethylphthalate	1.196	0.993	1.016	1.100	1.059	1.026	0.996	1.055	6.9
2,6-Dinitrotoluene	0.255	0.241	0.247	0.272	0.270	0.259	0.259	0.258	4.4
Acenaphthene	1.031	0.856	0.851	0.941	0.888	0.852	0.827	0.892	8.0
3-Nitroaniline	0.407	0.388	0.393	0.409	0.368	0.308	0.271	0.363	14.7
2,4-Dinitrophenol		0.086	0.123	0.155	0.174	0.178	0.179	0.149	0.993
Dibenzofuran	2.178	1.858	1.855	1.918	1.969	1.870	1.727	1.911	7.3

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.099	0.117	0.132	0.158	0.169	0.157	0.149	0.140	18.0
2,4-Dinitrotoluene	0.308	0.301	0.314	0.351	0.350	0.343	0.339	0.329	6.4
Fluorene	1.238	1.024	1.042	1.125	1.093	1.055	1.006	1.083	7.3
4-Chlorophenyl-phenylether	0.608	0.484	0.502	0.536	0.511	0.508	0.505	0.522	7.9
Diethylphthalate	1.152	0.962	0.979	1.026	1.012	0.960	0.923	1.002	7.4
4-Nitroaniline	0.349	0.363	0.357	0.405	0.411	0.394	0.386	0.381	6.4
4,6-Dinitro-2-methylphenol	0.093	0.110	0.126	0.130	0.145	0.140	0.144	0.127	15.2
N-Nitrosodiphenylamine (1)	0.629	0.500	0.505	0.543	0.518	0.507	0.500	0.529	8.8
4-Bromophenyl-phenylether	0.220	0.169	0.170	0.183	0.177	0.182	0.182	0.183	9.4
Hexachlorobenzene	0.223	0.179	0.191	0.202	0.197	0.196	0.200	0.198	6.7
Pentachlorophenol		0.075	0.097	0.110	0.123	0.125	0.133	0.110	19.6
Phenanthrene	1.103	0.871	0.868	0.941	0.911	0.860	0.846	0.914	9.8
Anthracene	1.094	0.936	0.933	1.014	0.969	0.907	0.879	0.962	7.6
Carbazole	1.032	0.900	0.892	0.967	0.927	0.890	0.851	0.923	6.5
Di-n-butylphthalate	1.174	1.020	1.047	1.156	1.123	1.030	0.986	1.076	6.8
Fluoranthene	1.014	0.900	0.897	1.020	0.986	0.927	0.895	0.948	5.9
Pyrene	1.244	1.054	1.046	1.087	1.030	0.993	0.966	1.060	8.5
Butylbenzylphthalate	0.479	0.476	0.500	0.529	0.513	0.495	0.490	0.497	3.7
Benzo(a)anthracene	1.074	0.830	0.839	0.926	0.899	0.887	0.875	0.904	9.1
3,3'-Dichlorobenzidine	0.376	0.351	0.339	0.365	0.346	0.335	0.322	0.348	5.3
Chrysene	1.008	0.819	0.814	0.877	0.850	0.833	0.810	0.859	8.1
bis(2-Ethylhexyl)phthalate	0.461	0.450	0.471	0.511	0.493	0.483	0.490	0.480	4.3
Di-n-octylphthalate	1.004	0.826	0.831	0.890	0.844	0.817	0.798	0.858	8.2
Benzo(b)fluoranthene	1.167	0.932	0.994	1.091	1.052	1.027	1.087	1.050	7.2
Benzo(k)fluoranthene	1.183	1.022	1.014	1.086	1.099	1.049	0.981	1.062	6.3
Benzo(a)pyrene	1.024	0.889	0.934	1.016	1.008	0.981	0.981	0.976	5.0
Indeno(1,2,3-cd)pyrene	1.209	1.068	1.061	1.144	1.142	1.210	1.192	1.146	5.5
Dibenzo(a,h)anthracene	1.006	0.875	0.867	0.956	0.951	1.005	0.964	0.946	5.9
Benzo(g,h,i)perylene	1.056	0.938	0.917	0.989	0.987	1.067	1.032	0.998	5.7
N-Nitrosodimethylamine	0.677	0.627	0.628	0.705	0.694	0.696	0.676	0.672	4.8
Aniline	2.599	2.230	2.282	2.369	2.389	2.330	2.200	2.343	5.7
Benzidine	0.491	0.518	0.462	0.472	0.430	0.381	0.370	0.446	12.4
Pyridine	1.060	1.094	1.177	1.298	1.265	1.282	1.248	1.203	7.9
1-methylnaphthalene	0.787	0.624	0.630	0.675	0.621	0.620	0.613	0.653	9.6
Azobenzene (1,2-DP-Hydrazine	1.272	1.070	1.051	1.139	1.088	1.032	0.958	1.087	9.1
2,3,4,6-Tetrachlorophenol	0.274	0.253	0.289	0.282	0.315	0.306	0.308	0.290	7.6
1,2,4,5-Tetrachlorobenzene	0.549	0.438	0.447	0.488	0.482	0.461	0.458	0.475	7.8

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Total Benzofluoranthenes	1.113	0.921	0.960	1.040	1.014	0.982	0.972	1.000	6.2
2-Fluorophenol	1.224	1.088	1.263	1.249	1.269	1.203		1.216	5.5
Phenol-d5	1.479	1.297	1.488	1.453	1.498	1.436		1.442	5.2
2-Chlorophenol-d4	1.292	1.069	1.227	1.235	1.233	1.181		1.206	6.3
1,2-Dichlorobenzene-d4	0.886	0.752	0.837	0.818	0.833	0.797		0.820	5.4
Nitrobenzene-d5	0.352	0.329	0.354	0.370	0.373	0.351		0.355	4.4
2-Fluorobiphenyl	1.312	1.084	1.238	1.230	1.231	1.162		1.210	6.4
2,4,6-Tribromophenol	0.152	0.126	0.134	0.138	0.149	0.141		0.140	6.7
Terphenyl-d14		0.590	0.672	0.658	0.664	0.632		0.643	5.2

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.333	1.305	0.800	AVRG	-2.1	
Bis(2-Chloroethyl)ether	1.074	1.138	0.700	AVRG	6.0	
2-Chlorophenol	1.131	1.130	0.800	AVRG	-0.1	
1,3-Dichlorobenzene	1.343	1.405	0.010	AVRG	4.6	
1,4-Dichlorobenzene	1.375	1.445	0.010	AVRG	5.1	
1,2-Dichlorobenzene	1.250	1.310	0.010	AVRG	4.8	
Benzyl alcohol	1.065	1.086	0.010	AVRG	2.0	
2,2'-oxybis(1-Chloropropane)	0.796	0.813	0.010	AVRG	2.1	
2-Methylphenol	0.997	0.988	0.700	AVRG	-0.9	
Hexachloroethane	0.487	0.505	0.300	AVRG	3.7	
N-Nitroso-di-n-propylamine	0.733	0.755	0.500	AVRG	3.0	
4-Methylphenol	1.026	1.020	0.600	AVRG	-0.6	
Nitrobenzene	0.338	0.355	0.200	AVRG	5.0	
Isophorone	0.516	0.532	0.400	AVRG	3.1	
2-Nitrophenol	0.180	0.182	0.100	AVRG	1.1	
2,4-Dimethylphenol	0.304	0.293	0.200	AVRG	-3.6	
Bis(2-Chloroethoxy)methane	0.369	0.375	0.300	AVRG	1.6	
2,4-Dichlorophenol	0.276	0.267	0.200	AVRG	-3.3	
1,2,4-Trichlorobenzene	0.292	0.304	0.010	AVRG	4.1	
Naphthalene	0.859	0.900	0.700	AVRG	4.8	
Benzoic acid	0.206	0.204	0.010	AVRG	-1.0	
4-Chloroaniline	0.528	0.532	0.010	AVRG	0.8	
Hexachlorobutadiene	0.153	0.157	0.010	AVRG	2.6	
4-Chloro-3-methylphenol	0.245	0.235	0.200	AVRG	-4.1	
2-Methylnaphthalene	0.696	0.694	0.400	AVRG	-0.3	
Hexachlorocyclopentadiene	0.282	0.282	0.050	AVRG	0.0	
2,4,6-Trichlorophenol	0.334	0.329	0.200	AVRG	-1.5	
2,4,5-Trichlorophenol	0.327	0.334	0.200	AVRG	2.1	
2-Chloronaphthalene	1.027	1.067	0.800	AVRG	3.9	
2-Nitroaniline	0.371	0.368	0.010	AVRG	-0.8	
Acenaphthylene	1.462	1.536	0.900	AVRG	5.1	
Dimethylphthalate	1.055	1.092	0.010	AVRG	3.5	
2,6-Dinitrotoluene	0.258	0.272	0.200	AVRG	5.4	
Acenaphthene	0.892	0.929	0.900	AVRG	4.1	*
3-Nitroaniline	0.363	0.382	0.010	AVRG	5.2	
2,4-Dinitrophenol	50.00	39.50	0.010	LINR	-21.0	<-
Dibenzofuran	1.911	1.914	0.800	AVRG	0.2	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
4-Nitrophenol	0.140	0.156	0.010	AVRG	11.4
2,4-Dinitrotoluene	0.329	0.355	0.200	AVRG	7.9
Fluorene	1.083	1.128	0.900	AVRG	4.2
4-Chlorophenyl-phenylether	0.522	0.521	0.400	AVRG	-0.2
Diethylphthalate	1.002	1.031	0.010	AVRG	2.9
4-Nitroaniline	0.381	0.407	0.010	AVRG	6.8
4,6-Dinitro-2-methylphenol	0.127	0.125	0.010	AVRG	-1.6
N-Nitrosodiphenylamine(1)	0.529	0.533	0.010	AVRG	0.8
4-Bromophenyl-phenylether	0.183	0.184	0.100	AVRG	0.5
Hexachlorobenzene	0.198	0.199	0.100	AVRG	0.5
Pentachlorophenol	0.110	0.108	0.050	AVRG	-1.8
Phenanthrene	0.914	0.955	0.700	AVRG	4.5
Anthracene	0.962	1.019	0.700	AVRG	5.9
Carbazole	0.923	0.989	0.010	AVRG	7.2
Di-n-butylphthalate	1.076	1.188	0.010	AVRG	10.4
Fluoranthene	0.948	1.048	0.600	AVRG	10.5
Pyrene	1.060	1.054	0.600	AVRG	-0.6
Butylbenzylphthalate	0.497	0.523	0.010	AVRG	5.2
Benzo(a)anthracene	0.904	0.943	0.800	AVRG	4.3
3,3'-Dichlorobenzidine	0.348	0.378	0.010	AVRG	8.6
Chrysene	0.859	0.882	0.700	AVRG	2.7
bis(2-Ethylhexyl)phthalate	0.480	0.496	0.010	AVRG	3.3
Di-n-octylphthalate	0.858	0.880	0.010	AVRG	2.6
Benzo(b)fluoranthene	1.050	0.998	0.700	AVRG	-5.0
Benzo(k)fluoranthene	1.062	1.167	0.700	AVRG	9.9
Benzo(a)pyrene	0.976	1.031	0.700	AVRG	5.6
Indeno(1,2,3-cd)pyrene	1.146	1.200	0.500	AVRG	4.7
Dibenzo(a,h)anthracene	0.946	1.006	0.400	AVRG	6.3
Benzo(g,h,i)perylene	0.998	1.038	0.500	AVRG	4.0
N-Nitrosodimethylamine	0.672	0.663	0.010	AVRG	-1.3
Aniline	2.343	2.334	0.010	AVRG	-0.4
Benzidine	0.446	0.472	0.010	AVRG	5.8
Pyridine	1.203	1.241	0.010	AVRG	3.2
1-methylnaphthalene	0.653	0.667	0.010	AVRG	2.1
Azobenzene (1,2-DP-Hydrazine	1.087	1.136	0.010	AVRG	4.5
2,3,4,6-Tetrachlorophenol	0.290	0.292	0.010	AVRG	0.7

(1) Cannot be separated from Diphenylamine
<- Exceeds QC limit of 20% D
* RF less than minimum RF

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.475	0.498	0.010	AVRG	4.8
Total Benzofluoranthenes	1.000	1.021	0.010	AVRG	2.1
2-Fluorophenol	1.216	1.260	0.010	AVRG	3.6
Phenol-d5	1.442	1.470	0.010	AVRG	1.9
2-Chlorophenol-d4	1.206	1.240	0.010	AVRG	2.8
1,2-Dichlorobenzene-d4	0.820	0.838	0.010	AVRG	2.2
Nitrobenzene-d5	0.355	0.367	0.010	AVRG	3.4
2-Fluorobiphenyl	1.210	1.224	0.010	AVRG	1.2
2,4,6-Tribromophenol	0.140	0.141	0.010	AVRG	0.7
Terphenyl-d14	0.643	0.637	0.010	AVRG	-0.9

<- Exceeds QC limit of 20% D
* RF less than minimum RF

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/26/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.333	1.263	0.800	AVRG	-5.2	
Bis(2-Chloroethyl)ether	1.074	1.069	0.700	AVRG	-0.5	
2-Chlorophenol	1.131	1.100	0.800	AVRG	-2.7	
1,3-Dichlorobenzene	1.343	1.396	0.010	AVRG	3.9	
1,4-Dichlorobenzene	1.375	1.409	0.010	AVRG	2.5	
1,2-Dichlorobenzene	1.250	1.300	0.010	AVRG	4.0	
Benzyl alcohol	1.065	1.029	0.010	AVRG	-3.4	
2,2'-oxybis(1-Chloropropane)	0.796	0.769	0.010	AVRG	-3.4	
2-Methylphenol	0.997	0.951	0.700	AVRG	-4.6	
Hexachloroethane	0.487	0.506	0.300	AVRG	3.9	
N-Nitroso-di-n-propylamine	0.733	0.743	0.500	AVRG	1.4	
4-Methylphenol	1.026	0.989	0.600	AVRG	-3.6	
Nitrobenzene	0.338	0.343	0.200	AVRG	1.5	
Isophorone	0.516	0.530	0.400	AVRG	2.7	
2-Nitrophenol	0.180	0.172	0.100	AVRG	-4.4	
2,4-Dimethylphenol	0.304	0.288	0.200	AVRG	-5.3	
Bis(2-Chloroethoxy)methane	0.369	0.376	0.300	AVRG	1.9	
2,4-Dichlorophenol	0.276	0.265	0.200	AVRG	-4.0	
1,2,4-Trichlorobenzene	0.292	0.300	0.010	AVRG	2.7	
Naphthalene	0.859	0.892	0.700	AVRG	3.8	
Benzoic acid	0.206	0.184	0.010	AVRG	-10.7	
4-Chloroaniline	0.528	0.524	0.010	AVRG	-0.8	
Hexachlorobutadiene	0.153	0.158	0.010	AVRG	3.3	
4-Chloro-3-methylphenol	0.245	0.241	0.200	AVRG	-1.6	
2-Methylnaphthalene	0.696	0.693	0.400	AVRG	-0.4	
Hexachlorocyclopentadiene	0.282	0.263	0.050	AVRG	-6.7	
2,4,6-Trichlorophenol	0.334	0.312	0.200	AVRG	-6.6	
2,4,5-Trichlorophenol	0.327	0.341	0.200	AVRG	4.3	
2-Chloronaphthalene	1.027	1.067	0.800	AVRG	3.9	
2-Nitroaniline	0.371	0.357	0.010	AVRG	-3.8	
Acenaphthylene	1.462	1.543	0.900	AVRG	5.5	
Dimethylphthalate	1.055	1.107	0.010	AVRG	4.9	
2,6-Dinitrotoluene	0.258	0.272	0.200	AVRG	5.4	
Acenaphthene	0.892	0.929	0.900	AVRG	4.1	*
3-Nitroaniline	0.363	0.378	0.010	AVRG	4.1	
2,4-Dinitrophenol	50.00	34.66	0.010	LINR	-30.7	<-
Dibenzofuran	1.911	1.907	0.800	AVRG	-0.2	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/26/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
4-Nitrophenol	0.140	0.160	0.010	AVRG	14.3
2,4-Dinitrotoluene	0.329	0.363	0.200	AVRG	10.3
Fluorene	1.083	1.136	0.900	AVRG	4.9
4-Chlorophenyl-phenylether	0.522	0.541	0.400	AVRG	3.6
Diethylphthalate	1.002	1.055	0.010	AVRG	5.3
4-Nitroaniline	0.381	0.412	0.010	AVRG	8.1
4,6-Dinitro-2-methylphenol	0.127	0.126	0.010	AVRG	-0.8
N-Nitrosodiphenylamine(1)	0.529	0.543	0.010	AVRG	2.6
4-Bromophenyl-phenylether	0.183	0.187	0.100	AVRG	2.2
Hexachlorobenzene	0.198	0.202	0.100	AVRG	2.0
Pentachlorophenol	0.110	0.104	0.050	AVRG	-5.4
Phenanthrene	0.914	0.945	0.700	AVRG	3.4
Anthracene	0.962	1.023	0.700	AVRG	6.3
Carbazole	0.923	1.003	0.010	AVRG	8.7
Di-n-butylphthalate	1.076	1.171	0.010	AVRG	8.8
Fluoranthene	0.948	1.053	0.600	AVRG	11.1
Pyrene	1.060	1.013	0.600	AVRG	-4.4
Butylbenzylphthalate	0.497	0.488	0.010	AVRG	-1.8
Benzo(a)anthracene	0.904	0.930	0.800	AVRG	2.9
3,3'-Dichlorobenzidine	0.348	0.383	0.010	AVRG	10.0
Chrysene	0.859	0.876	0.700	AVRG	2.0
bis(2-Ethylhexyl)phthalate	0.480	0.506	0.010	AVRG	5.4
Di-n-octylphthalate	0.858	0.892	0.010	AVRG	4.0
Benzo(b)fluoranthene	1.050	1.126	0.700	AVRG	7.2
Benzo(k)fluoranthene	1.062	1.045	0.700	AVRG	-1.6
Benzo(a)pyrene	0.976	1.036	0.700	AVRG	6.1
Indeno(1,2,3-cd)pyrene	1.146	1.117	0.500	AVRG	-2.5
Dibenzo(a,h)anthracene	0.946	0.932	0.400	AVRG	-1.5
Benzo(g,h,i)perylene	0.998	0.915	0.500	AVRG	-8.3
N-Nitrosodimethylamine	0.672	0.666	0.010	AVRG	-0.9
Aniline	2.343	2.221	0.010	AVRG	-5.2
Benzidine	0.446	0.413	0.010	AVRG	-7.4
Pyridine	1.203	1.234	0.010	AVRG	2.6
1-methylnaphthalene	0.653	0.670	0.010	AVRG	2.6
Azobenzene (1,2-DP-Hydrazine	1.087	1.119	0.010	AVRG	2.9
2,3,4,6-Tetrachlorophenol	0.290	0.289	0.010	AVRG	-0.3

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Instrument ID: NT6 Cont. Calib. Date: 05/26/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1244

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.475	0.489	0.010	AVRG	2.9
Total Benzofluoranthenes	1.000	1.031	0.010	AVRG	3.1
2-Fluorophenol	1.216	1.210	0.010	AVRG	-0.5
Phenol-d5	1.442	1.438	0.010	AVRG	-0.3
2-Chlorophenol-d4	1.206	1.215	0.010	AVRG	0.7
1,2-Dichlorobenzene-d4	0.820	0.819	0.010	AVRG	-0.1
Nitrobenzene-d5	0.355	0.356	0.010	AVRG	0.3
2-Fluorobiphenyl	1.210	1.201	0.010	AVRG	-0.7
2,4,6-Tribromophenol	0.140	0.140	0.010	AVRG	0.0
Terphenyl-d14	0.643	0.608	0.010	AVRG	-5.4

<- Exceeds QC limit of 20% D
* RF less than minimum RF

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	456172	7.54	1543110	9.60	877580	12.46
	UPPER LIMIT	912344		3086220		1755160	
	LOWER LIMIT	228086		771555		438790	
	CCAL	434966	7.54	1483239	9.60	831882	12.46
	UPPER LIMIT		8.04		10.10		12.96
	LOWER LIMIT		7.04		9.10		11.96
01	SX49MBW1	402624	7.54	1350340	9.59	769126	12.45
02	SX49LCSW1	427950	7.55	1408709	9.60	799387	12.46
03	SX49LCSDW1	422914	7.54	1405393	9.60	817275	12.46
04	MW-13-042611	405886	7.54	1369996	9.60	746766	12.45
05							
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25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1359082	14.82	1278044	19.11	1061693	21.26
	UPPER LIMIT	2718164		2556088		2123386	
	LOWER LIMIT	679541		639022		530846	
	CCAL	1305632	14.82	1297109	19.12	1176044	21.27
	UPPER LIMIT		15.32		19.62		21.77
	LOWER LIMIT		14.32		18.62		20.77
01	SX49MBW1	1158280	14.81	1212695	19.11	1111304	21.26
02	SX49LCSW1	1177227	14.82	1195235	19.11	1114269	21.26
03	SX49LCSDW1	1252986	14.82	1283134	19.11	1181357	21.26
04	MW-13-042611	1150097	14.83	1076652	19.11	974071	21.26
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1795129	20.32				
	UPPER LIMIT	3590258					
	LOWER LIMIT	897564					
	CCAL	1810964	20.32				
	UPPER LIMIT		20.82				
	LOWER LIMIT		19.82				
01	SX49MBW1	1577850	20.32				
02	SX49LCSW1	1628445	20.32				
03	SX49LCSDW1	1729550	20.32				
04	MW-13-042611	1487730	20.32				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/26/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	456172	7.54	1543110	9.60	877580	12.46
	UPPER LIMIT	912344		3086220		1755160	
	LOWER LIMIT	228086		771555		438790	
	CCAL	475458	7.54	1603968	9.60	913601	12.46
	UPPER LIMIT		8.04		10.10		12.96
	LOWER LIMIT		7.04		9.10		11.96
01	MW-13-042611	472985	7.54	1527830	9.60	831610	12.45
02							
03							
04							
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23							
24							
25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/26/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1359082	14.82	1278044	19.11	1061693	21.26
	UPPER LIMIT	2718164		2556088		2123386	
	LOWER LIMIT	679541		639022		530846	
	CCAL	1434415	14.82	1516720	19.12	1368322	21.27
	UPPER LIMIT		15.32		19.62		21.77
	LOWER LIMIT		14.32		18.62		20.77
01	MW-13-042611	1231864	14.82	1330047	19.11	1209712	21.26
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SY05 Project: RG SPRING 2011 GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/26/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1795129	20.32				
	UPPER LIMIT	3590258					
	LOWER LIMIT	897564					
	CCAL	1935863	20.32				
	UPPER LIMIT		20.82				
	LOWER LIMIT		19.82				
01	MW-13-042611	1628196	20.31				
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

Table of Contents: ARI Job SU57, SU60

Client: ERM-West

Project: 128296.05 RG Spring 2011 GW Sampling

	Page From:	Page To:
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Case Narrative, Data Qualifiers, Control Limits	10	20
Semivolatile Analysis		
Report and Summary QC Forms	21	109
Metals Analysis		
Report and Summary QC Forms	110	173

Signature

May-25-2011
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 31, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job SU57 & SU60

Dear Mr. Mendes:

Please find enclosed chain of custody documentation and data report for samples from the project referenced above.

Sample receipt and any issues with the analyses are discussed in the report Narrative.

Please note that current ARI control limits are available at www.arilabs.com.

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.

Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile SU57
hardcopy to file

SD/sdrd

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: SU57, SU60

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4099

1218 3rd Ave Suite 1412 Seattle WA 98101
~~915 118th Avenue S.E. Suite 130~~ ● ~~Bellevue, WA 98005~~ ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 1

128296.05	RG Spring 2011 GW Sampling
Greg Gorman	GG
ARI 4611 134th Pl Tukwila WA 98168	206-695-6200

SAMPLE ID	DATE	TIME	# OF CONTAINERS	SOIL	WATER	GAS	Phenols / Chlorinated phenols 8270C	Total As	Dissolved As
MW-11-042811	4/28/11	1405	4		X		X	X	X
MW-12-042811	4/28/11	1455	4		X		X	X	X
MW-19-042811	4/28/11	1552	4		X		X	X	X
Lab Copy	4/28/11	1655						4/28/11	1655

- dissolved metals samples filtered in the field

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

Standard TAT

SEND REPORT TO:
Greg.Gorman@erm.com
Mike.Mendes@erm.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4098

Page 1 of 1

128 3rd Ave Ste 1412 Seattle WA
915-118th Avenue S.E. Suite 100 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

T1, H3 H3

128296.05	RG 2011 Spring GW Sampling																														
Cyrus Gorman																															
ARI 4611 S 134th Pl Tukwila WA 98168																															
206-695-6200																															

			# OF CONTAINERS	SOIL	WATER	GAS	Phenols T&ZRC Chlorinated Phenols	Total As	Dissolved As	MS/MSD total/diss As; Phenols/Chlorinated phenols	Total Cr, Cu, Ag, Zn Sb, Be, Cd, Pb, Ni, Se	Dissolved Cr, Cu, Ag, Zn Sb, Be, Cd, Pb, Ni, Se	Total Cr, Cu, Ag, Zn	Dissolved Cr, Cu, Ag, Zn					
MW-14-042711	4/27/11	1305	12		X		X	X	X	X									
DUP042711-2	4/27/11	0815	4		X		X	X	X										
MW-65-042711	4/27/11	1404	4		X		X	X	X										
MW-35-042711	4/27/11	1548	4		X		X	X	X		X	X							
DUP042711-3	4/27/11	1700	2		X						X	X							
MW-30-042711	4/27/11	1450	4		X		X	X	X				X	X					
MW-27-042811	4/28/11	1008	4		X		X	X	X		X	X							
MW-26-042811	4/28/11	1053	4		X		X	X	X		X	X							
MW-16-042811	4/28/11	1149	4		X		X	X	X										
MW-55-042811	4/28/11	1314	4		X		X	X	X										
	4/28/11	1516						4/28/11	1510										

- dissolved samples filtered in the field

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

Standard TAT

SEND REPORT TO:
Cyrus.Gorman@erm.com
Mike.Mendes@erm.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

ncsgd - 3/2/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM
COC No(s): 4098 (NA) AV
Assigned ARI Job No: SU57

Project Name: 2011 Spring GW Sampling
Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other:
Tracking No: (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): 4.6 2.9 2.2 ___ ___

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90941le19

Cooler Accepted by: AV Date: 4/29/11 Time: 1510

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: (NA) YES Date/Time: ___ Equipment: ___ Split by: ___

Samples Logged by: JM Date: 4/29/11 Time: 944

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
DUP-042711-2	DUP042711-2		

Additional Notes, Discrepancies, & Resolutions:

By: JM Date: 4/29/11

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• • •	• • •	• • •

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

PRESERVATION VERIFICATION 04/29/11
Page 1 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU57**

PC: Sue D.
VTSR: 04/28/11

Inquiry Number: NONE
Analysis Requested: 04/29/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 128296.05
Project: RG 2011 Spring GW Sampling
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9630 **SU57A**	MW-14-042711						TOT															
11-9631 **SU57B**	DUP042711-2						TOT															
11-9632 **SU57C**	MW-6S-042711						TOT															
11-9633 **SU57D**	MW-3S-042711						TOT															
11-9634 **SU57E**	MW-3D-042711						TOT															
11-9635 **SU57F**	MW-27-042811						TOT															
11-9636 **SU57G**	MW-26-042811						TOT															
11-9637 **SU57H**	MW-16-042811						TOT															
11-9638 **SU57I**	MW-5S-042811						TOT															
11-9639 **SU57J**	DUP042711-3						TOT															
11-9640 **SU57K**	MS-14-042711						DIS									Y						
11-9641 **SU57L**	DUP042711-2						DIS									Y						
11-9642 **SU57M**	MW-6S-042711						DIS									Y						
11-9643 **SU57N**	MW-3S-042711						DIS									Y						

Checked By JM Date 4/29/11

PRESERVATION VERIFICATION 04/29/11
Page 2 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU57**

Client: ERM-West

Project #: 128296.05
Project: RG 2011 Spring GW Sampling

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9644 **SU57O**	MW-3D-042711						DIS									Y						
11-9645 **SU57P**	MW-27-042811						DIS									Y						
11-9646 **SU57Q**	MW-26-042811						DIS									Y						
11-9647 **SU57R**	MW-16-042811						DIS									Y						
11-9648 **SU57S**	MW-5S-042811						DIS									Y						
11-9649 **SU57T**	DUP042711-3						DIS									Y						

SU57 00007

Checked By JM Date 4/29/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM Project Name: RG Spring 2011 GW Sampling

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: SU60 Tracking No: _____ (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)..... 5.4 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 4/28/11 Time: 1655

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 : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

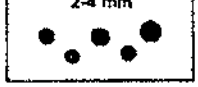
Samples Logged by: JM Date: 4/29/11 Time: 1056

*** 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 Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

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

PRESERVATION VERIFICATION 04/29/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU60**

PC: Sue D.
VTSR: 04/28/11

Inquiry Number: NONE
Analysis Requested: 04/29/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 128296.05
Project: RG Spring 2011 GW Sampling
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9656 **SU60A**	MW-11-042811						TOT															
11-9657 **SU60B**	MW-12-042811						TOT															
11-9658 **SU60C**	MW-19-042811						TOT															
11-9659 **SU60D**	MW-11-042811						DIS									Y						
11-9660 **SU60E**	MW-12-042811						DIS									Y						
11-9661 **SU60F**	MW-19-042811						DIS									Y						

SU60 00000

Checked By JM Date 4/29/11

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: SU57, SU60

ANALYTICAL
RESOURCES
INCORPORATED

Narrative

Client: ERM-West, Inc.
Project: 1282.96.05 RG Spring 2011 GW Sampling
ARI Job No.: SU57 & SU60

Sample receipt

Thirteen water samples were received on April 28, 2011 under ARI jobs SU57 and SU60. The cooler temperatures measured by IR thermometer following ARI SOP were between 2.2 and 4.6°C. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Semivolatiles by SW8270

The samples and associated laboratory QC were extracted and analyzed within recommended holding times, in two separate batches.

The initial and continuing calibrations were within method requirements for target compounds. Internal standard areas were within limits.

The surrogate percent recoveries were outside control limits in samples **MW-3D-042711, MW-11-042811** and **MW-19-042811**. The outliers are flagged on the Form II. Samples were to be re-extracted, but no volume remained for samples **MW-11-042811** and **MW-19-042811.** Both results have been reported for sample **MW-3D-042711**, which was clean in both analyses.

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

The MS/MSD run on sample **MW-14-042711** had recoveries and RPD within limits.

Total Metals

The samples were digested and analyzed within recommended holding times.

Initial and continuing calibrations were within limits.

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

The duplicate RPD were within limits for both the total and dissolved fractions of sample **MW-14-042711**. Matrix spike recoveries calculated are invalid due to the high concentration in the parent sample relative to the spike amount. Results have been "H" flagged on the Form V.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SU57
Client: ERM-West
Project Event: 128296.05
Project Name: RG 2011 Spring GW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-14-042711	SU57A	11-9630	Water	04/27/11 13:05	04/28/11 15:10
2.	DUP042711-2	SU57B	11-9631	Water	04/27/11 08:15	04/28/11 15:10
3.	MW-6S-042711	SU57C	11-9632	Water	04/27/11 14:04	04/28/11 15:10
4.	MW-3S-042711	SU57D	11-9633	Water	04/27/11 15:48	04/28/11 15:10
5.	MW-3D-042711	SU57E	11-9634	Water	04/27/11 14:50	04/28/11 15:10
6.	MW-27-042811	SU57F	11-9635	Water	04/28/11 10:08	04/28/11 15:10
7.	MW-26-042811	SU57G	11-9636	Water	04/28/11 10:53	04/28/11 15:10
8.	MW-16-042811	SU57H	11-9637	Water	04/28/11 11:49	04/28/11 15:10
9.	MW-5S-042811	SU57I	11-9638	Water	04/28/11 13:14	04/28/11 15:10
10.	DUP042711-3	SU57J	11-9639	Water	04/27/11 17:00	04/28/11 15:10
11.	MS-14-042711	SU57K	11-9640	Water	04/27/11 13:05	04/28/11 15:10
12.	DUP042711-2	SU57L	11-9641	Water	04/27/11 08:15	04/28/11 15:10
13.	MW-6S-042711	SU57M	11-9642	Water	04/27/11 14:04	04/28/11 15:10
14.	MW-3S-042711	SU57N	11-9643	Water	04/27/11 15:48	04/28/11 15:10
15.	MW-3D-042711	SU57O	11-9644	Water	04/27/11 14:50	04/28/11 15:10
16.	MW-27-042811	SU57P	11-9645	Water	04/28/11 10:08	04/28/11 15:10
17.	MW-26-042811	SU57Q	11-9646	Water	04/28/11 10:53	04/28/11 15:10
18.	MW-16-042811	SU57R	11-9647	Water	04/28/11 11:49	04/28/11 15:10
19.	MW-5S-042811	SU57S	11-9648	Water	04/28/11 13:14	04/28/11 15:10
20.	DUP042711-3	SU57T	11-9649	Water	04/27/11 17:00	04/28/11 15:10

Printed 04/29/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SU60
Client: ERM-West
Project Event: 128296.05
Project Name: RG Spring 2011 GW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-11-042811	SU60A	11-9656	Water	04/28/11 14:05	04/28/11 16:55
2.	MW-12-042811	SU60B	11-9657	Water	04/28/11 14:55	04/28/11 16:55
3.	MW-19-042811	SU60C	11-9658	Water	04/28/11 15:52	04/28/11 16:55
4.	MW-11-042811	SU60D	11-9659	Water	04/28/11 14:05	04/28/11 16:55
5.	MW-12-042811	SU60E	11-9660	Water	04/28/11 14:55	04/28/11 16:55
6.	MW-19-042811	SU60F	11-9661	Water	04/28/11 15:52	04/28/11 16:55

Printed 04/29/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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 ≥ 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).

SU57:00014

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 ≥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)**

SU57 00015

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

SU57 00016

Analytical Resources,Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
LCS Spike Recovery [8]				
Phenol [3]	50 - **100**	43 - 103	16 - **100**	6 - **100**
Bis-(2-chloroethyl) ether	52 - **100**	45 - 105	41 - 112	29 - 124
2-Chlorophenol	56 - **100**	49 - 103	43 - 111	32 - 122
1,3-Dichlorobenzene	23 - **100**	15 - **100**	32 - **100**	22 - 103
1,4-Dichlorobenzene	25 - **100**	17 - **100**	32 - **100**	22 - 103
Benzyl Alcohol	19 - 100	**10** - 114	22 - 100	9 - 113
1,2-Dichlorobenzene	30 - **100**	22 - **100**	34 - **100**	24 - 104
2-Methylphenol	52 - **100**	44 - 106	36 - 110	24 - 122
2,2'-oxybis(1-chloropropane)	32 - 111	19 - 124	29 - 118	14 - 133
4-Methylphenol	53 - 102	45 - 110	38 - 104	27 - 115
N-Nitroso-di-n-propylamine	43 - 104	33 - 114	38 - 115	25 - 128
Hexachloroethane	12 - **100**	**10** - **100**	24 - **100**	13 - 100
Nitrobenzene	33 - 125	18 - 140	45 - 106	35 - 116
Isophorone	57 - 115	47 - 125	55 - 119	44 - 130
2-Nitrophenol	56 - 102	48 - 110	46 - 118	34 - 130
2,4-Dimethyphenol	29 - **100**	20 - **100**	28 - 105	15 - 118
Bis-(2-chloroethoxy) methane	54 - 101	46 - 109	44 - 118	32 - 130
Benzoic Acid [3]	**10** - 131	**10** - 151	11 - **100**	**10** - **100**
2,4-Dichlorophenol	56 - 104	48 - 112	43 - 121	30 - 134
1,2,4-Trichlorobenzene	27 - **100**	18 - **100**	35 - **100**	25 - 107
Naphthalene	45 - **100**	38 - **100**	36 - 111	24 - 124
4-Chloroaniline [3]	**10** - 139	**10** - 161	10 - 174	**10** - 201
2-Chloronaphthalene	45 - **100**	37 - 105	39 - 118	26 - 131
Hexachlorobutadiene	**10** - **100**	**10** - **100**	24 - **100**	12 - 108
4-Chloro-3-methylphenol	53 - 109	44 - 118	45 - 122	32 - 135
2-Methylnaphthalene	46 - **100**	38 - 100	45 - 103	35 - 113
Hexachlorocyclopentadiene	**10** - **100**	**10** - **100**	23 - 108	**10** - 122
2,4,6-Trichlorophenol	58 - 108	50 - 116	48 - 122	36 - 134
2,4,5-Trichlorophenol	58 - 107	50 - 115	48 - 122	36 - 134
2-Nitroaniline	50 - 107	41 - 117	48 - 118	36 - 130
Dimethylphthalate	58 - 107	50 - 115	50 - 120	38 - 132
Acenaphthylene	57 - 100	50 - 107	50 - 119	39 - 131
2,6-Dinitrotoluene	58 - 112	49 - 121	48 - 133	34 - 147
3-Nitroaniline [3]	21 - 150	**10** - 172	54 - 140	40 - 154
Acenaphthene	51 - **100**	43 - 106	41 - 120	28 - 133
2,4-Dinitrophenol	12 - 169	**10** - 195	23 - 176	**10** - 202

SU57 : 00017

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Dibenzofuran	57 - 100	50 - 107	51 - 114	41 - 125
4-Nitrophenol [3]	35 - 119	21 - 133	13 - **100**	**10** - **100**
2,4-Dinitrotoluene	58 - 117	48 - 127	51 - 134	37 - 148
Fluorene	56 - 104	48 - 112	50 - 120	38 - 132
Diethylphthlalate	52 - 111	42 - 121	48 - 122	36 - 134
4-Chlorophenyl-phenyl ether	55 - 104	47 - 112	50 - 118	39 - 129
4-Nitroaniline	49 - 112	39 - 123	42 - 136	26 - 152
4,6-Dinitro-2-Methylphenol	13 - 139	**10** - 160	32 - 121	17 - 136
N-Nitrosodiphenylamine	60 - 136	47 - 149	58 - 141	44 - 155
4-Bromophenyl-phenyl ether	55 - 103	47 - 111	50 - 122	38 - 134
Hexachlorobenzene	54 - 106	45 - 115	47 - 125	34 - 138
Pentachlorophenol	46 - 114	35 - 125	35 - 130	19 - 146
Phenanthrene	56 - 102	48 - 110	49 - 120	37 - 132
Anthracene	56 - 101	49 - 109	53 - 116	43 - 127
Carbazole	60 - 108	52 - 116	57 - 122	46 - 133
Di-n-butylphthalate	56 - 112	47 - 121	57 - 121	46 - 132
Fluoranthene	57 - 110	48 - 119	56 - 119	46 - 130
Pyrene	48 - 119	36 - 131	37 - 143	19 - 161
Butylbenzylphthalate	51 - 114	41 - 125	34 - 152	14 - 172
Benzo(a)Anthracene	55 - 105	47 - 113	49 - 129	36 - 142
3,3'-Dichlorbenzidine [3]	**10** - 128	**10** - 148	50 - 128	37 - 141
Chrysene	55 - 104	47 - 112	45 - 128	31 - 142
bis(2-Ethylhexyl) phthalate	28 - 164	**10** - 187	57 - 133	44 - 146
Di-n-octylphthalate	57 - 107	49 - 115	52 - 120	41 - 131
Benzofluoranthene(s) (Total)	30 - 160 [10]	30 - 160 [10]	30 - 160 [10]	30 - 160 [10]
Benzo(a)Pyrene	45 - 103	35 - 113	46 - 109	36 - 120
Indeno(1,2,3-cd)Pyrene	35 - 118	21 - 132	34 - 136	17 - 153
Dibenz(a,h)anthracene	42 - 119	29 - 132	41 - 134	26 - 150
Benzo(g,h,i)Perylene	39 - 123	25 - 137	41 - 133	26 - 148
Aniline [3]	**10** - **100**	**10** - **100**	28 - 126	12 - 142
1,2-Diphenylhydrazine /Azobenzene	57 - 109	48 - 118	55 - 119	44 - 130
N-Nitrosodimethylamine	49 - **100**	41 - 104	31 - **100**	21 - 105
1-Methylnaphthalene	46 - **100**	37 - 107	43 - 115	31 - 127
1,4-Dioxane	40 - **100**	30 - 108	30 - 160 [4]	30 - 160 [4]
Pyridine	-	-	25 - **100**	15 - **100**
Tributyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Dibutyl Phenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]

SU57 : 00018

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Butyl Diphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Triphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Butylated Hydroxytoluene (BHT)	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
MB / LCS Surrogate Recovery				
d4-2-Chlorophenol	53 - 100	(5)	49 - 101	(5)
d4-1,2-Dichlorobenzene	38 - **100**	(5)	40 - **100**	(5)
2,4,6-Tribromophenol	52 - 123	(5)	51 - 122	(5)
2-Fluorophenol	46 - **100**	(5)	31 - **100**	(5)
d5-Phenol [3]	50 - 100	52 - 108	19 - **100**	12 - **100**
d5-Nitrobenzene	46 - 100	(5)	46 - 101	(5)
2-Fluorobiphenyl	49 - **100**	(5)	49 - 103	(5)
d14-p-Terphenyl	53 - 119	(5)	49 - 130	(5)
d8-1,4-Dioxane	45 - **100**	(5)	30 - 160 [4]	(5)
Sample Surrogate Recovery				
d4-2-Chlorophenol	44 - **100**	(5)	23 - 104	(5)
d4-1,2-Dichlorobenzene	32 - **100**	(5)	22 - **100**	(5)
2,4,6-Tribromophenol	48 - 118	(5)	22 - 125	(5)
2-Fluorophenol	38 - **100**	(5)	18 - **100**	(5)
d5-Phenol	41 - **100**	32 - 104	**10** - **100**	17 - **100**
d5-Nitrobenzene	39 - **100**	(5)	21 - 106	(5)
2-Fluorobiphenyl	42 - **100**	(5)	26 - 104	(5)
d14-p-Terphenyl	26 - 114	(5)	11 - 132	(5)
d8-1,4-Dioxane	32 - **100**	(5)	30 - 160 [4]	(5)

(1) Control Limits calculated using all data generated 1/1/07 through 12/1/07.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [6] as beyond the CL but still within the ME limits. ARI defines ME limits as between 3 and 4 standard deviations around the mean with upper limit ≥ 100%. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances in an analysis require corrective action.
(3) These are "**poor performers**" defined in the DoD QSM[7] as compounds that "produce low mean recoveries and high standard deviations, resulting in wide LCS control limits with particularly low lower control limits (sometimes-negative values). ARI does not control batch acceptance based on these compounds since there is a high level of uncertainty in their recovery."
(4) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(5) Marginal Exceedances not allowed for surrogate unless it is a "poor performer".
(6) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(7) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based On National Environmental Laboratory Accreditation Conference (NELAC) Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(9) 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.
(10) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

SU57 : 00019

Summary of Laboratory Control Limits Metals Analyses (All Methods & Sample Matrices)

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Element	Matrix Spike Recovery	LCS Recovery	Replicate RPD
Aluminum	75 - 125	80 - 120	≤ 20%
Antimony	75 - 125	80 - 120	≤ 20%
Arsenic	75 - 125	80 - 120	≤ 20%
Barium	75 - 125	80 - 120	≤ 20%
Beryllium	75 - 125	80 - 120	≤ 20%
Boron	75 - 125	80 - 120	≤ 20%
Cadmium	75 - 125	80 - 120	≤ 20%
Calcium	75 - 125	80 - 120	≤ 20%
Chromium	75 - 125	80 - 120	≤ 20%
Cobalt	75 - 125	80 - 120	≤ 20%
Copper	75 - 125	80 - 120	≤ 20%
Iron	75 - 125	80 - 120	≤ 20%
Lead	75 - 125	80 - 120	≤ 20%
Magnesium	75 - 125	80 - 120	≤ 20%
Manganese	75 - 125	80 - 120	≤ 20%
Mercury	75 - 125	80 - 120	≤ 20%
Nickel	75 - 125	80 - 120	≤ 20%
Potassium	75 - 125	80 - 120	≤ 20%
Selenium	75 - 125	80 - 120	≤ 20%
Silica	75 - 125	80 - 120	≤ 20%
Silver	75 - 125	80 - 120	≤ 20%
Sodium	75 - 125	80 - 120	≤ 20%
Strontium	75 - 125	80 - 120	≤ 20%
Thallium	75 - 125	80 - 120	≤ 20%
Vanadium	75 - 125	80 - 120	≤ 20%
Zinc	75 - 125	80 - 120	≤ 20%

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: SU57, SU60

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-14-042711
SAMPLE

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized: MW
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 04:43
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	52.0%
2-Fluorophenol	50.4%
2,4,6-Tribromophenol	56.8%
d4-2-Chlorophenol	53.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: DUP042711-2**
Page 1 of 1 **SAMPLE**

Lab Sample ID: SU57B
LIMS ID: 11-9631
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling 128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 06:21
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	41.3%
2-Fluorophenol	42.1%
2,4,6-Tribromophenol	53.1%
d4-2-Chlorophenol	44.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-6S-042711
SAMPLE

Lab Sample ID: SU57C
LIMS ID: 11-9632
Matrix: Water
Data Release Authorized: MW
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 06:54
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	45.9%
2-Fluorophenol	41.9%
2,4,6-Tribromophenol	54.4%
d4-2-Chlorophenol	44.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-3S-042711
SAMPLE

Lab Sample ID: SU57D
LIMS ID: 11-9633
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 11:33
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	52.3%
2-Fluorophenol	49.3%
2,4,6-Tribromophenol	58.9%
d4-2-Chlorophenol	52.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-3D-042711
SAMPLE

Lab Sample ID: SU57E
LIMS ID: 11-9634
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 12:06
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	38.9%
2-Fluorophenol	34.4%
2,4,6-Tribromophenol	52.8%
d4-2-Chlorophenol	37.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MW-3D-042711**
Page 1 of 1 **REEXTRACT**

Lab Sample ID: SU57E
LIMS ID: 11-9634
Matrix: Water
Data Release Authorized: MW
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/24/11
Date Analyzed: 05/25/11 16:23
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	58.1%
2-Fluorophenol	53.3%
2,4,6-Tribromophenol	74.9%
d4-2-Chlorophenol	57.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-27-042811
SAMPLE

Lab Sample ID: SU57F
LIMS ID: 11-9635
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 14:51
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	46.1%
2-Fluorophenol	44.3%
2,4,6-Tribromophenol	52.8%
d4-2-Chlorophenol	47.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-26-042811
SAMPLE

Lab Sample ID: SU57G
LIMS ID: 11-9636
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 15:53
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	45.9%
2-Fluorophenol	45.1%
2,4,6-Tribromophenol	48.3%
d4-2-Chlorophenol	45.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-16-042811
SAMPLE

Lab Sample ID: SU57H
LIMS ID: 11-9637
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 16:26
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	44.3%
2-Fluorophenol	43.2%
2,4,6-Tribromophenol	48.8%
d4-2-Chlorophenol	46.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-5S-042811
SAMPLE

Lab Sample ID: SU57I
LIMS ID: 11-9638
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 13:12
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	48.3%
2-Fluorophenol	44.0%
2,4,6-Tribromophenol	53.3%
d4-2-Chlorophenol	47.5%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-050311	58.4%	56.5%	55.2%	59.5%	0
LCS-050311	62.7%	56.8%	65.6%	61.9%	0
MW-14-042711	52.0%	50.4%	56.8%	53.3%	0
MW-14-042711 MS	58.4%	55.5%	64.5%	58.9%	0
MW-14-042711 MSD	64.8%	59.5%	73.6%	64.0%	0
DUP042711-2	41.3%	42.1%	53.1%	44.0%	0
MW-6S-042711	45.9%	41.9%	54.4%	44.8%	0
MW-3S-042711	52.3%	49.3%	58.9%	52.5%	0
MB-052411	70.7%	68.8%	70.7%	72.0%	0
LCS-052411	75.2%	72.0%	81.9%	74.7%	0
LCSD-052411	66.7%	63.5%	88.0%	66.4%	0
MW-3D-042711	38.9%*	34.4%*	52.8%	37.9%*	3
MW-3D-042711 RE	58.1%	53.3%	74.9%	57.6%	0
MW-27-042811	46.1%	44.3%	52.8%	47.2%	0
MW-26-042811	45.9%	45.1%	48.3%	45.9%	0
MW-16-042811	44.3%	43.2%	48.8%	46.4%	0
MW-5S-042811	48.3%	44.0%	53.3%	47.5%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-9630 to 11-9638

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-14-042711
MS/MSD

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted MS/MSD: 05/03/11

Date Analyzed MS: 05/13/11 05:15
MSD: 05/13/11 05:48
Instrument/Analyst MS: NT6/JZ
MSD: NT6/JZ
GPC Cleanup: NO

Sample Amount MS: 500 mL
MSD: 500 mL
Final Extract Volume MS: 0.5 mL
MSD: 0.5 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 1.0 U	16.5	25.0	66.0%	18.9	25.0	75.6%	13.6%
2-Chlorophenol	< 1.0 U	17.6	25.0	70.4%	19.6	25.0	78.4%	10.8%
2,4-Dichlorophenol	< 5.0 U	16.9	75.0	22.5%	20.1	75.0	26.8%	17.3%
2,4,6-Trichlorophenol	< 5.0 U	17.0	75.0	22.7%	19.5	75.0	26.0%	13.7%
2,4,5-Trichlorophenol	< 5.0 U	16.8	75.0	22.4%	18.7	75.0	24.9%	10.7%
Pentachlorophenol	< 5.0 U	18.5	75.0	24.7%	20.8	75.0	27.7%	11.7%
2,3,4,6-Tetrachlorophenol	< 1.0 U	16.1	25.0	64.4%	17.4	25.0	69.6%	7.8%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-14-042711
MATRIX SPIKE

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 05:15
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	58.4%
2-Fluorophenol	55.5%
2,4,6-Tribromophenol	64.5%
d4-2-Chlorophenol	58.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-14-042711
MATRIX SPIKE DUP

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized: MW
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 05:48
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	64.8%
2-Fluorophenol	59.5%
2,4,6-Tribromophenol	73.6%
d4-2-Chlorophenol	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-050311
LAB CONTROL

Lab Sample ID: LCS-050311
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized: MW
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 04:10
Instrument/Analyst: NT6/JZ
GPC Cleanup: NO

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Phenol	17.6	25.0	70.4%
2-Chlorophenol	18.6	25.0	74.4%
2,4-Dichlorophenol	18.7	75.0	24.9%
2,4,6-Trichlorophenol	17.4	75.0	23.2%
2,4,5-Trichlorophenol	16.9	75.0	22.5%
Pentachlorophenol	18.2	75.0	24.3%
2,3,4,6-Tetrachlorophenol	15.4	25.0	61.6%

Semivolatile Surrogate Recovery

d5-Phenol	62.7%
2-Fluorophenol	56.8%
2,4,6-Tribromophenol	65.6%
d4-2-Chlorophenol	61.9%

Results reported in µg/L

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-052411**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-052411 QC Report No: SU57-ERM-West
LIMS ID: 11-9634 Project: RG 2011 Spring GW Sampling
Matrix: Water 128296.05
Data Release Authorized: Date Sampled: 04/27/11
Reported: 05/26/11 Date Received: 04/28/11

Date Extracted LCS/LCSD: 05/24/11 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 05/25/11 15:18 Final Extract Volume LCS: 0.50 mL
LCSD: 05/25/11 15:51 LCSD: 0.50 mL
Instrument/Analyst LCS: NT6/VTS Dilution Factor LCS: 1.00
LCSD: NT6/VTS LCSD: 1.00
GPC Cleanup: NO

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	22.6	25.0	90.4%	20.7	25.0	82.8%	8.8%
2-Chlorophenol	22.0	25.0	88.0%	20.1	25.0	80.4%	9.0%
2,4-Dichlorophenol	66.8	75.0	89.1%	64.1	75.0	85.5%	4.1%
2,4,6-Trichlorophenol	69.6	75.0	92.8%	72.6	75.0	96.8%	4.2%
2,4,5-Trichlorophenol	75.9	75.0	101%	80.2	75.0	107%	5.5%
Pentachlorophenol	88.5	75.0	118%	93.0	75.0	124%	5.0%
2,3,4,6-Tetrachlorophenol	20.0	25.0	80.0%	22.5	25.0	90.0%	11.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	75.2%	66.7%
2-Fluorophenol	72.0%	63.5%
2,4,6-Tribromophenol	81.9%	88.0%
d4-2-Chlorophenol	74.7%	66.4%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

SU57MBW1

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW SA

Lab File ID: 05121126 Date Extracted: 05/03/11

Instrument ID: NT6 Date Analyzed: 05/13/11

Matrix: LIQUID Time Analyzed: 0337

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SU57LCSW1	SU57LCSW1	05121127	05/13/11
02	MW-14-042711	SU57A	05121128	05/13/11
03	MW-14-042711 MS	SU57AMS	05121129	05/13/11
04	MW-14-042711 MSD	SU57AMSD	05121130	05/13/11
05	DUP042711-2	SU57B	05121131	05/13/11
06	MW-6S-042711	SU57C	05121132	05/13/11
07	MW-26-042811	SU57G	05131105	05/13/11
08	MW-16-042811	SU57H	05131106	05/13/11
09	MW-3S-042711	SU57D	05171102	05/17/11
10	MW-3D-042711	SU57E	05171103	05/17/11
11	MW-5S-042811	SU57I	05171105	05/17/11
12	MW-27-042811	SU57F	05171108	05/17/11
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-050311
METHOD BLANK

Lab Sample ID: MB-050311
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 03:37
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	58.4%
2-Fluorophenol	56.5%
2,4,6-Tribromophenol	55.2%
d4-2-Chlorophenol	59.5%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

SX49MBW1

Lab Name: ANALYTICAL RESOURCES, INC

Client: ERM-WEST

ARI Job No: SU57

Project: RG 2011 SPRING GW

Lab File ID: 05251108

Date Extracted: 05/24/11

Instrument ID: NT6

Date Analyzed: 05/25/11

Matrix: LIQUID

Time Analyzed: 1445

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SX49LCSW1	SX49LCSW1	05251109	05/25/11
02	SX49LCSDW1	SX49LCSDW1	05251110	05/25/11
03	MW-3D-042711	SU57ERE	05251111	05/25/11
04				
05				
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-052411
METHOD BLANK

Lab Sample ID: MB-052411
LIMS ID: 11-9634
Matrix: Water
Data Release Authorized:
Reported: 05/26/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/24/11
Date Analyzed: 05/25/11 14:45
Instrument/Analyst: NT6/VTS

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	70.7%
2-Fluorophenol	68.8%
2,4,6-Tribromophenol	70.7%
d4-2-Chlorophenol	72.0%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/09/11 DFTPP Injection Time: 2015

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.9
68	Less than 2.0% of mass 69	0.1 (0.3)1
69	Mass 69 relative abundance	35.5
70	Less than 2.0% of mass 69	0.2 (0.7)1
127	10.0 - 80.0% of mass 198	48.7
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.8
275	10.0 - 60.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.14
441	0.0 - 24.0% of mass 442	10.3 (14.8)2
442	50.0 - 200.0% of mass 198	69.4
443	15.0 - 24.0% of mass 442	13.1 (18.9)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250509	IC250509	05091117	05/09/11	2015
02	IC010509	IC010509	05091118	05/09/11	2048
03	IC050509	IC050509	05091119	05/09/11	2120
04	IC100509	IC100509	05091120	05/09/11	2153
05	IC400509	IC400509	05091121	05/09/11	2226
06	IC600509	IC600509	05091122	05/09/11	2259
07	IC800509	IC800509	05091123	05/09/11	2331
08	ICV0509	ICV0509	05091124	05/10/11	0004
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/12/11 DFTPP Injection Time: 2029

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	32.0
68	Less than 2.0% of mass 69	0.3 (0.9)1
69	Mass 69 relative abundance	36.7
70	Less than 2.0% of mass 69	0.2 (0.6)1
127	10.0 - 80.0% of mass 198	49.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.6
275	10.0 - 60.0% of mass 198	25.0
365	Greater than 1.0% of mass 198	3.55
441	0.0 - 24.0% of mass 442	11.6 (15.1)2
442	50.0 - 200.0% of mass 198	76.8
443	15.0 - 24.0% of mass 442	14.8 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0512A	CC0512A	05121113	05/12/11	2029
02	SU57MBW1	SU57MBW1	05121126	05/13/11	0337
03	SU57LCSW1	SU57LCSW1	05121127	05/13/11	0410
04	MW-14-042711	SU57A	05121128	05/13/11	0443
05	MW-14-042711 MS	SU57AMS	05121129	05/13/11	0515
06	MW-14-042711 MSD	SU57AMSD	05121130	05/13/11	0548
07	DUP042711-2	SU57B	05121131	05/13/11	0621
08	MW-6S-042711	SU57C	05121132	05/13/11	0654
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/13/11 DFTPP Injection Time: 1447

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	28.7
68	Less than 2.0% of mass 69	0.1 (0.4)1
69	Mass 69 relative abundance	35.9
70	Less than 2.0% of mass 69	0.2 (0.6)1
127	10.0 - 80.0% of mass 198	47.3
197	Less than 2.0% of mass 198	0.5
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.3
275	10.0 - 60.0% of mass 198	23.5
365	Greater than 1.0% of mass 198	2.83
441	0.0 - 24.0% of mass 442	9.9 (14.0)2
442	50.0 - 200.0% of mass 198	70.4
443	15.0 - 24.0% of mass 442	13.2 (18.7)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0513	CC0513	05131103	05/13/11	1447
02	MW-26-042811	SU57G	05131105	05/13/11	1553
03	MW-16-042811	SU57H	05131106	05/13/11	1626
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/17/11 DFTPP Injection Time: 1100

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	31.3
68	Less than 2.0% of mass 69	0.5 (1.4)1
69	Mass 69 relative abundance	36.1
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	10.0 - 80.0% of mass 198	47.2
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	24.8
365	Greater than 1.0% of mass 198	3.07
441	0.0 - 24.0% of mass 442	8.9 (12.2)2
442	50.0 - 200.0% of mass 198	73.0
443	15.0 - 24.0% of mass 442	13.0 (17.8)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0517	CC0517	05171101	05/17/11	1100
02	MW-3S-042711	SU57D	05171102	05/17/11	1133
03	MW-3D-042711	SU57E	05171103	05/17/11	1206
04	MW-5S-042811	SU57I	05171105	05/17/11	1312
05	MW-27-042811	SU57F	05171108	05/17/11	1451
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/24/11 DFTPP Injection Time: 1626

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.0
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	50.4
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	21.1
365	Greater than 1.0% of mass 198	2.45
441	0.0 - 24.0% of mass 442	9.7 (14.3)2
442	50.0 - 200.0% of mass 198	68.0
443	15.0 - 24.0% of mass 442	13.3 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250524	IC250524	05231101	05/24/11	1626
02	IC10524	IC10524	05231102	05/24/11	1659
03	IC50524	IC50524	05231103	05/24/11	1732
04	IC100524	IC100524	05231104	05/24/11	1805
05	IC400524	IC400524	05231105	05/24/11	1838
06	IC600524	IC600524	05231106	05/24/11	1910
07	IC800524	IC800534	05231107	05/24/11	1943
08	ICV0524	ICV0524	05231108	05/24/11	2053
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG 2011 SPRING GW

DFTPP Injection Date: 05/25/11 DFTPP Injection Time: 1046

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	22.9
68	Less than 2.0% of mass 69	0.2 (0.6)1
69	Mass 69 relative abundance	43.0
70	Less than 2.0% of mass 69	0.5 (1.1)1
127	10.0 - 80.0% of mass 198	52.1
197	Less than 2.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 60.0% of mass 198	21.0
365	Greater than 1.0% of mass 198	2.22
441	0.0 - 24.0% of mass 442	10.0 (15.6)2
442	50.0 - 200.0% of mass 198	64.2
443	15.0 - 24.0% of mass 442	13.0 (20.3)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0525	CC0525	05251101	05/25/11	1046
02	SX49MBW1	SX49MBW1	05251108	05/25/11	1445
03	SX49LCSW1	SX49LCSW1	05251109	05/25/11	1518
04	SX49LCSDW1	SX49LCSDW1	05251110	05/25/11	1551
05	MW-3D-042711	SU57ERE	05251111	05/25/11	1623
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FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Phenol	1.480	1.207	1.138	1.186	1.302	1.199	1.202	1.245	9.2
Bis(2-Chloroethyl)ether	1.081	0.909	0.986	0.951	1.035	0.963	0.938	0.980	6.1
2-Chlorophenol	1.210	1.026	0.974	1.083	1.124	1.056	1.036	1.073	7.1
1,3-Dichlorobenzene	1.602	1.317	1.406	1.394	1.461	1.359	1.297	1.405	7.3
1,4-Dichlorobenzene	1.585	1.368	1.426	1.420	1.481	1.367	1.315	1.423	6.3
1,2-Dichlorobenzene	1.441	1.231	1.314	1.301	1.363	1.269	1.218	1.305	6.0
Benzyl alcohol	1.000	0.808	0.862	0.938	0.938	0.915	0.903	0.909	6.7
2,2'-oxybis(1-Chloropropane)	1.089	0.905	0.945	0.952	1.006	0.945	0.922	0.966	6.5
2-Methylphenol	1.041	0.898	0.838	0.952	0.996	0.927	0.936	0.941	7.0
Hexachloroethane	0.499	0.471	0.511	0.513	0.548	0.530	0.509	0.512	4.7
N-Nitroso-di-n-propylamine	0.678	0.604	0.631	0.620	0.691	0.645	0.644	0.645	4.8
4-Methylphenol	1.119	0.921	0.852	0.963	1.030	0.953	0.954	0.970	8.7
Nitrobenzene	0.370	0.305	0.333	0.329	0.347	0.324	0.317	0.332	6.4
Isophorone	0.544	0.456	0.494	0.484	0.505	0.480	0.467	0.490	5.9
2-Nitrophenol	0.188	0.165	0.163	0.194	0.198	0.192	0.192	0.184	7.8
2,4-Dimethylphenol	0.352	0.275	0.264	0.297	0.302	0.288	0.288	0.295	9.6
Bis(2-Chloroethoxy)methane	0.411	0.335	0.366	0.357	0.378	0.359	0.346	0.364	6.8
2,4-Dichlorophenol	0.325	0.268	0.253	0.286	0.296	0.285	0.286	0.286	7.9
1,2,4-Trichlorobenzene	0.401	0.322	0.367	0.352	0.370	0.356	0.344	0.359	6.8
Naphthalene	1.105	0.915	0.984	0.928	0.889	0.787	0.714	0.903	14.1
Benzoic acid		0.145	0.143	0.204	0.221	0.222	0.217	0.192	19.7
4-Chloroaniline	0.602	0.503	0.507	0.545	0.473	0.448	0.419	0.500	12.3
Hexachlorobutadiene	0.220	0.186	0.199	0.199	0.216	0.211	0.210	0.206	5.7
4-Chloro-3-methylphenol	0.257	0.226	0.212	0.243	0.248	0.234	0.236	0.236	6.2
2-Methylnaphthalene	0.790	0.649	0.694	0.718	0.661	0.618	0.588	0.674	10.0
Hexachlorocyclopentadiene	0.339	0.333	0.399	0.414	0.456	0.455	0.457	0.408	13.2
2,4,6-Trichlorophenol	0.384	0.326	0.329	0.364	0.394	0.394	0.398	0.370	8.4
2,4,5-Trichlorophenol	0.435	0.370	0.359	0.412	0.426	0.410	0.415	0.404	7.0
2-Chloronaphthalene	1.266	1.023	1.137	1.106	1.128	1.032	0.986	1.097	8.6
2-Nitroaniline	0.357	0.300	0.324	0.345	0.322	0.307	0.312	0.324	6.4
Acenaphthylene	1.885	1.545	1.671	1.602	1.557	1.372	1.286	1.560	12.5
Dimethylphthalate	1.316	1.102	1.160	1.112	1.144	1.064	1.030	1.132	8.1
2,6-Dinitrotoluene	0.288	0.246	0.272	0.274	0.292	0.276	0.278	0.275	5.3
Acenaphthene	1.144	0.962	1.035	1.001	1.016	0.938	0.904	0.100	7.8
3-Nitroaniline	0.411	0.353	0.371	0.392	0.307	0.270	0.244	0.335	18.8
2,4-Dinitrophenol		0.033	0.054	0.110	0.129	0.146	0.156	0.105	0.996
Dibenzofuran	2.247	1.727	1.821	1.878	1.669	1.526	1.421	1.756	15.3

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	___ RRF	%RSD /R^2
4-Nitrophenol	0.114	0.110	0.105	0.126	0.128	0.126	0.127	0.119	8.2
2,4-Dinitrotoluene	0.335	0.321	0.335	0.349	0.356	0.345	0.344	0.341	3.4
Fluorene	1.405	1.132	1.192	1.192	1.207	1.099	1.050	1.182	9.6
4-Chlorophenyl-phenylether	0.692	0.564	0.587	0.591	0.635	0.600	0.600	0.610	6.9
Diethylphthalate	1.342	1.110	1.164	1.135	1.149	1.060	1.016	1.139	9.1
4-Nitroaniline	0.334	0.325	0.323	0.362	0.294	0.297	0.289	0.318	8.2
4,6-Dinitro-2-methylphenol		0.061	0.074	0.116	0.126	0.134	0.142	0.109	0.998
N-Nitrosodiphenylamine (1)	0.593	0.488	0.546	0.519	0.558	0.527	0.531	0.537	6.1
4-Bromophenyl-phenylether	0.242	0.190	0.216	0.211	0.237	0.235	0.242	0.225	8.7
Hexachlorobenzene	0.268	0.207	0.226	0.227	0.256	0.252	0.262	0.242	9.3
Pentachlorophenol		0.086	0.089	0.128	0.143	0.152	0.162	0.127	0.998
Phenanthrene	1.197	0.935	0.988	0.945	0.944	0.866	0.825	0.957	12.4
Anthracene	1.181	0.993	1.052	1.000	0.958	0.871	0.837	0.984	11.6
Carbazole	0.978	0.857	0.838	0.839	0.761	0.738	0.716	0.818	10.9
Di-n-butylphthalate	1.168	1.036	1.056	1.036	0.970	0.895	0.830	0.999	11.2
Fluoranthene	1.026	0.960	0.920	0.935	0.884	0.830	0.790	0.906	8.8
Pyrene	1.493	1.119	1.328	1.237	1.355	1.104	1.045	1.240	13.0
Butylbenzylphthalate	0.531	0.467	0.504	0.519	0.562	0.500	0.492	0.511	6.0
Benzo(a)anthracene	1.032	0.908	0.965	0.980	1.037	0.951	0.931	0.972	5.0
3,3'-Dichlorobenzidine	0.306	0.299	0.329	0.366	0.318	0.319	0.317	0.322	6.7
Chrysene	1.069	0.836	0.904	0.903	0.924	0.869	0.846	0.907	8.6
bis(2-Ethylhexyl)phthalate	0.610	0.493	0.578	0.560	0.620	0.540	0.532	0.562	8.0
Di-n-octylphthalate	1.066	0.839	0.906	0.893	0.919	0.829	0.805	0.894	9.7
Benzo(b)fluoranthene	1.116	0.976	1.142	1.115	1.242	1.157	1.144	1.127	7.0
Benzo(k)fluoranthene	1.333	1.144	1.244	1.320	1.355	1.274	1.262	1.276	5.6
Benzo(a)pyrene	1.029	0.910	1.059	1.069	1.140	1.092	1.090	1.056	6.9
Indeno(1,2,3-cd)pyrene	1.012	0.802	1.009	1.043	1.095	1.129	1.135	1.032	11.0
Dibenzo(a,h)anthracene	0.742	0.600	0.798	0.862	0.908	0.930	0.947	0.827	15.0
Benzo(g,h,i)perylene	0.874	0.664	0.897	0.916	0.937	0.969	0.958	0.888	11.7
N-Nitrosodimethylamine	0.556	0.523	0.567	0.552	0.616	0.576	0.578	0.567	5.0
Aniline	2.170	1.817	1.873	1.979	1.872	1.716	1.619	1.864	9.6
Benzidine		0.473	0.499	0.459	0.342	0.350	0.329	0.409	18.7
Pyridine	2.034	2.139	2.320	2.289	2.361	2.227	2.178	2.221	5.1
1-methylnaphthalene	0.626	0.510	0.537	0.525	0.543	0.499	0.478	0.531	9.0
Azobenzene (1,2-DP-Hydrazine	1.110	0.945	0.995	0.995	0.972	0.895	0.856	0.967	8.5
2,3,4,6-Tetrachlorophenol	0.295	0.308	0.302	0.368	0.387	0.382	0.393	0.348	12.6
1,2,4,5-Tetrachlorobenzene	0.618	0.501	0.552	0.530	0.574	0.552	0.553	0.554	6.6

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-2

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	___ RRF	%RSD /R^2
Total Benzofluoranthenes	1.174	1.033	1.154	1.166	1.232	1.154	1.138	1.150	5.2
2-Fluorophenol	1.208	1.021	0.973	1.138	1.103	1.041		1.081	7.9
Phenol-d5	1.281	1.163	1.105	1.281	1.285	1.194		1.218	6.2
2-Chlorophenol-d4	1.240	1.078	1.011	1.194	1.189	1.132		1.141	7.4
1,2-Dichlorobenzene-d4	0.890	0.765	0.726	0.874	0.869	0.850		0.829	8.1
Nitrobenzene-d5	0.354	0.308	0.299	0.366	0.356	0.344		0.338	8.2
2-Fluorobiphenyl	1.461	1.159	1.161	1.317	1.255	1.166		1.253	9.6
2,4,6-Tribromophenol		0.143	0.140	0.178	0.177	0.181		0.164	12.5
Terphenyl-d14	0.873	0.682	0.708	0.826	0.886	0.778		0.792	10.7

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Phenol	1.430	1.244	1.390	1.296	1.364	1.321	1.287	1.333	4.9
Bis(2-Chloroethyl)ether	1.135	0.998	1.052	1.117	1.083	1.080	1.057	1.074	4.2
2-Chlorophenol	1.191	1.048	1.149	1.110	1.170	1.138	1.110	1.131	4.1
1,3-Dichlorobenzene	1.492	1.242	1.274	1.404	1.340	1.342	1.305	1.343	6.3
1,4-Dichlorobenzene	1.485	1.281	1.350	1.450	1.368	1.365	1.324	1.375	5.2
1,2-Dichlorobenzene	1.393	1.171	1.218	1.311	1.245	1.221	1.194	1.250	6.1
Benzyl alcohol	1.052	1.009	1.003	1.076	1.118	1.108	1.089	1.065	4.3
2,2'-oxybis(1-Chloropropane)	0.866	0.735	0.760	0.807	0.800	0.807	0.799	0.796	5.2
2-Methylphenol	1.068	0.927	1.017	0.956	1.032	1.005	0.974	0.997	4.8
Hexachloroethane	0.507	0.451	0.471	0.520	0.497	0.492	0.473	0.487	4.8
N-Nitroso-di-n-propylamine	0.774	0.689	0.712	0.764	0.727	0.740	0.728	0.733	4.0
4-Methylphenol	1.056	0.953	1.066	1.009	1.066	1.033	0.998	1.026	4.1
Nitrobenzene	0.364	0.320	0.322	0.353	0.348	0.329	0.327	0.338	5.1
Isophorone	0.548	0.489	0.496	0.544	0.506	0.511	0.518	0.516	4.4
2-Nitrophenol	0.190	0.157	0.183	0.178	0.189	0.180	0.183	0.180	6.1
2,4-Dimethylphenol	0.341	0.285	0.307	0.295	0.315	0.292	0.294	0.304	6.3
Bis(2-Chloroethoxy)methane	0.419	0.349	0.355	0.390	0.352	0.360	0.360	0.369	7.0
2,4-Dichlorophenol	0.294	0.252	0.280	0.269	0.285	0.273	0.277	0.276	4.8
1,2,4-Trichlorobenzene	0.331	0.273	0.273	0.302	0.292	0.283	0.288	0.292	7.0
Naphthalene	0.991	0.827	0.826	0.903	0.863	0.814	0.790	0.859	8.0
Benzoic acid		0.159	0.188	0.212	0.220	0.226	0.232	0.206	13.4
4-Chloroaniline	0.592	0.524	0.520	0.555	0.520	0.503	0.485	0.528	6.6
Hexachlorobutadiene	0.173	0.146	0.141	0.158	0.152	0.151	0.153	0.153	6.7
4-Chloro-3-methylphenol	0.260	0.228	0.248	0.246	0.247	0.248	0.241	0.245	3.9
2-Methylnaphthalene	0.802	0.658	0.668	0.701	0.688	0.679	0.676	0.696	7.0
Hexachlorocyclopentadiene	0.191	0.239	0.254	0.323	0.327	0.320	0.319	0.282	19.1
2,4,6-Trichlorophenol	0.329	0.281	0.332	0.318	0.363	0.356	0.356	0.334	8.6
2,4,5-Trichlorophenol	0.300	0.289	0.340	0.338	0.356	0.337	0.331	0.327	7.3
2-Chloronaphthalene	1.183	0.991	0.988	1.065	1.026	0.985	0.951	1.027	7.5
2-Nitroaniline	0.378	0.334	0.369	0.382	0.399	0.378	0.358	0.371	5.5
Acenaphthylene	1.597	1.428	1.430	1.552	1.462	1.416	1.350	1.462	5.8
Dimethylphthalate	1.196	0.993	1.016	1.100	1.059	1.026	0.996	1.055	6.9
2,6-Dinitrotoluene	0.255	0.241	0.247	0.272	0.270	0.259	0.259	0.258	4.4
Acenaphthene	1.031	0.856	0.851	0.941	0.888	0.852	0.827	0.892	8.0
3-Nitroaniline	0.407	0.388	0.393	0.409	0.368	0.308	0.271	0.363	14.7
2,4-Dinitrophenol		0.086	0.123	0.155	0.174	0.178	0.179	0.149	0.993
Dibenzofuran	2.178	1.858	1.855	1.918	1.969	1.870	1.727	1.911	7.3

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-1

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.099	0.117	0.132	0.158	0.169	0.157	0.149	0.140	18.0
2,4-Dinitrotoluene	0.308	0.301	0.314	0.351	0.350	0.343	0.339	0.329	6.4
Fluorene	1.238	1.024	1.042	1.125	1.093	1.055	1.006	1.083	7.3
4-Chlorophenyl-phenylether	0.608	0.484	0.502	0.536	0.511	0.508	0.505	0.522	7.9
Diethylphthalate	1.152	0.962	0.979	1.026	1.012	0.960	0.923	1.002	7.4
4-Nitroaniline	0.349	0.363	0.357	0.405	0.411	0.394	0.386	0.381	6.4
4,6-Dinitro-2-methylphenol	0.093	0.110	0.126	0.130	0.145	0.140	0.144	0.127	15.2
N-Nitrosodiphenylamine (1)	0.629	0.500	0.505	0.543	0.518	0.507	0.500	0.529	8.8
4-Bromophenyl-phenylether	0.220	0.169	0.170	0.183	0.177	0.182	0.182	0.183	9.4
Hexachlorobenzene	0.223	0.179	0.191	0.202	0.197	0.196	0.200	0.198	6.7
Pentachlorophenol		0.075	0.097	0.110	0.123	0.125	0.133	0.110	19.6
Phenanthrene	1.103	0.871	0.868	0.941	0.911	0.860	0.846	0.914	9.8
Anthracene	1.094	0.936	0.933	1.014	0.969	0.907	0.879	0.962	7.6
Carbazole	1.032	0.900	0.892	0.967	0.927	0.890	0.851	0.923	6.5
Di-n-butylphthalate	1.174	1.020	1.047	1.156	1.123	1.030	0.986	1.076	6.8
Fluoranthene	1.014	0.900	0.897	1.020	0.986	0.927	0.895	0.948	5.9
Pyrene	1.244	1.054	1.046	1.087	1.030	0.993	0.966	1.060	8.5
Butylbenzylphthalate	0.479	0.476	0.500	0.529	0.513	0.495	0.490	0.497	3.7
Benzo(a)anthracene	1.074	0.830	0.839	0.926	0.899	0.887	0.875	0.904	9.1
3,3'-Dichlorobenzidine	0.376	0.351	0.339	0.365	0.346	0.335	0.322	0.348	5.3
Chrysene	1.008	0.819	0.814	0.877	0.850	0.833	0.810	0.859	8.1
bis(2-Ethylhexyl)phthalate	0.461	0.450	0.471	0.511	0.493	0.483	0.490	0.480	4.3
Di-n-octylphthalate	1.004	0.826	0.831	0.890	0.844	0.817	0.798	0.858	8.2
Benzo(b)fluoranthene	1.167	0.932	0.994	1.091	1.052	1.027	1.087	1.050	7.2
Benzo(k)fluoranthene	1.183	1.022	1.014	1.086	1.099	1.049	0.981	1.062	6.3
Benzo(a)pyrene	1.024	0.889	0.934	1.016	1.008	0.981	0.981	0.976	5.0
Indeno(1,2,3-cd)pyrene	1.209	1.068	1.061	1.144	1.142	1.210	1.192	1.146	5.5
Dibenzo(a,h)anthracene	1.006	0.875	0.867	0.956	0.951	1.005	0.964	0.946	5.9
Benzo(g,h,i)perylene	1.056	0.938	0.917	0.989	0.987	1.067	1.032	0.998	5.7
N-Nitrosodimethylamine	0.677	0.627	0.628	0.705	0.694	0.696	0.676	0.672	4.8
Aniline	2.599	2.230	2.282	2.369	2.389	2.330	2.200	2.343	5.7
Benzidine	0.491	0.518	0.462	0.472	0.430	0.381	0.370	0.446	12.4
Pyridine	1.060	1.094	1.177	1.298	1.265	1.282	1.248	1.203	7.9
1-methylnaphthalene	0.787	0.624	0.630	0.675	0.621	0.620	0.613	0.653	9.6
Azobenzene (1,2-DP-Hydrazine	1.272	1.070	1.051	1.139	1.088	1.032	0.958	1.087	9.1
2,3,4,6-Tetrachlorophenol	0.274	0.253	0.289	0.282	0.315	0.306	0.308	0.290	7.6
1,2,4,5-Tetrachlorobenzene	0.549	0.438	0.447	0.488	0.482	0.461	0.458	0.475	7.8

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Calibration Date: 05/24/11

LAB FILE ID: RRF1 =05231102 RRF5 =05231103 RRF10 =05231104
RRF25 =05231101 RRF40 =05231105 RRF60 =05231106
RRF80 =05231107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Total Benzofluoranthenes	1.113	0.921	0.960	1.040	1.014	0.982	0.972	1.000	6.2
2-Fluorophenol	1.224	1.088	1.263	1.249	1.269	1.203		1.216	5.5
Phenol-d5	1.479	1.297	1.488	1.453	1.498	1.436		1.442	5.2
2-Chlorophenol-d4	1.292	1.069	1.227	1.235	1.233	1.181		1.206	6.3
1,2-Dichlorobenzene-d4	0.886	0.752	0.837	0.818	0.833	0.797		0.820	5.4
Nitrobenzene-d5	0.352	0.329	0.354	0.370	0.373	0.351		0.355	4.4
2-Fluorobiphenyl	1.312	1.084	1.238	1.230	1.231	1.162		1.210	6.4
2,4,6-Tribromophenol	0.152	0.126	0.134	0.138	0.149	0.141		0.140	6.7
Terphenyl-d14		0.590	0.672	0.658	0.664	0.632		0.643	5.2

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.245	1.156	0.800	AVRG	-7.1	
Bis(2-Chloroethyl)ether	0.980	0.956	0.700	AVRG	-2.4	
2-Chlorophenol	1.073	1.082	0.800	AVRG	0.8	
1,3-Dichlorobenzene	1.405	1.388	0.010	AVRG	-1.2	
1,4-Dichlorobenzene	1.423	1.399	0.010	AVRG	-1.7	
1,2-Dichlorobenzene	1.305	1.301	0.010	AVRG	-0.3	
Benzyl alcohol	0.909	0.984	0.010	AVRG	8.2	
2,2'-oxybis(1-Chloropropane)	0.966	1.073	0.010	AVRG	11.1	
2-Methylphenol	0.941	0.981	0.700	AVRG	4.2	
Hexachloroethane	0.512	0.508	0.300	AVRG	-0.8	
N-Nitroso-di-n-propylamine	0.645	0.673	0.500	AVRG	4.3	
4-Methylphenol	0.970	1.024	0.600	AVRG	5.6	
Nitrobenzene	0.332	0.332	0.200	AVRG	0.0	
Isophorone	0.490	0.493	0.400	AVRG	0.6	
2-Nitrophenol	0.184	0.192	0.100	AVRG	4.3	
2,4-Dimethylphenol	0.295	0.294	0.200	AVRG	-0.3	
Bis(2-Chloroethoxy)methane	0.364	0.360	0.300	AVRG	-1.1	
2,4-Dichlorophenol	0.286	0.295	0.200	AVRG	3.1	
1,2,4-Trichlorobenzene	0.359	0.356	0.010	AVRG	-0.8	
Naphthalene	0.903	0.914	0.700	AVRG	1.2	
Benzoic acid	0.192	0.192	0.010	AVRG	0.0	
4-Chloroaniline	0.500	0.437	0.010	AVRG	-12.6	
Hexachlorobutadiene	0.206	0.203	0.010	AVRG	-1.4	
4-Chloro-3-methylphenol	0.236	0.242	0.200	AVRG	2.5	
2-Methylnaphthalene	0.674	0.713	0.400	AVRG	5.8	
Hexachlorocyclopentadiene	0.408	0.434	0.050	AVRG	6.4	
2,4,6-Trichlorophenol	0.370	0.385	0.200	AVRG	4.0	
2,4,5-Trichlorophenol	0.404	0.416	0.200	AVRG	3.0	
2-Chloronaphthalene	1.097	1.110	0.800	AVRG	1.2	
2-Nitroaniline	0.324	0.336	0.010	AVRG	3.7	
Acenaphthylene	1.560	1.585	0.900	AVRG	1.6	
Dimethylphthalate	1.132	1.077	0.010	AVRG	-4.8	
2,6-Dinitrotoluene	0.275	0.265	0.200	AVRG	-3.6	
Acenaphthene	0.999	0.971	0.900	AVRG	-2.9	
3-Nitroaniline	0.335	0.265	0.010	AVRG	-20.9	<-
2,4-Dinitrophenol	50.00	43.61	0.010	2ORDR	-12.8	
Dibenzofuran	1.756	1.844	0.800	AVRG	5.0	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.119	0.138	0.010	AVRG	16.0	
2,4-Dinitrotoluene	0.341	0.326	0.200	AVRG	-4.4	
Fluorene	1.182	1.165	0.900	AVRG	-1.4	
4-Chlorophenyl-phenylether	0.610	0.584	0.400	AVRG	-4.3	
Diethylphthalate	1.139	1.059	0.010	AVRG	-7.0	
4-Nitroaniline	0.318	0.225	0.010	AVRG	-29.2	<-
4,6-Dinitro-2-methylphenol	50.00	52.38	0.010	2ORDR	4.8	
N-Nitrosodiphenylamine(1)	0.537	0.574	0.010	AVRG	6.9	
4-Bromophenyl-phenylether	0.225	0.237	0.100	AVRG	5.3	
Hexachlorobenzene	0.242	0.252	0.100	AVRG	4.1	
Pentachlorophenol	25.00	25.66	0.050	2ORDR	2.6	
Phenanthrene	0.957	0.976	0.700	AVRG	2.0	
Anthracene	0.984	1.007	0.700	AVRG	2.3	
Carbazole	0.818	0.779	0.010	AVRG	-4.8	
Di-n-butylphthalate	0.999	0.918	0.010	AVRG	-8.1	
Fluoranthene	0.906	0.790	0.600	AVRG	-12.8	
Pyrene	1.240	1.368	0.600	AVRG	10.3	
Butylbenzylphthalate	0.511	0.532	0.010	AVRG	4.1	
Benzo(a)anthracene	0.972	0.949	0.800	AVRG	-2.4	
3,3'-Dichlorobenzidine	0.322	0.223	0.010	AVRG	-30.7	<-
Chrysene	0.907	0.871	0.700	AVRG	-4.0	
bis(2-Ethylhexyl)phthalate	0.562	0.546	0.010	AVRG	-2.8	
Di-n-octylphthalate	0.894	0.894	0.010	AVRG	0.0	
Benzo(b)fluoranthene	1.127	1.153	0.700	AVRG	2.3	
Benzo(k)fluoranthene	1.276	1.173	0.700	AVRG	-8.1	
Benzo(a)pyrene	1.056	1.069	0.700	AVRG	1.2	
Indeno(1,2,3-cd)pyrene	1.032	1.183	0.500	AVRG	14.6	
Dibenzo(a,h)anthracene	0.827	1.003	0.400	AVRG	21.3	<-
Benzo(g,h,i)perylene	0.888	1.021	0.500	AVRG	15.0	
N-Nitrosodimethylamine	0.567	0.502	0.010	AVRG	-11.5	
Aniline	1.864	1.703	0.010	AVRG	-8.6	
Benzidine	0.409		0.010	AVRG		
Pyridine	2.221	2.020	0.010	AVRG	-9.0	
1-methylnaphthalene	0.531	0.521	0.010	AVRG	-1.9	
Azobenzene (1,2-DP-Hydrazine	0.967	0.946	0.010	AVRG	-2.2	
2,3,4,6-Tetrachlorophenol	0.348	0.372	0.010	AVRG	6.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554		0.010	AVRG	
Total Benzofluoranthenes	1.150	1.105	0.010	AVRG	-3.9
2-Fluorophenol	1.081	1.069	0.010	AVRG	-1.1
Phenol-d5	1.218	1.290	0.010	AVRG	5.9
2-Chlorophenol-d4	1.141	1.198	0.010	AVRG	5.0
1,2-Dichlorobenzene-d4	0.829	0.890	0.010	AVRG	7.4
Nitrobenzene-d5	0.338	0.352	0.010	AVRG	4.1
2-Fluorobiphenyl	1.253	1.340	0.010	AVRG	6.9
2,4,6-Tribromophenol	0.164	0.176	0.010	AVRG	7.3
Terphenyl-d14	0.792	0.850	0.010	AVRG	7.3

<- Exceeds QC limit of 20% D
* RF less than minimum RF

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/13/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1447

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.245	1.136	0.800	AVRG	-8.8
Bis(2-Chloroethyl)ether	0.980	0.963	0.700	AVRG	-1.7
2-Chlorophenol	1.073	1.086	0.800	AVRG	1.2
1,3-Dichlorobenzene	1.405	1.402	0.010	AVRG	-0.2
1,4-Dichlorobenzene	1.423	1.420	0.010	AVRG	-0.2
1,2-Dichlorobenzene	1.305	1.301	0.010	AVRG	-0.3
Benzyl alcohol	0.909	0.962	0.010	AVRG	5.8
2,2'-oxybis(1-Chloropropane)	0.966	1.067	0.010	AVRG	10.4
2-Methylphenol	0.941	0.958	0.700	AVRG	1.8
Hexachloroethane	0.512	0.510	0.300	AVRG	-0.4
N-Nitroso-di-n-propylamine	0.645	0.645	0.500	AVRG	0.0
4-Methylphenol	0.970	0.986	0.600	AVRG	1.6
Nitrobenzene	0.332	0.332	0.200	AVRG	0.0
Isophorone	0.490	0.479	0.400	AVRG	-2.2
2-Nitrophenol	0.184	0.192	0.100	AVRG	4.3
2,4-Dimethylphenol	0.295	0.292	0.200	AVRG	-1.0
Bis(2-Chloroethoxy)methane	0.364	0.360	0.300	AVRG	-1.1
2,4-Dichlorophenol	0.286	0.291	0.200	AVRG	1.7
1,2,4-Trichlorobenzene	0.359	0.352	0.010	AVRG	-1.9
Naphthalene	0.903	0.920	0.700	AVRG	1.9
Benzoic acid	0.192	0.183	0.010	AVRG	-4.7
4-Chloroaniline	0.500	0.493	0.010	AVRG	-1.4
Hexachlorobutadiene	0.206	0.205	0.010	AVRG	-0.5
4-Chloro-3-methylphenol	0.236	0.235	0.200	AVRG	-0.4
2-Methylnaphthalene	0.674	0.696	0.400	AVRG	3.3
Hexachlorocyclopentadiene	0.408	0.430	0.050	AVRG	5.4
2,4,6-Trichlorophenol	0.370	0.390	0.200	AVRG	5.4
2,4,5-Trichlorophenol	0.404	0.410	0.200	AVRG	1.5
2-Chloronaphthalene	1.097	1.135	0.800	AVRG	3.5
2-Nitroaniline	0.324	0.344	0.010	AVRG	6.2
Acenaphthylene	1.560	1.585	0.900	AVRG	1.6
Dimethylphthalate	1.132	1.056	0.010	AVRG	-6.7
2,6-Dinitrotoluene	0.275	0.261	0.200	AVRG	-5.1
Acenaphthene	0.999	0.987	0.900	AVRG	-1.3
3-Nitroaniline	0.335	0.349	0.010	AVRG	4.2
2,4-Dinitrophenol	50.00	48.33	0.010	2ORDR	-3.3
Dibenzofuran	1.756	1.827	0.800	AVRG	4.0

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/13/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1447

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
4-Nitrophenol	0.119	0.117	0.010	AVRG	-1.7
2,4-Dinitrotoluene	0.341	0.326	0.200	AVRG	-4.4
Fluorene	1.182	1.157	0.900	AVRG	-2.1
4-Chlorophenyl-phenylether	0.610	0.573	0.400	AVRG	-6.1
Diethylphthalate	1.139	0.983	0.010	AVRG	-13.7
4-Nitroaniline	0.318	0.327	0.010	AVRG	2.8
4,6-Dinitro-2-methylphenol	50.00	53.11	0.010	2ORDR	6.2
N-Nitrosodiphenylamine(1)	0.537	0.535	0.010	AVRG	-0.4
4-Bromophenyl-phenylether	0.225	0.223	0.100	AVRG	-0.9
Hexachlorobenzene	0.242	0.239	0.100	AVRG	-1.2
Pentachlorophenol	25.00	25.51	0.050	2ORDR	2.0
Phenanthrene	0.957	0.964	0.700	AVRG	0.7
Anthracene	0.984	1.006	0.700	AVRG	2.2
Carbazole	0.818	0.835	0.010	AVRG	2.1
Di-n-butylphthalate	0.999	0.993	0.010	AVRG	-0.6
Fluoranthene	0.906	0.931	0.600	AVRG	2.8
Pyrene	1.240	1.150	0.600	AVRG	-7.2
Butylbenzylphthalate	0.511	0.478	0.010	AVRG	-6.4
Benzo(a)anthracene	0.972	0.955	0.800	AVRG	-1.7
3,3'-Dichlorobenzidine	0.322	0.372	0.010	AVRG	15.5
Chrysene	0.907	0.864	0.700	AVRG	-4.7
bis(2-Ethylhexyl)phthalate	0.562	0.535	0.010	AVRG	-4.8
Di-n-octylphthalate	0.894	0.877	0.010	AVRG	-1.9
Benzo(b)fluoranthene	1.127	1.183	0.700	AVRG	5.0
Benzo(k)fluoranthene	1.276	1.188	0.700	AVRG	-6.9
Benzo(a)pyrene	1.056	1.089	0.700	AVRG	3.1
Indeno(1,2,3-cd)pyrene	1.032	1.126	0.500	AVRG	9.1
Dibenzo(a,h)anthracene	0.827	0.929	0.400	AVRG	12.3
Benzo(g,h,i)perylene	0.888	0.977	0.500	AVRG	10.0
N-Nitrosodimethylamine	0.567	0.549	0.010	AVRG	-3.2
Aniline	1.864	1.824	0.010	AVRG	-2.1
Benzidine	0.409		0.010	AVRG	
Pyridine	2.221	2.204	0.010	AVRG	-0.8
1-methylnaphthalene	0.531	0.519	0.010	AVRG	-2.2
Azobenzene (1,2-DP-Hydrazine	0.967	0.955	0.010	AVRG	-1.2
2,3,4,6-Tetrachlorophenol	0.348	0.352	0.010	AVRG	1.1

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/13/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1447

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554		0.010	AVRG	
Total Benzofluoranthenes	1.150	1.120	0.010	AVRG	-2.6
2-Fluorophenol	1.081	1.104	0.010	AVRG	2.1
Phenol-d5	1.218	1.279	0.010	AVRG	5.0
2-Chlorophenol-d4	1.141	1.202	0.010	AVRG	5.3
1,2-Dichlorobenzene-d4	0.829	0.885	0.010	AVRG	6.8
Nitrobenzene-d5	0.338	0.354	0.010	AVRG	4.7
2-Fluorobiphenyl	1.253	1.372	0.010	AVRG	9.5
2,4,6-Tribromophenol	0.164	0.173	0.010	AVRG	5.5
Terphenyl-d14	0.792	0.767	0.010	AVRG	-3.2

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.245	1.169	0.800	AVRG	-6.1
Bis(2-Chloroethyl)ether	0.980	0.996	0.700	AVRG	1.6
2-Chlorophenol	1.073	1.112	0.800	AVRG	3.6
1,3-Dichlorobenzene	1.405	1.378	0.010	AVRG	-1.9
1,4-Dichlorobenzene	1.423	1.424	0.010	AVRG	0.1
1,2-Dichlorobenzene	1.305	1.308	0.010	AVRG	0.2
Benzyl alcohol	0.909	0.979	0.010	AVRG	7.7
2,2'-oxybis(1-Chloropropane)	0.966	1.076	0.010	AVRG	11.4
2-Methylphenol	0.941	0.995	0.700	AVRG	5.7
Hexachloroethane	0.512	0.511	0.300	AVRG	-0.2
N-Nitroso-di-n-propylamine	0.645	0.668	0.500	AVRG	3.6
4-Methylphenol	0.970	1.025	0.600	AVRG	5.7
Nitrobenzene	0.332	0.324	0.200	AVRG	-2.4
Isophorone	0.490	0.495	0.400	AVRG	1.0
2-Nitrophenol	0.184	0.188	0.100	AVRG	2.2
2,4-Dimethylphenol	0.295	0.290	0.200	AVRG	-1.7
Bis(2-Chloroethoxy)methane	0.364	0.368	0.300	AVRG	1.1
2,4-Dichlorophenol	0.286	0.284	0.200	AVRG	-0.7
1,2,4-Trichlorobenzene	0.359	0.336	0.010	AVRG	-6.4
Naphthalene	0.903	0.924	0.700	AVRG	2.3
Benzoic acid	0.192	0.202	0.010	AVRG	5.2
4-Chloroaniline	0.500	0.486	0.010	AVRG	-2.8
Hexachlorobutadiene	0.206	0.186	0.010	AVRG	-9.7
4-Chloro-3-methylphenol	0.236	0.239	0.200	AVRG	1.3
2-Methylnaphthalene	0.674	0.707	0.400	AVRG	4.9
Hexachlorocyclopentadiene	0.408	0.361	0.050	AVRG	-11.5
2,4,6-Trichlorophenol	0.370	0.347	0.200	AVRG	-6.2
2,4,5-Trichlorophenol	0.404	0.386	0.200	AVRG	-4.4
2-Chloronaphthalene	1.097	1.060	0.800	AVRG	-3.4
2-Nitroaniline	0.324	0.348	0.010	AVRG	7.4
Acenaphthylene	1.560	1.590	0.900	AVRG	1.9
Dimethylphthalate	1.132	1.095	0.010	AVRG	-3.3
2,6-Dinitrotoluene	0.275	0.268	0.200	AVRG	-2.5
Acenaphthene	0.999	0.991	0.900	AVRG	-0.9
3-Nitroaniline	0.335	0.358	0.010	AVRG	6.9
2,4-Dinitrophenol	50.00	51.36	0.010	2ORDR	2.7
Dibenzofuran	1.756	1.844	0.800	AVRG	5.0

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.119	0.123	0.010	AVRG	3.4	
2,4-Dinitrotoluene	0.341	0.349	0.200	AVRG	2.3	
Fluorene	1.182	1.186	0.900	AVRG	0.3	
4-Chlorophenyl-phenylether	0.610	0.574	0.400	AVRG	-5.9	
Diethylphthalate	1.139	1.097	0.010	AVRG	-3.7	
4-Nitroaniline	0.318	0.313	0.010	AVRG	-1.6	
4,6-Dinitro-2-methylphenol	50.00	54.53	0.010	2ORDR	9.1	
N-Nitrosodiphenylamine(1)	0.537	0.529	0.010	AVRG	-1.5	
4-Bromophenyl-phenylether	0.225	0.211	0.100	AVRG	-6.2	
Hexachlorobenzene	0.242	0.227	0.100	AVRG	-6.2	
Pentachlorophenol	25.00	24.55	0.050	2ORDR	-1.8	
Phenanthrene	0.957	0.953	0.700	AVRG	-0.4	
Anthracene	0.984	1.009	0.700	AVRG	2.5	
Carbazole	0.818	0.842	0.010	AVRG	2.9	
Di-n-butylphthalate	0.999	1.078	0.010	AVRG	7.9	
Fluoranthene	0.906	1.010	0.600	AVRG	11.5	
Pyrene	1.240	1.081	0.600	AVRG	-12.8	
Butylbenzylphthalate	0.511	0.475	0.010	AVRG	-7.0	
Benzo(a)anthracene	0.972	0.933	0.800	AVRG	-4.0	
3,3'-Dichlorobenzidine	0.322	0.345	0.010	AVRG	7.1	
Chrysene	0.907	0.877	0.700	AVRG	-3.3	
bis(2-Ethylhexyl)phthalate	0.562	0.518	0.010	AVRG	-7.8	
Di-n-octylphthalate	0.894	0.871	0.010	AVRG	-2.6	
Benzo(b)fluoranthene	1.127	1.085	0.700	AVRG	-3.7	
Benzo(k)fluoranthene	1.276	1.223	0.700	AVRG	-4.2	
Benzo(a)pyrene	1.056	1.085	0.700	AVRG	2.7	
Indeno(1,2,3-cd)pyrene	1.032	1.167	0.500	AVRG	13.1	
Dibenzo(a,h)anthracene	0.827	0.972	0.400	AVRG	17.5	
Benzo(g,h,i)perylene	0.888	1.029	0.500	AVRG	15.9	
N-Nitrosodimethylamine	0.567	0.622	0.010	AVRG	9.7	
Aniline	1.864	1.830	0.010	AVRG	-1.8	
Benzidine	0.409	0.173	0.010	AVRG	-57.7	<-
Pyridine	2.221	2.424	0.010	AVRG	9.1	
1-methylnaphthalene	0.531	0.530	0.010	AVRG	-0.2	
Azobenzene (1,2-DP-Hydrazine	0.967	1.000	0.010	AVRG	3.4	
2,3,4,6-Tetrachlorophenol	0.348	0.365	0.010	AVRG	4.9	

(1) Cannot be separated from Diphenylamine
<- Exceeds QC limit of 20% D
* RF less than minimum RF

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554	0.502	0.010	AVRG	-9.4
Total Benzofluoranthenes	1.150	1.093	0.010	AVRG	-5.0
2-Fluorophenol	1.081	1.137	0.010	AVRG	5.2
Phenol-d5	1.218	1.341	0.010	AVRG	10.1
2-Chlorophenol-d4	1.141	1.207	0.010	AVRG	5.8
1,2-Dichlorobenzene-d4	0.829	0.882	0.010	AVRG	6.4
Nitrobenzene-d5	0.338	0.341	0.010	AVRG	0.9
2-Fluorobiphenyl	1.253	1.280	0.010	AVRG	2.2
2,4,6-Tribromophenol	0.164	0.175	0.010	AVRG	6.7
Terphenyl-d14	0.792	0.719	0.010	AVRG	-9.2

<- Exceeds QC limit of 20% D
* RF less than minimum RF

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.333	1.305	0.800	AVRG	-2.1	
Bis(2-Chloroethyl)ether	1.074	1.138	0.700	AVRG	6.0	
2-Chlorophenol	1.131	1.130	0.800	AVRG	-0.1	
1,3-Dichlorobenzene	1.343	1.405	0.010	AVRG	4.6	
1,4-Dichlorobenzene	1.375	1.445	0.010	AVRG	5.1	
1,2-Dichlorobenzene	1.250	1.310	0.010	AVRG	4.8	
Benzyl alcohol	1.065	1.086	0.010	AVRG	2.0	
2,2'-oxybis(1-Chloropropane)	0.796	0.813	0.010	AVRG	2.1	
2-Methylphenol	0.997	0.988	0.700	AVRG	-0.9	
Hexachloroethane	0.487	0.505	0.300	AVRG	3.7	
N-Nitroso-di-n-propylamine	0.733	0.755	0.500	AVRG	3.0	
4-Methylphenol	1.026	1.020	0.600	AVRG	-0.6	
Nitrobenzene	0.338	0.355	0.200	AVRG	5.0	
Isophorone	0.516	0.532	0.400	AVRG	3.1	
2-Nitrophenol	0.180	0.182	0.100	AVRG	1.1	
2,4-Dimethylphenol	0.304	0.293	0.200	AVRG	-3.6	
Bis(2-Chloroethoxy)methane	0.369	0.375	0.300	AVRG	1.6	
2,4-Dichlorophenol	0.276	0.267	0.200	AVRG	-3.3	
1,2,4-Trichlorobenzene	0.292	0.304	0.010	AVRG	4.1	
Naphthalene	0.859	0.900	0.700	AVRG	4.8	
Benzoic acid	0.206	0.204	0.010	AVRG	-1.0	
4-Chloroaniline	0.528	0.532	0.010	AVRG	0.8	
Hexachlorobutadiene	0.153	0.157	0.010	AVRG	2.6	
4-Chloro-3-methylphenol	0.245	0.235	0.200	AVRG	-4.1	
2-Methylnaphthalene	0.696	0.694	0.400	AVRG	-0.3	
Hexachlorocyclopentadiene	0.282	0.282	0.050	AVRG	0.0	
2,4,6-Trichlorophenol	0.334	0.329	0.200	AVRG	-1.5	
2,4,5-Trichlorophenol	0.327	0.334	0.200	AVRG	2.1	
2-Chloronaphthalene	1.027	1.067	0.800	AVRG	3.9	
2-Nitroaniline	0.371	0.368	0.010	AVRG	-0.8	
Acenaphthylene	1.462	1.536	0.900	AVRG	5.1	
Dimethylphthalate	1.055	1.092	0.010	AVRG	3.5	
2,6-Dinitrotoluene	0.258	0.272	0.200	AVRG	5.4	
Acenaphthene	0.892	0.929	0.900	AVRG	4.1	*
3-Nitroaniline	0.363	0.382	0.010	AVRG	5.2	
2,4-Dinitrophenol	50.00	39.50	0.010	LINR	-21.0	<-
Dibenzofuran	1.911	1.914	0.800	AVRG	0.2	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
4-Nitrophenol	0.140	0.156	0.010	AVRG	11.4
2,4-Dinitrotoluene	0.329	0.355	0.200	AVRG	7.9
Fluorene	1.083	1.128	0.900	AVRG	4.2
4-Chlorophenyl-phenylether	0.522	0.521	0.400	AVRG	-0.2
Diethylphthalate	1.002	1.031	0.010	AVRG	2.9
4-Nitroaniline	0.381	0.407	0.010	AVRG	6.8
4,6-Dinitro-2-methylphenol	0.127	0.125	0.010	AVRG	-1.6
N-Nitrosodiphenylamine(1)	0.529	0.533	0.010	AVRG	0.8
4-Bromophenyl-phenylether	0.183	0.184	0.100	AVRG	0.5
Hexachlorobenzene	0.198	0.199	0.100	AVRG	0.5
Pentachlorophenol	0.110	0.108	0.050	AVRG	-1.8
Phenanthrene	0.914	0.955	0.700	AVRG	4.5
Anthracene	0.962	1.019	0.700	AVRG	5.9
Carbazole	0.923	0.989	0.010	AVRG	7.2
Di-n-butylphthalate	1.076	1.188	0.010	AVRG	10.4
Fluoranthene	0.948	1.048	0.600	AVRG	10.5
Pyrene	1.060	1.054	0.600	AVRG	-0.6
Butylbenzylphthalate	0.497	0.523	0.010	AVRG	5.2
Benzo(a)anthracene	0.904	0.943	0.800	AVRG	4.3
3,3'-Dichlorobenzidine	0.348	0.378	0.010	AVRG	8.6
Chrysene	0.859	0.882	0.700	AVRG	2.7
bis(2-Ethylhexyl)phthalate	0.480	0.496	0.010	AVRG	3.3
Di-n-octylphthalate	0.858	0.880	0.010	AVRG	2.6
Benzo(b)fluoranthene	1.050	0.998	0.700	AVRG	-5.0
Benzo(k)fluoranthene	1.062	1.167	0.700	AVRG	9.9
Benzo(a)pyrene	0.976	1.031	0.700	AVRG	5.6
Indeno(1,2,3-cd)pyrene	1.146	1.200	0.500	AVRG	4.7
Dibenzo(a,h)anthracene	0.946	1.006	0.400	AVRG	6.3
Benzo(g,h,i)perylene	0.998	1.038	0.500	AVRG	4.0
N-Nitrosodimethylamine	0.672	0.663	0.010	AVRG	-1.3
Aniline	2.343	2.334	0.010	AVRG	-0.4
Benzidine	0.446	0.472	0.010	AVRG	5.8
Pyridine	1.203	1.241	0.010	AVRG	3.2
1-methylnaphthalene	0.653	0.667	0.010	AVRG	2.1
Azobenzene (1,2-DP-Hydrazine	1.087	1.136	0.010	AVRG	4.5
2,3,4,6-Tetrachlorophenol	0.290	0.292	0.010	AVRG	0.7

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Instrument ID: NT6 Cont. Calib. Date: 05/25/11

Init. Calib. Date: 05/24/11 Cont. Calib. Time: 1046

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.475	0.498	0.010	AVRG	4.8
Total Benzofluoranthenes	1.000	1.021	0.010	AVRG	2.1
2-Fluorophenol	1.216	1.260	0.010	AVRG	3.6
Phenol-d5	1.442	1.470	0.010	AVRG	1.9
2-Chlorophenol-d4	1.206	1.240	0.010	AVRG	2.8
1,2-Dichlorobenzene-d4	0.820	0.838	0.010	AVRG	2.2
Nitrobenzene-d5	0.355	0.367	0.010	AVRG	3.4
2-Fluorobiphenyl	1.210	1.224	0.010	AVRG	1.2
2,4,6-Tribromophenol	0.140	0.141	0.010	AVRG	0.7
Terphenyl-d14	0.643	0.637	0.010	AVRG	-0.9

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	997311	7.83	3150714	9.88	1817549	12.75
	UPPER LIMIT		8.33		10.38		13.25
	LOWER LIMIT		7.33		9.38		12.25
01	SU57MBW1	1161566	7.83	3828523	9.88	2369196	12.75
02	SU57LCSW1	1215564	7.82	3911532	9.88	2468332	12.75
03	MW-14-042711	1124576	7.83	3563135	9.88	2166263	12.75
04	MW-14-042711	1076349	7.82	3486121	9.88	2098277	12.75
05	MW-14-042711	1165971	7.83	3785470	9.88	2354542	12.75
06	DUP042711-2	1000583	7.82	3216937	9.88	1917740	12.75
07	MW-6S-042711	1027243	7.82	3328137	9.88	2000692	12.75
08							
09							
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21							
22							
23							
24							
25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2600557	15.13	1513456	19.44	1155765	21.60
	UPPER LIMIT		15.63		19.94		22.10
	LOWER LIMIT		14.63		18.94		21.10
01	SU57MBW1	3832535	15.12	3224189	19.44	2085867	21.60
02	SU57LCSW1	3827071	15.13	2935381	19.44	1799853	21.60
03	MW-14-042711	3331372	15.12	2567168	19.44	1728569	21.60
04	MW-14-042711	3171354	15.13	2280314	19.44	1567705	21.60
05	MW-14-042711	3571151	15.13	2414221	19.44	1563582	21.59
06	DUP042711-2	2981525	15.13	2515250	19.44	1744635	21.59
07	MW-6S-042711	3030121	15.12	2435816	19.44	1792565	21.60
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	1744330	20.61				
	UPPER LIMIT		21.11				
	LOWER LIMIT		20.11				
01	SU57MBW1	3737889	20.61				
02	SU57LCSW1	3439942	20.61				
03	MW-14-042711	3102308	20.61				
04	MW-14-042711	2761132	20.61				
05	MW-14-042711	2946860	20.61				
06	DUP042711-2	3055472	20.61				
07	MW-6S-042711	2914687	20.61				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/13/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	1109426	7.77	3389726	9.82	1846259	12.69
	UPPER LIMIT		8.27		10.32		13.19
	LOWER LIMIT		7.27		9.32		12.19
01	MW-26-042811	972850	7.77	3052483	9.82	1707648	12.69
02	MW-16-042811	1180263	7.77	3800567	9.82	2315763	12.69
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/13/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2709878	15.07	2153340	19.38	1579662	21.54
	UPPER LIMIT		15.57		19.88		22.04
	LOWER LIMIT		14.57		18.88		21.04
01	MW-26-042811	2338692	15.06	2092589	19.38	1632888	21.53
02	MW-16-042811	3579092	15.06	2772080	19.38	2013099	21.54
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/13/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	2513603	20.56				
	UPPER LIMIT		21.06				
	LOWER LIMIT		20.06				
01	MW-26-042811	2571603	20.56				
02	MW-16-042811	3470506	20.56				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	833568	7.76	2693131	9.82	1613205	12.68
	UPPER LIMIT		8.26		10.32		13.18
	LOWER LIMIT		7.26		9.32		12.18
01	MW-3S-042711	878290	7.76	2888311	9.81	1712257	12.68
02	MW-3D-042711	906669	7.75	2985345	9.81	1786319	12.68
03	MW-5S-042811	839362	7.76	2845051	9.81	1709993	12.68
04	MW-27-042811	896327	7.76	2970148	9.81	1783895	12.68
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2586471	15.05	2457661	19.37	2037685	21.52
	UPPER LIMIT		15.55		19.87		22.02
	LOWER LIMIT		14.55		18.87		21.02
01	MW-3S-042711	2717245	15.05	2422851	19.36	2010743	21.52
02	MW-3D-042711	2766157	15.05	2416258	19.36	1967566	21.52
03	MW-5S-042811	2739468	15.05	2470020	19.37	1896721	21.52
04	MW-27-042811	2804929	15.05	2505067	19.36	2030537	21.52
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	2940346	20.55				
	UPPER LIMIT		21.05				
	LOWER LIMIT		20.05				
01	MW-3S-042711	2929347	20.54				
02	MW-3D-042711	2944867	20.54				
03	MW-5S-042811	2877768	20.54				
04	MW-27-042811	3004716	20.54				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	456172	7.54	1543110	9.60	877580	12.46
	UPPER LIMIT	912344		3086220		1755160	
	LOWER LIMIT	228086		771555		438790	
	CCAL	434966	7.54	1483239	9.60	831882	12.46
	UPPER LIMIT		8.04		10.10		12.96
	LOWER LIMIT		7.04		9.10		11.96
01	SX49MBW1	402624	7.54	1350340	9.59	769126	12.45
02	SX49LCSW1	427950	7.55	1408709	9.60	799387	12.46
03	SX49LCSDW1	422914	7.54	1405393	9.60	817275	12.46
04	MW-3D-042711	436379	7.55	1451035	9.60	816456	12.45
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1359082	14.82	1278044	19.11	1061693	21.26
	UPPER LIMIT	2718164		2556088		2123386	
	LOWER LIMIT	679541		639022		530846	
	CCAL	1305632	14.82	1297109	19.12	1176044	21.27
	UPPER LIMIT		15.32		19.62		21.77
	LOWER LIMIT		14.32		18.62		20.77
01	SX49MBW1	1158280	14.81	1212695	19.11	1111304	21.26
02	SX49LCSW1	1177227	14.82	1195235	19.11	1114269	21.26
03	SX49LCSDW1	1252986	14.82	1283134	19.11	1181357	21.26
04	MW-3D-042711	1161958	14.81	1204589	19.11	1128342	21.26
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25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU57 Project: RG 2011 SPRING GW

Ical Midpoint ID: 05231101 Ical Date: 05/24/11

Instrument ID: NT6 Cont. Cal Date: 05/25/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1795129	20.32				
	UPPER LIMIT	3590258					
	LOWER LIMIT	897564					
	CCAL	1810964	20.32				
	UPPER LIMIT		20.82				
	LOWER LIMIT		19.82				
01	SX49MBW1	1577850	20.32				
02	SX49LCSW1	1628445	20.32				
03	SX49LCSDW1	1729550	20.32				
04	MW-3D-042711	1651748	20.31				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-11-042811
SAMPLE

Lab Sample ID: SU60A
LIMS ID: 11-9656
Matrix: Water
Data Release Authorized:
Reported: 05/24/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 13:45
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	37.3%
2-Fluorophenol	39.7%
2,4,6-Tribromophenol	39.2%
d4-2-Chlorophenol	45.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-12-042811
SAMPLE

Lab Sample ID: SU60B
LIMS ID: 11-9657
Matrix: Water
Data Release Authorized:
Reported: 05/24/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/17/11 14:18
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	45.1%
2-Fluorophenol	42.7%
2,4,6-Tribromophenol	47.2%
d4-2-Chlorophenol	46.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-19-042811
SAMPLE

Lab Sample ID: SU60C
LIMS ID: 11-9658
Matrix: Water
Data Release Authorized:
Reported: 05/24/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/18/11 14:40
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	36.0%
2-Fluorophenol	37.9%
2,4,6-Tribromophenol	43.5%
d4-2-Chlorophenol	40.5%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-050311	58.4%	56.5%	55.2%	59.5%	0
LCS-050311	62.7%	56.8%	65.6%	61.9%	0
MW-11-042811	37.3%*	39.7%	39.2%*	45.9%	2
MW-12-042811	45.1%	42.7%	47.2%*	46.4%	1
MW-19-042811	36.0%*	37.9%*	43.5%*	40.5%*	4

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-9656 to 11-9658

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-050311
LAB CONTROL

Lab Sample ID: LCS-050311
LIMS ID: 11-9656
Matrix: Water
Data Release Authorized:
Reported: 05/24/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 04:10
Instrument/Analyst: NT6/JZ
GPC Cleanup: NO

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Phenol	17.6	25.0	70.4%
2-Chlorophenol	18.6	25.0	74.4%
2,4-Dichlorophenol	18.7	75.0	24.9%
2,4,6-Trichlorophenol	17.4	75.0	23.2%
2,4,5-Trichlorophenol	16.9	75.0	22.5%
Pentachlorophenol	18.2	75.0	24.3%
2,3,4,6-Tetrachlorophenol	15.4	25.0	61.6%

Semivolatile Surrogate Recovery	
d5-Phenol	62.7%
2-Fluorophenol	56.8%
2,4,6-Tribromophenol	65.6%
d4-2-Chlorophenol	61.9%

Results reported in µg/L

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

SU57MBW1

Lab Name: ANALYTICAL RESOURCES, INC

Client: ERM-WEST

ARI Job No: SU60

Project: RG 2011 SPRING GW SA

Lab File ID: 05121126

Date Extracted: 05/03/11

Instrument ID: NT6

Date Analyzed: 05/13/11

Matrix: LIQUID

Time Analyzed: 0337

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SU57LCSW1	SU57LCSW1	05121127	05/13/11
02	MW-11-042811	SU60A	05171106	05/17/11
03	MW-12-042811	SU60B	05171107	05/17/11
04	MW-19-042811	SU60C	05181105	05/18/11
05				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-050311
METHOD BLANK

Lab Sample ID: MB-050311
LIMS ID: 11-9656
Matrix: Water
Data Release Authorized:
Reported: 05/24/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/03/11
Date Analyzed: 05/13/11 03:37
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	58.4%
2-Fluorophenol	56.5%
2,4,6-Tribromophenol	55.2%
d4-2-Chlorophenol	59.5%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW SAMPLINGRACI

DFTPP Injection Date: 05/09/11 DFTPP Injection Time: 2015

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.9
68	Less than 2.0% of mass 69	0.1 (0.3)1
69	Mass 69 relative abundance	35.5
70	Less than 2.0% of mass 69	0.2 (0.7)1
127	10.0 - 80.0% of mass 198	48.7
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.8
275	10.0 - 60.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	3.14
441	0.0 - 24.0% of mass 442	10.3 (14.8)2
442	50.0 - 200.0% of mass 198	69.4
443	15.0 - 24.0% of mass 442	13.1 (18.9)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250509	IC250509	05091117	05/09/11	2015
02	IC010509	IC010509	05091118	05/09/11	2048
03	IC050509	IC050509	05091119	05/09/11	2120
04	IC100509	IC100509	05091120	05/09/11	2153
05	IC400509	IC400509	05091121	05/09/11	2226
06	IC600509	IC600509	05091122	05/09/11	2259
07	IC800509	IC800509	05091123	05/09/11	2331
08					
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW SAMPLINGRACI

DFTPP Injection Date: 05/12/11 DFTPP Injection Time: 2029

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	32.0
68	Less than 2.0% of mass 69	0.3 (0.9)1
69	Mass 69 relative abundance	36.7
70	Less than 2.0% of mass 69	0.2 (0.6)1
127	10.0 - 80.0% of mass 198	49.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.6
275	10.0 - 60.0% of mass 198	25.0
365	Greater than 1.0% of mass 198	3.55
441	0.0 - 24.0% of mass 442	11.6 (15.1)2
442	50.0 - 200.0% of mass 198	76.8
443	15.0 - 24.0% of mass 442	14.8 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0512A	CC0512A	05121113	05/12/11	2029
02	SU57MBW1	SU57MBW1	05121126	05/13/11	0337
03	SU57LCSW1	SU57LCSW1	05121127	05/13/11	0410
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW SAMPLINGRACI

DFTPP Injection Date: 05/17/11 DFTPP Injection Time: 1100

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	31.3
68	Less than 2.0% of mass 69	0.5 (1.4)1
69	Mass 69 relative abundance	36.1
70	Less than 2.0% of mass 69	0.3 (0.7)1
127	10.0 - 80.0% of mass 198	47.2
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	24.8
365	Greater than 1.0% of mass 198	3.07
441	0.0 - 24.0% of mass 442	8.9 (12.2)2
442	50.0 - 200.0% of mass 198	73.0
443	15.0 - 24.0% of mass 442	13.0 (17.8)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0517	CC0517	05171101	05/17/11	1100
02	MW-11-042811	SU60A	05171106	05/17/11	1345
03	MW-12-042811	SU60B	05171107	05/17/11	1418
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

Instrument ID: NT6 Project: RG SPRING 2011 GW SAMPLINGRACI

DFTPP Injection Date: 05/18/11 DFTPP Injection Time: 1218

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	28.6
68	Less than 2.0% of mass 69	0.2 (0.5)1
69	Mass 69 relative abundance	35.3
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	10.0 - 80.0% of mass 198	47.6
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 60.0% of mass 198	24.5
365	Greater than 1.0% of mass 198	3.24
441	0.0 - 24.0% of mass 442	10.4 (13.6)2
442	50.0 - 200.0% of mass 198	76.0
443	15.0 - 24.0% of mass 442	14.5 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC	CC0518	05181101	05/18/11	1218
02	MW-19-042811	SU60C	05181105	05/18/11	1440
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FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLI

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Phenol	1.480	1.207	1.138	1.186	1.302	1.199	1.202	1.245	9.2
Bis(2-Chloroethyl)ether	1.081	0.909	0.986	0.951	1.035	0.963	0.938	0.980	6.1
2-Chlorophenol	1.210	1.026	0.974	1.083	1.124	1.056	1.036	1.073	7.1
1,3-Dichlorobenzene	1.602	1.317	1.406	1.394	1.461	1.359	1.297	1.405	7.3
1,4-Dichlorobenzene	1.585	1.368	1.426	1.420	1.481	1.367	1.315	1.423	6.3
1,2-Dichlorobenzene	1.441	1.231	1.314	1.301	1.363	1.269	1.218	1.305	6.0
Benzyl alcohol	1.000	0.808	0.862	0.938	0.938	0.915	0.903	0.909	6.7
2,2'-oxybis(1-Chloropropane)	1.089	0.905	0.945	0.952	1.006	0.945	0.922	0.966	6.5
2-Methylphenol	1.041	0.898	0.838	0.952	0.996	0.927	0.936	0.941	7.0
Hexachloroethane	0.499	0.471	0.511	0.513	0.548	0.530	0.509	0.512	4.7
N-Nitroso-di-n-propylamine	0.678	0.604	0.631	0.620	0.691	0.645	0.644	0.645	4.8
4-Methylphenol	1.119	0.921	0.852	0.963	1.030	0.953	0.954	0.970	8.7
Nitrobenzene	0.370	0.305	0.333	0.329	0.347	0.324	0.317	0.332	6.4
Isophorone	0.544	0.456	0.494	0.484	0.505	0.480	0.467	0.490	5.9
2-Nitrophenol	0.188	0.165	0.163	0.194	0.198	0.192	0.192	0.184	7.8
2,4-Dimethylphenol	0.352	0.275	0.264	0.297	0.302	0.288	0.288	0.295	9.6
Bis(2-Chloroethoxy)methane	0.411	0.335	0.366	0.357	0.378	0.359	0.346	0.364	6.8
2,4-Dichlorophenol	0.325	0.268	0.253	0.286	0.296	0.285	0.286	0.286	7.9
1,2,4-Trichlorobenzene	0.401	0.322	0.367	0.352	0.370	0.356	0.344	0.359	6.8
Naphthalene	1.105	0.915	0.984	0.928	0.889	0.787	0.714	0.903	14.1
Benzoic acid		0.145	0.143	0.204	0.221	0.222	0.217	0.192	19.7
4-Chloroaniline	0.602	0.503	0.507	0.545	0.473	0.448	0.419	0.500	12.3
Hexachlorobutadiene	0.220	0.186	0.199	0.199	0.216	0.211	0.210	0.206	5.7
4-Chloro-3-methylphenol	0.257	0.226	0.212	0.243	0.248	0.234	0.236	0.236	6.2
2-Methylnaphthalene	0.790	0.649	0.694	0.718	0.661	0.618	0.588	0.674	10.0
Hexachlorocyclopentadiene	0.339	0.333	0.399	0.414	0.456	0.455	0.457	0.408	13.2
2,4,6-Trichlorophenol	0.384	0.326	0.329	0.364	0.394	0.394	0.398	0.370	8.4
2,4,5-Trichlorophenol	0.435	0.370	0.359	0.412	0.426	0.410	0.415	0.404	7.0
2-Chloronaphthalene	1.266	1.023	1.137	1.106	1.128	1.032	0.986	1.097	8.6
2-Nitroaniline	0.357	0.300	0.324	0.345	0.322	0.307	0.312	0.324	6.4
Acenaphthylene	1.885	1.545	1.671	1.602	1.557	1.372	1.286	1.560	12.5
Dimethylphthalate	1.316	1.102	1.160	1.112	1.144	1.064	1.030	1.132	8.1
2,6-Dinitrotoluene	0.288	0.246	0.272	0.274	0.292	0.276	0.278	0.275	5.3
Acenaphthene	1.144	0.962	1.035	1.001	1.016	0.938	0.904	0.100	7.8
3-Nitroaniline	0.411	0.353	0.371	0.392	0.307	0.270	0.244	0.335	18.8
2,4-Dinitrophenol		0.033	0.054	0.110	0.129	0.146	0.156	0.105	0.996
Dibenzofuran	2.247	1.727	1.821	1.878	1.669	1.526	1.421	1.756	15.3

<- Outside QC limits: %RSD <20% or R^2 > 0.990

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLI

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.114	0.110	0.105	0.126	0.128	0.126	0.127	0.119	8.2
2,4-Dinitrotoluene	0.335	0.321	0.335	0.349	0.356	0.345	0.344	0.341	3.4
Fluorene	1.405	1.132	1.192	1.192	1.207	1.099	1.050	1.182	9.6
4-Chlorophenyl-phenylether	0.692	0.564	0.587	0.591	0.635	0.600	0.600	0.610	6.9
Diethylphthalate	1.342	1.110	1.164	1.135	1.149	1.060	1.016	1.139	9.1
4-Nitroaniline	0.334	0.325	0.323	0.362	0.294	0.297	0.289	0.318	8.2
4,6-Dinitro-2-methylphenol		0.061	0.074	0.116	0.126	0.134	0.142	0.109	0.998
N-Nitrosodiphenylamine (1)	0.593	0.488	0.546	0.519	0.558	0.527	0.531	0.537	6.1
4-Bromophenyl-phenylether	0.242	0.190	0.216	0.211	0.237	0.235	0.242	0.225	8.7
Hexachlorobenzene	0.268	0.207	0.226	0.227	0.256	0.252	0.262	0.242	9.3
Pentachlorophenol		0.086	0.089	0.128	0.143	0.152	0.162	0.127	0.998
Phenanthrene	1.197	0.935	0.988	0.945	0.944	0.866	0.825	0.957	12.4
Anthracene	1.181	0.993	1.052	1.000	0.958	0.871	0.837	0.984	11.6
Carbazole	0.978	0.857	0.838	0.839	0.761	0.738	0.716	0.818	10.9
Di-n-butylphthalate	1.168	1.036	1.056	1.036	0.970	0.895	0.830	0.999	11.2
Fluoranthene	1.026	0.960	0.920	0.935	0.884	0.830	0.790	0.906	8.8
Pyrene	1.493	1.119	1.328	1.237	1.355	1.104	1.045	1.240	13.0
Butylbenzylphthalate	0.531	0.467	0.504	0.519	0.562	0.500	0.492	0.511	6.0
Benzo(a)anthracene	1.032	0.908	0.965	0.980	1.037	0.951	0.931	0.972	5.0
3,3'-Dichlorobenzidine	0.306	0.299	0.329	0.366	0.318	0.319	0.317	0.322	6.7
Chrysene	1.069	0.836	0.904	0.903	0.924	0.869	0.846	0.907	8.6
bis(2-Ethylhexyl)phthalate	0.610	0.493	0.578	0.560	0.620	0.540	0.532	0.562	8.0
Di-n-octylphthalate	1.066	0.839	0.906	0.893	0.919	0.829	0.805	0.894	9.7
Benzo(b)fluoranthene	1.116	0.976	1.142	1.115	1.242	1.157	1.144	1.127	7.0
Benzo(k)fluoranthene	1.333	1.144	1.244	1.320	1.355	1.274	1.262	1.276	5.6
Benzo(a)pyrene	1.029	0.910	1.059	1.069	1.140	1.092	1.090	1.056	6.9
Indeno(1,2,3-cd)pyrene	1.012	0.802	1.009	1.043	1.095	1.129	1.135	1.032	11.0
Dibenzo(a,h)anthracene	0.742	0.600	0.798	0.862	0.908	0.930	0.947	0.827	15.0
Benzo(g,h,i)perylene	0.874	0.664	0.897	0.916	0.937	0.969	0.958	0.888	11.7
N-Nitrosodimethylamine	0.556	0.523	0.567	0.552	0.616	0.576	0.578	0.567	5.0
Aniline	2.170	1.817	1.873	1.979	1.872	1.716	1.619	1.864	9.6
Benzidine		0.473	0.499	0.459	0.342	0.350	0.329	0.409	18.7
Pyridine	2.034	2.139	2.320	2.289	2.361	2.227	2.178	2.221	5.1
1-methylnaphthalene	0.626	0.510	0.537	0.525	0.543	0.499	0.478	0.531	9.0
Azobenzene (1,2-DP-Hydrazine	1.110	0.945	0.995	0.995	0.972	0.895	0.856	0.967	8.5
2,3,4,6-Tetrachlorophenol	0.295	0.308	0.302	0.368	0.387	0.382	0.393	0.348	12.6
1,2,4,5-Tetrachlorobenzene	0.618	0.501	0.552	0.530	0.574	0.552	0.553	0.554	6.6

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-2

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLI

Instrument ID: NT6 Calibration Date: 05/09/11

LAB FILE ID: RRF1 =05091118 RRF5 =05091119 RRF10 =05091120
RRF25 =05091117 RRF40 =05091121 RRF60 =05091122
RRF80 =05091123

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	___ RRF	%RSD /R^2
Total Benzofluoranthenes	1.174	1.033	1.154	1.166	1.232	1.154	1.138	1.150	5.2
2-Fluorophenol	1.208	1.021	0.973	1.138	1.103	1.041		1.081	7.9
Phenol-d5	1.281	1.163	1.105	1.281	1.285	1.194		1.218	6.2
2-Chlorophenol-d4	1.240	1.078	1.011	1.194	1.189	1.132		1.141	7.4
1,2-Dichlorobenzene-d4	0.890	0.765	0.726	0.874	0.869	0.850		0.829	8.1
Nitrobenzene-d5	0.354	0.308	0.299	0.366	0.356	0.344		0.338	8.2
2-Fluorobiphenyl	1.461	1.159	1.161	1.317	1.255	1.166		1.253	9.6
2,4,6-Tribromophenol		0.143	0.140	0.178	0.177	0.181		0.164	12.5
Terphenyl-d14	0.873	0.682	0.708	0.826	0.886	0.778		0.792	10.7

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.245	1.156	0.800	AVRG	-7.1	
Bis(2-Chloroethyl)ether	0.980	0.956	0.700	AVRG	-2.4	
2-Chlorophenol	1.073	1.082	0.800	AVRG	0.8	
1,3-Dichlorobenzene	1.405	1.388	0.010	AVRG	-1.2	
1,4-Dichlorobenzene	1.423	1.399	0.010	AVRG	-1.7	
1,2-Dichlorobenzene	1.305	1.301	0.010	AVRG	-0.3	
Benzyl alcohol	0.909	0.984	0.010	AVRG	8.2	
2,2'-oxybis(1-Chloropropane)	0.966	1.073	0.010	AVRG	11.1	
2-Methylphenol	0.941	0.981	0.700	AVRG	4.2	
Hexachloroethane	0.512	0.508	0.300	AVRG	-0.8	
N-Nitroso-di-n-propylamine	0.645	0.673	0.500	AVRG	4.3	
4-Methylphenol	0.970	1.024	0.600	AVRG	5.6	
Nitrobenzene	0.332	0.332	0.200	AVRG	0.0	
Isophorone	0.490	0.493	0.400	AVRG	0.6	
2-Nitrophenol	0.184	0.192	0.100	AVRG	4.3	
2,4-Dimethylphenol	0.295	0.294	0.200	AVRG	-0.3	
Bis(2-Chloroethoxy)methane	0.364	0.360	0.300	AVRG	-1.1	
2,4-Dichlorophenol	0.286	0.295	0.200	AVRG	3.1	
1,2,4-Trichlorobenzene	0.359	0.356	0.010	AVRG	-0.8	
Naphthalene	0.903	0.914	0.700	AVRG	1.2	
Benzoic acid	0.192	0.192	0.010	AVRG	0.0	
4-Chloroaniline	0.500	0.437	0.010	AVRG	-12.6	
Hexachlorobutadiene	0.206	0.203	0.010	AVRG	-1.4	
4-Chloro-3-methylphenol	0.236	0.242	0.200	AVRG	2.5	
2-Methylnaphthalene	0.674	0.713	0.400	AVRG	5.8	
Hexachlorocyclopentadiene	0.408	0.434	0.050	AVRG	6.4	
2,4,6-Trichlorophenol	0.370	0.385	0.200	AVRG	4.0	
2,4,5-Trichlorophenol	0.404	0.416	0.200	AVRG	3.0	
2-Chloronaphthalene	1.097	1.110	0.800	AVRG	1.2	
2-Nitroaniline	0.324	0.336	0.010	AVRG	3.7	
Acenaphthylene	1.560	1.585	0.900	AVRG	1.6	
Dimethylphthalate	1.132	1.077	0.010	AVRG	-4.8	
2,6-Dinitrotoluene	0.275	0.265	0.200	AVRG	-3.6	
Acenaphthene	1.000	0.971	0.900	AVRG	1.65	
3-Nitroaniline	0.335	0.265	0.010	AVRG	-20.9	<-
2,4-Dinitrophenol	50.00	43.61	0.010	2ORDR	-12.8	
Dibenzofuran	1.756	1.844	0.800	AVRG	5.0	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.119	0.138	0.010	AVRG	16.0	
2,4-Dinitrotoluene	0.341	0.326	0.200	AVRG	-4.4	
Fluorene	1.182	1.165	0.900	AVRG	-1.4	
4-Chlorophenyl-phenylether	0.610	0.584	0.400	AVRG	-4.3	
Diethylphthalate	1.139	1.059	0.010	AVRG	-7.0	
4-Nitroaniline	0.318	0.225	0.010	AVRG	-29.2	<-
4,6-Dinitro-2-methylphenol	50.00	52.38	0.010	2ORDR	4.8	
N-Nitrosodiphenylamine(1)	0.537	0.574	0.010	AVRG	6.9	
4-Bromophenyl-phenylether	0.225	0.237	0.100	AVRG	5.3	
Hexachlorobenzene	0.242	0.252	0.100	AVRG	4.1	
Pentachlorophenol	25.00	25.66	0.050	2ORDR	2.6	
Phenanthrene	0.957	0.976	0.700	AVRG	2.0	
Anthracene	0.984	1.007	0.700	AVRG	2.3	
Carbazole	0.818	0.779	0.010	AVRG	-4.8	
Di-n-butylphthalate	0.999	0.918	0.010	AVRG	-8.1	
Fluoranthene	0.906	0.790	0.600	AVRG	-12.8	
Pyrene	1.240	1.368	0.600	AVRG	10.3	
Butylbenzylphthalate	0.511	0.532	0.010	AVRG	4.1	
Benzo(a)anthracene	0.972	0.949	0.800	AVRG	-2.4	
3,3'-Dichlorobenzidine	0.322	0.223	0.010	AVRG	-30.7	<-
Chrysene	0.907	0.871	0.700	AVRG	-4.0	
bis(2-Ethylhexyl)phthalate	0.562	0.546	0.010	AVRG	-2.8	
Di-n-octylphthalate	0.894	0.894	0.010	AVRG	0.0	
Benzo(b)fluoranthene	1.127	1.153	0.700	AVRG	2.3	
Benzo(k)fluoranthene	1.276	1.173	0.700	AVRG	-8.1	
Benzo(a)pyrene	1.056	1.069	0.700	AVRG	1.2	
Indeno(1,2,3-cd)pyrene	1.032	1.183	0.500	AVRG	14.6	
Dibenzo(a,h)anthracene	0.827	1.003	0.400	AVRG	21.3	<-
Benzo(g,h,i)perylene	0.888	1.021	0.500	AVRG	15.0	
N-Nitrosodimethylamine	0.567	0.502	0.010	AVRG	-11.5	
Aniline	1.864	1.703	0.010	AVRG	-8.6	
Benzidine	0.409		0.010	AVRG		
Pyridine	2.221	2.020	0.010	AVRG	-9.0	
1-methylnaphthalene	0.531	0.521	0.010	AVRG	-1.9	
Azobenzene (1,2-DP-Hydrazine	0.967	0.946	0.010	AVRG	-2.2	
2,3,4,6-Tetrachlorophenol	0.348	0.372	0.010	AVRG	6.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/12/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 2029

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554		0.010	AVRG	
Total Benzofluoranthenes	1.150	1.105	0.010	AVRG	-3.9
2-Fluorophenol	1.081	1.069	0.010	AVRG	-1.1
Phenol-d5	1.218	1.290	0.010	AVRG	5.9
2-Chlorophenol-d4	1.141	1.198	0.010	AVRG	5.0
1,2-Dichlorobenzene-d4	0.829	0.890	0.010	AVRG	7.4
Nitrobenzene-d5	0.338	0.352	0.010	AVRG	4.1
2-Fluorobiphenyl	1.253	1.340	0.010	AVRG	6.9
2,4,6-Tribromophenol	0.164	0.176	0.010	AVRG	7.3
Terphenyl-d14	0.792	0.850	0.010	AVRG	7.3

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.245	1.169	0.800	AVRG	-6.1
Bis(2-Chloroethyl)ether	0.980	0.996	0.700	AVRG	1.6
2-Chlorophenol	1.073	1.112	0.800	AVRG	3.6
1,3-Dichlorobenzene	1.405	1.378	0.010	AVRG	-1.9
1,4-Dichlorobenzene	1.423	1.424	0.010	AVRG	0.1
1,2-Dichlorobenzene	1.305	1.308	0.010	AVRG	0.2
Benzyl alcohol	0.909	0.979	0.010	AVRG	7.7
2,2'-oxybis(1-Chloropropane)	0.966	1.076	0.010	AVRG	11.4
2-Methylphenol	0.941	0.995	0.700	AVRG	5.7
Hexachloroethane	0.512	0.511	0.300	AVRG	-0.2
N-Nitroso-di-n-propylamine	0.645	0.668	0.500	AVRG	3.6
4-Methylphenol	0.970	1.025	0.600	AVRG	5.7
Nitrobenzene	0.332	0.324	0.200	AVRG	-2.4
Isophorone	0.490	0.495	0.400	AVRG	1.0
2-Nitrophenol	0.184	0.188	0.100	AVRG	2.2
2,4-Dimethylphenol	0.295	0.290	0.200	AVRG	-1.7
Bis(2-Chloroethoxy)methane	0.364	0.368	0.300	AVRG	1.1
2,4-Dichlorophenol	0.286	0.284	0.200	AVRG	-0.7
1,2,4-Trichlorobenzene	0.359	0.336	0.010	AVRG	-6.4
Naphthalene	0.903	0.924	0.700	AVRG	2.3
Benzoic acid	0.192	0.202	0.010	AVRG	5.2
4-Chloroaniline	0.500	0.486	0.010	AVRG	-2.8
Hexachlorobutadiene	0.206	0.186	0.010	AVRG	-9.7
4-Chloro-3-methylphenol	0.236	0.239	0.200	AVRG	1.3
2-Methylnaphthalene	0.674	0.707	0.400	AVRG	4.9
Hexachlorocyclopentadiene	0.408	0.361	0.050	AVRG	-11.5
2,4,6-Trichlorophenol	0.370	0.347	0.200	AVRG	-6.2
2,4,5-Trichlorophenol	0.404	0.386	0.200	AVRG	-4.4
2-Chloronaphthalene	1.097	1.060	0.800	AVRG	-3.4
2-Nitroaniline	0.324	0.348	0.010	AVRG	7.4
Acenaphthylene	1.560	1.590	0.900	AVRG	1.9
Dimethylphthalate	1.132	1.095	0.010	AVRG	-3.3
2,6-Dinitrotoluene	0.275	0.268	0.200	AVRG	-2.5
Acenaphthene	1.000	0.991	0.900	AVRG	1.94
3-Nitroaniline	0.335	0.358	0.010	AVRG	6.9
2,4-Dinitrophenol	50.00	51.36	0.010	2ORDR	2.7
Dibenzofuran	1.756	1.844	0.800	AVRG	5.0

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.119	0.123	0.010	AVRG	3.4	
2,4-Dinitrotoluene	0.341	0.349	0.200	AVRG	2.3	
Fluorene	1.182	1.186	0.900	AVRG	0.3	
4-Chlorophenyl-phenylether	0.610	0.574	0.400	AVRG	-5.9	
Diethylphthalate	1.139	1.097	0.010	AVRG	-3.7	
4-Nitroaniline	0.318	0.313	0.010	AVRG	-1.6	
4,6-Dinitro-2-methylphenol	50.00	54.53	0.010	2ORDR	9.1	
N-Nitrosodiphenylamine(1)	0.537	0.529	0.010	AVRG	-1.5	
4-Bromophenyl-phenylether	0.225	0.211	0.100	AVRG	-6.2	
Hexachlorobenzene	0.242	0.227	0.100	AVRG	-6.2	
Pentachlorophenol	25.00	24.55	0.050	2ORDR	-1.8	
Phenanthrene	0.957	0.953	0.700	AVRG	-0.4	
Anthracene	0.984	1.009	0.700	AVRG	2.5	
Carbazole	0.818	0.842	0.010	AVRG	2.9	
Di-n-butylphthalate	0.999	1.078	0.010	AVRG	7.9	
Fluoranthene	0.906	1.010	0.600	AVRG	11.5	
Pyrene	1.240	1.081	0.600	AVRG	-12.8	
Butylbenzylphthalate	0.511	0.475	0.010	AVRG	-7.0	
Benzo(a)anthracene	0.972	0.933	0.800	AVRG	-4.0	
3,3'-Dichlorobenzidine	0.322	0.345	0.010	AVRG	7.1	
Chrysene	0.907	0.877	0.700	AVRG	-3.3	
bis(2-Ethylhexyl)phthalate	0.562	0.518	0.010	AVRG	-7.8	
Di-n-octylphthalate	0.894	0.871	0.010	AVRG	-2.6	
Benzo(b)fluoranthene	1.127	1.085	0.700	AVRG	-3.7	
Benzo(k)fluoranthene	1.276	1.223	0.700	AVRG	-4.2	
Benzo(a)pyrene	1.056	1.085	0.700	AVRG	2.7	
Indeno(1,2,3-cd)pyrene	1.032	1.167	0.500	AVRG	13.1	
Dibenzo(a,h)anthracene	0.827	0.972	0.400	AVRG	17.5	
Benzo(g,h,i)perylene	0.888	1.029	0.500	AVRG	15.9	
N-Nitrosodimethylamine	0.567	0.622	0.010	AVRG	9.7	
Aniline	1.864	1.830	0.010	AVRG	-1.8	
Benzidine	0.409	0.173	0.010	AVRG	-57.7	<-
Pyridine	2.221	2.424	0.010	AVRG	9.1	
1-methylnaphthalene	0.531	0.530	0.010	AVRG	-0.2	
Azobenzene (1,2-DP-Hydrazine	0.967	1.000	0.010	AVRG	3.4	
2,3,4,6-Tetrachlorophenol	0.348	0.365	0.010	AVRG	4.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/17/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1100

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554	0.502	0.010	AVRG	-9.4
Total Benzofluoranthenes	1.150	1.093	0.010	AVRG	-5.0
2-Fluorophenol	1.081	1.137	0.010	AVRG	5.2
Phenol-d5	1.218	1.341	0.010	AVRG	10.1
2-Chlorophenol-d4	1.141	1.207	0.010	AVRG	5.8
1,2-Dichlorobenzene-d4	0.829	0.882	0.010	AVRG	6.4
Nitrobenzene-d5	0.338	0.341	0.010	AVRG	0.9
2-Fluorobiphenyl	1.253	1.280	0.010	AVRG	2.2
2,4,6-Tribromophenol	0.164	0.175	0.010	AVRG	6.7
Terphenyl-d14	0.792	0.719	0.010	AVRG	-9.2

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/18/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1218

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.245	1.201	0.800	AVRG	-3.5
Bis(2-Chloroethyl)ether	0.980	0.976	0.700	AVRG	-0.4
2-Chlorophenol	1.073	1.116	0.800	AVRG	4.0
1,3-Dichlorobenzene	1.405	1.384	0.010	AVRG	-1.5
1,4-Dichlorobenzene	1.423	1.412	0.010	AVRG	-0.8
1,2-Dichlorobenzene	1.305	1.314	0.010	AVRG	0.7
Benzyl alcohol	0.909	1.001	0.010	AVRG	10.1
2,2'-oxybis(1-Chloropropane)	0.966	1.074	0.010	AVRG	11.2
2-Methylphenol	0.941	1.012	0.700	AVRG	7.5
Hexachloroethane	0.512	0.496	0.300	AVRG	-3.1
N-Nitroso-di-n-propylamine	0.645	0.681	0.500	AVRG	5.6
4-Methylphenol	0.970	1.069	0.600	AVRG	10.2
Nitrobenzene	0.332	0.329	0.200	AVRG	-0.9
Isophorone	0.490	0.504	0.400	AVRG	2.8
2-Nitrophenol	0.184	0.195	0.100	AVRG	6.0
2,4-Dimethylphenol	0.295	0.299	0.200	AVRG	1.4
Bis(2-Chloroethoxy)methane	0.364	0.363	0.300	AVRG	-0.3
2,4-Dichlorophenol	0.286	0.295	0.200	AVRG	3.1
1,2,4-Trichlorobenzene	0.359	0.348	0.010	AVRG	-3.1
Naphthalene	0.903	0.934	0.700	AVRG	3.4
Benzoic acid	0.192	0.212	0.010	AVRG	10.4
4-Chloroaniline	0.500	0.511	0.010	AVRG	2.2
Hexachlorobutadiene	0.206	0.195	0.010	AVRG	-5.3
4-Chloro-3-methylphenol	0.236	0.252	0.200	AVRG	6.8
2-Methylnaphthalene	0.674	0.718	0.400	AVRG	6.5
Hexachlorocyclopentadiene	0.408	0.370	0.050	AVRG	-9.3
2,4,6-Trichlorophenol	0.370	0.370	0.200	AVRG	0.0
2,4,5-Trichlorophenol	0.404	0.401	0.200	AVRG	-0.7
2-Chloronaphthalene	1.097	1.063	0.800	AVRG	-3.1
2-Nitroaniline	0.324	0.344	0.010	AVRG	6.2
Acenaphthylene	1.560	1.576	0.900	AVRG	1.0
Dimethylphthalate	1.132	1.093	0.010	AVRG	-3.4
2,6-Dinitrotoluene	0.275	0.268	0.200	AVRG	-2.5
Acenaphthene	1.000	0.974	0.900	AVRG	1.05
3-Nitroaniline	0.335	0.357	0.010	AVRG	6.6
2,4-Dinitrophenol	50.00	57.49	0.010	2ORDR	15.0
Dibenzofuran	1.756	1.861	0.800	AVRG	6.0

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/18/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1218

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.119	0.139	0.010	AVRG	16.8	
2,4-Dinitrotoluene	0.341	0.351	0.200	AVRG	2.9	
Fluorene	1.182	1.177	0.900	AVRG	-0.4	
4-Chlorophenyl-phenylether	0.610	0.573	0.400	AVRG	-6.1	
Diethylphthalate	1.139	1.011	0.010	AVRG	-11.2	
4-Nitroaniline	0.318	0.332	0.010	AVRG	4.4	
4,6-Dinitro-2-methylphenol	50.00	57.05	0.010	2ORDR	14.1	
N-Nitrosodiphenylamine(1)	0.537	0.526	0.010	AVRG	-2.0	
4-Bromophenyl-phenylether	0.225	0.220	0.100	AVRG	-2.2	
Hexachlorobenzene	0.242	0.239	0.100	AVRG	-1.2	
Pentachlorophenol	25.00	25.35	0.050	2ORDR	1.4	
Phenanthrene	0.957	0.971	0.700	AVRG	1.5	
Anthracene	0.984	1.003	0.700	AVRG	1.9	
Carbazole	0.818	0.828	0.010	AVRG	1.2	
Di-n-butylphthalate	0.999	1.029	0.010	AVRG	3.0	
Fluoranthene	0.906	0.995	0.600	AVRG	9.8	
Pyrene	1.240	1.071	0.600	AVRG	-13.6	
Butylbenzylphthalate	0.511	0.457	0.010	AVRG	-10.6	
Benzo(a)anthracene	0.972	0.940	0.800	AVRG	-3.3	
3,3'-Dichlorobenzidine	0.322	0.370	0.010	AVRG	14.9	
Chrysene	0.907	0.865	0.700	AVRG	-4.6	
bis(2-Ethylhexyl)phthalate	0.562	0.528	0.010	AVRG	-6.0	
Di-n-octylphthalate	0.894	0.878	0.010	AVRG	-1.8	
Benzo(b)fluoranthene	1.127	1.128	0.700	AVRG	0.1	
Benzo(k)fluoranthene	1.276	1.179	0.700	AVRG	-7.6	
Benzo(a)pyrene	1.056	1.075	0.700	AVRG	1.8	
Indeno(1,2,3-cd)pyrene	1.032	1.169	0.500	AVRG	13.3	
Dibenzo(a,h)anthracene	0.827	0.977	0.400	AVRG	18.1	
Benzo(g,h,i)perylene	0.888	1.033	0.500	AVRG	16.3	
N-Nitrosodimethylamine	0.567	0.573	0.010	AVRG	1.0	
Aniline	1.864	1.837	0.010	AVRG	-1.4	
Benzidine	0.409	0.163	0.010	AVRG	-60.1	<-
Pyridine	2.221	2.253	0.010	AVRG	1.4	
1-methylnaphthalene	0.531	0.530	0.010	AVRG	-0.2	
Azobenzene (1,2-DP-Hydrazine	0.967	0.970	0.010	AVRG	0.3	
2,3,4,6-Tetrachlorophenol	0.348	0.372	0.010	AVRG	6.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRAC

Instrument ID: NT6 Cont. Calib. Date: 05/18/11

Init. Calib. Date: 05/09/11 Cont. Calib. Time: 1218

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.554	0.518	0.010	AVRG	-6.5
Total Benzofluoranthenes	1.150	1.091	0.010	AVRG	-5.1
2-Fluorophenol	1.081	1.131	0.010	AVRG	4.6
Phenol-d5	1.218	1.336	0.010	AVRG	9.7
2-Chlorophenol-d4	1.141	1.223	0.010	AVRG	7.2
1,2-Dichlorobenzene-d4	0.829	0.889	0.010	AVRG	7.2
Nitrobenzene-d5	0.338	0.352	0.010	AVRG	4.1
2-Fluorobiphenyl	1.253	1.294	0.010	AVRG	3.3
2,4,6-Tribromophenol	0.164	0.188	0.010	AVRG	14.6
Terphenyl-d14	0.792	0.737	0.010	AVRG	-6.9

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	997311	7.83	3150714	9.88	1817549	12.75
	UPPER LIMIT		8.33		10.38		13.25
	LOWER LIMIT		7.33		9.38		12.25
01	SU57MBW1	1161566	7.83	3828523	9.88	2369196	12.75
02	SU57LCSW1	1215564	7.82	3911532	9.88	2468332	12.75
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2600557	15.13	1513456	19.44	1155765	21.60
	UPPER LIMIT		15.63		19.94		22.10
	LOWER LIMIT		14.63		18.94		21.10
01	SU57MBW1	3832535	15.12	3224189	19.44	2085867	21.60
02	SU57LCSW1	3827071	15.13	2935381	19.44	1799853	21.60
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/12/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	1744330	20.61				
	UPPER LIMIT		21.11				
	LOWER LIMIT		20.11				
01	SU57MBW1	3737889	20.61				
02	SU57LCSW1	3439942	20.61				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	833568	7.76	2693131	9.82	1613205	12.68
	UPPER LIMIT		8.26		10.32		13.18
	LOWER LIMIT		7.26		9.32		12.18
01	MW-11-042811	925204	7.76	3052485	9.81	1829437	12.68
02	MW-12-042811	924621	7.76	3047799	9.81	1830690	12.68
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2586471	15.05	2457661	19.37	2037685	21.52
	UPPER LIMIT		15.55		19.87		22.02
	LOWER LIMIT		14.55		18.87		21.02
01	MW-11-042811	2856622	15.05	2680088	19.36	2115784	21.52
02	MW-12-042811	2943441	15.05	2719898	19.37	2118989	21.52
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/17/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	2940346	20.55				
	UPPER LIMIT		21.05				
	LOWER LIMIT		20.05				
01	MW-11-042811	3133228	20.54				
02	MW-12-042811	3134007	20.55				
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/18/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	917386	8.09	2789166	10.15	1621551	13.03
	UPPER LIMIT	1834772		5578332		3243102	
	LOWER LIMIT	458693		1394583		810776	
	CCAL	887716	7.68	2861621	9.74	1784749	12.60
	UPPER LIMIT		8.18		10.24		13.10
	LOWER LIMIT		7.18		9.24		12.10
01	MW-19-042811	797538	7.68	2616655	9.73	1563543	12.59
02							
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IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/18/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	2615784	15.42	1940781	19.74	1310037	21.90
	UPPER LIMIT	5231568		3881562		2620074	
	LOWER LIMIT	1307892		970390		655018	
	CCAL	2875234	14.97	2685533	19.28	2104416	21.43
	UPPER LIMIT		15.47		19.78		21.93
	LOWER LIMIT		14.47		18.78		20.93
01	MW-19-042811	2471591	14.96	2244118	19.26	1862363	21.42
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IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES, INC Client: ERM-WEST

ARI Job No: SU60 Project: RG SPRING 2011 GW SAMPLINGRACI

Ical Midpoint ID: 05091117 Ical Date: 05/09/11

Instrument ID: NT6 Cont. Cal Date: 05/18/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	2318697	20.88				
	UPPER LIMIT	4637394					
	LOWER LIMIT	1159348					
	CCAL	3069554	20.46				
	UPPER LIMIT		20.96				
	LOWER LIMIT		19.96				
01	MW-19-042811	2703360	20.45				
02							
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IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

Metals Analysis
Report and Summary QC Forms

ARI Job ID: SU57, SU60

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
MW-14-042711	SU57A	11-9630	
MW-14-042711D	SU57ADUP	11-9630	
MW-14-042711S	SU57ASPK	11-9630	
DUP042711-2	SU57B	11-9631	
MW-6S-042711	SU57C	11-9632	
MW-3S-042711	SU57D	11-9633	
PBW	SU57MB1	11-9633	
LCSW	SU57MB1SPK	11-9633	
MW-3D-042711	SU57E	11-9634	
MW-27-042811	SU57F	11-9635	
MW-26-042811	SU57G	11-9636	
MW-16-042811	SU57H	11-9637	
MW-5S-042811	SU57I	11-9638	
DUP042711-3	SU57J	11-9639	
MS-14-042711	SU57K	11-9640	
MS-14-042711D	SU57KDUP	11-9640	
MS-14-042711S	SU57KSPK	11-9640	
DUP042711-2	SU57L	11-9641	
MW-6S-042711	SU57M	11-9642	
PBW	SU57MB2	11-9643	
LCSW	SU57MB2SPK	11-9643	

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: 6/19/11 Title: Inorganics Director

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
MW-3S-042711	SU57N	11-9643	
MW-3D-042711	SU57O	11-9644	
MW-27-042811	SU57P	11-9645	
MW-26-042811	SU57Q	11-9646	
MW-16-042811	SU57R	11-9647	
MW-5S-042811	SU57S	11-9648	
DUP042711-3	SU57T	11-9649	
MW-11-042811	SU60A	11-9656	
MW-12-042811	SU60B	11-9657	
MW-19-042811	SU60C	11-9658	
MW-11-042811	SU60D	11-9659	
MW-12-042811	SU60E	11-9660	
MW-19-042811	SU60F	11-9661	

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: 5/19/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-14-042711
SAMPLE

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	5	**4,140**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: DUP042711-2
SAMPLE

Lab Sample ID: SU57B
LIMS ID: 11-9631
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	5	**4,300**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-6S-042711
SAMPLE

Lab Sample ID: SU57C
LIMS ID: 11-9632
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**13.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-3S-042711
SAMPLE

Lab Sample ID: SU57D
LIMS ID: 11-9633
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	1	**480**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**2.0**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**0.8**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-3D-042711
SAMPLE

Lab Sample ID: SU57E
LIMS ID: 11-9634
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**35.6**	
200.8	05/04/11	200.8	05/09/11	**7440-47-3**	**Chromium**	0.5	**3.1**	
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**0.7**	
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-27-042811
SAMPLE

Lab Sample ID: SU57F
LIMS ID: 11-9635
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**15.2**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**0.6**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**2.0**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-26-042811
SAMPLE

Lab Sample ID: SU57G
LIMS ID: 11-9636
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	1	**984**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-47-3**	**Chromium**	0.5	**0.8**	
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**0.9**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**0.6**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-16-042811
SAMPLE

Lab Sample ID: SU57H
LIMS ID: 11-9637
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**5.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-5S-042811
SAMPLE

Lab Sample ID: SU57I
LIMS ID: 11-9638
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**5.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: DUP042711-3
SAMPLE

Lab Sample ID: SU57J
LIMS ID: 11-9639
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**2.0**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-02-0	Nickel	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-11-042811
SAMPLE

Lab Sample ID: SU60A
LIMS ID: 11-9656
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**22.0**	

U-Analyte undetected at given RL
RL-Reporting Limit

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TOTAL METALS
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Sample ID: MW-12-042811
SAMPLE

Lab Sample ID: SU60B
LIMS ID: 11-9657
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**172**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-19-042811
SAMPLE

Lab Sample ID: SU60C
LIMS ID: 11-9658
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**260**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-14-042711
MATRIX SPIKE

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	4,140	4,310	25.0	680%	H

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-14-042711
DUPLICATE

Lab Sample ID: SU57A
LIMS ID: 11-9630
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	4,140	4,190	1.2%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: LAB CONTROL

Lab Sample ID: SU57LCS
LIMS ID: 11-9633
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling 128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	200.8	24.6	25.0	98.4%	
Arsenic	200.8	25.7	25.0	103%	
Beryllium	200.8	22.7	25.0	90.8%	
Cadmium	200.8	25.6	25.0	102%	
Chromium	200.8	26.5	25.0	106%	
Copper	200.8	28.3	25.0	113%	
Lead	200.8	25.0	25.0	100%	
Mercury	7470A	1.9	2.0	95.0%	
Nickel	200.8	27.7	25.0	111%	
Selenium	200.8	83.4	80.0	104%	
Silver	200.8	25.9	25.0	104%	
Thallium	200.8	24.0	25.0	96.0%	
Zinc	200.8	84	80	105%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: SU57MB
LIMS ID: 11-9633
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-50-8	Copper	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-02-0	Nickel	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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DISSOLVED METALS
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Sample ID: MS-14-042711
SAMPLE

Lab Sample ID: SU57K
LIMS ID: 11-9640
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	5	**3,790**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: DUP042711-2
SAMPLE

Lab Sample ID: SU57L
LIMS ID: 11-9641
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	5	**4,490**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-6S-042711
SAMPLE

Lab Sample ID: SU57M
LIMS ID: 11-9642
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**12.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-3S-042711
SAMPLE

Lab Sample ID: SU57N
LIMS ID: 11-9643
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	1	**460**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-50-8	Copper	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**0.8**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-3D-042711
SAMPLE

Lab Sample ID: SU57O
LIMS ID: 11-9644
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**39.4**	
200.8	05/04/11	200.8	05/09/11	**7440-47-3**	**Chromium**	0.5	**3.4**	
200.8	05/04/11	200.8	05/09/11	7440-50-8	Copper	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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Sample ID: MW-27-042811
SAMPLE

Lab Sample ID: SU57P
LIMS ID: 11-9645
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**14.9**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**0.5**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**2.6**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-26-042811
SAMPLE

Lab Sample ID: SU57Q
LIMS ID: 11-9646
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	**7440-38-2**	**Arsenic**	2	**1,060**	
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-47-3**	**Chromium**	0.5	**0.9**	
200.8	05/04/11	200.8	05/09/11	7440-50-8	Copper	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**0.8**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-16-042811
SAMPLE

Lab Sample ID: SU57R
LIMS ID: 11-9647
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**2.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-5S-042811
SAMPLE

Lab Sample ID: SU57S
LIMS ID: 11-9648
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**4.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: DUP042711-3
SAMPLE

Lab Sample ID: SU57T
LIMS ID: 11-9649
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/10/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	**7440-50-8**	**Copper**	0.5	**0.7**	
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	**7440-02-0**	**Nickel**	0.5	**1.2**	
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-11-042811
SAMPLE

Lab Sample ID: SU60D
LIMS ID: 11-9659
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	17.0	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-12-042811
SAMPLE

Lab Sample ID: SU60E
LIMS ID: 11-9660
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**156**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-19-042811
SAMPLE

Lab Sample ID: SU60F
LIMS ID: 11-9661
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU60-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/28/11
Date Received: 04/28/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**259**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MS-14-042711
MATRIX SPIKE

Lab Sample ID: SU57K
LIMS ID: 11-9640
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	3,790	3,950	25.0	640%	H

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MS-14-042711
DUPLICATE

Lab Sample ID: SU57K
LIMS ID: 11-9640
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/28/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	3,790	3,910	3.1%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: SU57LCS
LIMS ID: 11-9643
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	200.8	23.6	25.0	94.4%	
Arsenic	200.8	24.5	25.0	98.0%	
Beryllium	200.8	22.0	25.0	88.0%	
Cadmium	200.8	24.6	25.0	98.4%	
Chromium	200.8	25.1	25.0	100%	
Copper	200.8	27.4	25.0	110%	
Lead	200.8	23.8	25.0	95.2%	
Mercury	7470A	2.0	2.0	100%	
Nickel	200.8	26.5	25.0	106%	
Selenium	200.8	80.3	80.0	100%	
Silver	200.8	25.0	25.0	100%	
Thallium	200.8	22.8	25.0	91.2%	
Zinc	200.8	80	80	100%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: SU57MB
LIMS ID: 11-9643
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: SU57-ERM-West
Project: RG 2011 Spring GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	05/04/11	200.8	05/09/11	7440-36-0	Antimony	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-47-3	Chromium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-50-8	Copper	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7439-92-1	Lead	0.1	0.1	U
7470A	05/04/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	05/04/11	200.8	05/09/11	7440-02-0	Nickel	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7782-49-2	Selenium	0.5	0.5	U
200.8	05/04/11	200.8	05/09/11	7440-22-4	Silver	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-28-0	Thallium	0.2	0.2	U
200.8	05/04/11	200.8	05/09/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Antimony	SB	PMS	MS050981	50.0	49.40	**98.8**	50.0	50.16	**100.3**	49.87	**99.7**	50.33	**100.7**	50.07	**100.1**	49.94	**99.9**
Arsenic	AS	PMS	MS050981	50.0	49.86	**99.7**	50.0	50.42	**100.8**	50.15	**100.3**	50.26	**100.5**	50.30	**100.6**	50.19	**100.4**
Beryllium	BE	PMS	MS050981	50.0	50.88	**101.8**	50.0	50.01	**100.0**	49.52	**99.0**	51.92	**103.8**	50.48	**101.0**	49.01	**98.0**
Cadmium	CD	PMS	MS050981	50.0	49.68	**99.4**	50.0	49.93	**99.9**	49.60	**99.2**	50.16	**100.3**	50.32	**100.6**	50.72	**101.4**
Chromium	CR	PMS	MS050981	50.0	50.17	**100.3**	50.0	50.35	**100.7**	50.09	**100.2**	50.54	**101.1**	50.77	**101.5**	51.41	**102.8**
Copper	CU	PMS	MS050981	50.0	50.56	**101.1**	50.0	51.12	**102.2**	50.94	**101.9**	50.04	**100.1**	51.68	**103.4**	51.92	**103.8**
Lead	PB	PMS	MS050981	50.0	49.27	**98.5**	50.0	49.80	**99.6**	50.03	**100.1**	50.48	**101.0**	49.97	**99.9**	48.64	**97.3**
Mercury	HG	CVA	HG050603	8.0	7.96	**99.5**	4.0	4.00	**100.0**	3.97	**99.3**	4.01	**100.3**	3.94	**98.5**	3.84	**96.0**
Nickel	NI	PMS	MS050981	50.0	50.67	**101.3**	50.0	50.57	**101.1**	50.44	**100.9**	50.25	**100.5**	51.43	**102.9**	51.79	**103.6**
Selenium	SE	PMS	MS050981	80.0	78.49	**98.1**	50.0	49.83	**99.7**	50.38	**100.8**	49.25	**98.5**	50.70	**101.4**	51.19	**102.4**
Silver	AG	PMS	MS050981	50.0	49.12	**98.2**	50.0	50.34	**100.7**	50.02	**100.0**	50.08	**100.2**	50.83	**101.7**	50.62	**101.2**
Thallium	TL	PMS	MS050981	50.0	48.45	**96.9**	50.0	48.84	**97.7**	49.00	**98.0**	49.37	**98.7**	48.94	**97.9**	47.80	**95.6**
Zinc	ZN	PMS	MS050981	50.0	49.90	**99.8**	50.0	50.30	**100.6**	50.43	**100.9**	49.87	**99.7**	50.79	**101.6**	51.25	**102.5**

Control Limits: Mercury 80-120; Other Metals 90-110

SU57 · 09/14/11

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Antimony	SB	PMS	MS050981	50.0	49.96	99.9	49.70	99.4	49.88	99.8	49.44	98.9	49.22	98.4	49.36	98.7
Arsenic	AS	PMS	MS050981	50.0	50.57	101.1	50.68	101.4	50.45	100.9	50.47	100.9	50.09	100.2	50.31	100.6
Beryllium	BE	PMS	MS050981	50.0	47.59	95.2	46.86	93.7	45.61	91.2	45.06	90.1	44.51	89.0	43.26	86.5
Cadmium	CD	PMS	MS050981	50.0	50.92	101.8	50.78	101.6	50.12	100.2	50.53	101.1	50.56	101.1	49.80	99.6
Chromium	CR	PMS	MS050981	50.0	52.55	105.1	52.76	105.5	52.72	105.4	53.28	106.6	52.58	105.2	51.94	103.9
Copper	CU	PMS	MS050981	50.0	51.73	103.5	52.45	104.9	52.31	104.6	51.84	103.7	52.62	105.2	52.45	104.9
Lead	PB	PMS	MS050981	50.0	47.91	95.8	47.67	95.3	47.68	95.4	47.06	94.1	46.83	93.7	46.57	93.1
Mercury	HG	CVA	HG050603	4.0	3.89	97.3	3.92	98.0	3.98	99.5	4.06	101.5				
Nickel	NI	PMS	MS050981	50.0	52.04	104.1	53.38	106.8	52.53	105.1	52.26	104.5	53.31	106.6	53.30	106.6
Selenium	SE	PMS	MS050981	50.0	52.63	105.3	52.88	105.8	53.49	107.0	52.88	105.8	52.86	105.7	53.40	106.8
Silver	AG	PMS	MS050981	50.0	50.60	101.2	50.34	100.7	49.51	99.0	50.19	100.4	49.85	99.7	49.36	98.7
Thallium	TL	PMS	MS050981	50.0	46.60	93.2	46.45	92.9	46.33	92.7	45.76	91.5	45.55	91.1	45.26	90.5
Zinc	ZN	PMS	MS050981	50.0	51.13	102.3	51.40	102.8	51.41	102.8	50.76	101.5	51.08	102.2	50.82	101.6

SU57 : 66148

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

UNITS:ug/L

SDG: SU57

ANALYTE	EL	M	RUN	CCVTV	CCV12	%R	CCV13	%R	CCV14	%R	CCV15	%R	CCV16	%R	CCV17	%R
Antimony	SB	PMS	MS050981	50.0	49.37	**98.7**										
Arsenic	AS	PMS	MS050981	50.0	49.80	**99.6**										
Beryllium	BE	PMS	MS050981	50.0	43.26	**86.5**										
Cadmium	CD	PMS	MS050981	50.0	49.50	**99.0**										
Chromium	CR	PMS	MS050981	50.0	52.76	**105.5**										
Copper	CU	PMS	MS050981	50.0	52.57	**105.1**										
Lead	PB	PMS	MS050981	50.0	47.03	**94.1**										
Mercury	HG	CVA	HG050603	4.0												
Nickel	NI	PMS	MS050981	50.0	52.29	**104.6**										
Selenium	SE	PMS	MS050981	50.0	52.31	**104.6**										
Silver	AG	PMS	MS050981	50.0	49.60	**99.2**										
Thallium	TL	PMS	MS050981	50.0	45.86	**91.7**										
Zinc	ZN	PMS	MS050981	50.0	50.81	**101.6**										

SU57 : 09149

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS051081	50.0	50.12	100.2	50.0	50.17	100.3	50.50	101.0	50.84	101.7	50.57	101.1	50.54	101.1
Beryllium	BE	PMS	MS051081	50.0	50.14	100.3	50.0	49.89	99.8	50.21	100.4	49.38	98.8	48.13	96.3	47.78	95.6

SU57 001558

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS051081	50.0	49.98	100.0	50.49	101.0								
Beryllium	BE	PMS	MS051081	50.0	48.67	97.3	47.87	95.7								

SU57 00151

Control Limits: Mercury 80-120; Other Metals 90-110

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

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	PMS	MS050981	0.2	0.22	**110.0**										
Arsenic	AS	PMS	MS050981	0.2	0.23	**115.0**										
Beryllium	BE	PMS	MS050981	0.2	0.22	**110.0**										
Cadmium	CD	PMS	MS050981	0.1	0.12	**120.0**										
Chromium	CR	PMS	MS050981	0.5	0.62	**124.0**										
Copper	CU	PMS	MS050981	0.5	0.56	**112.0**										
Lead	PB	PMS	MS050981	0.1	0.11	**110.0**										
Mercury	HG	CVA	HG050603	0.1	0.14	**140.0**										
Nickel	NI	PMS	MS050981	0.5	0.54	**108.0**										
Selenium	SE	PMS	MS050981	0.5	0.56	**112.0**										
Silver	AG	PMS	MS050981	0.2	0.20	**100.0**										
Thallium	TL	PMS	MS050981	0.2	0.21	**105.0**										
Zinc	ZN	PMS	MS050981	4.0	4.26	**106.5**										

SU57 001522

Control Limits: no control limits have been established by the EPA at this time.

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

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
Arsenic	AS	PMS	MS051081	0.2	0.18	90.0										
Beryllium	BE	PMS	MS051081	0.2	0.22	110.0										

Control Limits: no control limits have been established by the EPA at this time.

SU57.00153

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

UNITS: ug/L

SDG: SU57

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Antimony	SB	PMS	MS050981	60.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Arsenic	AS	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	BE	PMS	MS050981	5.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium	CD	PMS	MS050981	5.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chromium	CR	PMS	MS050981	10.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Copper	CU	PMS	MS050981	25.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Lead	PB	PMS	MS050981	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Mercury	HG	CVA	HG050603	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Nickel	NI	PMS	MS050981	40.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Selenium	SE	PMS	MS050981	5.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Silver	AG	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Thallium	TL	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Zinc	ZN	PMS	MS050981	20.0	4.0	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U

SU57 00154

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Antimony	SB	PMS	MS050981	60.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Arsenic	AS	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	BE	PMS	MS050981	5.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Cadmium	CD	PMS	MS050981	5.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Chromium	CR	PMS	MS050981	10.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Copper	CU	PMS	MS050981	25.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Lead	PB	PMS	MS050981	3.0	0.1	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Mercury	HG	CVA	HG050603	0.2	0.1	0.1	U	0.1	U	0.1	U	0.1	U				
Nickel	NI	PMS	MS050981	40.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Selenium	SE	PMS	MS050981	5.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Silver	AG	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Thallium	TL	PMS	MS050981	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Zinc	ZN	PMS	MS050981	20.0	4.0	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U

SU57 : 09155

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB12	C	CCB13	C	CCB14	C	CCB15	C	CCB16	C	CCB17	C
Antimony	SB	PMS	MS050981	60.0	0.2	0.2	U										
Arsenic	AS	PMS	MS050981	10.0	0.2	0.2	U										
Beryllium	BE	PMS	MS050981	5.0	0.2	0.2	U										
Cadmium	CD	PMS	MS050981	5.0	0.1	0.1	U										
Chromium	CR	PMS	MS050981	10.0	0.5	0.5	U										
Copper	CU	PMS	MS050981	25.0	0.5	0.5	U										
Lead	PB	PMS	MS050981	3.0	0.1	0.1	U										
Mercury	HG	CVA	HG050603	0.2	0.1												
Nickel	NI	PMS	MS050981	40.0	0.5	0.5	U										
Selenium	SE	PMS	MS050981	5.0	0.5	0.5	U										
Silver	AG	PMS	MS050981	10.0	0.2	0.2	U										
Thallium	TL	PMS	MS050981	10.0	0.2	0.2	U										
Zinc	ZN	PMS	MS050981	20.0	4.0	4.0	U										

SU57.0156

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS051081	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Beryllium	BE	PMS	MS051081	5.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

SU57 - 00157

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

UNITS:ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS051081	10.0	0.2	0.2	U	0.2	U								
Beryllium	BE	PMS	MS051081	5.0	0.2	0.2	U	0.2	U								

SU57.00138

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG 2011 Spring GW Sa

RUNID: MS050981

SDG: SU57

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Barium			0.0	0.1							
Cadmium		20	0.1	19.4	97.0						
Chromium		20	0.7	20.9	104.5						
Cobalt		20	0.0	20.8	104.0						
Copper		20	0.5	20.4	102.0						
Manganese		20	0.1	20.7	103.5						
Molybdenum	400	400	433.0	431.4	107.9						
Nickel		20	0.5	20.6	103.0						
Silver		20	0.0	19.1	95.5						
Vanadium			0.0	-0.4							
Zinc		20	1.2	20.3	101.5						

SU57 - 00153

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG 2011 Spring GW Sa

RUNID: MS051081

SDG: SU57

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Barium			0.0	0.1							
Cadmium		20	0.1	19.3	96.5						
Chromium		20	0.6	20.5	102.5						
Cobalt		20	0.0	20.2	101.0						
Copper		20	0.5	20.0	100.0						
Manganese		20	0.0	20.1	100.5						
Molybdenum	400	400	429.4	427.1	106.8						
Nickel		20	0.7	20.4	102.0						
Selenium			0.0	0.1							
Silver		20	0.0	18.9	94.5						
Vanadium			0.0	-0.5							
Zinc		20	1.2	20.5	102.5						

SU57:00169

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57 UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Antimony	SB	PMS	PE ELAN 6000 MS	0.00		60	0.2	4/1/2011		
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Beryllium	BE	PMS	PE ELAN 6000 MS	0.00		5	0.2	4/1/2011		
Cadmium	CD	PMS	PE ELAN 6000 MS	0.00		5	0.1	4/1/2011		
Chromium	CR	PMS	PE ELAN 6000 MS	0.00		10	0.5	4/1/2011		
Copper	CU	PMS	PE ELAN 6000 MS	0.00		25	0.5	4/1/2011		
Lead	PB	PMS	PE ELAN 6000 MS	0.00		3	0.1	4/1/2011		
Mercury	HG	CVA	CETAC MERCURY	253.70		0.2	0.1	4/1/2011		
Nickel	NI	PMS	PE ELAN 6000 MS	0.00		40	0.5	4/1/2011		
Selenium	SE	PMS	PE ELAN 6000 MS	0.00		5	0.5	4/1/2011		
Silver	AG	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Thallium	TL	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Zinc	ZN	PMS	PE ELAN 6000 MS	0.00		20	4.0	4/1/2011		

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 5/4/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-14-042711	SU57A	0.000	50.0	25.0
MW-14-042711D	SU57ADUP	0.000	50.0	25.0
MW-14-042711S	SU57ASPK	0.000	50.0	25.0
DUP042711-2	SU57B	0.000	50.0	25.0
MW-6S-042711	SU57C	0.000	50.0	25.0
MW-3S-042711	SU57D	0.000	50.0	25.0
MW-3D-042711	SU57E	0.000	50.0	25.0
MW-27-042811	SU57F	0.000	50.0	25.0
MW-26-042811	SU57G	0.000	50.0	25.0
MW-16-042811	SU57H	0.000	50.0	25.0
MW-5S-042811	SU57I	0.000	50.0	25.0
DUP042711-3	SU57J	0.000	50.0	25.0
MS-14-042711	SU57K	0.000	50.0	25.0
MS-14-042711D	SU57KDUP	0.000	50.0	25.0
MS-14-042711S	SU57KSPK	0.000	50.0	25.0
DUP042711-2	SU57L	0.000	50.0	25.0
MW-6S-042711	SU57M	0.000	50.0	25.0
PBW	SU57MB1	0.000	50.0	25.0
LCSW	SU57MB1SPK	0.000	50.0	25.0
PBW	SU57MB2	0.000	50.0	25.0
LCSW	SU57MB2SPK	0.000	50.0	25.0
MW-3S-042711	SU57N	0.000	50.0	25.0
MW-3D-042711	SU57O	0.000	50.0	25.0
MW-27-042811	SU57P	0.000	50.0	25.0
MW-26-042811	SU57Q	0.000	50.0	25.0
MW-16-042811	SU57R	0.000	50.0	25.0
MW-5S-042811	SU57S	0.000	50.0	25.0
DUP042711-3	SU57T	0.000	50.0	25.0
MW-11-042811	SU60A	0.000	50.0	25.0
MW-12-042811	SU60B	0.000	50.0	25.0
MW-19-042811	SU60C	0.000	50.0	25.0
MW-11-042811	SU60D	0.000	50.0	25.0
MW-12-042811	SU60E	0.000	50.0	25.0
MW-19-042811	SU60F	0.000	50.0	25.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa

SDG: SU57

ANALYSIS METHOD: CVA

ARI PREP CODE: TWM

PREPDATE: 5/4/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-3S-042711	SU57D	0.000	20.0	20.0
MW-27-042811	SU57F	0.000	20.0	20.0
MW-26-042811	SU57G	0.000	20.0	20.0
DUP042711-3	SU57J	0.000	20.0	20.0
PBW	SU57MB1	0.000	20.0	20.0
LCSW	SU57MB1SPK	0.000	20.0	20.0
PBW	SU57MB2	0.000	20.0	20.0
LCSW	SU57MB2SPK	0.000	20.0	20.0
MW-3S-042711	SU57N	0.000	20.0	20.0
MW-27-042811	SU57P	0.000	20.0	20.0
MW-26-042811	SU57Q	0.000	20.0	20.0
DUP042711-3	SU57T	0.000	20.0	20.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/9/2011

SDG: SU57 | RUNID: MS050981 | METHOD: PMS | END DATE: 5/10/2011

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	11390		X		X			X		X		X	X								X	X	X	X				X			X
S1	S1	1.00	11470		X		X			X		X		X	X								X	X	X	X				X			X
S2	S2	1.00	11540		X		X			X		X		X	X								X	X	X	X				X			X
S3	S3	1.00	12020		X		X			X		X		X	X								X	X	X	X				X			X
S4	S4	1.00	12100		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	Rinse Sampl	1.00	12180																														
ICV	MICV	1.00	12250		X		X			X		X		X	X								X	X	X	X				X			X
ICB	ICB	1.00	12320		X		X			X		X		X	X								X	X	X	X				X			X
CCV	MCCV1	1.00	12390		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB1	1.00	12470		X		X			X		X		X	X								X	X	X	X				X			X
CRI	MCRI	1.00	12540		X		X			X		X		X	X								X	X	X	X				X			X
ICSA	ICSAI	1.00	13010		X		X			X		X		X	X								X	X	X	X				X			X
ICSAB	ICSABI	1.00	13080		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	LR200	1.00	13160																														
ZZZZZZ	LR300	1.00	13230																														
CCV	MCCV2	1.00	13310		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB2	1.00	13380		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU15P	2.00	13450																														
ZZZZZZ	SU15PDUP	2.00	13520																														
ZZZZZZ	SU13E	2.00	13580																														
ZZZZZZ	SU13K	2.00	14050																														
ZZZZZZ	SU15O	20.00	14120																														
ZZZZZZ	SU15O	5.00	14180																														
ZZZZZZ	SU15M	5.00	14250																														
ZZZZZZ	SU15N	5.00	14310																														
ZZZZZZ	SU15E	50.00	14380																														
ZZZZZZ	SU15F	50.00	14450																														
CCV	MCCV3	1.00	14510		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB3	1.00	14580		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU59MB1	20.00	15070																														
ZZZZZZ	SU59MB1SPK	20.00	15130																														
ZZZZZZ	SU13D	10.00	15200																														
ZZZZZZ	SU13J	10.00	15260																														
ZZZZZZ	SU13L	10.00	15330																														
ZZZZZZ	SU13F	20.00	15390																														

SU57 06164

FORM XIV

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/9/2011

SDG: SU57 | RUNID: MS050981 | METHOD: PMS | END DATE: 5/10/2011

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	SU15G	20.00	15460																														
ZZZZZZ	SU59ADUP	20.00	15520																														
ZZZZZZ	SU59A	20.00	15590																														
ZZZZZZ	SU59ASPK	20.00	16050																														
CCV	MCCV4	1.00	16120		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB4	1.00	16190		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU27MB1	2.00	16260																														
ZZZZZZ	SU27MB2	2.00	16330																														
ZZZZZZ	SU27MB2SPK	2.00	16400																														
ZZZZZZ	SU27MB1SPK	2.00	16460																														
ZZZZZZ	SU27A	2.00	16530																														
ZZZZZZ	SU27B	2.00	16590																														
ZZZZZZ	SU27C	2.00	17060																														
ZZZZZZ	SU27D	2.00	17130																														
ZZZZZZ	SU27E	2.00	17190																														
ZZZZZZ	SU59B	20.00	17260																														
CCV	MCCV5	1.00	17320		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB5	1.00	17390		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU53MB1	2.00	17570																														
ZZZZZZ	SU53MB1SPK	2.00	18040																														
ZZZZZZ	SU53ADUP	2.00	18100																														
ZZZZZZ	SU53A	2.00	18170																														
ZZZZZZ	SU53ASPK	2.00	18230																														
ZZZZZZ	SU53C	2.00	18300																														
ZZZZZZ	SU53E	2.00	18360																														
ZZZZZZ	SU45A	2.00	18430																														
ZZZZZZ	SU45B	2.00	18490																														
ZZZZZZ	SU27F	2.00	18560																														
CCV	MCCV6	1.00	19030		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB6	1.00	19100		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU45MB1	2.00	19170																														
ZZZZZZ	SU45MB2	2.00	19240																														
ZZZZZZ	SU45MB2SPK	2.00	19300																														
ZZZZZZ	SU45MB1SPK	2.00	19370																														
ZZZZZZ	SU45C	2.00	19430																														

FORM XIV

SU57 : 90165

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/9/2011

SDG: SU57 | RUNID: MS050981 | METHOD: PMS | END DATE: 5/10/2011

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	SU45E	2.00	19500																														
ZZZZZZ	SU45F	2.00	19560																														
ZZZZZZ	SU45G	2.00	20030																														
ZZZZZZ	SU47A	2.00	20090																														
ZZZZZZ	SU47B	2.00	20160																														
CCV	MCCV7	1.00	20220		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB7	1.00	20300		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU47MB1	2.00	20370																														
ZZZZZZ	SU47MB2	2.00	20430																														
ZZZZZZ	SU47MB2SPK	2.00	20500																														
ZZZZZZ	SU47MB1SPK	2.00	20560																														
ZZZZZZ	SU47C	2.00	21030																														
ZZZZZZ	SU47D	2.00	21100																														
DUP042711-2	SU57B	2.00	21160																														
MW-6S-042711	SU57C	2.00	21230				X																										
ZZZZZZ	SU15M	50.00	21290																														
ZZZZZZ	SU15N	50.00	21360																														
CCV	MCCV8	1.00	21420		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB8	1.00	21500		X		X			X		X		X	X								X	X	X	X				X			X
PBW	SU57MB1	2.00	21570		X		X			X		X		X	X								X	X	X	X				X			X
PBW	SU57MB2	2.00	22030		X		X			X		X		X	X								X	X	X	X				X			X
LCSW	SU57MB2SPK	2.00	22100		X		X			X		X		X	X								X	X	X	X				X			X
LCSW	SU57MB1SPK	2.00	22160		X		X			X		X		X	X								X	X	X	X				X			X
MW-14-042711D	SU57ADUP	2.00	22230																														
MW-14-042711	SU57A	2.00	22290																														
MW-14-042711S	SU57ASPK	2.00	22360																														
MS-14-042711D	SU57KDUP	2.00	22420																														
MS-14-042711	SU57K	2.00	22490																														
MS-14-042711S	SU57KSPK	2.00	22550																														
CCV	MCCV9	1.00	23020		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB9	1.00	23090		X		X			X		X		X	X								X	X	X	X				X			X
MW-27-042811	SU57F	2.00	23160		X		X					X		X	X								X	X	X	X				X			X
MW-26-042811	SU57G	2.00	23230		X							X		X	X								X	X	X	X				X			X
MW-16-042811	SU57H	2.00	23300				X																										
MW-5S-042811	SU57I	2.00	23360				X																										

FORM XIV

SU57 : 90169

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/9/2011

SDG: SU57 | RUNID: MS050981 | METHOD: PMS | END DATE: 5/10/2011

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
DUP042711-3	SU57J	2.00	23430		X							X		X	X								X	X	X	X				X			X
DUP042711-2	SU57L	2.00	23490																														
MW-6S-042711	SU57M	2.00	23560				X																										
MW-3S-042711	SU57N	2.00	00020		X							X		X	X								X	X	X	X				X			X
MW-3D-042711	SU57O	2.00	00090		X		X							X	X																		X
MW-27-042811	SU57P	2.00	00150		X		X					X		X	X								X	X	X	X				X			X
CCV	MCCV10	1.00	00220		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB10	1.00	00290		X		X			X		X		X	X								X	X	X	X				X			X
MW-26-042811	SU57Q	2.00	00360		X							X		X	X								X	X	X	X				X			X
MW-16-042811	SU57R	2.00	00430				X																										
MW-5S-042811	SU57S	2.00	00490				X																										
DUP042711-3	SU57T	2.00	00560		X							X		X	X								X	X	X	X				X			X
MW-11-042811	SU60A	2.00	01020				X																										
MW-12-042811	SU60B	2.00	01090				X																										
MW-19-042811	SU60C	2.00	01150				X																										
MW-11-042811	SU60D	2.00	01220				X																										
MW-12-042811	SU60E	2.00	01290				X																										
MW-19-042811	SU60F	2.00	01350				X																										
CCV	MCCV11	1.00	01420		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB11	1.00	01490		X		X			X		X		X	X								X	X	X	X				X			X
ZZZZZZ	SU58MB1	2.00	01560																														
ZZZZZZ	SU58MB2	2.00	02030																														
ZZZZZZ	SU58MB2SPK	2.00	02090																														
ZZZZZZ	SU58MB1SPK	2.00	02160																														
ZZZZZZ	SU58A	2.00	02220																														
ZZZZZZ	SU58B	2.00	02280																														
ZZZZZZ	SU58C	2.00	02350																														
ZZZZZZ	SU58D	2.00	02420																														
MW-3S-042711	SU57D	2.00	02480		X							X		X	X								X	X	X	X				X			X
MW-3D-042711	SU57E	2.00	02550		X		X							X	X																		X
CCV	MCCV12	1.00	03010		X		X			X		X		X	X								X	X	X	X				X			X
CCB	CCB12	1.00	03080		X		X			X		X		X	X								X	X	X	X				X			X

SU57 : 00167

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/10/2011

SDG: SU57 | RUNID: MS051081 | METHOD: PMS | END DATE: 5/10/2011

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	11310				X			X																							
S1	S1	1.00	11390				X			X																							
S2	S2	1.00	11470				X			X																							
S3	S3	1.00	11550				X			X																							
S4	S4	1.00	12020				X			X																							
ZZZZZZ	Rinse Samp1	1.00	12100																													
ICV	MICV	1.00	12170				X			X																							
ICB	ICB	1.00	12250				X			X																							
CCV	MCCV1	1.00	12320				X			X																							
CCB	CCB1	1.00	12390				X			X																							
CRI	MCRI	1.00	12460				X			X																							
ICSA	ICSAI	1.00	12530				X			X																							
ICSAB	ICSABI	1.00	13010				X			X																							
ZZZZZZ	LR200	1.00	13080																													
ZZZZZZ	LR300	1.00	13160																													
CCV	MCCV2	1.00	13230				X			X																							
CCB	CCB2	1.00	13310				X			X																							
ZZZZZZ	SU14MB1	2.00	13380																													
ZZZZZZ	SU14MB2	2.00	13440																													
ZZZZZZ	SU14MB2SPK	2.00	13510																													
ZZZZZZ	SU14MB1SPK	2.00	13580																													
ZZZZZZ	SU14A-L	10.00	14040																													
ZZZZZZ	SU14A	2.00	14110																													
ZZZZZZ	SU14ADUP	2.00	14170																													
ZZZZZZ	SU14ASPK	2.00	14240																													
ZZZZZZ	ZZZZZZ	2.00	14310																													
ZZZZZZ	SU14B	2.00	14370																													
CCV	MCCV3	1.00	14440				X			X																							
CCB	CCB3	1.00	14510				X			X																							
ZZZZZZ	SU14F-L	10.00	14580																													
ZZZZZZ	SU14F	2.00	15050																													
ZZZZZZ	SU14FDUP	2.00	15110																													
ZZZZZZ	SU14FSPK	2.00	15180																													
ZZZZZZ	ZZZZZZ	2.00	15240																													
ZZZZZZ	SU14C	2.00	15310																													

SU57 00158

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/10/2011

SDG: SU57 | RUNID: MS051081 | METHOD: PMS | END DATE: 5/10/2011

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	SU14D	2.00	15370																														
ZZZZZZ	SU14E	2.00	15440																														
ZZZZZZ	SU14G	2.00	15510																														
ZZZZZZ	SU14H	2.00	15570																														
CCV	MCCV4	1.00	16040				X			X																							
CCB	CCB4	1.00	16110				X			X																							
MW-14-042711D	SU57ADUP	50.00	16180				X																										
MW-14-042711	SU57A	50.00	16250				X																										
MW-14-042711S	SU57ASPK	50.00	16310				X																										
MS-14-042711D	SU57KDUP	50.00	16380				X																										
MS-14-042711	SU57K	50.00	16440				X																										
MS-14-042711S	SU57KSPK	50.00	16510				X																										
DUP042711-2	SU57B	50.00	16580				X																										
DUP042711-2	SU57L	50.00	17040				X																										
ZZZZZZ	SU14I	2.00	17110																														
ZZZZZZ	SU14J	2.00	17170																														
CCV	MCCV5	1.00	17240				X			X																							
CCB	CCB5	1.00	17310				X			X																							
MW-3S-042711	SU57D	2.00	17410							X																							
MW-3S-042711	SU57D	10.00	17480				X																										
MW-27-042811	SU57F	2.00	17540							X																							
MW-26-042811	SU57G	2.00	18010							X																							
MW-26-042811	SU57G	10.00	18080				X																										
DUP042711-3	SU57J	2.00	18140							X																							
MW-3S-042711	SU57N	2.00	18210							X																							
MW-3S-042711	SU57N	10.00	18270				X																										
MW-26-042811	SU57Q	2.00	18340							X																							
MW-26-042811	SU57Q	20.00	18400				X																										
CCV	MCCV6	1.00	18470				X			X																							
CCB	CCB6	1.00	18540				X			X																							
ZZZZZZ	SU58MB1	2.00	19010																														
ZZZZZZ	SU58MB2	2.00	19080																														
ZZZZZZ	SU58MB2SPK	2.00	19150																														
ZZZZZZ	SU58MB1SPK	2.00	19210																														
ZZZZZZ	SU58A	2.00	19280																														

SU57 : 00169

FORM XIV

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 5/10/2011

SDG: SU57 | RUNID: MS051081 | METHOD: PMS | END DATE: 5/10/2011

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	SU58B	2.00	19340																														
ZZZZZZ	SU58C	2.00	19410																														
ZZZZZZ	SU58D	2.00	19470																														
MW-27-042811	SU57P	2.00	19540							X																							
DUP042711-3	SU57T	2.00	20000							X																							
CCV	MCCV7	1.00	20070				X			X																							
CCB	CCB7	1.00	20140				X			X																							

SU57 : 05170

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: CETAC MERCURY | START DATE: 5/6/2011

SDG: SU57 | RUNID: HG050603 | METHOD: CVA | END DATE: 5/6/2011

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	13521														X																
S0.1	S0.1	1.00	13535														X																
S0.5	S0.5	1.00	13552														X																
S1	S1	1.00	13570														X																
S2	S2	1.00	13584														X																
S5	S5	1.00	14002														X																
S10	S10	1.00	14020														X																
ICV	AICV	1.00	14070														X																
ICB	ICB	1.00	14083														X																
CCV	ACCV1	1.00	14101														X																
CCB	CCB1	1.00	14115														X																
CRA	CRA	1.00	14133														X																
ZZZZZZ	SU27MB1	1.00	14150																														
ZZZZZZ	SU27MB1SPK	1.00	14164																														
ZZZZZZ	SU27A	1.00	14181																														
ZZZZZZ	SU27B	1.00	14195																														
ZZZZZZ	SU27C	1.00	14213																														
ZZZZZZ	SU45MB1	1.00	14230																														
ZZZZZZ	SU45MB1SPK	1.00	14244																														
ZZZZZZ	SU45A	1.00	14262																														
ZZZZZZ	SU45B	1.00	14280																														
CCV	ACCV2	1.00	14294														X																
CCB	CCB2	1.00	14312														X																
ZZZZZZ	SU45C	1.00	14325																														
ZZZZZZ	SU47MB1	1.00	14343																														
ZZZZZZ	SU47MB1SPK	1.00	14361																														
ZZZZZZ	SU47A	1.00	14374																														
ZZZZZZ	SU47B	1.00	14392																														
ZZZZZZ	SU47MB2	1.00	14405																														
ZZZZZZ	SU47MB2SPK	1.00	14423																														
ZZZZZZ	SU47C	1.00	14441																														
ZZZZZZ	SU47D	1.00	14454																														
CCV	ACCV3	1.00	14472														X																
CCB	CCB3	1.00	14490														X																
ZZZZZZ	SU58MB2	1.00	14525																														

SU57 : 05/17

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: CETAC MERCURY | START DATE: 5/6/2011

SDG: SU57 | RUNID: HG050603 | METHOD: CVA | END DATE: 5/6/2011

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	SU58MB2SPK	1.00	14542																														
ZZZZZZ	SU58C	1.00	14560																														
ZZZZZZ	SU58D	1.00	14573																														
ZZZZZZ	SU15MB1	1.00	14591																														
ZZZZZZ	SU15MB1SPK	1.00	15004																														
ZZZZZZ	SU15D	1.00	15022																														
ZZZZZZ	SU15G	1.00	15040																														
ZZZZZZ	SU15H	1.00	15053																														
ZZZZZZ	SU15HDUP	1.00	15071																														
CCV	ACCV4	1.00	15085														X																
CCB	CCB4	1.00	15103														X																
ZZZZZZ	SU15HSPK	1.00	15121																														
ZZZZZZ	SU15MB2	1.00	15135																														
ZZZZZZ	SU15MB2SPK	1.00	15152																														
ZZZZZZ	SU15L	1.00	15170																														
ZZZZZZ	SU15O	1.00	15183																														
ZZZZZZ	SU15P	1.00	15201																														
ZZZZZZ	SU15PDUP	1.00	15215																														
ZZZZZZ	SU15PSPK	1.00	15232																														
ZZZZZZ	ST89MB	1.00	15250																														
ZZZZZZ	ST89MBSPK	1.00	15264																														
CCV	ACCV5	1.00	15281														X																
CCB	CCB5	1.00	15295														X																
ZZZZZZ	ST89A	1.00	15313																														
ZZZZZZ	ST89B	1.00	15331																														
ZZZZZZ	SU10MB	1.00	15345																														
ZZZZZZ	SU10MBSPK	1.00	15363																														
ZZZZZZ	SU10A	1.00	15380																														
ZZZZZZ	SU10B	1.00	15394																														
ZZZZZZ	ST97MB2	1.00	15412																														
ZZZZZZ	ST97MB2SPK	1.00	15425																														
ZZZZZZ	ST97C	1.00	15443																														
ZZZZZZ	SU72MB	1.00	15461																														
CCV	ACCV6	1.00	15474														X																
CCB	CCB6	1.00	15492														X																

SUST:00172

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG 2011 Spring GW Sa | INSTRUMENT ID: CETAC MERCURY | START DATE: 5/6/2011

SDG: SU57 | RUNID: HG050603 | METHOD: CVA | END DATE: 5/6/2011

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	SU72A	1.00	15510																														
ZZZZZZ	SU72ADUP	1.00	15524																														
ZZZZZZ	SU72ASPK	1.00	15542																														
CCV	ACCV7	1.00	15560														X																
CCB	CCB7	1.00	15574														X																
PBW	SU57MB1	1.00	15593														X																
LCSW	SU57MB1SPK	1.00	16011														X																
MW-3S-042711	SU57D	1.00	16024														X																
MW-27-042811	SU57F	1.00	16042														X																
MW-26-042811	SU57G	1.00	16055														X																
DUP042711-3	SU57J	1.00	16073														X																
PBW	SU57MB2	1.00	16090														X																
LCSW	SU57MB2SPK	1.00	16104														X																
MW-3S-042711	SU57N	1.00	16122														X																
MW-27-042811	SU57P	1.00	16140														X																
CCV	ACCV8	1.00	16153														X																
CCB	CCB8	1.00	16171														X																
MW-26-042811	SU57Q	1.00	16185														X																
DUP042711-3	SU57T	1.00	16203														X																
ZZZZZZ	SU89MB1	1.00	16221																														
ZZZZZZ	SU89MB1SPK	1.00	16234																														
ZZZZZZ	SU89A	1.00	16252																														
ZZZZZZ	SU89B	1.00	16265																														
ZZZZZZ	SU89C	1.00	16283																														
ZZZZZZ	SU89D	1.00	16301																														
ZZZZZZ	SU89E	1.00	16314																														
ZZZZZZ	SU89F	1.00	16332																														
CCV	ACCV9	1.00	16350														X																
CCB	CCB9	1.00	16364														X																

SU57J 05173

Environmental Resources Management

1218 3rd Ave Ste 1412 Seattle WA 98101
~~915 118th Avenue S.E. Suite 100~~ ● ~~Bellevue, WA 98005~~ ● (425) 462-8591 ● FAX (425) 455-3573

CHAIN OF CUSTODY RECORD

NO: 4047

Page 1 of 1

| | | |

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: FRM
Project Name: RG Spring GW Sampling
COC No(s): 4047 NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: 5413
Tracking No: 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): 4.7 1.9
If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 909

Cooler Accepted by: [signature] Date: 4/26/2011 Time: 15:00

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) JM	(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:

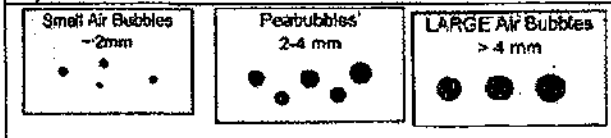
Samples Logged by: JM Date: 4/27/11 Time: 1421

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
MW17-042511	MW-17-042511		
MW-7S-042611	MW-07S-042611		

Additional Notes, Discrepancies, & Resolutions:

By: Date:



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

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4097

915-118th Avenue S.E. Suite 130 ● Bellevue, WA 98005 ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 1

128726.05	RG Spring Fall GW Sampling
Cyrus Gorman	
AECOM 4611 S 134th Pl Tukwila WA 98168	206-695-6200

			# OF CONTAINERS	SOIL	WATER	GAS	Phenols / Chlorinated Phenols 8270c	Total As	Dissolved As	Total Cr, Cu, Ag, Zn, Sb, Be, Cd, Pb, Ni, Se	Dissolved Cr, Cu, Ag, Zn, Sb, Be, Cd, Pb, Ni, Se	MS/MSD Phenols / Chlorinated Phenols 8270c	MS/MSD total / diss Cr, Cu, Ag, Zn, Sb, Be	
MW-04S-042611	4/26/11	1540	4		X		X	X	X					
MW-22-042611	4/26/11	1649	4 (5)		X		X	X	X			X		
MW-33-042711	4/27/11	0755	4		X		X	X	X					
MW-24-042711	4/27/11	0846	4		X		X	X	X	X	X			
MW-21-042711	4/27/11	0936	4		X		X	X	X					
DUP042711	4/27/11	0800	4		X		X	X	X					
MW-20-042711	4/27/11	1030	4		X		X	X	X	X	X			
MW-18-042711	4/27/11	1112	8		X		X	X	X	X	X		X	

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME

- dissolved metals samples filtered in the field

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

REMARKS: Standard TAT

SEND REPORT TO: Cyrus.gorman@aecom.com
Mike.Mendes@aecom.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM
Project Name: EG Spring 2011 GW Sampling
COC No(s): 4097 NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: SU15
Tracking No: 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): 2.1 3.1 0.9
If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90947619
Cooler Accepted by: Date: 4/27/11 Time: 1206

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 : NA YES Date/Time: Equipment: Split by:

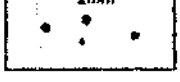
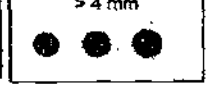
Samples Logged by: JM Date: 4/27/11 Time: 1504

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
DUP-042711-2	DUP-042711-1		
MW-49-042611	MW-045-042611		
DUP-042711-1	DUP042711-1		

Additional Notes, Discrepancies, & Resolutions:
Cyrus Gorman called and changed bottle #'s from 6 to 12 for sample MW-22-042611.

By: JM Date: 4/27/11

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

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

PRESERVATION VERIFICATION 04/27/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU13**

PC: Sue D.
VTSR: 04/26/11

Inquiry Number: NONE
Analysis Requested: 04/26/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

Project #: 128296.05
Project: RG Spring 2011 GW Sampling
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9443 **SU13A**	MW-17-042511						TOT															
11-9444 **SU13B**	MW-07S-042611						TOT															
11-9445 **SU13C**	MW-10-042611						TOT															
11-9446 **SU13D**	MW-13-042611						TOT															
11-9447 **SU13E**	MW-2D-042611						TOT															
11-9448 **SU13F**	MW-2S-042611						TOT															
11-9449 **SU13G**	MW-17-042511						DIS									Y						
11-9450 **SU13H**	MW-07S-042611						DIS									Y						
11-9451 **SU13I**	MW-10-042611						DIS									Y						
11-9452 **SU13J**	MW-13-042611						DIS									Y						
11-9453 **SU13K**	MW-2D-042611						DIS									Y						
11-9454 **SU13L**	MW-2S-042611						DIS									Y						

Checked By JM Date 4/27/11

PRESERVATION VERIFICATION 04/27/11
Page 1 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU15**

Inquiry Number: NONE
Analysis Requested: 04/27/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

4/16

PC: Sue D.
VTSR: 04/27/11

Project #: 128296.05
Project: RG Spring 2011 GW Sampling
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9476 **SU15A**	MW-04S-042611						TOT pass															
11-9477 **SU15B**	MW-22-042611						TOT fail	x3											<2	1110070	2.5mL	4/27/11 MH
11-9478 **SU15C**	MW-23-042711						TOT pass															
11-9479 **SU15D**	MW-24-042711						TOT															
11-9480 **SU15E**	MW-21-042711						TOT															
11-9481 **SU15F**	DUP042711-1						TOT															
11-9482 **SU15G**	MW-20-042711						TOT															
11-9483 **SU15H**	MW-18-042711						TOT															
11-9484 **SU15I**	MW-04S-042611						DIS															
11-9485 **SU15J**	MW-22-042611						DIS fail	x3											<2	1110076	2.5mL	4/27/11 MH
11-9486 **SU15K**	MW-23-042711						DIS pass															
11-9487 **SU15L**	MW-24-042711						DIS															
11-9488 **SU15M**	MW-21-042711						DIS															
11-9489 **SU15N**	DUP042711-1						DIS															

Checked By JM Date 4/27/11

PRESERVATION VERIFICATION 04/27/11
Page 2 of 2

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **SU15**

Client: ERM-West

Project #: 128296.05
Project: RG Spring 2011 GW Sampling

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9490 **SU15O**	MW-20-042711						DIS															
11-9491 **SU15P**	MW-18-042711						DIS															

Checked By JM Date 4/27/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SU13
Client: ERM-West
Project Event: 128296.05
Project Name: RG Spring 2011 GW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-17-042511	SU13A	11-9443	Water	04/25/11 15:46	04/26/11 15:00
2.	MW-07S-042611	SU13B	11-9444	Water	04/26/11 09:26	04/26/11 15:00
3.	MW-10-042611	SU13C	11-9445	Water	04/26/11 10:59	04/26/11 15:00
4.	MW-13-042611	SU13D	11-9446	Water	04/26/11 13:08	04/26/11 15:00
5.	MW-2D-042611	SU13E	11-9447	Water	04/26/11 13:59	04/26/11 15:00
6.	MW-2S-042611	SU13F	11-9448	Water	04/26/11 14:50	04/26/11 15:00
7.	MW-17-042511	SU13G	11-9449	Water	04/25/11 15:46	04/26/11 15:00
8.	MW-07S-042611	SU13H	11-9450	Water	04/26/11 09:26	04/26/11 15:00
9.	MW-10-042611	SU13I	11-9451	Water	04/26/11 10:59	04/26/11 15:00
10.	MW-13-042611	SU13J	11-9452	Water	04/26/11 13:08	04/26/11 15:00
11.	MW-2D-042611	SU13K	11-9453	Water	04/26/11 13:59	04/26/11 15:00
12.	MW-2S-042611	SU13L	11-9454	Water	04/26/11 14:50	04/26/11 15:00

Printed 04/27/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: SU15
Client: ERM-West
Project Event: 128296.05
Project Name: RG Spring 2011 GW Sampling

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-04S-042611	SU15A	11-9476	Water	04/26/11 15:40	04/27/11 12:06
2.	MW-22-042611	SU15B	11-9477	Water	04/26/11 16:49	04/27/11 12:06
3.	MW-23-042711	SU15C	11-9478	Water	04/27/11 07:55	04/27/11 12:06
4.	MW-24-042711	SU15D	11-9479	Water	04/27/11 08:46	04/27/11 12:06
5.	MW-21-042711	SU15E	11-9480	Water	04/27/11 09:36	04/27/11 12:06
6.	DUP042711-1	SU15F	11-9481	Water	04/27/11 08:00	04/27/11 12:06
7.	MW-20-042711	SU15G	11-9482	Water	04/27/11 10:30	04/27/11 12:06
8.	MW-18-042711	SU15H	11-9483	Water	04/27/11 11:12	04/27/11 12:06
9.	MW-04S-042611	SU15I	11-9484	Water	04/26/11 15:40	04/27/11 12:06
10.	MW-22-042611	SU15J	11-9485	Water	04/26/11 16:49	04/27/11 12:06
11.	MW-23-042711	SU15K	11-9486	Water	04/27/11 07:55	04/27/11 12:06
12.	MW-24-042711	SU15L	11-9487	Water	04/27/11 08:46	04/27/11 12:06
13.	MW-21-042711	SU15M	11-9488	Water	04/27/11 09:36	04/27/11 12:06
14.	DUP042711-1	SU15N	11-9489	Water	04/27/11 08:00	04/27/11 12:06
15.	MW-20-042711	SU15O	11-9490	Water	04/27/11 10:30	04/27/11 12:06
16.	MW-18-042711	SU15P	11-9491	Water	04/27/11 11:12	04/27/11 12:06

Printed 04/27/11

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 ≥ 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 ≥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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-042811
METHOD BLANK

Lab Sample ID: MB-042811
LIMS ID: 11-9443
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling 128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 00:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	82.4%
2-Fluorophenol	77.9%
2,4,6-Tribromophenol	79.7%
d4-2-Chlorophenol	82.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-17-042511
SAMPLE

Lab Sample ID: SU13A
LIMS ID: 11-9443
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/25/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 05:42
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	50.7%
2-Fluorophenol	47.5%
2,4,6-Tribromophenol	88.0%
d4-2-Chlorophenol	49.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-07S-042611
SAMPLE

Lab Sample ID: SU13B
LIMS ID: 11-9444
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 13:14
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**60**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**2.7**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	50.7%
2-Fluorophenol	42.9%
2,4,6-Tribromophenol	78.7%
d4-2-Chlorophenol	47.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-10-042611
SAMPLE

Lab Sample ID: SU13C
LIMS ID: 11-9445
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 13:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	66.4%
2-Fluorophenol	61.6%
2,4,6-Tribromophenol	87.7%
d4-2-Chlorophenol	66.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-13-042611
SAMPLE

Lab Sample ID: SU13D
LIMS ID: 11-9446
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/09/11 11:13
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
108-95-2	Phenol	10	< 10 U
95-57-8	2-Chlorophenol	10	< 10 U
120-83-2	2,4-Dichlorophenol	50	< 50 U
88-06-2	2,4,6-Trichlorophenol	50	< 50 U
95-95-4	2,4,5-Trichlorophenol	50	< 50 U
87-86-5	**Pentachlorophenol**	**50**	**930 E**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**10**	**32**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	66.4%
2-Fluorophenol	45.6%
2,4,6-Tribromophenol	101%
d4-2-Chlorophenol	54.7%

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-13-042611
DILUTION

Lab Sample ID: SU13D
LIMS ID: 11-9446
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/09/11 13:25
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 20.0

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
95-57-8	2-Chlorophenol	20	< 20 U
120-83-2	2,4-Dichlorophenol	100	< 100 U
88-06-2	2,4,6-Trichlorophenol	100	< 100 U
95-95-4	2,4,5-Trichlorophenol	100	< 100 U
87-86-5	**Pentachlorophenol**	**100**	**1,100**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**20**	**26**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	65.1%
2-Fluorophenol	41.6%
2,4,6-Tribromophenol	90.1%
d4-2-Chlorophenol	52.3%

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-2D-042611
SAMPLE

Lab Sample ID: SU13E
LIMS ID: 11-9447
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 14:53
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	60.0%
2-Fluorophenol	56.0%
2,4,6-Tribromophenol	105%
d4-2-Chlorophenol	60.0%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-2S-042611
SAMPLE

Lab Sample ID: SU13F
LIMS ID: 11-9448
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 15:26
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	53.9%
2-Fluorophenol	52.5%
2,4,6-Tribromophenol	86.4%
d4-2-Chlorophenol	55.2%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-042811	82.4%	77.9%	79.7%	82.9%	0
LCS-042811	68.0%	64.3%	105%	67.5%	0
LCSD-042811	74.1%	71.5%	107%	74.7%	0
MW-17-042511	50.7%	47.5%	88.0%	49.6%	0
MW-07S-042611	50.7%	42.9%	78.7%	47.5%	0
MW-10-042611	66.4%	61.6%	87.7%	66.1%	0
MW-13-042611	66.4%	45.6%	101%	54.7%	0
MW-13-042611 DL	65.1%	41.6%	90.1%	52.3%	0
MW-2D-042611	60.0%	56.0%	105%	60.0%	0
MW-2S-042611	53.9%	52.5%	86.4%	55.2%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-9443 to 11-9448

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: LCS-042811
LCS/LCSD

Lab Sample ID: LCS-042811
LIMS ID: 11-9443
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/25/11
Date Received: 04/26/11

Date Extracted LCS/LCSD: 04/28/11

Date Analyzed LCS: 05/06/11 01:20
LCSD: 05/06/11 01:53
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

GPC Cleanup: NO

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	16.6	25.0	66.4%	18.9	25.0	75.6%	13.0%
2-Chlorophenol	17.5	25.0	70.0%	20.0	25.0	80.0%	13.3%
2,4-Dichlorophenol	17.2	25.0	68.8%	20.3	25.0	81.2%	16.5%
2,4,6-Trichlorophenol	17.8	25.0	71.2%	21.4	25.0	85.6%	18.4%
2,4,5-Trichlorophenol	18.1	25.0	72.4%	21.9	25.0	87.6%	19.0%
Pentachlorophenol	20.8	25.0	83.2%	23.1	25.0	92.4%	10.5%
2,3,4,6-Tetrachlorophenol	18.5	25.0	74.0%	19.6	25.0	78.4%	5.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	68.0%	74.1%
2-Fluorophenol	64.3%	71.5%
2,4,6-Tribromophenol	105%	107%
d4-2-Chlorophenol	67.5%	74.7%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
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Sample ID: MB-050211
METHOD BLANK

Lab Sample ID: MB-050211
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 21:04
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	63.5%
2-Fluorophenol	58.4%
2,4,6-Tribromophenol	61.9%
d4-2-Chlorophenol	64.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-04S-042611
SAMPLE

Lab Sample ID: SU15A
LIMS ID: 11-9476
Matrix: Water
Data Release Authorized: MW
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 22:09
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**88 E**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**1.7**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	47.5%
2-Fluorophenol	42.4%
2,4,6-Tribromophenol	69.9%
d4-2-Chlorophenol	47.2%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-04S-042611
DILUTION

Lab Sample ID: SU15A
LIMS ID: 11-9476
Matrix: Water
Data Release Authorized: MW
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/16/11 17:02
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 3.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	3.0	< 3.0 U
95-57-8	2-Chlorophenol	3.0	< 3.0 U
120-83-2	2,4-Dichlorophenol	15	< 15 U
88-06-2	2,4,6-Trichlorophenol	15	< 15 U
95-95-4	2,4,5-Trichlorophenol	15	< 15 U
87-86-5	**Pentachlorophenol**	**15**	**120**
58-90-2	2,3,4,6-Tetrachlorophenol	3.0	< 3.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	59.3%
2-Fluorophenol	51.0%
2,4,6-Tribromophenol	76.6%
d4-2-Chlorophenol	57.3%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-22-042611
SAMPLE

Lab Sample ID: SU15B
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 22:42
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	57.9%
2-Fluorophenol	53.9%
2,4,6-Tribromophenol	71.2%
d4-2-Chlorophenol	58.9%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-23-042711
SAMPLE

Lab Sample ID: SU15C
LIMS ID: 11-9478
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/13/11 00:20
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	56.3%
2-Fluorophenol	53.6%
2,4,6-Tribromophenol	76.8%
d4-2-Chlorophenol	56.0%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: MW-24-042711
SAMPLE

Lab Sample ID: SU15D
LIMS ID: 11-9479
Matrix: Water
Data Release Authorized: MW
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/13/11 00:53
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	53.9%
2-Fluorophenol	52.3%
2,4,6-Tribromophenol	68.8%
d4-2-Chlorophenol	54.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-21-042711
SAMPLE

Lab Sample ID: SU15E
LIMS ID: 11-9480
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/13/11 01:26
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	45.9%
2-Fluorophenol	45.1%
2,4,6-Tribromophenol	58.9%
d4-2-Chlorophenol	47.5%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by SW8270D GC/MS
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Sample ID: DUP042711-1
SAMPLE

Lab Sample ID: SU15F
LIMS ID: 11-9481
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/13/11 01:58
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	49.3%
2-Fluorophenol	50.1%
2,4,6-Tribromophenol	62.7%
d4-2-Chlorophenol	51.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
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Sample ID: MW-20-042711
SAMPLE

Lab Sample ID: SU15G
LIMS ID: 11-9482
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/16/11 16:29
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery	
d5-Phenol	29.1%
2-Fluorophenol	61.6%
2,4,6-Tribromophenol	77.6%
d4-2-Chlorophenol	64.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-18-042711
SAMPLE

Lab Sample ID: SU15H
LIMS ID: 11-9483
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/13/11 03:04
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	50.9%
2-Fluorophenol	49.6%
2,4,6-Tribromophenol	64.0%
d4-2-Chlorophenol	52.3%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MW-04S-042611	47.5%	42.4%	69.9%	47.2%	0
MW-04S-042611 DL	59.3%	51.0%	76.6%	57.3%	0
MB-050211	63.5%	58.4%	61.9%	64.5%	0
LCS-050211	67.2%	58.9%	81.6%	65.3%	0
MW-22-042611	57.9%	53.9%	71.2%	58.9%	0
MW-22-042611 MS	64.0%	60.0%	80.8%	63.7%	0
MW-22-042611 MSD	50.7%	46.9%	69.3%	50.7%	0
MW-23-042711	56.3%	53.6%	76.8%	56.0%	0
MW-24-042711	53.9%	52.3%	68.8%	54.7%	0
MW-21-042711	45.9%	45.1%	58.9%	47.5%	0
DUP042711-1	49.3%	50.1%	62.7%	51.2%	0
MW-20-042711	29.1%*	61.6%	77.6%	64.5%	1
MW-18-042711	50.9%	49.6%	64.0%	52.3%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-9476 to 11-9483

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ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-22-042611
MS/MSD

Lab Sample ID: SU15B
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized: MW
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted MS/MSD: 05/02/11

Date Analyzed MS: 05/12/11 23:15
MSD: 05/12/11 23:47
Instrument/Analyst MS: NT6/JZ
MSD: NT6/JZ
GPC Cleanup: NO

Sample Amount MS: 500 mL
MSD: 500 mL
Final Extract Volume MS: 0.5 mL
MSD: 0.5 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 1.0 U	17.7	25.0	70.8%	14.5	25.0	58.0%	19.9%
2-Chlorophenol	< 1.0 U	19.1	25.0	76.4%	15.7	25.0	62.8%	19.5%
2,4-Dichlorophenol	< 5.0 U	19.5	75.0	26.0%	17.2	75.0	22.9%	12.5%
2,4,6-Trichlorophenol	< 5.0 U	21.0	75.0	28.0%	18.8	75.0	25.1%	11.1%
2,4,5-Trichlorophenol	< 5.0 U	20.2	75.0	26.9%	18.8	75.0	25.1%	7.2%
Pentachlorophenol	< 5.0 U	23.4	75.0	31.2%	21.7	75.0	28.9%	7.5%
2,3,4,6-Tetrachlorophenol	< 1.0 U	18.8	25.0	75.2%	17.6	25.0	70.4%	6.6%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

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ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
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Sample ID: MW-22-042611
MATRIX SPIKE

Lab Sample ID: SU15B
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 23:15
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	64.0%
2-Fluorophenol	60.0%
2,4,6-Tribromophenol	80.8%
d4-2-Chlorophenol	63.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-22-042611
MATRIX SPIKE DUP

Lab Sample ID: SU15B
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized:
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 23:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	50.7%
2-Fluorophenol	46.9%
2,4,6-Tribromophenol	69.3%
d4-2-Chlorophenol	50.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-050211
LAB CONTROL

Lab Sample ID: LCS-050211
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized: MW
Reported: 05/17/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Date Extracted: 05/02/11
Date Analyzed: 05/12/11 21:37
Instrument/Analyst: NT6/JZ
GPC Cleanup: NO

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Phenol	19.0	25.0	76.0%
2-Chlorophenol	19.6	25.0	78.4%
2,4-Dichlorophenol	20.3	75.0	27.1%
2,4,6-Trichlorophenol	19.0	75.0	25.3%
2,4,5-Trichlorophenol	18.7	75.0	24.9%
Pentachlorophenol	21.3	75.0	28.4%
2,3,4,6-Tetrachlorophenol	18.5	25.0	74.0%

Semivolatile Surrogate Recovery	
d5-Phenol	67.2%
2-Fluorophenol	58.9%
2,4,6-Tribromophenol	81.6%
d4-2-Chlorophenol	65.3%

Results reported in µg/L

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-17-042511
SAMPLE

Lab Sample ID: SU13A
LIMS ID: 11-9443
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/25/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**96.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-07S-042611
SAMPLE

Lab Sample ID: SU13B
LIMS ID: 11-9444
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**25.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-10-042611
SAMPLE

Lab Sample ID: SU13C
LIMS ID: 11-9445
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**14.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-13-042611
SAMPLE

Lab Sample ID: SU13D
LIMS ID: 11-9446
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	1	580	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-2D-042611
SAMPLE

Lab Sample ID: SU13E
LIMS ID: 11-9447
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**36.1**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-2S-042611
SAMPLE

Lab Sample ID: SU13F
LIMS ID: 11-9448
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	2	**1,050**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-17-042511
SAMPLE

Lab Sample ID: SU13G
LIMS ID: 11-9449
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/25/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-38-2	**Arsenic**	0.2	**109**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-07S-042611
SAMPLE

Lab Sample ID: SU13H
LIMS ID: 11-9450
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**25.2**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-10-042611
SAMPLE

Lab Sample ID: SU13I
LIMS ID: 11-9451
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**14.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-13-042611
SAMPLE

Lab Sample ID: SU13J
LIMS ID: 11-9452
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	1	**580**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-2D-042611
SAMPLE

Lab Sample ID: SU13K
LIMS ID: 11-9453
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	0.2	**35.5**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-2S-042611
SAMPLE

Lab Sample ID: SU13L
LIMS ID: 11-9454
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/26/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	1	**970**	

U-Analyte undetected at given RL
RL-Reporting Limit

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TOTAL METALS
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Sample ID: MW-04S-042611
SAMPLE

Lab Sample ID: SU15A
LIMS ID: 11-9476
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**56.5**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: MW-22-042611
SAMPLE

Lab Sample ID: SU15B
LIMS ID: 11-9477
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**164**	

U-Analyte undetected at given RL
RL-Reporting Limit

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TOTAL METALS
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Sample ID: MW-23-042711
SAMPLE

Lab Sample ID: SU15C
LIMS ID: 11-9478
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**4.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: MW-24-042711
SAMPLE

Lab Sample ID: SU15D
LIMS ID: 11-9479
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**0.7**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**0.6**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-02-0**	**Nickel**	0.5	**0.8**	
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-21-042711
SAMPLE

Lab Sample ID: SU15E
LIMS ID: 11-9480
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	5	**3,310**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: DUP042711-1
SAMPLE

Lab Sample ID: SU15F
LIMS ID: 11-9481
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	5	**3,320**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-20-042711
SAMPLE

Lab Sample ID: SU15G
LIMS ID: 11-9482
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	2	**1,080**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**1.3**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-02-0**	**Nickel**	0.5	**0.9**	
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-18-042711
SAMPLE

Lab Sample ID: SU15H
LIMS ID: 11-9483
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**11.4**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-47-3**	**Chromium**	0.5	**0.9**	
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**1.7**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-02-0**	**Nickel**	0.5	**1.2**	
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-18-042711
DUPLICATE

Lab Sample ID: SU15H
LIMS ID: 11-9483
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Arsenic	200.8	11.4	11.1	2.7%	+/- 20%	
Beryllium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Cadmium	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Chromium	200.8	0.9	0.9	0.0%	+/- 0.5	L
Copper	200.8	1.7	1.6	6.1%	+/- 0.5	L
Lead	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Mercury	7470A	0.1 U	0.1 U	0.0%	+/- 0.1	L
Nickel	200.8	1.2	1.3	8.0%	+/- 0.5	L
Selenium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Thallium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	4 U	4 U	0.0%	+/- 4	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: MW-18-042711
MATRIX SPIKE

Lab Sample ID: SU15H
LIMS ID: 11-9483
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	200.8	0.200 U	24.9	25.0	99.6%	
Arsenic	200.8	11.4	37.6	25.0	105%	
Beryllium	200.8	0.200 U	24.0	25.0	96.0%	
Cadmium	200.8	0.100 U	25.6	25.0	102%	
Chromium	200.8	0.880	24.8	25.0	95.7%	
Copper	200.8	1.72	29.1	25.0	110%	
Lead	200.8	0.100 U	25.7	25.0	103%	
Mercury	7470A	0.100 U	1.19	1.00	119%	
Nickel	200.8	1.25	28.7	25.0	110%	
Selenium	200.8	0.500 U	82.6	80.0	103%	
Silver	200.8	0.200 U	24.7	25.0	98.8%	
Thallium	200.8	0.200 U	25.2	25.0	101%	
Zinc	200.8	4.00 U	84.1	80.0	105%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: SU15MB
LIMS ID: 11-9479
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-50-8	Copper	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-02-0	Nickel	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: SU15LCS
LIMS ID: 11-9479
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	200.8	23.7	25.0	94.8%	
Arsenic	200.8	24.4	25.0	97.6%	
Beryllium	200.8	22.8	25.0	91.2%	
Cadmium	200.8	24.8	25.0	99.2%	
Chromium	200.8	24.7	25.0	98.8%	
Copper	200.8	27.5	25.0	110%	
Lead	200.8	24.0	25.0	96.0%	
Mercury	7470A	2.1	2.0	105%	
Nickel	200.8	26.8	25.0	107%	
Selenium	200.8	80.1	80.0	100%	
Silver	200.8	25.2	25.0	101%	
Thallium	200.8	23.2	25.0	92.8%	
Zinc	200.8	81	80	101%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-04S-042611
SAMPLE

Lab Sample ID: SU15I
LIMS ID: 11-9484
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**48.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-22-042611
SAMPLE

Lab Sample ID: SU15J
LIMS ID: 11-9485
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/26/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**127**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-23-042711
SAMPLE

Lab Sample ID: SU15K
LIMS ID: 11-9486
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**4.8**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-24-042711
SAMPLE

Lab Sample ID: SU15L
LIMS ID: 11-9487
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**0.7**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**0.6**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-02-0	Nickel	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-21-042711
SAMPLE

Lab Sample ID: SU15M
LIMS ID: 11-9488
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	5	**3,540**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: DUP042711-1
SAMPLE

Lab Sample ID: SU15N
LIMS ID: 11-9489
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	5	**3,250**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-20-042711
SAMPLE

Lab Sample ID: SU15O
LIMS ID: 11-9490
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/09/11	**7440-38-2**	**Arsenic**	2	**1,080**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/09/11	7440-47-3	Chromium	1	1	U
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**0.8**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-02-0**	**Nickel**	0.5	**1.4**	
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-18-042711
SAMPLE

Lab Sample ID: SU15P
LIMS ID: 11-9491
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.2	**13.1**	
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-47-3**	**Chromium**	0.5	**0.8**	
200.8	04/29/11	200.8	05/06/11	**7440-50-8**	**Copper**	0.5	**1.0**	
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	**7440-02-0**	**Nickel**	0.5	**2.7**	
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-18-042711
DUPLICATE

Lab Sample ID: SU15P
LIMS ID: 11-9491
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Arsenic	200.8	13.1	12.9	1.5%	+/- 20%	
Beryllium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Cadmium	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Chromium	200.8	0.8	0.8	0.0%	+/- 0.5	L
Copper	200.8	1.0	1.0	0.0%	+/- 0.5	L
Lead	200.8	0.1 U	0.1 U	0.0%	+/- 0.1	L
Mercury	7470A	0.1 U	0.1 U	0.0%	+/- 0.1	L
Nickel	200.8	2.7	1.7	45.5%	+/- 0.5	L*
Selenium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Thallium	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	4 U	4 U	0.0%	+/- 4	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-18-042711
MATRIX SPIKE

Lab Sample ID: SU15P
LIMS ID: 11-9491
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: 04/27/11
Date Received: 04/27/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	200.8	0.200 U	24.7	25.0	98.8%	
Arsenic	200.8	13.1	38.0	25.0	99.6%	
Beryllium	200.8	0.200 U	23.2	25.0	92.8%	
Cadmium	200.8	0.100 U	24.8	25.0	99.2%	
Chromium	200.8	0.820	24.4	25.0	94.3%	
Copper	200.8	1.04	27.2	25.0	105%	
Lead	200.8	0.100 U	25.2	25.0	101%	
Mercury	7470A	0.100 U	1.02	1.00	102%	
Nickel	200.8	2.70	27.8	25.0	100%	
Selenium	200.8	0.500 U	79.5	80.0	99.4%	
Silver	200.8	0.200 U	24.5	25.0	98.0%	
Thallium	200.8	0.200 U	24.7	25.0	98.8%	
Zinc	200.8	4.00 U	81.4	80.0	102%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: SU15MB
LIMS ID: 11-9487
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/29/11	200.8	05/06/11	7440-36-0	Antimony	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-41-7	Beryllium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-43-9	Cadmium	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-50-8	Copper	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7439-92-1	Lead	0.1	0.1	U
7470A	04/29/11	7470A	05/06/11	7439-97-6	Mercury	0.1	0.1	U
200.8	04/29/11	200.8	05/06/11	7440-02-0	Nickel	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7782-49-2	Selenium	0.5	0.5	U
200.8	04/29/11	200.8	05/06/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-28-0	Thallium	0.2	0.2	U
200.8	04/29/11	200.8	05/06/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: SU15LCS
LIMS ID: 11-9487
Matrix: Water
Data Release Authorized:
Reported: 05/10/11

QC Report No: SU15-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	200.8	24.9	25.0	99.6%	
Arsenic	200.8	25.6	25.0	102%	
Beryllium	200.8	23.9	25.0	95.6%	
Cadmium	200.8	26.2	25.0	105%	
Chromium	200.8	26.3	25.0	105%	
Copper	200.8	28.9	25.0	116%	
Lead	200.8	25.4	25.0	102%	
Mercury	7470A	2.0	2.0	100%	
Nickel	200.8	28.5	25.0	114%	
Selenium	200.8	84.2	80.0	105%	
Silver	200.8	26.6	25.0	106%	
Thallium	200.8	24.5	25.0	98.0%	
Zinc	200.8	86	80	108%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

METHOD BLANK RESULTS-CONVENTIONALS
SU13-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Sampling
Event: 128296.05
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	Blank
Total Suspended Solids	04/28/11 14:15	mg/L	< 1.0 U

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Total Suspended Solids by Method EPA 160.2

Data Release Authorized:
Reported: 04/29/11
Date Received: 04/26/11
Page 1 of 1

QC Report No: SU13-ERM-West
Project: RG Spring 2011 GW Sampling
128296.05

Client/ ARI ID	Date Sampled	Matrix	Analysis Date & Batch	RL	Result
MW-07S-042611 SU13B 11-9444	04/26/11	Water	04/28/11 14:15 042811#1	1.0	< 1.0 U
MW-10-042611 SU13C 11-9445	04/26/11	Water	04/28/11 14:15 042811#1	1.0	< 1.0 U
MW-13-042611 SU13D 11-9446	04/26/11	Water	04/28/11 14:15 042811#1	1.0	< 1.0 U

Reported in mg/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

LAB CONTROL RESULTS-CONVENTIONALS
SU13-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Sampling
Event: 128296.05
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	LCS	Spike Added	Recovery
Total Suspended Solids	04/28/11 14:15	mg/L	48.4	50.0	96.8%

ST65

Environmental Resources Management

CHAIN OF CUSTODY RECORD

NO: 4057

1218 3rd Ave Ste 1412 Seattle WA 98101
~~915-118th Avenue S.E. Suite 130~~ ● Bellevue, WA ~~98005~~ ● (425) 462-8591 ● FAX (425) 455-3573

Page 1 of 1

PROJECT #	PROJECT NAME
128296.05	RG Sprix 2011 GW Samp

SAMPLER (PRINT NAME)	SAMPLER (SIGNATURE)
	Cyrus Gorman

RECEIVING LABORATORY: ARI, 4611 S. 134th Pl, Tukwila, WA 98168 — 206-695-6200

SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	SAMPLING VOLUME	Phenol / Chlorinated Phenol 8270C	Total As *	Dissolved As *	TPH-Gx	TPH-Dx	Total Cr, Cu, As, Zn	Dissolved Cr, Cu, Ag, Zn	Total Mercury (Hg)	Dissolved Hexavalent Cr	MS/MSD (Hex Cr & Hg)	TPH-Gx/TPH-Dx
MW-1D-042511	4/25/11	1234				4		X		1	X	X	X								
MW-1S-042511	4/25/11	1340				18		X			X	X	X	X	X	X	X	X	X	X	X
MW-1S-042511-F	4/25/11	1342				2								X							
TB042511	4/25/11	1345				2								X							

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
	4/25/11	1500	Natalie Bentley	4/26/11	15:00
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS: - Dissolved metals samples filtered in the field

* Needs to be preserved w/ HNO3 (MW-1D-042511)

REMARKS ON SAMPLE RECEIPT: ☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED ☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS: Standard TAT

SEND REPORT TO:
mike.mendes@erm.com
cyrus.gorman@erm.com

WHITE - LABORATORY COPY CANARY - FIELD COPY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: EBM Project Name: RG & Spring 2011 GW SAMP

COC No(s): 4057 NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: STL5 Tracking No: 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)	2.0 3.4	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90991619

Cooler Accepted by: Natalie Bailey Date: 4/25/2011 Time: 15:00

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	4/19/11	

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

Samples Logged by: CM Date: 4/26/11 Time: 1340

***** 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:

Sample missing on COC. Email instruction resent

By: Date: 4/26/11

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

PRESERVATION VERIFICATION 04/26/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **ST65**

PC: Sue D.
VTSR: 04/25/11

Inquiry Number: NONE
Analysis Requested: 04/25/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: MM
Sample Set Used: Yes-481
Validatable Package:
Deliverables:

Project #: 128296.05
Project: RG Spring 2011 GW Samp
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-9318 **ST65A**	MW-1D-042511						TOT															
11-9319 **ST65B**	MW-1S-042511						TOT															
11-9320 **ST65C**	DUP042511-1						TOT															
11-9322 **ST65E**	MW-1D-042511						DIS									Y			<2	1110070	2.5mL	4/26/11 MM
11-9323 **ST65F**	MW-1S-042511						DIS									Y						
11-9324 **ST65G**	DUP042511-1						DIS									Y						

Checked By MM Date 4/26/11

Subject: Samples from yesterday
From: Cyrus Gorman <Cyrus.Gorman@erm.com>
Date: Tue, 26 Apr 2011 12:03:30 +0000
To: Sue Dunnihoo <sue@arilabs.com>
CC: Mike Mendes <Mike.Mendes@erm.com>

Hi Sue,

I forgot to include sample "DUP042511-1" on the COC. It was collected at 0800 yesterday (4/25/11). Please run the sample for phenols/chlorinated phenols, total/dissolved As, Hex Chrome and TPH-Gx/Dx. I'm going to write this sample in on the COC below the temperature blank and note that it was added on the COC today. If you have any questions please give me a call on my cell phone. Thanks!

Cyrus Gorman, P.G.

ERM
Seattle Tower
1218 3rd Avenue, Suite 1412
Seattle, Washington 98101
T: 425-214-0468
F: 425-455-3573
M: 425-830-5181
cyrus.gorman@erm.com
www.erm.com

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Please visit ERM's web site: http://www.erm.com

Narrative

Client: ERM-West, Inc.
Project: 1282.96.05 12G Spring 2011 GW Sampling
ARI Job No.: ST65

Sample receipt

Four water samples were received on April 25, 2011. The cooler temperatures measured by IR thermometer following ARI SOP were 2.0 and 3.4°C. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Water Analyses

The initial analyses of the semivolatiles had poor surrogate recoveries. Samples were re-extracted outside recommended holding times with acceptable recoveries. Both sets of data have been included in this report.

The Hexavalent chromium matrix spike of sample **MW-1S-042511** on 04/25/11 had low recovery. A post-spike was performed on a pH adjusted sample also had low recoveries, indicating a matrix effect.

The Hexavalent chromium matrix spike of sample **MW-1D-042511** on 04/26/11 had low recovery. A post-spike was performed on a pH adjusted sample also had low recoveries, indicating a matrix effect.

There were no other anomalies associated with the analyses of this sample set.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: ST65
Client: ERM-West
Project Event: 128296.05
Project Name: RG Spring 2011 GW Samp

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-1D-042511	ST65A	11-9318	Water	04/25/11 12:34	04/25/11 15:00
2.	MW-1S-042511	ST65B	11-9319	Water	04/25/11 13:40	04/25/11 15:00
3.	DUP042511-1	ST65C	11-9320	Water	04/25/11 08:00	04/25/11 15:00
4.	MW-1S-042511-F	ST65D	11-9321	Water	04/25/11 13:42	04/25/11 15:00
5.	MW-1D-042511	ST65E	11-9322	Water	04/25/11 12:34	04/25/11 15:00
6.	MW-1S-042511	ST65F	11-9323	Water	04/25/11 13:40	04/25/11 15:00
7.	DUP042511-1	ST65G	11-9324	Water	04/25/11 08:00	04/25/11 15:00
8.	TB042511	ST65H	11-9325	Water	04/25/11	04/25/11 15:00

Printed 04/26/11

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 ≥ 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 ≥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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-042811
METHOD BLANK

Lab Sample ID: MB-042811
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 00:47
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	82.4%
2-Fluorophenol	77.9%
2,4,6-Tribromophenol	79.7%
d4-2-Chlorophenol	82.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-050911
METHOD BLANK

Lab Sample ID: MB-050911
LIMS ID: 11-9318
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 05/09/11
Date Analyzed: 05/10/11 17:48
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	69.9%
2-Fluorophenol	63.7%
2,4,6-Tribromophenol	61.9%
d4-2-Chlorophenol	69.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-1D-042511
SAMPLE

Lab Sample ID: ST65A
LIMS ID: 11-9318
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 02:58
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	45.1%
2-Fluorophenol	37.3%
2,4,6-Tribromophenol	92.8%
d4-2-Chlorophenol	42.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-1D-042511
REEXTRACT

Lab Sample ID: ST65A
LIMS ID: 11-9318
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 05/09/11
Date Analyzed: 05/10/11 18:54
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	62.7%
2-Fluorophenol	57.1%
2,4,6-Tribromophenol	75.2%
d4-2-Chlorophenol	62.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-1S-042511
SAMPLE

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 03:30
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	43.2%
2-Fluorophenol	41.6%
2,4,6-Tribromophenol	92.5%
d4-2-Chlorophenol	42.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-1S-042511
REEXTRACT

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 05/09/11
Date Analyzed: 05/10/11 19:27
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	62.1%
2-Fluorophenol	58.4%
2,4,6-Tribromophenol	75.7%
d4-2-Chlorophenol	63.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: DUP042511-1
SAMPLE

Lab Sample ID: ST65C
LIMS ID: 11-9320
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 05:09
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	60.5%
2-Fluorophenol	59.2%
2,4,6-Tribromophenol	96.5%
d4-2-Chlorophenol	62.7%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05

Client ID	PHL	2FP	TBP	2CP	TOT OUT
MB-050911	69.9%	63.7%	61.9%	69.6%	0
LCS-050911	71.2%	65.9%	77.3%	70.9%	0
LCSD-050911	61.9%	54.9%	81.9%	60.5%	0
MW-1D-042511	45.1%	37.3%*	92.8%	42.1%*	2
MW-1D-042511 RE	62.7%	57.1%	75.2%	62.4%	0
MB-042811	82.4%	77.9%	79.7%	82.9%	0
LCS-042811	68.0%	64.3%	105%	67.5%	0
LCSD-042811	74.1%	71.5%	107%	74.7%	0
MW-1S-042511	43.2%	41.6%	92.5%	42.7%*	1
MW-1S-042511 RE	62.1%	58.4%	75.7%	63.2%	0
MW-1S-042511 MS	53.1%	48.5%	103%	51.2%	0
MW-1S-042511 MSD	69.6%	67.5%	102%	71.2%	0
DUP042511-1	60.5%	59.2%	96.5%	62.7%	0

	LCS/MB LIMITS	QC LIMITS
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-9318 to 11-9320

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-1S-042511
MS/MSD

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted MS/MSD: 04/28/11

Date Analyzed MS: 05/06/11 04:04
MSD: 05/06/11 04:36
Instrument/Analyst MS: NT6/JZ
MSD: NT6/JZ
GPC Cleanup: NO

Sample Amount MS: 500 mL
MSD: 500 mL
Final Extract Volume MS: 0.5 mL
MSD: 0.5 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 1.0 U	14.3	25.0	57.2%	18.8	25.0	75.2%	27.2%
2-Chlorophenol	< 1.0 U	13.8	25.0	55.2%	19.2	25.0	76.8%	32.7%
2,4-Dichlorophenol	< 5.0 U	15.7	25.0	62.8%	19.0	25.0	76.0%	19.0%
2,4,6-Trichlorophenol	< 5.0 U	19.1	25.0	76.4%	19.6	25.0	78.4%	2.6%
2,4,5-Trichlorophenol	< 5.0 U	19.5	25.0	78.0%	20.3	25.0	81.2%	4.0%
Pentachlorophenol	< 5.0 U	23.3	25.0	93.2%	23.7	25.0	94.8%	1.7%
2,3,4,6-Tetrachlorophenol	< 1.0 U	18.9	25.0	75.6%	19.0	25.0	76.0%	0.5%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MW-1S-042511**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 04:04
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	53.1%
2-Fluorophenol	48.5%
2,4,6-Tribromophenol	103%
d4-2-Chlorophenol	51.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-1S-042511
MATRIX SPIKE DUP

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted: 04/28/11
Date Analyzed: 05/06/11 04:36
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	---
95-57-8	2-Chlorophenol	1.0	---
120-83-2	2,4-Dichlorophenol	5.0	---
88-06-2	2,4,6-Trichlorophenol	5.0	---
95-95-4	2,4,5-Trichlorophenol	5.0	---
87-86-5	Pentachlorophenol	5.0	---
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	---

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Phenol	69.6%
2-Fluorophenol	67.5%
2,4,6-Tribromophenol	102%
d4-2-Chlorophenol	71.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-042811**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-042811
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted LCS/LCSD: 04/28/11
Date Analyzed LCS: 05/06/11 01:20
LCSD: 05/06/11 01:53
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	16.6	25.0	66.4%	18.9	25.0	75.6%	13.0%
2-Chlorophenol	17.5	25.0	70.0%	20.0	25.0	80.0%	13.3%
2,4-Dichlorophenol	17.2	25.0	68.8%	20.3	25.0	81.2%	16.5%
2,4,6-Trichlorophenol	17.8	25.0	71.2%	21.4	25.0	85.6%	18.4%
2,4,5-Trichlorophenol	18.1	25.0	72.4%	21.9	25.0	87.6%	19.0%
Pentachlorophenol	20.8	25.0	83.2%	23.1	25.0	92.4%	10.5%
2,3,4,6-Tetrachlorophenol	18.5	25.0	74.0%	19.6	25.0	78.4%	5.8%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	68.0%	74.1%
2-Fluorophenol	64.3%	71.5%
2,4,6-Tribromophenol	105%	107%
d4-2-Chlorophenol	67.5%	74.7%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: LCS-050911**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-050911
LIMS ID: 11-9318
Matrix: Water
Data Release Authorized:
Reported: 05/11/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted LCS/LCSD: 05/09/11
Date Analyzed LCS: 05/10/11 17:15
LCSD: 05/10/11 18:21
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	19.9	25.0	79.6%	17.8	25.0	71.2%	11.1%
2-Chlorophenol	21.2	25.0	84.8%	18.5	25.0	74.0%	13.6%
2,4-Dichlorophenol	63.7	75.0	84.9%	59.4	75.0	79.2%	7.0%
2,4,6-Trichlorophenol	65.6	75.0	87.5%	65.4	75.0	87.2%	0.3%
2,4,5-Trichlorophenol	62.4	75.0	83.2%	63.2	75.0	84.3%	1.3%
Pentachlorophenol	73.4	75.0	97.9%	73.7	75.0	98.3%	0.4%
2,3,4,6-Tetrachlorophenol	20.0	25.0	80.0%	20.5	25.0	82.0%	2.5%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Phenol	71.2%	61.9%
2-Fluorophenol	65.9%	54.9%
2,4,6-Tribromophenol	77.3%	81.9%
d4-2-Chlorophenol	70.9%	60.5%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Page 1 of 1
Matrix: Water

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Received: 04/25/11

Data Release Authorized:
Reported: 05/02/11

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range	RL	Result
MB-042811	Method Blank	04/28/11	04/28/11	1.00	Diesel	0.10	< 0.10 U
11-9319	HC ID: ---		FID9	1.0	Motor Oil	0.20	< 0.20 U
					o-Terphenyl		87.9%
ST65B	MW-1S-042511	04/28/11	04/28/11	1.00	Diesel	0.10	< 0.10 U
11-9319	HC ID: ---		FID9	1.0	Motor Oil	0.20	< 0.20 U
					o-Terphenyl		93.4%
ST65C	DUP042511-1	04/28/11	04/28/11	1.00	Diesel	0.10	< 0.10 U
11-9320	HC ID: ---		FID9	1.0	Motor Oil	0.20	< 0.20 U
					o-Terphenyl		94.4%

Reported in mg/L (ppm)

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

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

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05

Client ID	OTER	TOT OUT
MB-042811	87.9%	0
LCS-042811	90.1%	0
MW-1S-042511	93.4%	0
MW-1S-042511 MS	89.0%	0
MW-1S-042511 MSD	90.6%	0
DUP042511-1	94.4%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(56-130)	(52-134)

Prep Method: SW3510C
Log Number Range: 11-9319 to 11-9320

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: MW-1S-042511
MS/MSD

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/02/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Extracted MS/MSD: 04/28/11
Date Analyzed MS: 04/28/11 20:15
MSD: 04/28/11 20:36
Instrument/Analyst MS: FID9/MS
MSD: FID9/MS

Sample Amount MS: 500 mL
MSD: 500 mL
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	< 0.10 U	2.73	3.00	91.0%	2.74	3.00	91.3%	0.4%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	89.0%	90.6%

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

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID
Page 1 of 1

Sample ID: LCS-042811
LAB CONTROL

Lab Sample ID: LCS-042811
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/02/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: NA
Date Received: NA

Date Extracted: 04/28/11
Date Analyzed: 04/28/11 19:10
Instrument/Analyst: FID9/MS

Sample Amount: 500 mL
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.61	3.00	87.0%

TPHD Surrogate Recovery

o-Terphenyl	90.1%

Results reported in mg/L

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: ST65
Matrix: Water Project: RG Spring 2011 GW Samp
Date Received: 04/25/11 128296.05

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
11-9319-042811MB1	Method Blank	500 mL	1.00 mL	04/28/11
11-9319-042811LCS1	Lab Control	500 mL	1.00 mL	04/28/11
11-9319-ST65B	MW-1S-042511	500 mL	1.00 mL	04/28/11
11-9319-ST65BMS	MW-1S-042511	500 mL	1.00 mL	04/28/11
11-9319-ST65BMSD	MW-1S-042511	500 mL	1.00 mL	04/28/11
11-9320-ST65C	DUP042511-1	500 mL	1.00 mL	04/28/11

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized:
Reported: 05/02/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

ARI ID	Client ID	Analysis Date	DL	Range	Result
MB-042811	Method Blank	04/28/11	1.0	Gasoline	< 0.25 U
11-9319		PID1		HC ID	---
				Trifluorotoluene	95.1%
				Bromobenzene	94.9%
ST65B	MW-1S-042511	04/28/11	1.0	Gasoline	< 0.25 U
11-9319		PID1		HC ID	---
				Trifluorotoluene	95.0%
				Bromobenzene	92.7%
ST65C	DUP042511-1	04/28/11	1.0	Gasoline	< 0.25 U
11-9320		PID1		HC ID	---
				Trifluorotoluene	96.1%
				Bromobenzene	93.9%
ST65D	MW-1S-042511-F	04/28/11	1.0	Gasoline	< 0.25 U
11-9321		PID1		HC ID	---
				Trifluorotoluene	95.9%
				Bromobenzene	93.1%
ST65H	TB042511	04/28/11	1.0	Gasoline	< 0.25 U
11-9325		PID1		HC ID	---
				Trifluorotoluene	97.3%
				Bromobenzene	93.1%

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 INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: ST65
Matrix: Water

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
Event: 128296.05

Client ID	TFT	BBZ	TOT OUT
MB-042811	95.1%	94.9%	0
LCS-042811	97.4%	93.8%	0
LCSD-042811	100%	97.6%	0
MW-1S-042511	95.0%	92.7%	0
MW-1S-042511 MS	100%	93.9%	0
MW-1S-042511 MSD	99.3%	93.5%	0
DUP042511-1	96.1%	93.9%	0
MW-1S-042511-F	95.9%	93.1%	0
TB042511	97.3%	93.1%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-9319 to 11-9325

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG **Sample ID: MW-1S-042511**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/02/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Date Analyzed MS: 04/28/11 11:16
MSD: 04/28/11 11:45
Instrument/Analyst MS: PID1/MH
MSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor MS: 1.0
MSD: 1.0

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Gasoline Range Hydrocarbons	< 0.25 U	0.93	1.00	93.0%	0.96	1.00	96.0%	3.2%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	MS	MSD
Trifluorotoluene	100%	99.3%
Bromobenzene	93.9%	93.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-042811
LAB CONTROL SAMPLE

Lab Sample ID: LCS-042811
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/02/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 04/28/11 07:01
LCSD: 04/28/11 07:30
Instrument/Analyst LCS: PID1/MH
LCSD: PID1/MH

Purge Volume: 5.0 mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	0.98	1.00	98.0%	0.96	1.00	96.0%	2.1%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	97.4%	100%
Bromobenzene	93.8%	97.6%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: ST65MB
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	7440-50-8	Copper	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-1D-042511
SAMPLE

Lab Sample ID: ST65A
LIMS ID: 11-9318
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.5	**10.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-1S-042511**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	**7440-38-2**	**Arsenic**	0.2	**9.2**	
200.8	04/27/11	200.8	05/02/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	**7440-50-8**	**Copper**	0.5	**1.5**	
200.8	04/27/11	200.8	05/02/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	**7440-66-6**	**Zinc**	4	**20**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-1S-042511
DUPLICATE

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	9.2	8.9	3.3%	+/- 20%	
Chromium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Copper	200.8	1.5	1.7	12.5%	+/- 0.5	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	20	21	4.9%	+/- 4	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-1S-042511
MATRIX SPIKE

Lab Sample ID: ST65B
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	9.15	35.0	25.0	103%	
Chromium	200.8	0.500 U	23.1	25.0	92.4%	
Copper	200.8	1.53	27.8	25.0	105%	
Silver	200.8	0.200 U	24.2	25.0	96.8%	
Zinc	200.8	19.7	95.5	80.0	94.8%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: DUP042511-1**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ST65C
LIMS ID: 11-9320
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	**7440-38-2**	**Arsenic**	0.2	**8.9**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: ST65LCS
LIMS ID: 11-9319
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	26.3	25.0	105%	
Chromium	200.8	25.8	25.0	103%	
Copper	200.8	28.6	25.0	114%	
Silver	200.8	26.7	25.0	107%	
Zinc	200.8	82	80	102%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: ST65MB
LIMS ID: 11-9323
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	7440-50-8	Copper	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	7440-66-6	Zinc	4	4	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1D-042511
SAMPLE

Lab Sample ID: ST65E
LIMS ID: 11-9322
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/06/11	**7440-38-2**	**Arsenic**	0.5	**9.6**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1S-042511
SAMPLE

Lab Sample ID: ST65F
LIMS ID: 11-9323
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	**7440-38-2**	**Arsenic**	0.2	**8.4**	
200.8	04/27/11	200.8	05/02/11	7440-47-3	Chromium	0.5	0.5	U
200.8	04/27/11	200.8	05/02/11	**7440-50-8**	**Copper**	0.5	**0.7**	
200.8	04/27/11	200.8	05/02/11	7440-22-4	Silver	0.2	0.2	U
200.8	04/27/11	200.8	05/02/11	**7440-66-6**	**Zinc**	4	**20**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1S-042511
DUPLICATE

Lab Sample ID: ST65F
LIMS ID: 11-9323
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	200.8	8.4	8.5	1.2%	+/- 20%	
Chromium	200.8	0.5 U	0.5 U	0.0%	+/- 0.5	L
Copper	200.8	0.7	0.7	0.0%	+/- 0.5	L
Silver	200.8	0.2 U	0.2 U	0.0%	+/- 0.2	L
Zinc	200.8	20	20	0.0%	+/- 4	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1S-042511
MATRIX SPIKE

Lab Sample ID: ST65F
LIMS ID: 11-9323
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	200.8	8.40	34.1	25.0	103%	
Chromium	200.8	0.500 U	22.6	25.0	90.4%	
Copper	200.8	0.720	26.8	25.0	104%	
Silver	200.8	0.200 U	24.2	25.0	96.8%	
Zinc	200.8	19.7	95.3	80.0	94.5%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: DUP042511-1**
Page 1 of 1 **SAMPLE**

Lab Sample ID: ST65G
LIMS ID: 11-9324
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	04/27/11	200.8	05/02/11	**7440-38-2**	**Arsenic**	0.2	**8.4**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: ST65LCS
LIMS ID: 11-9323
Matrix: Water
Data Release Authorized:
Reported: 05/09/11

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp 128296.05
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	200.8	26.0	25.0	104%	
Chromium	200.8	25.5	25.0	102%	
Copper	200.8	28.4	25.0	114%	
Silver	200.8	26.2	25.0	105%	
Zinc	200.8	81	80	101%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

METHOD BLANK RESULTS-CONVENTIONALS
ST65-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: NA
Date Received: NA

Analyte	Date/Time	Units	Blank
Hexavalent Chrome	04/25/11 16:15	mg/L	< 0.010 U
	04/26/11 12:37		< 0.010 U

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
Hexavalent Chrome by Method SM3500Cr-D

Data Release Authorized:
Reported: 04/29/11
Date Received: 04/25/11
Page 1 of 1

QC Report No: ST65-ERM-West
Project: RG Spring 2011 GW Samp
128296.05

Client/ ARI ID	Date Sampled	Matrix	Analysis Date & Batch	RL	Result
MW-1S-042511 ST65B 11-9319	04/25/11	Water	04/25/11 16:15 042511#1	0.010	< 0.010 U
DUP042511-1 ST65C 11-9320	04/25/11	Water	04/26/11 12:37 042611#1	0.010	< 0.010 U

Reported in mg/L

RL-Analytical reporting limit
U-Undetected at reported detection limit

STANDARD REFERENCE RESULTS-CONVENTIONALS
ST65-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date/Time	Units	SRM	True Value	Recovery
Hexavalent Chrome	04/25/11 16:15	mg/L	0.605	0.630	96.0%
ERA #41065	04/26/11 12:37		0.617	0.630	97.9%

REPLICATE RESULTS-CONVENTIONALS
ST65-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: ST65B Client ID: MW-1S-042511					
Hexavalent Chrome	04/25/11	mg/L	< 0.010	< 0.010 < 0.010	NA
ARI ID: ST65C Client ID: DUP042511-1					
Hexavalent Chrome	04/26/11	mg/L	< 0.010	< 0.010	NA

MS/MSD RESULTS-CONVENTIONALS
ST65-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 04/29/11

Project: RG Spring 2011 GW Samp
Event: 128296.05
Date Sampled: 04/25/11
Date Received: 04/25/11

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: ST65B Client ID: MW-1S-042511						
Hexavalent Chrome	04/25/11	mg/L	< 0.010	0.092	0.627	14.7%
ARI ID: ST65C Client ID: DUP042511-1						
Hexavalent Chrome	04/26/11	mg/L	< 0.010	0.218	0.627	34.8%

Pace Analytical Services, Inc.
940 South Harney
Seattle, WA 98108
(206)767-5060

July 29, 2011

Mike Mendes
ERM
1218 3rd AVE
ste 1412
Seattle, WA 98101

RE: Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Dear Mike Mendes:
Enclosed are the analytical results for sample(s) received by the laboratory on July 15, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Andy Brownfield

andy.brownfield@pacelabs.com
Project Manager

Enclosures

cc: Cyrus Gorman, ERM - West

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(206)767-5060

CERTIFICATIONS

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Washington Certification IDs
940 South Harney Street, Seattle, WA 98108
Alaska CS Certification #: UST-025
California Certification #: 01153CA
Florida/NELAP Certification #: E87617
Oregon Certification #: WA200007
Washington Certification #: C555

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SAMPLE SUMMARY

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Lab ID	Sample ID	Matrix	Date Collected	Date Received
258499001	**MW-04S-071411**	Water	07/14/11 12:14	07/15/11 10:30
258499002	**MW-07S-071411**	Water	07/14/11 13:29	07/15/11 10:30
258499003	**MW-13-071411**	Water	07/14/11 14:23	07/15/11 10:30
258499004	**MW-14-071411**	Water	07/14/11 15:56	07/15/11 10:30

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SAMPLE ANALYTE COUNT

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Lab ID	Sample ID	Method	Analysts	Analytes Reported
258499001	**MW-04S-071411**	EPA 8270	ERB	13
258499002	**MW-07S-071411**	EPA 8270	ERB	13
258499003	**MW-13-071411**	EPA 8270	ERB	13
258499004	**MW-14-071411**	EPA 6010	BGA	1
		EPA 6010	BGA	1

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PROJECT NARRATIVE

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Method: **EPA 6010**
Description: 6010 MET ICP
Client: ERM-PORTLAND
Date: July 29, 2011

General Information:
1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Method: **EPA 6010**
Description: 6010 MET ICP, Dissolved
Client: ERM-PORTLAND
Date: July 29, 2011

General Information:
1 sample was analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: July 29, 2011

General Information:
3 samples were analyzed for EPA 8270. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3510 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: OEXT/4062

S6: Surrogate recovery outside control limits. Data accepted based on valid recovery of applicable surrogates (no analytes associated with this surrogate)

- LCS (Lab ID: 78278)
  - Terphenyl-d14 (S)
- MW-07S-071411 (Lab ID: 258499002)
  - Terphenyl-d14 (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSSV/1705

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Method: **EPA 8270**
Description: 8270 MSSV Semivolatile Organic
Client: ERM-PORTLAND
Date: July 29, 2011

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Sample: MW-04S-071411 **Lab ID: 258499001** Collected: 07/14/11 12:14 Received: 07/15/11 10:30 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	**<0.45**	ug/L	4.7	0.45	1	07/19/11 10:25	07/20/11 12:09	58-90-2	
2,4,5-Trichlorophenol	**<0.41**	ug/L	4.7	0.41	1	07/19/11 10:25	07/20/11 12:09	95-95-4	
2,4,6-Trichlorophenol	**<0.19**	ug/L	4.7	0.19	1	07/19/11 10:25	07/20/11 12:09	88-06-2	
2,4-Dichlorophenol	**<0.38**	ug/L	4.7	0.38	1	07/19/11 10:25	07/20/11 12:09	120-83-2	
2-Chlorophenol	**<0.36**	ug/L	4.7	0.36	1	07/19/11 10:25	07/20/11 12:09	95-57-8	
Pentachlorophenol	**<0.44**	ug/L	4.7	0.44	1	07/19/11 10:25	07/20/11 12:09	87-86-5	
Phenol	**<0.12**	ug/L	4.7	0.12	1	07/19/11 10:25	07/20/11 12:09	108-95-2	
Nitrobenzene-d5 (S)	75	%	37-141		1	07/19/11 10:25	07/20/11 12:09	4165-60-0	
2-Fluorobiphenyl (S)	63	%	34-109		1	07/19/11 10:25	07/20/11 12:09	321-60-8	
Terphenyl-d14 (S)	79	%	45-130		1	07/19/11 10:25	07/20/11 12:09	1718-51-0	
Phenol-d6 (S)	26	%	10-105		1	07/19/11 10:25	07/20/11 12:09	13127-88-3	
2-Fluorophenol (S)	43	%	11-105		1	07/19/11 10:25	07/20/11 12:09	367-12-4	
2,4,6-Tribromophenol (S)	83	%	39-123		1	07/19/11 10:25	07/20/11 12:09	118-79-6	

Sample: MW-07S-071411 **Lab ID: 258499002** Collected: 07/14/11 13:29 Received: 07/15/11 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	ND	ug/L	4.7	0.45	1	07/19/11 10:25	07/20/11 12:32	58-90-2	
2,4,5-Trichlorophenol	**1.0J**	ug/L	0.95	0.41	1	07/19/11 10:25	07/20/11 12:32	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	07/19/11 10:25	07/20/11 12:32	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	07/19/11 10:25	07/20/11 12:32	120-83-2	
2-Chlorophenol	ND	ug/L	4.7	0.36	1	07/19/11 10:25	07/20/11 12:32	95-57-8	
Pentachlorophenol	**234**	ug/L	47.4	4.4	10	07/19/11 10:25	07/20/11 17:18	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	07/19/11 10:25	07/20/11 12:32	108-95-2	
Nitrobenzene-d5 (S)	78	%	37-141		1	07/19/11 10:25	07/20/11 12:32	4165-60-0	
2-Fluorobiphenyl (S)	67	%	34-109		1	07/19/11 10:25	07/20/11 12:32	321-60-8	
Terphenyl-d14 (S)	135	%	45-130		1	07/19/11 10:25	07/20/11 12:32	1718-51-0	S6
Phenol-d6 (S)	28	%	10-105		1	07/19/11 10:25	07/20/11 12:32	13127-88-3	
2-Fluorophenol (S)	45	%	11-105		1	07/19/11 10:25	07/20/11 12:32	367-12-4	
2,4,6-Tribromophenol (S)	85	%	39-123		1	07/19/11 10:25	07/20/11 12:32	118-79-6	

Sample: MW-13-071411 **Lab ID: 258499003** Collected: 07/14/11 14:23 Received: 07/15/11 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2,3,4,6-Tetrachlorophenol	**21.7**	ug/L	4.7	0.45	1	07/19/11 10:25	07/20/11 12:54	58-90-2	
2,4,5-Trichlorophenol	ND	ug/L	0.95	0.41	1	07/19/11 10:25	07/20/11 12:54	95-95-4	
2,4,6-Trichlorophenol	ND	ug/L	0.95	0.19	1	07/19/11 10:25	07/20/11 12:54	88-06-2	
2,4-Dichlorophenol	ND	ug/L	4.7	0.38	1	07/19/11 10:25	07/20/11 12:54	120-83-2	

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940 South Harney
Seattle, WA 98108
(206)767-5060

ANALYTICAL RESULTS

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

Sample: MW-13-071411 **Lab ID: 258499003** Collected: 07/14/11 14:23 Received: 07/15/11 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatile Organic	Analytical Method: EPA 8270 Preparation Method: EPA 3510								
2-Chlorophenol	ND	ug/L	4.7	0.36	1	07/19/11 10:25	07/20/11 12:54	95-57-8	
Pentachlorophenol	**307**	ug/L	94.8	8.7	20	07/19/11 10:25	07/20/11 17:40	87-86-5	
Phenol	ND	ug/L	4.7	0.12	1	07/19/11 10:25	07/20/11 12:54	108-95-2	
Nitrobenzene-d5 (S)	83	%	37-141		1	07/19/11 10:25	07/20/11 12:54	4165-60-0	
2-Fluorobiphenyl (S)	73	%	34-109		1	07/19/11 10:25	07/20/11 12:54	321-60-8	
Terphenyl-d14 (S)	80	%	45-130		1	07/19/11 10:25	07/20/11 12:54	1718-51-0	
Phenol-d6 (S)	30	%	10-105		1	07/19/11 10:25	07/20/11 12:54	13127-88-3	
2-Fluorophenol (S)	47	%	11-105		1	07/19/11 10:25	07/20/11 12:54	367-12-4	
2,4,6-Tribromophenol (S)	96	%	39-123		1	07/19/11 10:25	07/20/11 12:54	118-79-6	

Sample: MW-14-071411 **Lab ID: 258499004** Collected: 07/14/11 15:56 Received: 07/15/11 10:30 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**120**	ug/L	10.0	2.2	1	07/18/11 10:34	07/19/11 17:43	7440-38-2	
6010 MET ICP, Dissolved	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic, Dissolved	**119**	ug/L	20.0	2.2	1	07/18/11 09:25	07/19/11 13:57	7440-38-2	

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QUALITY CONTROL DATA

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

QC Batch: MPRP/2342
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET
Associated Lab Samples: 258499004

METHOD BLANK: 78129 Matrix: Water
Associated Lab Samples: 258499004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	10.0	07/19/11 16:23	

LABORATORY CONTROL SAMPLE: 78130

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	500	511	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 78131 78132

Parameter	Units	258478001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	169	500	500	687	687	104	104	75-125	.06	20	

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QUALITY CONTROL DATA

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

QC Batch: MPRP/2347
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 258499004

METHOD BLANK: 78149 Matrix: Water
Associated Lab Samples: 258499004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic, Dissolved	ug/L	ND	20.0	07/19/11 13:35	

LABORATORY CONTROL SAMPLE: 78150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic, Dissolved	ug/L	500	492	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 78151 78152

Parameter	Units	258499004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic, Dissolved	ug/L	119	500	500	627	636	102	103	75-125	1	20	

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QUALITY CONTROL DATA

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

QC Batch: OEXT/4062 Analysis Method: EPA 8270
QC Batch Method: EPA 3510 Analysis Description: 8270 Water MSSV
Associated Lab Samples: 258499001, 258499002, 258499003

METHOD BLANK: 78277 Matrix: Water
Associated Lab Samples: 258499001, 258499002, 258499003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,3,4,6-Tetrachlorophenol	ug/L	<0.48	5.0	07/20/11 11:24	
2,4,5-Trichlorophenol	ug/L	<0.43	5.0	07/20/11 11:24	
2,4,6-Trichlorophenol	ug/L	<0.20	5.0	07/20/11 11:24	
2,4-Dichlorophenol	ug/L	<0.40	5.0	07/20/11 11:24	
2-Chlorophenol	ug/L	<0.38	5.0	07/20/11 11:24	
Pentachlorophenol	ug/L	<0.46	5.0	07/20/11 11:24	
Phenol	ug/L	<0.13	5.0	07/20/11 11:24	
2,4,6-Tribromophenol (S)	%	82	39-123	07/20/11 11:24	
2-Fluorobiphenyl (S)	%	63	34-109	07/20/11 11:24	
2-Fluorophenol (S)	%	48	11-105	07/20/11 11:24	
Nitrobenzene-d5 (S)	%	76	37-141	07/20/11 11:24	
Phenol-d6 (S)	%	30	10-105	07/20/11 11:24	
Terphenyl-d14 (S)	%	79	45-130	07/20/11 11:24	

LABORATORY CONTROL SAMPLE: 78278

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2-Chlorophenol	ug/L	40	31.5	79	53-107	
Pentachlorophenol	ug/L	40	35.8	89	44-119	
Phenol	ug/L	40	14.2	36	21-50	
2,4,6-Tribromophenol (S)	%			96	39-123	
2-Fluorobiphenyl (S)	%			71	34-109	
2-Fluorophenol (S)	%			52	11-105	
Nitrobenzene-d5 (S)	%			83	37-141	
Phenol-d6 (S)	%			33	10-105	
Terphenyl-d14 (S)	%			151	45-130	S6

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QUALIFIERS

Project: Reichhold Glacier 128296.05
Pace Project No.: 258499

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel Clean-Up

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

BATCH QUALIFIERS

Batch: MSSV/1705

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

S6 Surrogate recovery outside control limits. Data accepted based on valid recovery of applicable surrogates (no analytes associated with this surrogate)

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

258499

Page: 1 of 1

1470143

Section A Required Client Information:

Company: ERM
Address: 1218 3rd Ave, St 1412 Seattle WA 98101
Email To: mike.meades@erm.com
Phone: 425 214 0458 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To:
Copy To:
Purchase Order No.:
Project Name: RG GW Sampling
Project Number: 128296.05

Section C Invoice Information:

Attention: Accts Payable
Company Name: ERM
Address: Walnut Creek CA
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 21338 line 1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE:

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Phenols/Chlorinated Phenols 8270	Total As	Dissolved As *	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-04S-071411	WT		7/14/11	1214				1										X	X			
2	MW-07S-071411	WT		7/14/11	1329				1										X	X			
3	MW-13-071411	WT		7/14/11	1423				1										X	X			
4	MW-14-071411	WT		7/14/11	1556				2			X								X	X		
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

* Dissolved As filtered in the field

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Matt Crandell/ERM	7/15/11	0800	Buck Pace	7/15/11 ~~1040~~		9.0	bk		
	Buck/Pace	7/15/11	1030	Jyothi Sway	071511	1030	3.6	4	N	4

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:

SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Container Count

CLIENT: ERM

Pace Analytical

COC PAGE 1 of 1
COC ID# 1470143

258499

Total / Filtered

Sample Line Item	VG9H	AG1H	AG1U	BG1H	BP1U	BP2U	BP3U	~~BP2N~~ BP3N	BP2S	WGFU	WGKU				Comments
1			1												
2			1												
3			1												
4								2							
5															
6															
7															
8															
9															
10															
11															
12															Trip Blank? No

AG1H	1 liter HCL amber glass		BP2S	500mL H2SO4 plastic		JGFU	4oz unpreserved amber wide
AG1U	1liter unpreserved amber glass		BP2U	500mL unpreserved plastic		R	terra core kit
AG2S	500mL H2SO4 amber glass		BP2Z	500mL NaOH, Zn Ac		U	Summa Can
AG2U	500mL unpreserved amber glass		BP3C	250mL NaOH plastic		VG9H	40mL HCL clear vial
AG3S	250mL H2SO4 amber glass		BP3N	250mL HNO3 plastic		VG9T	40mL Na Thio. clear vial
BG1H	1 liter HCL clear glass		BP3S	250mL H2SO4 plastic		VG9U	40mL unpreserved **clear** vial
BG1U	1 liter unpreserved glass		BP3U	250mL unpreserved plastic		VG9W	40mL glass vial preweighted (EPA 5035)
BP1N	1 liter HNO3 plastic		DG9B	40mL Na Bisulfate amber vial		VSG	Headspace septa vial & HCL
BP1S	1 liter H2SO4 plastic		DG9H	40mL HCL amber voa vial		WGFU	4oz clear soil jar
BP1U	1 liter unpreserved plastic		DG9M	40mL MeOH clear vial		WGFX	4oz wide jar w/hexane wipe
BP1Z	1 liter NaOH, Zn, Ac		DG9T	40mL Na Thio amber vial		ZPLC	Ziploc Bag
BP2N	500mL HNO3 plastic		DG9U	40mL unpreserved **amber** vial			
BP2O	500mL NaOH plastic		I	Wipe/Swab			

Sample Condition Upon Receipt

Pace Analytical

258499

Client Name: ERM Project #

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: ☐ Yes ☑ No Seals intact: ☐ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other Temp. Blank Yes No

Thermometer Used 132013 or 101731962 or 96099 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 3.6°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: NB 07/15/11

Temp should be above freezing ≤ 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Follow Up / Hold Analysis Requested:	☐Yes ☑No ☐N/A	8.
Sufficient Volume:	☑Yes ☐No ☐N/A	9.
Correct Containers Used:	☑Yes ☐No ☐N/A	10.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	11.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	12. Received Field Filtered Volume.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: Water	☑Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation. Exceptions: VOA, coliform, TOC, O&G	☑Yes ☐No ☐N/A	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	15.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	16.
Trip Blanks Present:	☐Yes ☑No ☐N/A	17.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: RC **Date:** 7/15/11 @ 5:47

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Attachment B
April 2011 and July 2011
Data Assessment Review
Memorandums

Memorandum

Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-2940 (fax)

To: Mike Mendes

From: Irene Lavigne

Date: 06 June 2011

Subject: Data Review of Reichhold-Glacier Spring 2011 Groundwater Monitoring Samples Collected 25-28 April 2011

Project Number: 0128296.05

Data Packages: Analytical Resources Incorporated Data Packages ST65, SU13, SU15, SU57, SU60, and SY05

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection with several exceptions. Five samples were extracted or reextracted outside of the 7-day holding time for semivolatile organic compound (SVOC) analysis. Detected sample results for two samples were qualified as estimated (J), and nondetected sample results for two samples were qualified as estimated (UJ). Additionally, the nondetected sample results for three samples were qualified as rejected, as shown in Table 1. Rejected sample results can not be used for decision-making purposes.

The sample shipments were received at the laboratory within the method-prescribed preservation requirements. None of the data were qualified based on temperature preservation exceedances.

BLANK EVALUATION

The method blank and field blank sample results were nondetected for each of the target analytes. None of the data were qualified on the basis of blank detections.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries were within the laboratory's limits of acceptance with a number of exceptions. Eighty-four sample results were qualified as estimated (UJ or J) due to LCS recoveries that exceeded acceptable limits. The outlying LCS recoveries and qualified sample data are presented in Table 2.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance with a number of exceptions. Eighty-four sample results were qualified as estimated (UJ or J) due to MS recoveries that exceeded acceptable limits. Two MS outliers for arsenic did not require qualification of associated data because, in both cases, the concentration of the unspiked samples were greater than four times the amount spiked. The outlying MS recoveries and qualified sample data are presented in Table 3.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with limited exceptions. Nondetected sample results for 11 samples submitted for SVOC analysis were qualified as estimated (UJ) due surrogate recoveries that were below the acceptable limits. The outlying surrogate recoveries are shown in Table 4.

FIELD DUPLICATE EVALUATION

Four samples were collected and analyzed in duplicate. ERM calculated the relative percent difference (RPD) between detected results. The USEPA has not established control criteria for field duplicate samples; therefore, sample data are not qualified on the basis of field duplicate imprecision. Detected duplicate results and calculated RPDs are shown in Table 5.

ANALYTICAL DUPLICATE EVALUATION

The laboratory prepared and analyzed 10 samples as analytical duplicates. ERM calculated the RPD between detected results. The RPDs were less than 20 percent, with one exception. The sample results for that one sample was qualified as estimated (J). The analytical duplicate sample results and calculated RPDs are shown in Table 6.

CALIBRATION RANGE EVALUATION

The laboratory noted two instances where the results of undiluted samples exceeded the calibration range of the equipment. The affected samples were diluted and reanalyzed. The sample data resulting from the reanalyses were within the calibration range; and should be used for decision-making purposes. The sample results which exceeded the calibration range were qualified as estimated (J), and are shown in Table 7.

OVERALL ASSESSMENT

The nondetected results of three samples were determined to be unusable due to exceeded holding times. These results can not be used for decision-making purposes.

The remaining data generated as a result of this sampling event can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Samples with Exceeded Holding Times
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Method	Holding Time (days)	# of Days Exceeded	ERM Qualifier
ST65	MW-1D-042511 RE	SVOC	7/40	7 extraction	UJ
ST65	MW-1S-042511 RE	SVOC	7/40	7 extraction	UJ
SU57	MW-3D-042711 RE	SVOC	7/40	20 extraction	R
SY05	MW-13-042611	SVOC	7/40	21 extraction	J/R
SY05	MW-13-042611 RE	SVOC	7/40	21 extraction	J/R

Key:
RE = Reanalyzed sample
SVOC = Semivolatile organic compounds (Phenol compounds)
7/40 = 7 days to extraction/40 days to analysis
UJ = Nondetected sample result qualified as estimated
R = Nondetected sample result qualified as rejected
J = Detected sample result qualified as estimated

Table 2
Laboratory Control Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU15	LCS-050211	See below	2,4-Dichlorophenol	27.1	56-104	--	--	--	--
SU15	LCS-050211	See below	2,4,6-Trichlorophenol	25.3	58-108	--	--	--	--
SU15	LCS-050211	See below	2,4,5-Trichlorophenol	24.9	58-107	--	--	--	--
SU15	LCS-050211	See below	Pentachlorophenol	28.4	46-114	--	--	--	--
SU15	LCS-050211	MW-04S-042611	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-04S-042611	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-04S-042611	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-04S-042611	Pentachlorophenol	--	--	--	--	88	J
SU15	LCS-050211	MW-04S-042611 RE	2,4-Dichlorophenol	--	--	--	--	< 15	UJ
SU15	LCS-050211	MW-04S-042611 RE	2,4,6-Trichlorophenol	--	--	--	--	< 15	UJ
SU15	LCS-050211	MW-04S-042611 RE	2,4,5-Trichlorophenol	--	--	--	--	< 15	UJ
SU15	LCS-050211	MW-04S-042611 RE	Pentachlorophenol	--	--	--	--	120	J
SU15	LCS-050211	MW-22-042611	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-22-042611	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-22-042611	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-22-042611	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-23-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-23-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-23-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-23-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-24-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-24-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-24-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-24-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-21-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-21-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-21-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-21-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ

Table 2
Laboratory Control Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU15	LCS-050211	DUP042711-1	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	DUP042711-1	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	DUP042711-1	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	DUP042711-1	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-20-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-20-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-20-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-20-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-18-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-18-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-18-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	LCS-050211	MW-18-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	See below	2,4-Dichlorophenol	24.9	56-104	--	--	--	--
SU57	LCS-050311	See below	2,4,6-Trichlorophenol	23.2	58-108	--	--	--	--
SU57	LCS-050311	See below	2,4,5-Trichlorophenol	22.5	58-107	--	--	--	--
SU57	LCS-050311	See below	Pentachlorophenol	24.3	46-114	--	--	--	--
SU57	LCS-050311	MW-14-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-14-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-14-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-14-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	DUP042711-2	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	DUP042711-2	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	DUP042711-2	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	DUP042711-2	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-6S-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-6S-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-6S-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ

Table 2
Laboratory Control Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU57	LCS-050311	MW-6S-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3S-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3S-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3S-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3S-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3D-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3D-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3D-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-3D-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-27-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-27-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-27-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-27-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-26-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-26-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-26-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-26-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-16-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-16-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-16-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-16-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-5S-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-5S-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-5S-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-050311	MW-5S-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	LCS-052411	NA	Pentachlorophenol	118/124	46-114	5.0	20	--	--
SU60	LCS-050311	See below	2,4-Dichlorophenol	24.9	56-104	--	--	--	--

Table 2
Laboratory Control Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU60	LCS-050311	See below	2,4,6-Trichlorophenol	23.2	58-108	--	--	--	--
SU60	LCS-050311	See below	2,4,5-Trichlorophenol	22.5	58-107	--	--	--	--
SU60	LCS-050311	See below	Pentachlorophenol	24.3	46-114	--	--	--	--
SU60	LCS-050311	MW-11-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-11-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-11-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-11-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW_12-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW_12-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW_12-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW_12-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-19-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-19-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-19-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	LCS-050311	MW-19-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ

Key:
LCS/LCSD = Laboratory control sample/laboratory control sample duplicate
RPD = Relative percent difference
UJ = Nondetected result qualified as estimated
J = Detected result qualified as estimated

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU15	MW-22-042611 MS/MSD	See below	2,4-Dichlorophenol	26.0/22.9	56-104	12.5	20	--	--
SU15	MW-22-042611 MS/MSD	See below	2,4,6-Trichlorophenol	28.0/25.1	58-108	11.1	20	--	--
SU15	MW-22-042611 MS/MSD	See below	2,4,5-Trichlorophenol	26.9/25.1	58-107	7.2	20	--	--
SU15	MW-22-042611 MS/MSD	See below	Pentachlorophenol	31.2/28.9	46-114	7.5	20	--	--
SU15	MW-22-042611 MS/MSD	MW-04S-042611	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611	Pentachlorophenol	--	--	--	--	88	J
SU15	MW-22-042611 MS/MSD	MW-04S-042611 RE	2,4-Dichlorophenol	--	--	--	--	< 15	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611 RE	2,4,6-Trichlorophenol	--	--	--	--	< 15	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611 RE	2,4,5-Trichlorophenol	--	--	--	--	< 15	UJ
SU15	MW-22-042611 MS/MSD	MW-04S-042611 RE	Pentachlorophenol	--	--	--	--	120	J
SU15	MW-22-042611 MS/MSD	MW-22-042611	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-22-042611	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-22-042611	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-22-042611	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-23-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-23-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-23-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-23-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-24-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-24-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-24-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-24-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-21-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-21-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-21-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-21-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU15	MW-22-042611 MS/MSD	DUP042711-1	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	DUP042711-1	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	DUP042711-1	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	DUP042711-1	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-20-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-20-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-20-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-20-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-18-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-18-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-18-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU15	MW-22-042611 MS/MSD	MW-18-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	See below	2,4-Dichlorophenol	22.5/26.8	56-104	17.3	20	--	--
SU57	MW-14-042711 MS/MSD	See below	2,4,6-Trichlorophenol	22.7/26.0	58-108	13.7	20	--	--
SU57	MW-14-042711 MS/MSD	See below	2,4,5-Trichlorophenol	22.4/24.9	58-107	10.7	20	--	--
SU57	MW-14-042711 MS/MSD	See below	Pentachlorophenol	24.7/27.7	46-114	11.7	20	--	--
SU57	MW-14-042711 MS/MSD	MW-14-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-14-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-14-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-14-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	DUP042711-2	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	DUP042711-2	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	DUP042711-2	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	DUP042711-2	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-6S-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-6S-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-6S-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU57	MW-14-042711 MS/MSD	MW-6S-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3S-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3S-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3S-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3S-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3D-042711	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3D-042711	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3D-042711	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-3D-042711	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-27-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-27-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-27-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-27-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-26-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-26-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-26-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-26-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-16-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-16-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-16-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-16-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-5S-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-5S-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-5S-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS/MSD	MW-5S-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU57	MW-14-042711 MS	NA	Arsenic, total	680	75-125			4X	--
SU57	MW-14-042711 MS	NA	Arsenic, dissolved	640	75-125			4X	--

Table 3
Matrix Spike Recoveries Outside of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
SU60	MW-14-042711 MS/MSD	See below	2,4-Dichlorophenol	22.5/26.8	56-104	17.3	20	--	--
SU60	MW-14-042711 MS/MSD	See below	2,4,6-Trichlorophenol	22.7/26.0	58-108	13.7	20	--	--
SU60	MW-14-042711 MS/MSD	See below	2,4,5-Trichlorophenol	22.4/24.9	58-107	10.7	20	--	--
SU60	MW-14-042711 MS/MSD	See below	Pentachlorophenol	24.7/27.7	46-114	11.7	20	--	--
SU60	MW-14-042711 MS/MSD	MW-11-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-11-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-11-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-11-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW_12-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW_12-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW_12-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW_12-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-19-042811	2,4-Dichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-19-042811	2,4,6-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-19-042811	2,4,5-Trichlorophenol	--	--	--	--	< 5.0	UJ
SU60	MW-14-042711 MS/MSD	MW-19-042811	Pentachlorophenol	--	--	--	--	< 5.0	UJ

Key:
MS/MSD = Matrix spike/matrix spike duplicate
UJ = Nondetected result qualified as estimated
J = Detected result qualified as estimated
NA = Not applicable
4X = Concentration of unspiked sample was greater than 4 times the amount spiked; no qualification required

Table 4
Surrogate Recovery Results out of Acceptable Limits
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	ERM Qualifier
ST65	MW-1D-042511	SVOC	2-Fluorophenol	37.2	38-100	UJ
ST65	MW-1D-042511	SVOC	d4-2-Chlorophenol	42.1	44-100	UJ
ST65	MW-1S-042511	SVOC	d4-2-Chlorophenol	42.7	44-100	--
SU15	MW-20-042711	SVOC	d5-Phenol	29.1	41-100	--
SU57	MW-3D-042711	SVOC	d5-Phenol	38.9	41-100	UJ
SU57	MW-3D-042711	SVOC	2-Fluorophenol	34.4	38-100	UJ
SU57	MW-3D-042711	SVOC	d4-2-Chlorophenol	37.9	44-100	UJ
SU60	MW-11-042811	SVOC	d5-Phenol	37.3	41-100	UJ
SU60	MW-11-042811	SVOC	2,4,6-Tribromophenol	39.2	48-118	UJ
SU60	MW-12-042811	SVOC	2,4,6-Tribromophenol	47.2	48-118	--
SU60	MW-19-042811	SVOC	d5-Phenol	36.0	41-100	UJ
SU60	MW-19-042811	SVOC	2-Fluorophenol	37.9	38-100	UJ
SU60	MW-19-042811	SVOC	2,4,6-Tribromophenol	43.5	48-118	UJ
SU60	MW-19-042811	SVOC	d4-2-Chlorophenol	40.5	44-100	UJ

Key:
SVOC = Semivolatile organic compounds (Phenol compounds)
UJ = Nondetected result qualified as estimated

Table 5
Field Duplicate Results and Calculated Relative Percent Differences
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample/Duplicate ID	Compound	Concentration		Report Limit	Units	RPD
			Sample	Duplicate			
ST65	MW-1S-042511/DUP042511-1	Arsenic, total	9.2	8.9	0.2	µg/L	3.3
ST65	MW-1S-042511/DUP042511-1	Arsenic, dissolved	8.4	8.4	0.2	µg/L	0
SU15	MW-21-042711/DUP042711-1	Arsenic, total	3310	3320	5	µg/L	0.3
SU15	MW-21-042711/DUP042711-1	Arsenic, dissolved	3540	3250	5	µg/L	8.5
SU57	MW-14-042711/DUP042711-2	Arsenic, total	4140	4300	5	µg/L	3.8
SU57	MW-3S-042711/DUP042711-3	Copper, total	2.0	2.0	0.5	µg/L	0
SU57	MW-14-042711/DUP042711-2	Arsenic, dissolved	3790	4490	5	µg/L	17
SU57	MW-3S-042711/DUP042711-3	Nickel, dissoved	0.8	1.2	0.5	µg/L	40

Key:
RPD = Relative percent difference
µg/L = Micrograms per liter

Table 6
Analytical Duplicate Results and Calculated Relative Percent Differences
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	Concentration		Report Limit	Units	RPD	ERM Qualifier
			Sample	Duplicate				
ST65	MW-1S-042511	Arsenic, total	9.2	8.9	0.2	µg/L	3.3	--
ST65	MW-1S-042511	Copper, total	1.5	1.7	0.5	µg/L	13	--
ST65	MW-1S-042511	Zinc, total	20	21	4.0	µg/L	4.9	--
ST65	MW-1S-042511	Arsenic, dissolved	8.4	8.5	0.2	µg/L	1.2	--
ST65	MW-1S-042511	Copper, dissolved	0.7	0.7	0.5	µg/L	0	--
ST65	MW-1S-042511	Zinc, dissolved	20	20	4.0	µg/L	0	--
SU15	MW-18-042711	Arsenic, total	11.4	11.1	0.2	µg/L	2.7	--
SU15	MW-18-042711	Chromium, total	0.9	0.9	0.5	µg/L	0	--
SU15	MW-18-042711	Copper, total	1.7	1.6	0.5	µg/L	6.1	--
SU15	MW-18-042711	Nickel, total	1.2	1.3	0.5	µg/L	8.0	--
SU15	MW-18-042711	Arsenic, dissolved	13.1	12.9	0.2	µg/L	1.5	--
SU15	MW-18-042711	Chromium, dissolved	0.8	0.8	0.5	µg/L	0	--
SU15	MW-18-042711	Copper, dissolved	1.0	1.0	0.5	µg/L	0	--
SU15	MW-18-042711	Nickel, dissolved	2.7	1.7	0.5	µg/L	45	J
SU57	MW-14-042711	Arsenic, total	4140	4190	5	µg/L	1.2	--
SU57	MW-14-042711	Arsenic, dissolved	3790	3910	5	µg/L	3.1	--

Key:
RPD = Relative percent difference
µg/L = Micrograms per liter
J = Detected sample result qualified as estimated

Table 7
Calibration Range Exceedances
Spring 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
SU15	MW-04S-042611	Pentachlorophenol	88 E	µg/L	J	Result exceeded instrument calibration range
SY05	MW-13-042611	Pentachlorophenol	1300 E	µg/L	J	Result exceeded instrument calibration range

Key:
E = Undiluted sample concentration exceeded calibration range; use result of reanalysis for decision-making purposes
µg/L = Micrograms per liter
J = Detected sample result qualified as estimated

Memorandum

Environmental Resources Management

2875 Michelle Drive
Suite 200
Irvine, CA 92606
(949) 623-4700
(949) 623-2940 (fax)

To: Mike Mendes

From: Irene Lavigne

Date: 05 August 2011

Subject: Data Review of Reichhold-Glacier Groundwater Samples Collected July 2011

Project Number: 0128296.05

Data Packages: Analytical Resources Inc. Data Package TE33
Pace Analytical Services Data Package 258499

The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October 1999 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* October 2004.

HOLDING TIME AND PRESERVATION EVALUATION

The samples were prepared and analyzed within the method-prescribed time period from the date of collection. The sample shipments were received at the laboratory within the method-prescribed preservation requirements. None of the data were qualified based on holding time or temperature preservation exceedances.

BLANK EVALUATION

The method blank sample results were nondetected for each of the target analytes. None of the data were qualified on the basis of blank detections.

BLANK SPIKE EVALUATION

The laboratory control sample (LCS) recoveries were within the laboratory's limits of acceptance. None of the data were qualified on the basis of LCS recoveries. The LCS recoveries indicate acceptable laboratory accuracy and precision.

MATRIX SPIKE EVALUATION

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries were within the laboratory's limits of acceptance. No sample data were qualified on the basis of MS recoveries.

SURROGATE SPIKE EVALUATION

The surrogate recoveries were within acceptable limits with one exception; however no data were qualified based on this surrogate outlier. Data were not qualified if only one recovery in either the acid or base/neutral surrogate group exceeded control limits. The surrogate recovery outlier is shown in Table 1.

ANALYTICAL DUPLICATE EVALUATION

The laboratory prepared and analyzed one sample as an analytical duplicate. ERM calculated the relative percent difference (RPD) between detected results. The RPD was less than 20 percent, indicating acceptable precision. The analytical duplicate results and calculated RPD are shown in Table 2.

CALIBRATION RANGE EVALUATION

The laboratory noted two instances where the results of undiluted samples exceeded the calibration range of the equipment. The affected samples were diluted and reanalyzed. The sample data resulting from the reanalyses were within the calibration range and should be used for decision-making purposes. The sample results which exceeded the calibration range were qualified as estimated (J), and are shown in Table 3.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically-defensible documents.

Table 1
Surrogate Recovery Results out of Acceptable Limits
July 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Method	Surrogate	Recovery (%)	Limit (%)	ERM Qualifier
258499	MW-07S-071411	SVOC	Terphenyl-d14	135	45-130	--

Key:
SVOC = Semivolatile organic compounds

Table 2
Analytical Duplicate Results and Calculated Relative Percent Differences
July 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	Concentration		Report Limit	Units	RPD	ERM Qualifier
			Sample	Duplicate				
TE33	MW-14-071411	Arsenic	116	121	0.2	µg/L	4.2	--

Key:
RPD = Relative percent difference
µg/L = Micrograms per liter

Table 3
Calibration Range Exceedances
July 2011 Groundwater Sampling
Reichhold-Glacier Site
Seattle, Washington

Lab Package	Sample ID	Compound	Reported Concentration	Units	ERM Qualifier	Notes
TE33	MW-07S-071411	Pentachlorophenol	340 E	µg/L	J	Result exceeded instrument calibration range
TE33	MW-13-071411	Pentachlorophenol	540 E	µg/L	J	Result exceeded instrument calibration range

Key:
E = Undiluted sample concentration exceeded calibration range; use result of dilution reanalysis for decision-making purposes
µg/L = Micrograms per liter
J = Detected sample result qualified as estimated

Memorandum

Environmental Resources Management

1218 3rd Avenue
Suite 1412
Seattle, WA 98101
(425) 462-8591
(425) 455-3573 (fax)

To: Donna Ortiz De Anaya/Washington State Department of Ecology

From: Michael Mendes, PG/ERM-West, Inc.
Erik Ipsen, PE/ERM-West, Inc.

CC: Ron Timm/Washington State Department of Ecology
John J. Oldham/Reichhold
Scott Isaacson/Glacier Northwest
Pete Stoltz/Glacier Northwest
John Bjorkman/K&L Gates
Claudia Powers/Ater Wynne
Doug MacCourt/Ater Wynne
Carolyn Kossik/CH2M HILL

Date: 26 April 2012

Subject: Fall 2011 Groundwater Sampling Results
Glacier Northwest, Inc. – Reichhold, Inc. Site
Seattle, Washington

ERM-West, Inc. (ERM) has prepared this *Fall 2011 Groundwater Sampling Results Memorandum* on behalf of Glacier Northwest, Inc. and Reichhold, Inc., (Glacier-Reichhold) for the Glacier-Reichhold site located at 5900 West Marginal Way SW, Seattle, Washington (the "site"). Figure 1 provides a site location map. This memorandum presents the groundwater sampling objectives, scope, and results of the fall 2011 groundwater sampling event.

The sampling described in this memorandum was conducted in accordance with the *Fall 2011 Remedial Investigation Activities at Glacier-Reichhold Site - Revised Scope of Work,* dated 8 November 2012. The analytical results presented in this memorandum were previously provided to the Washington State Department of Ecology (Ecology) on 29 February 2012 via email.

FALL 2011 GROUNDWATER SAMPLING OBJECTIVES

In November and December 2011, ERM completed a comprehensive round of groundwater sampling at the site. The fall 2011 groundwater sampling objectives are outlined below:

- Assess the site's current groundwater conditions and the status of remedial actions completed to date; and
- Evaluate concentrations of the site constituents of primary concern, as well as other key constituents in groundwater.

The sections below describe the monitoring well sampling activities completed in fall 2011 as well as the analytical and field data results.

GROUNDWATER SAMPLING ACTIVITIES

On 28 November 2011, prior to initiating groundwater sampling activities, ERM personnel collected water level measurements from existing site monitoring wells and from the Lower Duwamish Waterway measuring point at the site.

Groundwater samples were collected from 28 November 2011 through 6 December 2011 from 26 existing monitoring wells and nine new monitoring wells (installed 8 through 14 November 2011). The locations of the monitoring wells sampled and parameters analyzed are summarized on Figure 2 and in Table 1, respectively. The monitoring wells were purged and sampled using the methods described in the September 2011 *Final Remedial Investigation and Feasibility Study Work Plan, Glacier Northwest, Inc. – Reichhold, Inc. Site, 5900 West Marginal Way SW, Seattle, Washington* (Work Plan; ERM 2011). The final Work Plan continues to be negotiated with Ecology.

Quality assurance/quality control samples were collected as prescribed in the Work Plan. This included blind duplicate samples from MW-1S, MW-4S, MW-7S, MW-13, MW-14, MW-18, MW-21, and MW-28S, MW-29S, MW-30S, MW-31S, MW-33S, and MW-34S.

Samples were delivered to Analytical Resources, Inc., in Tukwila, Washington. Results of the groundwater sampling are presented below.

RESULTS

Groundwater Elevations

Groundwater elevations were measured on 28 November 2011 from the 26 existing and nine new monitoring wells, prior to initiating groundwater sampling activities. Table 2 provides groundwater elevations for the monitoring wells as recorded on the collection dates. Approximate shallow aquifer groundwater elevation contours for November 2011 are shown on Figure 3. Based on these measurements, at the time the water levels were collected site groundwater flow direction (on 28 November 2011) was generally to the south in the southern portion of the site and northeasterly in the northern portion of the site, with northeasterly to southeasterly groundwater flow components along the

eastern portions of the site. Data from new and existing monitoring wells, located in the north-central portion of the site, indicate that groundwater mounding is present near the existing storm water conveyance ditch in the vicinity of MW-16 and MW-4S. Groundwater in the southern portion of the site is expected to flow toward the City of Seattle Public Utilities 48-inch diameter storm water pipe where southerly flow terminates and likely becomes easterly. The approximate average gradient across the site was 0.0044.

Field Results

Field parameters were measured during well purging in accordance with the Work Plan. Final field parameter values were collected after the parameters had stabilized and are presented in Table 3. As required in the Work Plan, turbidity in all wells was less than 10 nephelometric turbidity units (NTUs) prior to groundwater sample collection. Monitoring well MW-32D was not sampled because turbidity remained greater than 500 NTUs after purging 2 liters of groundwater. The following observations were made regarding water quality parameters in shallow wells after these parameters stabilized during purging:

- Groundwater temperatures ranged from 7.99 to 13.40 degrees Celsius. The observed temperature fluctuations are attributable to ambient outdoor temperature variations.
- Dissolved oxygen ranged from 0.55 to 5.77 milligrams per Liter (mg/L). The maximum dissolved oxygen measurement of 11.17 mg/L at MW-11 is outside the typical range for this monitoring well of 2 to 6 mg/L and this measurement is likely related to instrument error. In general, dissolved oxygen saturation levels, as determined by temperature and dissolved oxygen concentrations, ranged between five and 13 percent and are within typical ranges for groundwater. Dissolved oxygen saturation in MW-04S and MW-34S, located in the central portion of the site, ranged from 40 to 50 percent.
- Groundwater alkalinity/acidity (pH) values ranged from 5.76 to 7.27 and averaged 6.37 across the site.ORP values ranged from -196 millivolts (mV) to 158 mV and averaged
  -18.13 mV, indicative of a slightly reducing groundwater geochemistry environment.
- Salinity ranged from 0.1 to 0.4 parts per trillion (ppt) in shallow wells, except for MW-27, which is located in close proximity to the embayment, where salinity was reported at 8.5 ppt.
- Turbidity ranged from 0.04 to 9.9 NTUs prior to groundwater sampling.

- Conductivity ranged from 183 to 869 microsiemens per centimeter (µS/cm), except for MW-27 where conductivity was recorded at 14,800 µS/cm. The greater conductivity measurement at MW-27 (in comparison to the site wide median of 442 µS/cm) is likely related to its proximity to the embayment.
- Field-measured ferrous iron concentrations ranged from non-detect to 27.25 mg/L. The median concentration was 2.48 mg/L.
- Sulfide concentrations ranged from non-detect to 0.66 mg/L.

Field measurement values for the deep aquifer wells were within the range of values reported for shallow wells, with the following exceptions:

- Conductivity was generally greater in the deep wells (median conductivity of 1,130 µS/cm).
- ORP values were generally lower than in the shallow aquifer with ORP values ranging between -58 and -92 mV. The average ORP value in the deep aquifer was -74 mV, indicative of reducing conditions.
- Salinity was reported at 0.40 to 0.90 ppt and on average greater than in the shallow wells.

Analytical Results

This section presents the analytical results for the fall 2011 groundwater monitoring event. The analytical laboratory reports are provided in Attachment A and the analytical results are summarized in Tables 4 through 8. Constituents detected in one or more groundwater samples are summarized in Table 9 and select compounds are presented on Figures 4, 5, and 6.

Selected Preliminary Screening Levels

The detected groundwater constituents have been screened against the following groundwater cleanup levels and surface water standards for comparison and data screening purposes. Except where noted, the screening levels were obtained from the Ecology's online CLARC website (Ecology 2004).

Groundwater screening levels include the following:

- Method B screening levels for carcinogenic and non-carcinogenic risk (Method B); and
- Method C screening levels for carcinogenic and non-carcinogenic risk (Method C).

Surface water screening levels include the following:

- Water Quality Criteria for chronic exposure of aquatic life (SW-AL) from the Washington Administrative Code (WAC) 173-201A Water Quality Standards For Surface Waters of the State of Washington; and
- Water Quality Criteria for human health in marine environments (SW-HH) from the Federal Clean Water Act (WAC not established).

Arsenic screening levels for Method B, Method C, and SW-HH [0.058, 0.58, and 0.14 micrograms per Liter (µg/L), respectively] are less than background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM 2009).

These generic screening levels are provided for purposes of preliminary data screening only. Site-specific cleanup levels will be developed as part of the remedial investigation and feasibility study at the site, as described in the Work Plan (ERM 2011).

Data Validation

ERM assessed the quality of the data and applied any necessary qualifiers per the *Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA 1999) and the *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA 2004). Based on the data quality evaluation, the analytical results for groundwater samples collected as part of the fall 2011 sampling are valid and usable with standard data qualifiers, as noted in the associated data review packages (Attachment B) and in data summary Tables 4 through 9.

Analytical Results

Of the constituents analyzed, concentrations of PCP, total and dissolved arsenic, dioxins/furans expressed as 2,3,7,8- tetrachlorodibenzo-p-dioxin (TCDD) toxic equivalency quotient (TEQ), total copper, and total petroleum hydrocarbons - diesel range (TPH-D) were the only analytes detected at concentrations greater than at least one of the preliminary screening levels in one or more monitoring wells. Further discussion of PCP, total and dissolved arsenic, dioxins/furans, total copper, TPH-D, and total ammonia (expressed as ammonium-N plus ammonia-N) are detailed in the following sections.

The following constituents were either not detected or detected but did not exceed preliminary screening levels (Tables 4 through 9). These analytes are not discussed in this memorandum.

Constituents that were analyzed, but that did not exhibit detectable concentrations at or above the laboratory detection limits included the following:

- Seven metals (total (T) and dissolved (D) antimony, T/D beryllium, D cadmium, T/D lead, T/D mercury, T/D silver and T/D thallium) (see Table 4);
- Hexavalent chromium (see Table 4);
- Tributyltin (see Table 4);
- 70 semi-volatile organic compounds (SVOCs) (see Table 5);
- 70 volatile organic compounds (VOCs) (see Table 6);
- 13 dioxins/furans congeners and one dioxin homolog (see Table 7); and
- TPH – heavy oil range (TPH-O) (see Table 8).

Constituents that were analyzed and exhibited detections, but did not exceed the preliminary screening levels included the following (see Table 9):

- Six metals (T cadmium , T/D chromium, D copper, T/D nickel, T/D selenium, and T/D zinc);
- Two VOCs (1,1-dichloroethane, and tetrachloroethene);
- Three phenols (phenol, 2,3,4,6-tetrachlorophenol, and 2,4-dichlorophenol);
- TPH - gasoline range (TPH-G);
- Ammonia (discussed below); and
- Ten polycyclic aromatic hydrocarbons (1-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, dibenzofuran, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene).

Pentachlorophenol

The PCP analytical results are summarized and compared to preliminary screening levels in Table 9 and shown on Figure 4**.** Samples from all 35 monitoring wells were analyzed for PCP in fall 2011. PCP was not detected in 30 of the 35 monitoring wells. In the five shallow wells where PCP was detected, concentrations ranged from 15 µg/L (MW-10) to 370 µg/L (MW-7S). PCP was not detected in any of the wells on the northern portion of the site. Consistent with previous monitoring events, PCP was not detected in any of the deep wells.

The five wells with detections during the fall 2011 sampling event were MW-7S (370 µg/L) and MW-16 (24 µg/L), located in the north-central portion of the site, MW-13 (100 µg/L) and MW-10 (24 µg/L), located near the eastern boundary of the site, and MW-26 (96 µg/L), located on the southern boundary of the site. The detections in wells MW-10 and MW-13 were within historical ranges of previous sampling events. The detections in MW-7S and MW-16 were slightly above the historical maximums of 310 µg/L and 10 µg/L, respectively. The detection in MW-26 is the first since semiannual monitoring began in March 2009.

Arsenic

The arsenic analytical results are summarized and compared to the preliminary screening levels in Table 9 and shown on Figure 5. Samples from all 35 monitoring wells were analyzed for total and dissolved arsenic in fall 2011. Total arsenic was detected in 30 shallow and 4 deep wells (Table 9). Dissolved arsenic was detected in all 31 shallow and four deep wells.

Total arsenic concentrations in the shallow wells ranged from non-detect (MW-24) to 2,770 µg/L (MW-20) and dissolved concentrations ranged from 0.2 µg/L (MW-24) to 2,600 µg/L (MW-20). Total arsenic concentrations in the deep wells (MW-1D, MW-2D, MW-3D, and MW-14D) ranged from 9.2 µg/L (MW-1D) to 427 µg/L (MW-14D), and dissolved concentrations ranged from 8.0 µg/L (MW-1D) to 390 µg/L (MW-14D). Total and dissolved arsenic concentrations at MW-14 decreased from 4,140 and 3,790 µg/L, noted in April 2011, to 933 and 935 µg/L, respectively. Total and dissolved arsenic concentrations in MW-20 (2,770 and 2,600 µg/L) increased to concentrations greater than the previous maximum of 2,340 µg/L in March 1999. With the exceptions noted above, the arsenic concentrations in fall 2011 were generally similar to previous monitoring events.

Dioxins/Furans

The generally accepted method for comparing dioxins/furans results against a given criteria consists of calculating a toxicity equivalency quotient (TEQ) relative to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). The results for individual analytes are multiplied by a factor, and the results totaled to provide an overall concentration value for the sample. In this document, toxicity equivalence factors (TEFs) endorsed by the World Health Organization (WHO 2005) were used to calculate the TEQs. The TEFs used to calculate TEQs are presented in Table 7. A comparison to the selected preliminary screening levels for the TEQs are presented in Table 9 and shown on Figure 7. TEQs reported in Table 7, Table 9, and Figure 7 were calculated using two conventions: 1) adding only detected congeners [non-detect (ND) equal to 0 picograms per liter (pg/L)]; and, 2) using one-half the detection limit for non-detected congeners (ND =1/2 detection limit).

Samples from three shallow wells (MW-7, MW-10, and MW-13) were analyzed for dioxins/furans in the fall 2011 monitoring event. Dioxins/furans were detected in each of the three wells as summarized in Table 7. Detected dioxin/furan congeners were generally 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin (HpCDD), octachlorodibenzo-p-dioxin (OCDD), 1,2,3,6,7,8-hexachlorodibenzofuran (HxCDF), 1,2,3,4,6,7,8-heptachlorodibenzofuran (HpCDF), and octachlorodibenzofuran (OCDF). TEQs ranged from 0.042 pg/L (MW-7S) to 1.22 pg/L (MW-13) when only positively identified compounds were included, and ranged from 1.02 pg/L (MW-7S duplicate) to 2.15 pg/L (MW-13) when non-detects were considered equal to one-half the detection limit. Total dioxins/furans (homologs) were also detected as summarized in Tables 7 and 9.

Total Copper

The copper analytical results are summarized and compared to the preliminary screening levels in Table 9. Copper was analyzed in samples collected from 18 monitoring wells (16 shallow wells and 2 deep wells) in the fall 2011 monitoring event. Total copper was detected in nine shallow wells and one deep well.

Total copper concentrations in the shallow wells ranged from non-detect to 138 µg/L (MW-33S). Total copper concentrations in the deep wells MW-3D and MW-14D were non-detect and 4 µg/L, respectively and dissolved concentrations were non-detect in both wells.

Total Petroleum Hydrocarbons - Diesel Range

The TPH-D analytical results are summarized in Tables 8 and 9. The MTCA Method A cleanup level of 0.5 milligrams per liter (mg/L) was used to screen TPH–D in groundwater. Samples from six shallow wells were analyzed for TPH-D in fall 2011. TPH-D was not detected in one monitoring well (MW-28S). In the five shallow wells where TPH-D was detected, concentrations ranged from 0.11 (mg/L; MW-29) to 2.0 mg/L (MW-35S). The TPH-D concentration of 2.0 mg/L in MW-35S, located in the northeast portion of the site, was the only sample that exceeded the Method A screening level.

Total Ammonia

Total ammonia [ammonium as nitrogen (NH_4+) plus ammonia as nitrogen (NH_3)] was analyzed in six monitoring wells as presented in Table 9. Ammonia in natural waters derives largely from the microbial breakdown of organic materials and, under anaerobic conditions, the reduction of nitrate. Ammonia exists either as a dissolved gas (NH_3 aqueous) or as the ammonium ion (NH_4+), primarily dependent upon pH (temperature also affects the speciation). At pH less than 7, NH_4+ predominates, and as the medium becomes more basic (pH greater than 7), gaseous NH_3 predominates (approximately 50 percent at pH 9 and 100 percent at pH>11). Unionized NH_3 is the form that can be toxic to aquatic organisms. The ionized NH_4+ is essentially harmless to aquatic organisms. The pH in six monitoring wells sampled ranged from 6.22 (MW-28S) to 6.48 (MW-30S; MW-31S).

The SW-AL preliminary screening level for unionized ammonia (NH_3) is 35 µg/L. To evaluate the total ammonia analytical data in terms of NH_3, a calculation deriving the NH_3 form of the ammonia using the dissociation constant was performed, and the data is presented in Table 9. The concentrations of NH_3 in the six wells sampled ranged from 0.05 µg/L (MW-34S) to 3.57 (MW-30S), below the SW-AL preliminary screening level. Based on the site's pH (generally less than 7), the predominant form of ammonia in groundwater at the site is likely ammonium.

SUMMARY AND CONCLUSIONS

This section provides a summary and conclusions of results for the fall 2011 sampling event.

- Ten new monitoring wells were installed at the site in November 2011, including eight shallow wells and two deep wells.

- Shallow groundwater at the site flows generally to the south in the southern portion of the site and northeasterly in the northern portion of the site with northeasterly to southeasterly groundwater flow components along the eastern portions of the site. The approximate average gradient was 0.0044. Field geochemistry parameters were collected during groundwater purging at each well. In general, groundwater geochemistry across the site in fall 2011 was consistent with previous sampling events. New monitoring well MW-32D was not sampled due to an elevated turbidity.
- Groundwater samples were collected from 35 monitoring wells in November /December 2011.
- The following compounds were analyzed in selected monitoring wells but were not detected: hexavalent chromium, tributyltin, 70 SVOC compounds, 70 VOC compounds, seven total and/or dissolved metals, 13 dioxins/furans congeners, one total dioxin homolog, and TPH-O.
- Compounds that were analyzed and detected but did not exceed preliminary screening levels include: six total and/or dissolved metals, two VOCs, three phenols, TPH-G, ammonia, and ten polycyclic aromatic hydrocarbons.
- PCP was not detected in 30 of the 35 monitoring wells. PCP was not detected in the deep monitoring wells, or in the northern portion of the site.
- Total arsenic was detected in 30 shallow and 4 deep wells, and dissolved arsenic was detected in all 31 shallow and 4 deep wells.
- Total copper was detected in nine of the 16 shallow wells sampled and one of two deep wells sampled at generally low concentrations.
- Dioxins/furans were analyzed and detected in three shallow wells at very low concentrations.
- TPH-D was detected in five of the six shallow wells analyzed at very low concentrations.
- In general, concentrations of the constituents of primary concern (PCP, total/dissolved arsenic) detected in the fall 2011 sampling event are consistent with the March 2009 baseline sampling event (ERM 2009). Seasonal variability in concentrations continues to be observed in the site monitoring wells between the spring and fall monitoring events.

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Figures

Project No. 0112489.05

Date: 04/13/10

Drawn By: R. Olson

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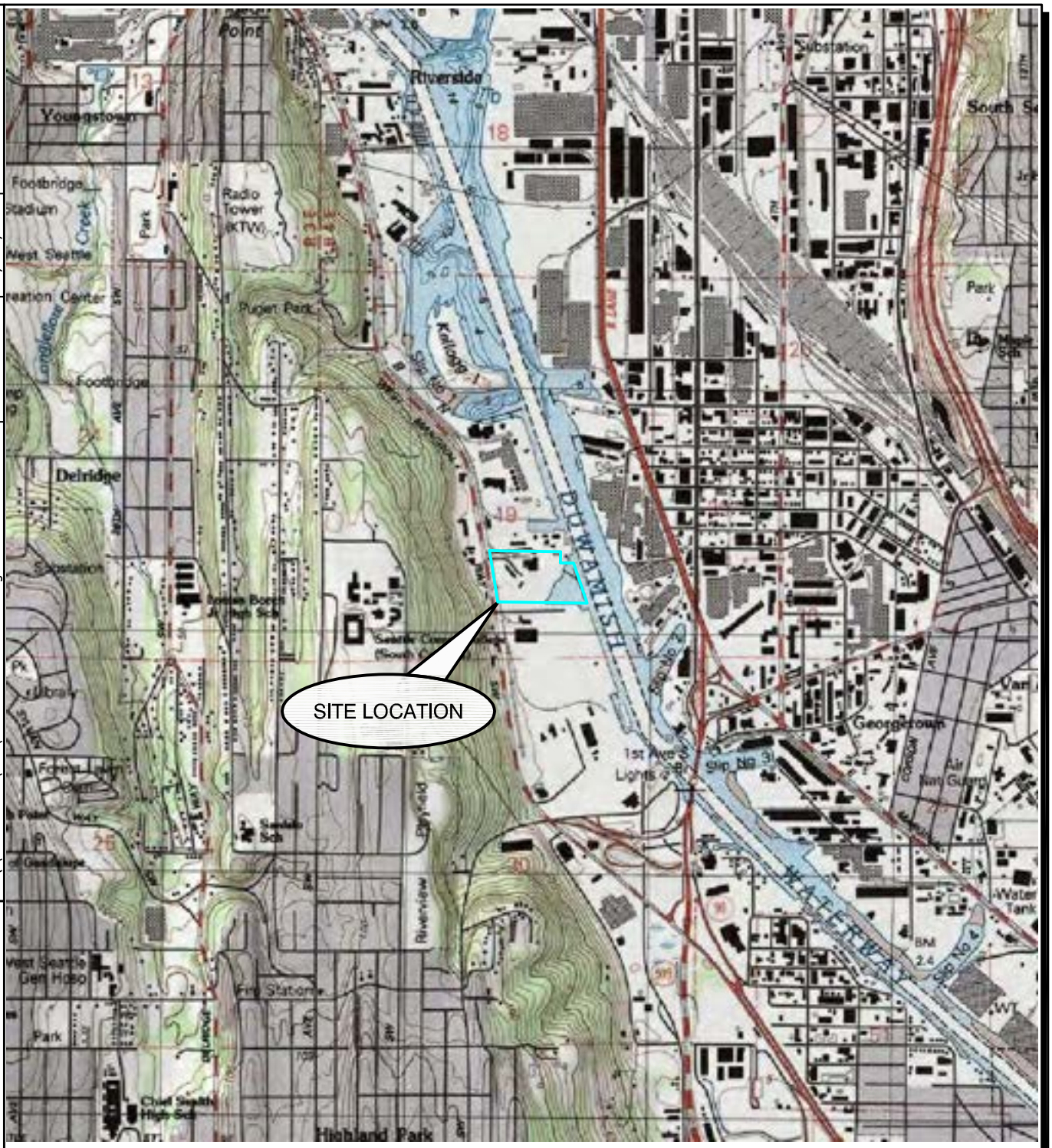

SCALE 1: 24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Seattle South E, WA
Version: 1983; Current: 1978

Figure 1

Site Location Map

Glacier Northwest, Inc. - Reichhold, Inc. Site

5900 W. Marginal Way, SW

Seattle, Washington

ERM 04/10

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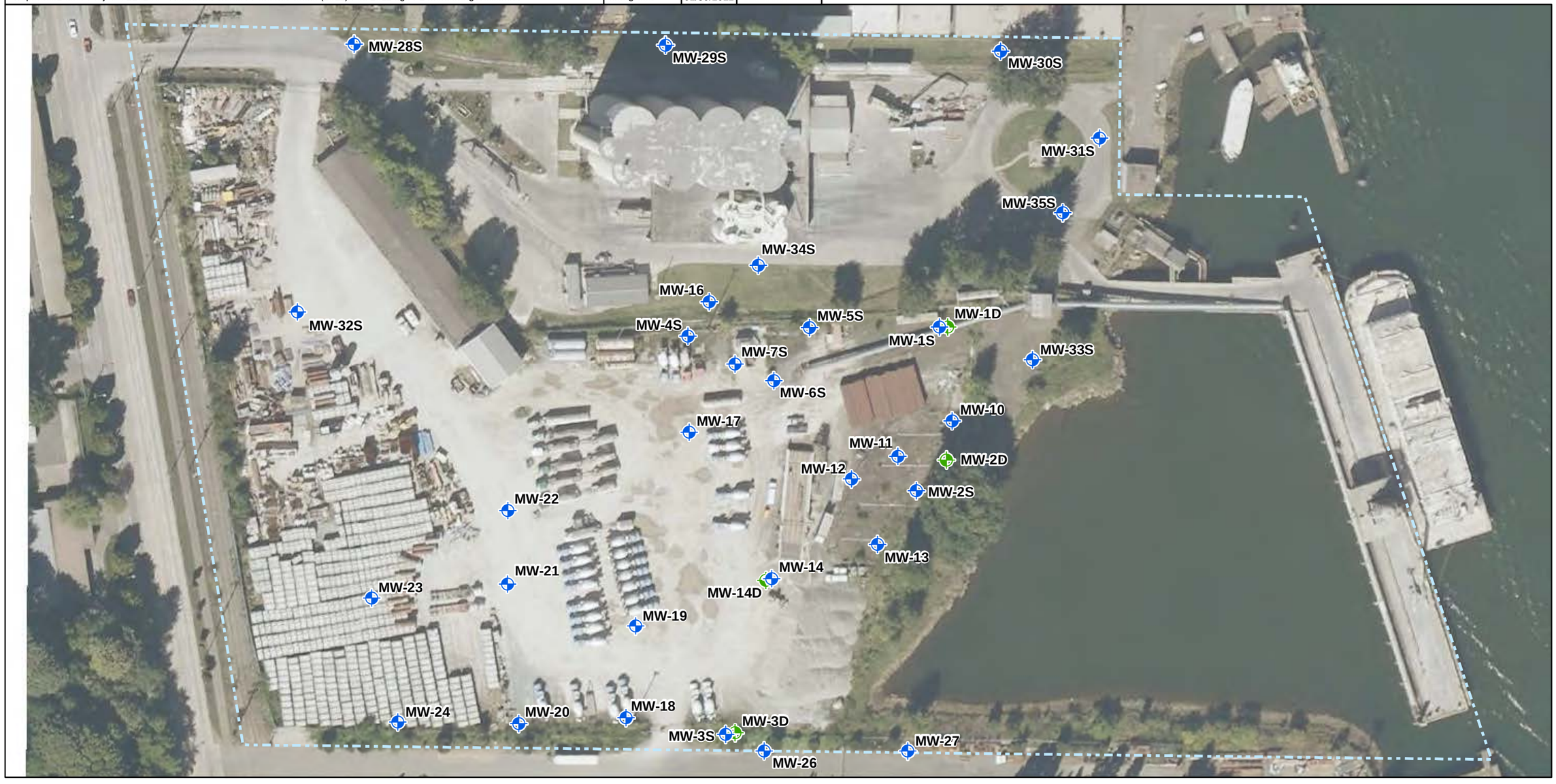

Shallow Monitoring Well Sampled during Fall 2011

Deep Monitoring Well Sampled during Fall 2011

Site Boundary

N

0 50 100 200 Feet

FIGURE 2

Existing Monitoring Well Network
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 01/12

Project No. 0128296.02
Date: 03/26/12
Drawn By: R.Olson
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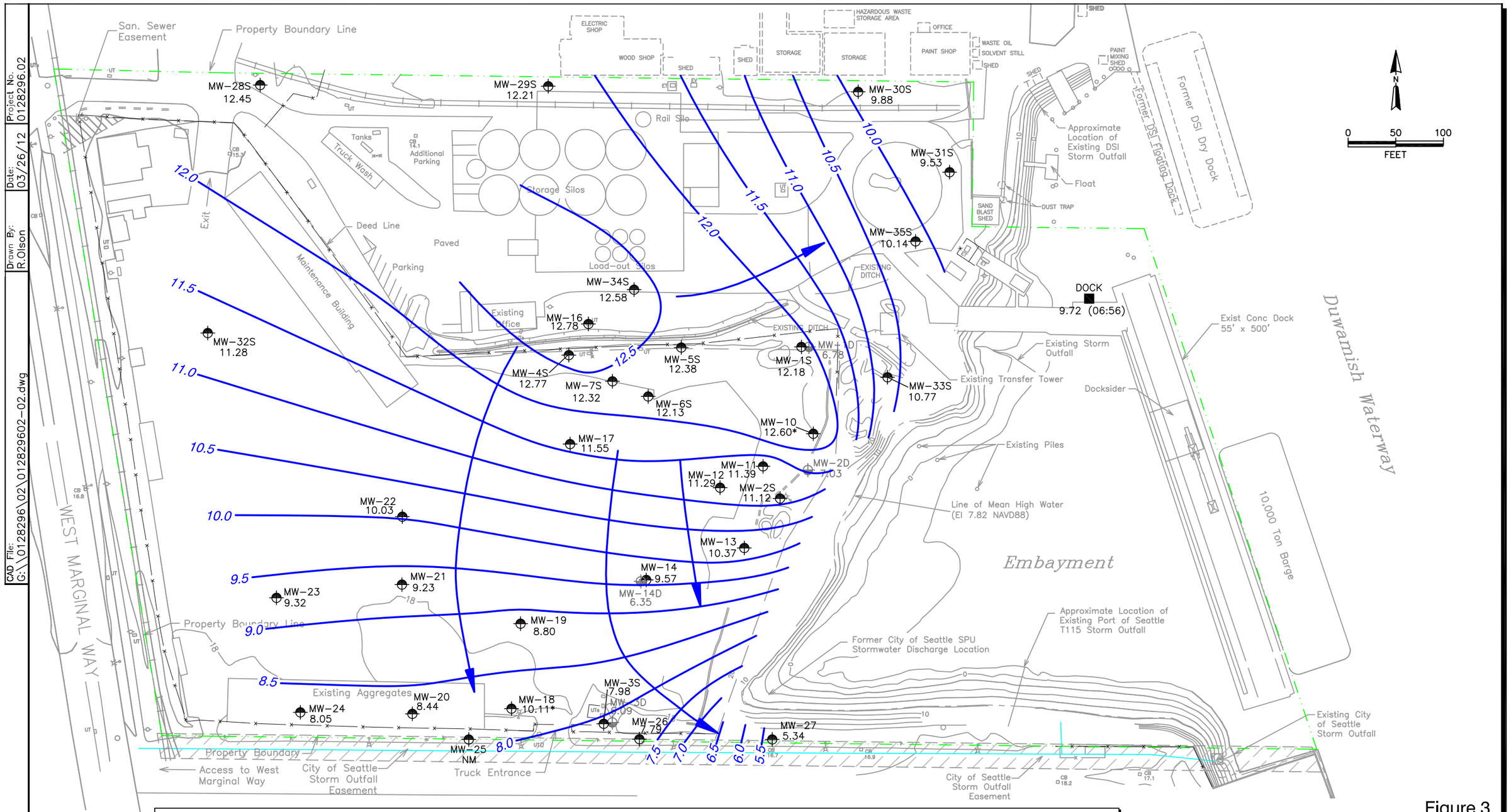

LEGEND

- Shallow Monitoring Well
- Deep Monitoring Well (Datum Not Used for Contouring)
- DOCK ■ Water Elevation Measurement of Bay Water; Time in Parentheses

- 9.51 Groundwater Elevation, Feet Above Mean Sea Level. Data Collected 28 November 2011
- NM Not Measured
- * Datum Not Used for Contouring

Horizontal Datum: Washington State Plane World Geodetic System, 1984.
Vertical Datum: North American Vertical Datum, 1988.

- 9.5 Groundwater Isoelevation Contours; Dashed Where Inferred
- Approximate Groundwater Flow Direction
- Property Line
- City of Seattle Public Utilities Stormwater Pipe

Figure 3
Shallow Groundwater Contour Map
28 November 2011
Glacier Northwest, Inc. - Reichhold, Inc. Site
5900 W. Marginal Way, SW
Seattle, Washington

ERM 03/12

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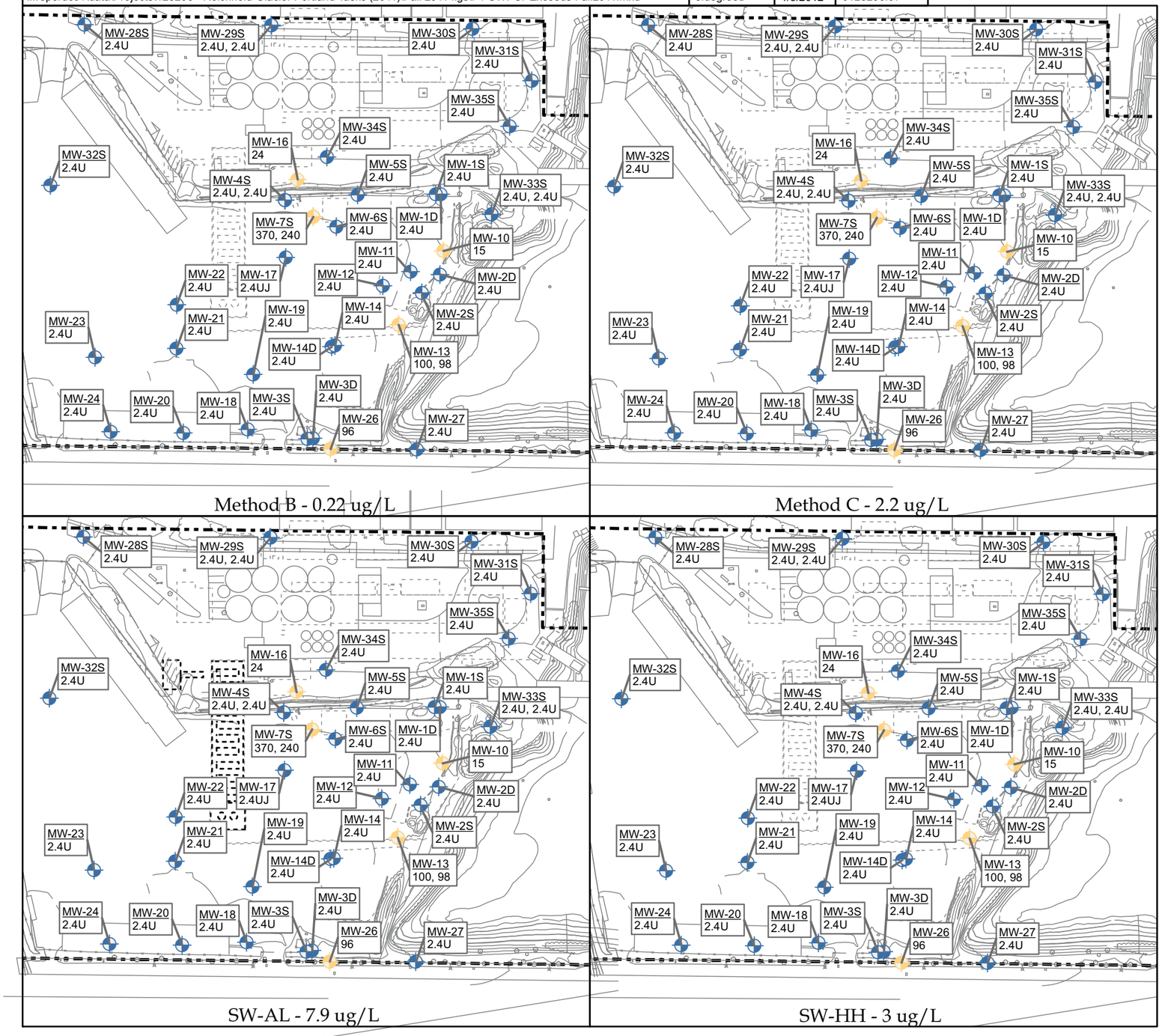

Legend

- Sample Result Does not Exceed the Pentachlorophenol Screening Level
- Sample Result Exceeds the Pentachlorophenol Screening Level

Notes:
All results in micrograms per liter.
370, 240 - Primary Sample, Field Duplicate Sample
If the primary or field duplicate sample concentration exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 through 9 of *Fall 2011 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC)
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established)
Primary and field duplicate samples collected November through December 2011.

0 50 100 200 Feet

N

FIGURE 4
Screening Level Exceedences
Pentachlorophenol in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 04/12

File:
\\wepordc01\data\Projects\128296 - Reichhold-Glacier Portland Tasks (2011)\Fall 2011 figs\F5 GWArsenicExceeds Fall2011.mxd

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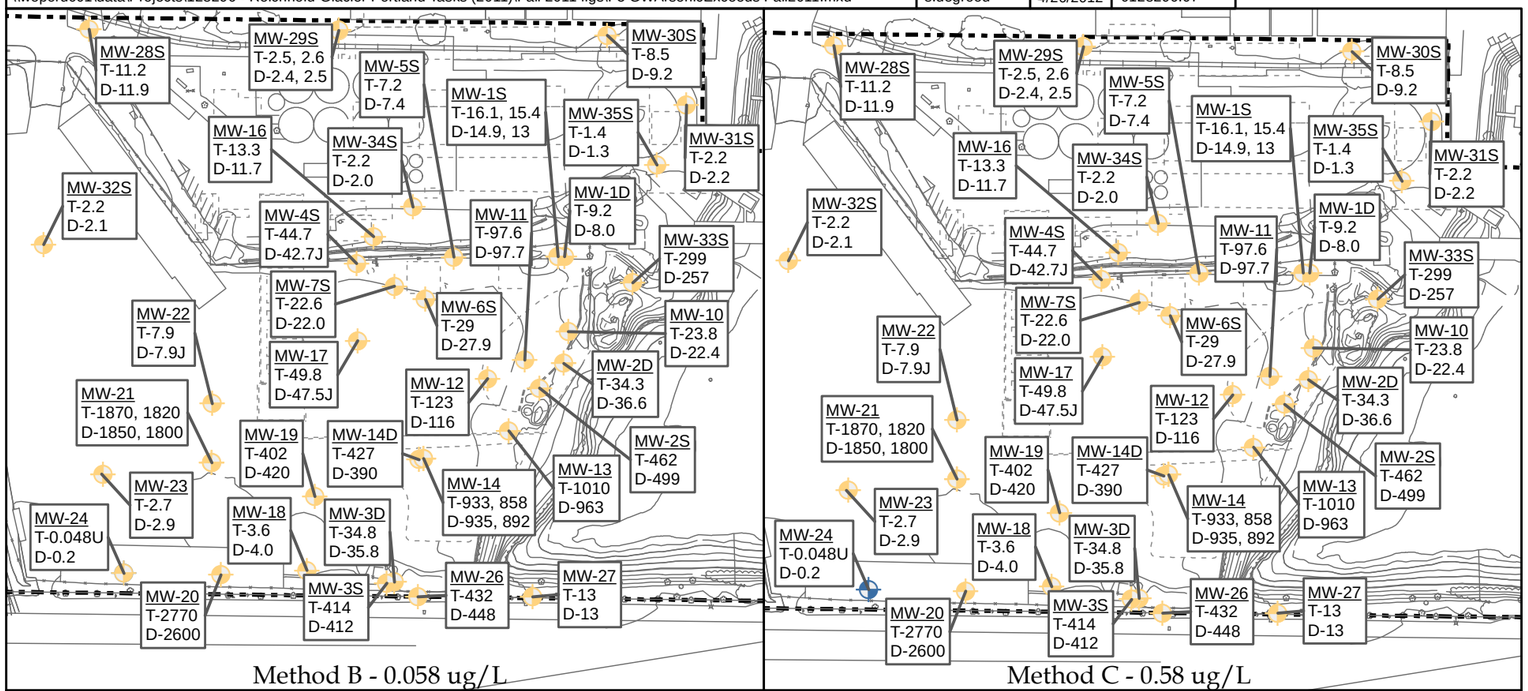

Legend

- Location where Arsenic did not Exceed the Screening Level
- Location where Arsenic Exceeds the Screening Level

Notes:
All results in micrograms per liter.
299, 257 - Primary Sample Result, Field Duplicate Result.
T- Total metal concentration.
D - Dissolved metal concentration.
If either the total or dissolved concentration of primary or field duplicate exceeds the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 through 9 of *Fall 2011 Groundwater Sampling Results Memorandum*.
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC).
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established).
*Arsenic screening levels for Method B, Method C, and SW-HH are less than anthropogenic background concentrations of arsenic (10 to 15 µg/L) in the Lower Duwamish area (ENSR/AECOM, 2009).
Primary and field duplicate samples collected November and December 2011.

N

0 50 100 200
Feet

FIGURE 5
Screening Level Exceedences
Arsenic in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

ERM 04/12

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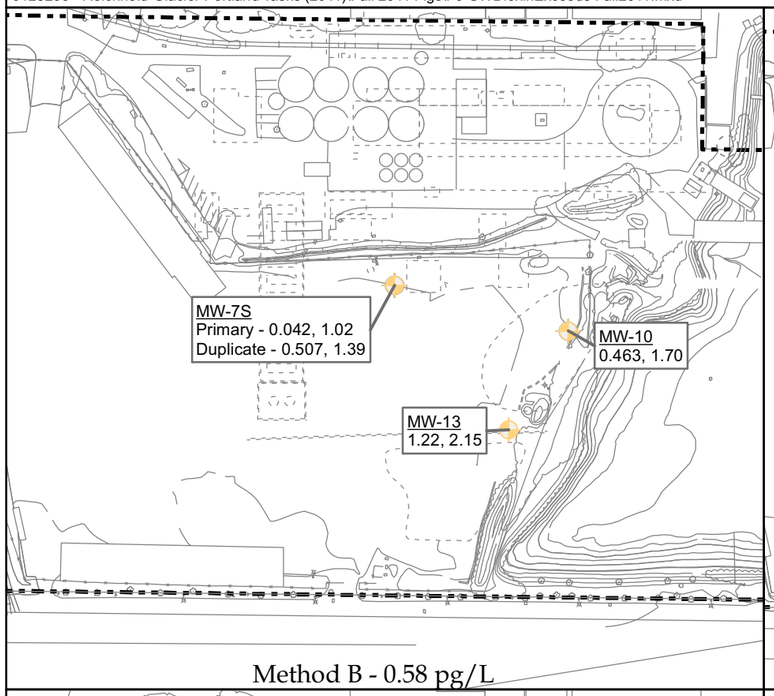
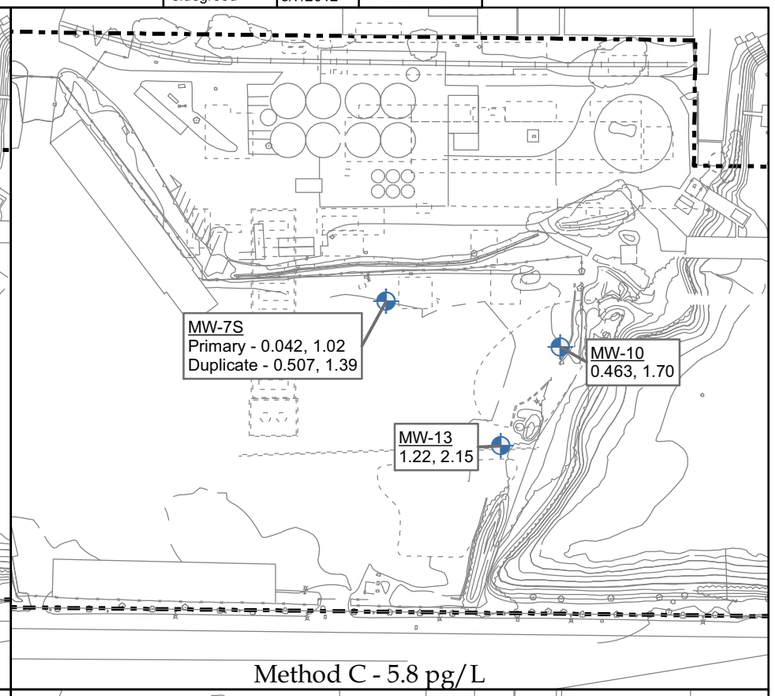
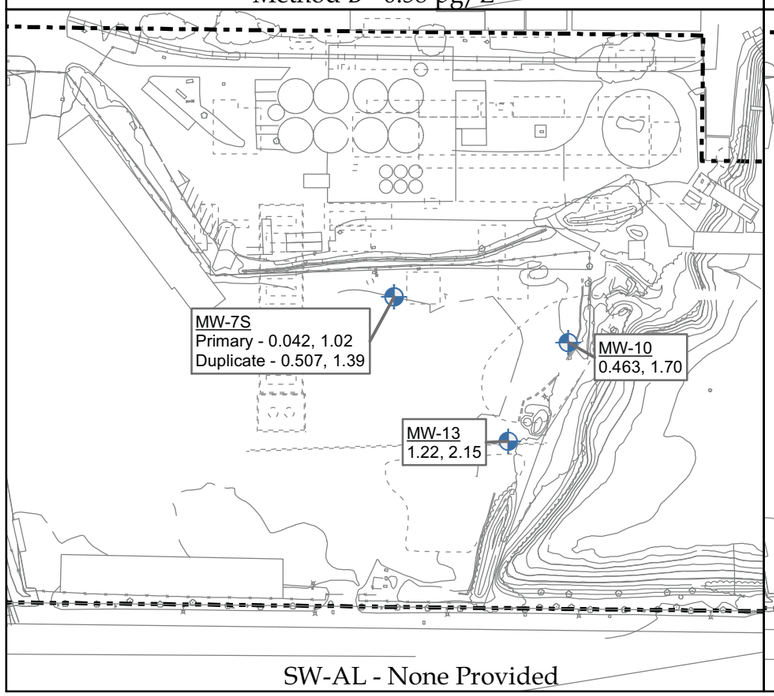


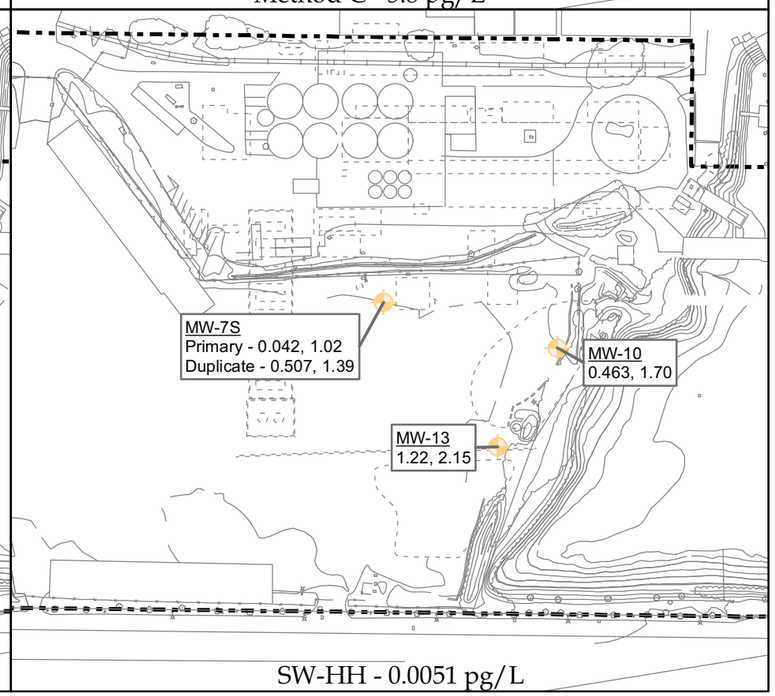
Method B - 0.58 pg/L



Method C - 5.8 pg/L



SW-AL - None Provided



SW-HH - 0.0051 pg/L

Legend

Location where Dioxin/Furan TEQ did not Exceed the Screening Level

Location where Dioxin/Furan TEQ Exceeds the Screening Level

Notes:
All results in picograms per liter.
0.533, 1.37 - TEQ calcuated with non-detected dioxins/furans equal to zero, TEQ calculated with non-detected dioxins/furans equal to one-half the detection limit.
If either of the TEQs exceed the screening level, the well is displayed as an exceedence.
Data qualifiers are defined in Tables 4 through 9 of *Fall 2011 Groundwater Sampling Results Memorandum*.
TEQ = toxicity equivalents relative to 2,3,7,8-tetrachlorodibenzo-p-dioxin, calculated using toxicity equivalency factors provided by World Health Organization (2005).
Method B = Ground Water, Method B, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method C = Ground Water, Method C, Carcinogen\Non-Carcinogen Composite, Standard Formula Value.
Method B and C screening levels provided are lowest of the carcinogenic and non-carcinogenic values.
SW-AL = Surface Water, Water Quality Criteria- Aquatic Life - Marine/Chronic - Washington Administrative Code (WAC).
SW-HH = Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (WAC Not Established).
Primary and field duplicate samples collected November and December 2011.

N

0 50 100 200
Feet

FIGURE 6
Screening Level Exceedences
Dioxins/Furans Toxicity Equivalency Quotient in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc.
- Reichhold, Inc. Site
5900 W. Marginal Way SW
Seattle, Washington

Tables

Table 1

Groundwater Sampling Parameters
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID / Analyte / Method	Sample Date	Sample ID	Site COPCs	Characterization of COIs					Adjacent Site COIs								Water Quality Parameters/General Chemistry													Characterization of COIs		Sediment and Adjacent Site COPCs				Field Measurements [2]
			Phenol/ Chlorinated Phenols	Metals					Metals								Anions Cl, SO_4, NO_3, PO_4	TOX	TOC	TSS	Hardness	Alkalinity	Ammonia	TPH	TBT	Dioxins/ Furans	VOCs	SVOCs	
			USEPA 8270D	As*	Cr*	Cu*	Ag*	Zn*	Cr VI*	Sb*	Be*	Cd*#	Pb*#	Ni*	Se*	Tl*	Hg*#	Ca	K	Mg	Na	Al*	Fe*	Mn*	USEPA 300.0/ SM 4500	USEPA 9020	USEPA 9060	SM 2450D	USEPA 6010B	SM 2320B	USEPA 350.1	NWTPH-Dx, Gx	Krone 1989	AXYS MLA-017R20	USEPA 8260C	USEPA 8270D/ 8270-SIM	Various
				USEPA 6010B/6020					USEPA 7196A	USEPA 6010B/6020							USEPA 7470A	USEPA 6010B/6020																			
MW-1S	11/29/2011	MW-1S-112911	X	X	X	X	X	X	X																					X					X
MW-1S (dup)	11/29/2011	DUP-112911-1		X																															
MW-1D	11/29/2011	MW-1D-112911	X	X																															X
MW-2S	11/30/2011	MW-2S-113011	X	X																															X
MW-2D	11/30/2011	MW-2D-113011	X	X																															X
MW-3S	12/1/2011	MW-3S-120111	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MS/MSD	12/1/2011	MW-3S-120111		X	X	X	X	X		X	X	X	X	X	X	X	X																		
MW-3D	12/1/2011	MW-3D-120111	X	X	X	X	X	X																											X
MW-4S	11/28/2011	MW-04S-112811	X	X																													X		X
MW-4S (dup)	11/28/2011	DUP-112811-1	X																																
MW-5S	12/1/2011	MW-5S-120111	X	X																															X
MW-6S	11/30/2011	MW-6S-113011	X	X																															X
MW-7S	11/29/2011	MW-7S-112911	X	X																							X						X		X
MW-7S (dup)	11/29/2011	DUP-112911-2	X																														X		
MW-10	11/29/2011	MW-10-112911	X	X																							X						X		X
MW-11	12/1/2011	MW-11-120111	X	X																															X
MW-12	12/1/2011	MW-12-120111	X	X																															X
MW-13	11/29/2011	MW-13-112911	X	X																							X						X	X	X
MW-13 (dup)	11/29/2011	DUP-112911-3	X																																
MS/MSD	11/29/2011	MW-13-112911	X																														X		
MW-14	12/2/2011	MW-14-120211	X	X	X	X	X	X																											X
MW-14 (dup)	12/2/2011	DUP-120211-1		X																															
MW-14	12/2/2011	MW-14-120211	X																																
MW-14D	12/2/2011	MW-14D-120211		X	X	X	X	X										X	X	X	X	X	X	X	X	X	X	X	X	X					X	X
MS/MSD	12/2/2011	MW-14D-120211																X	X	X	X	X	X	X												
MW-16	12/6/2011	MW-16-120611	X	X																													X		X
MW-17	11/28/2011	MW-17-112811	X	X																															X
MW-18	11/30/2011	MW-18-113011	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MW-18 (dup)	11/30/2011	DUP-113011-2		X	X	X	X	X		X	X	X	X	X	X	X	X																		
MW-19	12/1/2011	MW-19-120111	X	X																															X
MW-20	11/30/2011	MW-20-113011	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MW-21	11/30/2011	MW-21-113011	X	X																															X
MW-21 (dup)	11/30/2011	DUP-113011-1		X																															
MW-22	11/28/2011	MW-22-112811	X	X																															X
MS/MSD	11/28/2011	MW-22-112811		X																															
MW-23	11/28/2011	MW-23-112811	X	X																															X
MW-24	11/30/2011	MW-24-113011	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MW-26	12/1/2011	MW-26-120111	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MW-27	12/1/2011	MW-27-120111	X	X	X	X	X	X		X	X	X	X	X	X	X	X																		X
MW-28S	12/2/2011	MW-28S-120211		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-28S (dup)	12/2/2011	DUP-120211-2																													X		X			
MS/MSD	12/2/2011	MW-28S-120211																													X					
MW-29S	12/2/2011	MW-29S-120211		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-29S (dup)	12/2/2011	DUP-120211-3		X																														X		
MS/MSD	12/2/2011	MW-29S-120211																														X				
MW-30S	12/5/2011	MW-30S-120511		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-30S (dup)	12/5/2011	DUP-120511-1																													NWTPH-Dx	X				
MS/MSD	12/5/2011	MW-30S-120511																																X		
MW-31S	12/5/2011	MW-31S-120511		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-31S (dup)	12/5/2011	DUP-120511-2			X	X	X	X										X	X	X	X	X	X	X							NWTPH-Gx					
MS/MSD	12/5/2011	MW-31S-120511							X																									X		
MW-32S	12/6/2011	MW-32S-120611		X	X	X	X	X										X	X	X	X	X	X	X	X	X	X	X	X	X					X	X
MW-33S	12/5/2011	MW-33S-120511		X	X	X	X	X										X	X	X	X	X	X	X	X	X	X	X	X	X					X	X
MW-33S (dup)	12/5/2011	DUP-120511-3																																	X	
MW-34S	12/6/2011	MW-34S-120611		X	X	X	X	X	X									X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X
MW-34S (dup)	12/6/2011	DUP-120611-1							X																						X					
MW-35S	12/6/2011	MW-35S-120611		X	X	X	X	X										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
Total			**31**	**41**	**21**	**21**	**21**	**21**	**5**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**12**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**9**	**9**	**9**	**12**	**9**	**9**	**8**	**8**	**6**	**5**	**9**	**12**	**35**

Notes:

- Field measurements include: ferrous iron, sulfide, dissolved oxygen, temperature, pH, oxidation reduction potential, specific conductivity, and turbidity.

* = Collect total (unfiltered) and dissolved (filtered) metals samples

- Cd, Pb and Hg metals also grouped in Sediment Management Standards constituent list.

AXYS = AXYS Lab-Specific Method

COI = Constituent of Interest

COPC = Constituent of Potential Concern

dup = Duplicate sample

MS/MSD = Matrix Spike/Matrix Spike Duplicate

SIM = Selective Ion Method for polycyclic aromatic hydrocarbons

TSS = Total Suspended Solids

USEPA = United States Environmental Protection Agency

Analytes Key

Al	Aluminum	Ni	Nickel
Sb	Antimony	PO4	Phosphorus as Total Phosphate
As	Arsenic	K	Potassium
Be	Beryllium	Se	Selenium
Cd	Cadmium	SVOC	Semi-volatile Organic Compounds
Ca	Calcium	Ag	Silver
Cl	Chloride	Na	Sodium
Cr	Chromium	SO4	Sulfate
Cu	Copper	Tl	Thallium
Cr VI	Hexavalent Chromium	TOC	Total Organic Carbon
Fe	Iron	TOX	Total Organic Halides
Pb	Lead	TPH	Total Petroleum Hydrocarbons
Mg	Magnesium	TSS	Total Suspended Solids
Mn	Manganese	TBT	Tributyltin
Hg	Mercury	VOC	Volatile Organic Compounds
NO3	Nitrate	Zn	Zinc

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-01S	17.69	204056.54384	1267772.56387	3/23/2009	8:28	6.49	11.20
				6/25/2009	10:06	8.52	9.17
				10/7/2009	9:21	9.37	8.32
				1/28/2010	9:41	6.24	11.45
				4/26/2010	7:44	6.84	10.85
				8/5/2010	9:05	8.89	8.80
				10/25/2010	8:12	5.83	11.87
				4/25/2011	7:52	6.83	10.86
				7/14/2011	8:21	8.63	9.06
				11/28/2011	7:22	5.51	12.18
MW-01D	17.16	204056.58750	1267780.48417	3/23/2009	8:30	12.02	5.14
				6/25/2009	10:37	13.22	3.94
				10/7/2009	9:22	11.15	6.01
				1/28/2010	9:37	10.48	6.68
				4/26/2010	7:38	12.43	4.73
				8/5/2010	9:00	15.86	1.30
				10/25/2010	8:18	10.07	7.09
				4/25/2011	7:55	11.78	5.38
				7/14/2011	8:24	13.45	3.71
				11/28/2011	7:20	10.38	6.78
MW-02S	17.42	203897.54374	1267750.17664	3/23/2009	8:32	6.82	10.60
				6/25/2009	11:03	8.39	9.03
				10/7/2009	10:42	9.26	8.16
				1/28/2010	10:44	6.41	11.01
				4/26/2010	8:51	6.94	10.48
				8/5/2010	9:40	8.72	8.70
				10/25/2010	8:54	6.40	11.02
				4/25/2011	8:20	6.87	10.55
				7/14/2011	8:48	8.48	8.94
				11/28/2011	7:40	6.30	11.12
MW-02D	17.43	203927.36169	1267779.32250	3/23/2009	8:36	12.43	5.00
				6/25/2009	11:01	14.70	2.73
				10/7/2009	10:46	11.71	5.72
				1/28/2010	10:29	10.68	6.75
				4/26/2010	8:18	13.96	3.47
				8/5/2010	9:35	15.83	1.60
				10/25/2010	8:50	10.31	7.12
				4/25/2011	8:17	11.99	5.44
				7/14/2011	8:44	14.79	2.64
				11/28/2011	7:38	10.40	7.03
MW-03S	19.62	203661.20996	1267565.26400	3/23/2009	8:50	10.71	8.91
				6/25/2009	11:19	11.22	8.40
				10/7/2009	11:03	12.20	7.42
				1/28/2010	12:31	9.84	9.78
				4/26/2010	10:09	10.89	8.73
				8/5/2010	10:57	11.80	7.82
				10/25/2010	10:45	11.77	7.85
				4/25/2011	9:17	10.51	9.11
				7/14/2011	9:47	11.51	8.11
				11/28/2011	8:08	11.64	7.98
MW-03D	19.51	203662.55602	1267574.28418	3/23/2009	8:52	14.23	5.28
				6/25/2009	11:22	15.21	4.30
				10/7/2009	11:03	14.20	5.31
				1/28/2010	12:34	12.49	7.02
				4/26/2010	10:13	15.75	3.76
				8/5/2010	11:00	15.94	3.57
				10/25/2010	10:48	13.23	6.28
				4/25/2011	9:14	13.70	5.81
				7/14/2011	9:44	15.75	3.76
				11/28/2011	8:11	13.42	6.09

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-04S	18.81	204047.96657	1267528.70925	3/23/2009	8:16	7.09	11.72
				6/25/2009	10:21	9.09	9.72
				10/7/2009	9:04	9.86	8.95
				1/28/2010	10:04	6.64	12.17
				4/26/2010	8:06	7.17	11.64
				8/5/2010	9:18	9.49	9.32
				10/25/2010	8:34	5.88	12.93
				4/25/2011	9:50	6.80	12.01
				7/14/2011	10:15	9.17	9.64
				11/28/2011	9:14	6.04	12.77
MW-05S	18.42	204055.92275	1267646.61849	3/23/2009	8:25	6.87	11.55
				6/25/2009	10:11	8.93	9.49
				10/7/2009	9:16	9.71	8.71
				1/28/2010	9:47	6.57	11.85
				4/26/2010	7:47	7.04	11.38
				8/5/2010	10:02	6.31	12.11
				10/25/2010	8:23	5.98	12.44
				4/25/2011	9:24	7.01	11.41
				7/14/2011	9:56	9.02	9.40
				11/28/2011	8:32	6.04	12.38
MW-06S	18.50	204004.58908	1267611.92486	3/23/2009	8:23	6.98	11.52
				6/25/2009	10:15	8.90	9.60
				10/7/2009	9:12	9.73	8.77
				1/28/2010	9:58	6.60	11.90
				4/26/2010	8:01	7.11	11.39
				8/5/2010	9:09	9.29	9.21
				10/25/2010	8:27	6.75	11.75
				4/25/2011	9:30	7.05	11.45
				7/14/2011	10:02	8.99	9.51
				11/28/2011	8:36	6.37	12.13
MW-07S	18.50	204020.49534	1267574.41961	3/23/2009	8:18	6.90	11.60
				6/25/2009	10:18	8.81	9.69
				10/7/2009	9:09	9.64	8.86
				1/28/2010	9:54	6.47	12.03
				4/26/2010	7:56	6.98	11.52
				8/5/2010	9:14	9.21	9.29
				10/25/2010	8:29	6.31	12.19
				4/25/2011	9:35	6.84	11.66
				7/14/2011	10:22	8.91	9.59
				11/28/2011	9:10	6.18	12.32
MW-10	15.51	203965.45545	1267785.06206	3/23/2009	8:33	4.74	10.77
				6/25/2009	10:56	6.49	9.02
				10/7/2009	10:37	7.33	8.18
				1/28/2010	10:38	4.32	11.19
				4/26/2010	8:31	4.82	10.69
				8/5/2010	9:30	6.81	8.70
				10/25/2010	8:43	2.51	13.00
				4/25/2011	8:10	4.87	10.64
				7/14/2011	8:37	6.57	8.94
				11/28/2011	7:30	2.91	12.60
MW-11	15.34	203931.25080	1267732.36107	3/23/2009	8:40	4.49	10.85
				6/25/2009	10:47	6.19	9.15
				10/7/2009	10:29	7.05	8.29
				1/28/2010	10:21	3.47	11.87
				4/26/2010	8:39	4.59	10.75
				8/5/2010	9:57	6.49	8.85
				10/25/2010	*	*	*
				4/25/2011	8:56	4.56	10.78
				7/14/2011	9:28	6.23	9.11
				11/28/2011	8:28	3.95	11.39

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-12	15.92	203908.83835	1267687.31078	3/23/2009	8:05	4.84	11.08
				6/25/2009	10:33	6.39	9.53
				10/7/2009	10:26	7.36	8.56
				1/28/2010	10:55	4.35	11.57
				4/26/2010	8:59	4.91	11.01
				8/5/2010	9:49	6.79	9.13
				10/25/2010	9:34	5.33	10.59
				4/25/2011	9:00	4.83	11.09
				7/14/2011	9:33	6.50	9.42
				11/28/2011	8:24	4.63	11.29
MW-13	15.95	203845.60548	1267712.70978	3/23/2009	8:44	5.43	10.52
				6/25/2009	11:07	6.67	9.28
				10/7/2009	10:46	7.64	8.31
				1/28/2010	11:27	4.62	11.33
				4/26/2010	8:56	5.45	10.50
				8/5/2010	9:45	7.04	8.91
				10/25/2010	9:29	5.83	10.12
				4/25/2011	8:26	5.28	10.67
				7/14/2011	8:53	6.77	9.18
				11/28/2011	7:44	5.58	10.37
MW-14	16.38	203812.11685	1267609.88790	3/23/2009	8:48	6.09	10.29
				6/25/2009	11:14	7.08	9.30
				10/7/2009	10:51	8.07	8.31
				1/28/2010	11:10	5.40	10.98
				4/26/2010	9:04	6.05	10.33
				8/5/2010	9:52	7.45	8.93
				10/25/2010	9:40	7.04	9.34
				4/25/2011	9:10	5.79	10.59
				7/14/2011	9:38	7.18	9.20
				11/28/2011	8:18	6.81	9.57
MW-14D	16.48	203810.58000	1267604.15700	11/28/2011	8:15	10.13	6.35
MW-16	13.80	204080.65296	1267549.20703	3/23/2009	9:51	2.09	11.71
				6/25/2009	9:54	4.08	9.72
				10/7/2009	9:34	4.82	8.98
				1/28/2010	9:25	1.64	12.16
				4/26/2010	7:28	2.19	11.61
				8/5/2010	8:47	4.47	9.33
				10/25/2010	11:23	0.82	12.98
				4/25/2011	9:42	1.75	12.05
				7/14/2011	10:10	4.15	9.65
				11/28/2011	9:19	1.02	12.78
MW-17	16.24	203954.60493	1267530.00292	3/23/2009	7:59	4.92	11.32
				6/25/2009	10:27	6.53	9.71
				10/7/2009	8:57	7.42	8.82
				1/28/2010	10:12	4.40	11.84
				4/26/2010	9:14	4.90	11.34
				8/5/2010	10:09	6.93	9.31
				10/25/2010	9:44	5.05	11.19
				4/25/2011	9:55	4.73	11.51
				7/14/2011	10:32	6.62	9.62
				11/28/2011	8:40	4.69	11.55
MW-18	17.21	203677.06233	1267468.56680	3/23/2009	8:56	6.97	10.24
				6/25/2009	11:27	8.71	8.50
				10/7/2009	11:11	9.72	7.49
				1/28/2010	12:26	7.41	9.80
				4/26/2010	10:05	8.38	8.83
				8/5/2010	10:43	9.32	7.89
				10/25/2010	10:41	6.61	10.60
				4/25/2011	10:13	7.95	9.26
				7/14/2011	10:47	8.96	8.25
				11/28/2011	9:00	7.10	10.11

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-19	16.84	203766.18777	1267478.08281	3/23/2009	9:01	7.04	9.80
				6/25/2009	12:17	7.75	9.09
				10/7/2009	10:56	8.73	8.11
				1/28/2010	12:40	6.26	10.58
				4/26/2010	9:43	7.03	9.81
				8/5/2010	10:37	8.17	8.67
				10/25/2010	11:05	8.08	8.76
				4/25/2011	10:04	6.71	10.13
				7/14/2011	10:39	7.89	8.95
				11/28/2011	8:55	8.04	8.80
MW-20	17.46	203671.59840	1267364.59998	3/23/2009	9:05	8.21	9.25
				6/25/2009	11:55	8.75	8.71
				10/7/2009	11:19	9.84	7.62
				1/28/2010	12:18	7.37	10.09
				4/26/2010	9:58	8.44	9.02
				8/5/2010	10:54	9.41	8.05
				10/25/2010	10:35	9.30	8.16
				4/25/2011	10:19	7.95	9.51
				7/14/2011	10:54	8.93	8.53
				11/28/2011	9:04	9.02	8.44
MW-21	17.22	203807.20569	1267353.70698	3/23/2009	9:15	7.04	10.18
				6/25/2009	11:33	7.78	9.44
				10/7/2009	11:45	8.75	8.47
				1/28/2010	12:01	6.25	10.97
				4/26/2010	9:35	6.95	10.27
				8/5/2010	10:22	8.19	9.03
				10/25/2010	10:00	8.07	9.15
				4/25/2011	10:26	6.63	10.59
				7/14/2011	11:00	7.88	9.34
				11/28/2011	9:42	7.99	9.23
MW-22	16.79	203878.42265	1267354.09852	3/23/2009	9:22	6.11	10.68
				6/25/2009	12:03	7.12	9.67
				10/7/2009	8:45	8.04	8.75
				1/28/2010	11:41	5.39	11.40
				4/26/2010	9:21	5.96	10.83
				8/5/2010	10:15	7.76	9.03
				10/25/2010	9:52	6.96	9.83
				4/25/2011	10:34	5.70	11.09
				7/14/2011	11:07	7.18	9.61
				11/28/2011	9:36	6.76	10.03
MW-23	16.72	203793.38141	1267222.11951	3/23/2009	9:40	6.41	10.31
				6/25/2009	11:45	7.10	9.62
				10/7/2009	11:38	8.13	8.59
				1/28/2010	11:49	5.65	11.07
				4/26/2010	9:28	6.34	10.38
				8/5/2010	10:29	7.52	9.20
				10/25/2010	10:09	7.52	9.20
				4/25/2011	10:46	5.98	10.74
				7/14/2011	11:16	7.21	9.51
				11/28/2011	9:53	7.40	9.32
MW-24	16.78	203673.20066	1267247.14526	3/23/2009	9:09	7.87	8.91
				6/25/2009	11:39	8.42	8.37
				10/7/2009	11:31	9.50	7.28
				1/28/2010	12:12	7.05	9.73
				4/26/2010	9:51	8.07	8.71
				8/5/2010	10:49	9.04	7.74
				10/25/2010	10:18	8.95	7.83
				4/25/2011	10:40	7.58	9.20
				7/14/2011	11:22	8.57	8.21
				11/28/2011	9:48	8.73	8.05

Table 2

Groundwater Level Measurements
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Well ID	Measuring Point Elevation *ft-amsl*	Northings	Eastings	Date	Time	Depth to Groundwater *ft-toc*	Groundwater Elevation *ft-amsl*
MW-26	16.62	203644.99716	1267602.70357	3/23/2009	10:03	8.01	8.61
				6/25/2009	12:37	8.50	8.13
				10/7/2009	10:16	9.45	7.17
				1/28/2010	13:02	7.15	9.47
				4/26/2010	10:39	8.22	8.40
				8/5/2010	11:13	9.15	7.47
				10/25/2010	10:53	8.95	7.67
				4/25/2011	8:36	7.82	8.80
				7/14/2011	9:09	8.76	7.86
				11/28/2011	8:00	8.83	7.79
MW-27	16.58	203644.72154	1267742.00960	3/23/2009	10:12	11.54	5.04
				6/25/2009	12:44	11.26	5.32
				10/7/2009	10:10	12.12	4.46
				1/28/2010	12:58	10.15	6.43
				4/26/2010	10:35	11.81	4.77
				8/5/2010	11:09	12.33	4.25
				10/25/2010	10:59	10.92	5.66
				4/25/2011	8:47	11.13	5.45
				7/14/2011	9:15	11.26	5.32
				11/28/2011	7:55	11.24	5.34
MW-28S	14.41	204331.27100	1267205.03200	11/28/2011	10:06	1.96	14.62
MW-29S	13.06	204330.02400	1267507.11700	11/28/2011	9:30	0.85	15.73
MW-30S	12.15	204324.18200	1267832.08300	11/28/2011	7:01	2.27	14.31
MW-31S	14.15	204239.86200	1267927.96400	11/28/2011	7:05	4.62	11.96
MW-32S	15.35	204071.09300	1267150.05800	11/28/2011	10:02	4.07	12.51
MW-32D	15.46	204074.00500	1267148.30900	11/28/2011	9:58	9.80	6.78
MW-33S	15.00	204024.70900	1267862.87400	11/28/2011	7:16	4.23	12.35
MW-34S	13.93	204116.60400	1267597.09600	11/28/2011	9:23	1.35	15.23
MW-35S	14.06	204167.25400	1267892.28800	11/28/2011	7:11	3.92	12.66

Notes:

ft-amsl = feet above mean sea level

ft-toc = feet below measuring point

* = Well could not be accessed due to recharging water in the well monument.

Table 3

Field Parameter Values
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location	Sample Date	Sample Time	Depth to Water (ft btoc)	Ferrous Iron (mg/L)	Sulfide (mg/L)	Temperature (°C)	pH	EC (µS/cm)	D.O. (mg/L)	Redox Potential (mV)	Salinity (ppt)	Turbidity (ntu)
MW-1D	11/29/2011	6:26	12.23	1.34	0.11	8.28	6.71	759	1.00	-92	0.4	1.4
MW-2D	11/30/2011	7:03	12.85	2.30	0.05	11.56	6.22	1240	1.19	-70	0.6	1.0
MW-3D	12/1/2011	8:08	15.13	8.20	0.08	9.28	6.31	1730	0.77	-58	0.9	0.2
MW-14D	12/2/2011	8:53	11.66	6.95	0.11	10.44	6.34	1020	1.17	-76	0.5	6.4
MW-1S	11/29/2011	7:12	5.83	0.96	0.02	9.67	6.24	403	0.99	70	0.2	1.0
MW-2S	11/30/2011	7:42	6.71	0.54	0.23	10.34	6.27	478	0.93	-16	0.2	1.0
MW-3S	12/1/2011	7:07	11.64	3.08	0.23	9.91	6.26	596	0.80	-75	0.3	0.9
MW-4S	11/28/2011	12:11	6.04	0.00	0.00	9.49	6.70	309	4.84	77	0.1	0.8
MW-5S	12/1/2011	12:35	6.73	0.00	0.00	9.24	5.86	183	1.22	147	0.1	1.2
MW-6S	11/30/2011	12:25	6.85	0.16	0.04	10.62	6.16	607	0.97	22	0.3	8.0
MW-7S	11/29/2011	8:21	6.32	4.25	0.07	10.86	6.42	598	1.49	-21	0.3	1.0
MW-10	11/29/2011	10:50	3.17	0.35	0.39	8.08	7.27	352	1.34	-76	0.2	0.9
MW-11	12/1/2011	13:10	4.44	0.11	0.03	9.20	6.45	287	11.17	135	0.1	2.4
MW-12	12/1/2011	13:47	4.93	1.94	0.00	10.61	5.76	361	1.30	105	0.2	2.6
MW-13	11/29/2011	12:25	5.52	1.73	0.04	10.36	6.31	869	1.08	-14	0.4	1.0
MW-14	12/2/2011	7:33	6.64	15.70	0.00	11.90	6.12	769	1.14	-72	0.4	0.4
MW-16	12/6/2011	11:09	2.68	2.48	0.06	8.41	5.88	444	0.79	40	0.2	9.9
MW-17	11/28/2011	11:17	4.69	2.50	0.50	12.99	6.75	343	1.19	-126	0.2	0.6
MW-18	11/30/2011	11:27	8.55	0.20	0.66	10.57	6.57	419	1.04	-50	0.2	2.4
MW-19	12/1/2011	14:29	7.85	11.40	0.01	11.36	6.37	439	1.00	-53	0.2	0.8
MW-20	11/30/2011	10:04	8.98	5.08	0.19	12.50	6.30	517	0.84	-75	0.2	1.1
MW-21	11/30/2011	9:17	7.88	2.38	0.16	12.05	6.26	434	0.99	-53	0.2	1.0
MW-22	11/28/2011	13:21	6.76	1.43	0.10	12.15	6.54	421	1.02	-92	0.2	4.3
MW-23	11/28/2011	14:22	7.40	1.90	0.02	13.40	6.54	730	1.28	-65	0.4	1.4
MW-24	11/30/2011	8:32	8.67	2.74	0.23	11.59	6.03	563	1.04	-26	0.3	1.0
MW-26	12/1/2011	10:12	8.89	27.25	0.20	12.42	6.27	801	0.73	-77	0.4	0.8
MW-27	12/1/2011	9:28	12.27	4.05	0.00	12.08	6.46	14800	0.55	-22	8.5[4]	0.0
MW-28S	12/2/2011	11:55	2.82	6.80	0.01	10.49	6.22	621	0.98	-8	0.3	7.2
MW-29S	12/2/2011	13:47	1.81	10.25	0.03	9.11	6.37	640	0.95	-56	0.3	4.9
MW-30S	12/5/2011	8:13	2.94	8.20	0.06	11.27	6.48	429	0.82	-59	0.2	1.0
MW-31S	12/5/2011	10:41	8.63	0.60	0.00	10.27	6.48	388	1.22	2	0.2	6.8
MW-32S	12/6/2011	16:12	4.57	9.95	0.00	12.60	6.31	654	0.93	-74	0.3	0.1
MW-33S	12/5/2011	13:53	8.00	5.55	0.06	10.66	7.24	516	0.72	-196	0.2	4.4
MW-34S	12/6/2011	7:07	2.86	0.15	0.01	7.99	6.36	243	5.77	158	0.1	6.6
MW-35S	12/6/2011	8:33	4.93	2.55	0.02	8.96	6.28	286	1.21	-12	0.1	2.2

Notes:

°C = degrees Celsius
D.O. = dissolved oxygen
EC = electrical conductivity
ft btoc = feet below top of casing
mg/L = milligrams per liter
N/A = data not recorded
mV = millivolts
ntu = nephelometric turbidity units
ppt = parts per trillion
µS/cm = microsiemens per centimeter

Table 4

Metals in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Characterization of COIs											Adjacent Site COIs							
Location ID	Sample Date	Sample ID	Arsenic D ug/l	Arsenic T ug/l	Chromium D ug/l	Chromium T ug/l	Chromium (VI) D mg/l	Copper D ug/l	Copper T ug/l	Silver D ug/l	Silver T ug/l	Zinc D ug/l	Zinc T ug/l	Antimony D ug/l	Antimony T ug/l	Beryllium D ug/l	Beryllium T ug/l	Cadmium D ug/l	Cadmium T ug/l	Lead D ug/l	Lead T ug/l
MW-1S	11/29/2011	MW-1S-112911	**14.9**	**16.1**	**1**	1.9 U	0.003 UJ	**2**	**7**	0.43 U	0.43 U	**70**	**70**	na	na	na	na	na	na	na	na
MW-1S (dup)	11/29/2011	DUP-112911-1	**13**	**15.4**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1D	11/29/2011	MW-1D-112911	**8**	**9.2**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2S	11/30/2011	MW-2S-113011	**499**	**462**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2D	11/30/2011	MW-2D-113011	**36.6**	**34.3**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-3S	12/1/2011	MW-3S-120111	**412**	**414**	0.11 U	0.11 U	na	0.92 U	**2**	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-3D	12/1/2011	MW-3D-120111	**35.8**	**34.8**	**4**	5 U	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-4S	11/28/2011	MW-04S-112811	**42.7** J	**44.7**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-5S	12/1/2011	MW-5S-120111	**7.4**	**7.2**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-6S	11/30/2011	MW-6S-113011	**27.9**	**29**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	11/29/2011	MW-7S-112911	**22**	**22.6**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-10	11/29/2011	MW-10-112911	**22.4**	**23.8**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-11	12/1/2011	MW-11-120111	**97.7**	**97.6**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-12	12/1/2011	MW-12-120111	**116**	**123**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	11/29/2011	MW-13-112911	**963**	**1010**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	12/2/2011	MW-14-120211	**935**	**933**	0.11 U	0.11 U	na	0.92 U	**9**	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-14 (dup)	12/2/2011	DUP-120211-1	**892**	**858**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14D	12/2/2011	MW-14D-120211	**390**	**427**	**9**	**13**	na	0.92 U	**4**	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-16	12/6/2011	MW-16-120611	**11.7**	**13.3**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-17	11/28/2011	MW-17-112811	**47.5** J	**49.8**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-18	11/30/2011	MW-18-113011	**4**	**3.6**	0.045 U	0.045 U	na	0.92 U	0.92 U	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-18 (dup)	11/30/2011	DUP-113011-2	na	na	0.045 U	**0.5**	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-19	12/1/2011	MW-19-120111	**420**	**402**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-20	11/30/2011	MW-20-113011	**2600**	**2770**	0.045 U	0.045 U	na	0.92 U	**3**	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	**0.2**	0.046 U	0.046 U
MW-21	11/30/2011	MW-21-113011	**1850**	**1870**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-21 (dup)	11/30/2011	DUP-113011-1	**1800**	**1820**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	11/28/2011	MW-22-112811	**7.9** J	**7.9**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-23	11/28/2011	MW-23-112811	**2.9**	**2.7**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-24	11/30/2011	MW-24-113011	**0.2**	0.048 U	0.045 U	0.11 U	na	0.92 U	0.92 U	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-26	12/1/2011	MW-26-120111	**448**	**432**	0.22 U	2 U	na	0.92 U	**4**	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-27	12/1/2011	MW-27-120111	**13**	**13**	0.11 U	2 U	na	0.92 U	**3**	0.43 UJ	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.052 U	0.052 U	0.025 U	0.025 U	0.12 U	0.12 U
MW-28S	12/2/2011	MW-28S-120211	**11.9**	**11.2**	0.045 U	0.11 U	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-29S	12/2/2011	MW-29S-120211	**2.4**	**2.5**	0.11 U	0.11 U	na	**3**	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-29S (dup)	12/2/2011	DUP-120211-3	**2.5**	**2.6**	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-30S	12/5/2011	MW-30S-120511	**9.2**	**8.5**	0.11 U	0.11 U	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-30S (dup)	12/5/2011	DUP-120511-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-31S	12/5/2011	MW-31S-120511	**2.2**	**2.2**	0.045 U	**1.1**	0.003 U	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	6.3 U	6.3 U	0.021 U	0.021 U	0.01 U	0.01 U	0.046 U	0.046 U
MW-31S (dup)	12/5/2011	DUP-120511-2	na	na	**0.7**	0.045 U	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-32S	12/6/2011	MW-32S-120611	**2.1**	**2.2**	**0.8**	0.045 U	na	0.92 U	0.92 U	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-33S	12/5/2011	MW-33S-120511	**257**	**299**	**4**	**6**	na	**3**	**138**	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-34S	12/6/2011	MW-34S-120611	**2**	**2.2**	0.045 U	0.045 U	0.003 U	**3**	**3**	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na
MW-34S (dup)	12/6/2011	DUP-120611-1	na	na	na	na	0.003 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-35S	12/6/2011	MW-35S-120611	**1.3**	**1.4**	0.045 U	0.045 U	na	0.92 U	**3**	0.43 U	0.43 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na

Notes and Key:

ug/L = Micrograms per liter
mg/L = Milligrams per liter
D = Dissolved
dup = Duplicate sample
na = Not analyzed
T = Total
Bold text indicates that compound was detected.

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 4

Metals in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Adjacent Site COIs (cont.)									Water Quality Parameters									
Location ID	Sample Date	Sample ID	Mercury D ug/l	Mercury T ug/l	Nickel D ug/l	Nickel T ug/l	Selenium D ug/l	Selenium T ug/l	Thallium D ug/l	Thallium T ug/l	Tributyltin T ug/l	Aluminum D ug/l	Aluminum T ug/l	Calcium T ug/l	Iron D ug/l	Iron T ug/l	Magnesium T ug/l	Manganese D ug/l	Manganese T ug/l	Potassium T ug/l	Sodium T ug/l
MW-1S	11/29/2011	MW-1S-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1S (dup)	11/29/2011	DUP-112911-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1D	11/29/2011	MW-1D-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2S	11/30/2011	MW-2S-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2D	11/30/2011	MW-2D-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-3S	12/1/2011	MW-3S-120111	0.0069 U	0.0069 U	**0.9**	**1**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-3D	12/1/2011	MW-3D-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S	11/28/2011	MW-04S-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-5S	12/1/2011	MW-5S-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-6S	11/30/2011	MW-6S-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	11/29/2011	MW-7S-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-10	11/29/2011	MW-10-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-11	12/1/2011	MW-11-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-12	12/1/2011	MW-12-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	11/29/2011	MW-13-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	12/2/2011	MW-14-120211	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14 (dup)	12/2/2011	DUP-120211-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14D	12/2/2011	MW-14D-120211	na	na	na	na	na	na	na	na	na	**240**	**560**	**20400**	**9230**	**9600**	**12500**	**412**	**413**	**14800**	**161000**
MW-16	12/6/2011	MW-16-120611	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-17	11/28/2011	MW-17-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-18	11/30/2011	MW-18-113011	0.0069 U	0.0069 U	**0.6**	**0.7**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-18 (dup)	11/30/2011	DUP-113011-2	0.0069 U	0.0069 U	0.079 U	**0.7**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-19	12/1/2011	MW-19-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-20	11/30/2011	MW-20-113011	0.0069 U	0.0069 U	**0.5**	**1.5**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-21	11/30/2011	MW-21-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-21 (dup)	11/30/2011	DUP-113011-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	11/28/2011	MW-22-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-23	11/28/2011	MW-23-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-24	11/30/2011	MW-24-113011	0.0069 U	0.0069 U	**0.7**	**1.1**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-26	12/1/2011	MW-26-120111	0.0069 U	0.0069 U	**1.8**	**1.9**	0.13 U	0.13 U	0.004 U	0.004 U	na	na	na	na	na	na	na	na	na	na	na
MW-27	12/1/2011	MW-27-120111	0.0069 U	0.0069 U	**8**	**8**	**7**	**6**	0.01 U	0.01 U	na	na	na	na	na	na	na	na	na	na	na
MW-28S	12/2/2011	MW-28S-120211	0.0069 U	0.0069 U	**1.9**	**1.8**	0.13 U	0.13 U	0.004 U	0.004 U	0.002 U	7.6 U	7.6 U	**76500**	**7020**	**6940**	**7230**	**587**	**583**	**6640**	**21500**
MW-29S	12/2/2011	MW-29S-120211	0.0069 U	0.0069 U	**0.7**	**0.7**	0.13 U	0.13 U	0.004 U	0.004 U	0.002 U	7.6 U	7.6 U	**54300**	**11600**	**11600**	**13400**	**631**	**629**	**9380**	**30700**
MW-29S (dup)	12/2/2011	DUP-120211-3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-30S	12/5/2011	MW-30S-120511	0.0069 U	0.0069 U	**1.1**	**0.9**	0.13 U	0.13 U	0.004 U	0.004 U	0.002 U	7.6 U	7.6 U	**56000**	**8300**	**8280**	**11100**	**448**	**441**	**7930**	**13800**
MW-30S (dup)	12/5/2011	DUP-120511-1	na	na	na	na	na	na	na	na	0.002 U	na	na	na	na	na	na	na	na	na	na
MW-31S	12/5/2011	MW-31S-120511	0.0069 U	0.0069 U	**1**	**1.7**	0.13 U	0.13 U	0.004 U	0.004 U	0.002 U	7.6 U	**50**	**53800**	**2500**	**2440**	**4020**	**114**	**112**	**4440**	**4360**
MW-31S (dup)	12/5/2011	DUP-120511-2	na	na	na	na	na	na	na	na	na	7.6 U	**60**	**55600**	**2500**	**2420**	**4180**	**117**	**113**	**4590**	**4410**
MW-32S	12/6/2011	MW-32S-120611	na	na	na	na	na	na	na	na	na	7.6 U	7.6 U	**33000**	**19400**	**19100**	**26600**	**821**	**819**	**20500**	**32300**
MW-33S	12/5/2011	MW-33S-120511	na	na	na	na	na	na	na	na	na	**90**	**450**	**31200**	**7760**	**8650**	**3890**	**269**	**278**	**20200**	**44800**
MW-34S	12/6/2011	MW-34S-120611	na	na	na	na	na	na	na	na	na	7.6 U	**290**	**35900**	7.5 U	**140**	**1680**	**7**	**9**	**1390**	**4330**
MW-34S (dup)	12/6/2011	DUP-120611-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-35S	12/6/2011	MW-35S-120611	na	na	na	na	na	na	na	na	na	7.6 U	7.6 U	**43000**	**3940**	**4060**	**2720**	**121**	**124**	**2760**	**5580**

Notes and Key:

ug/L = Micrograms per liter
mg/L = Milligrams per liter
D = Dissolved
dup = Duplicate sample
na = Not analyzed
T = Total
Bold text indicates that compound was detected.

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.

UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 5

Semi-Volatile Organic Compounds in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Location ID	MW-1S	MW-1D	MW-2S	MW-2D	MW-3S	MW-3D	MW-4S	MW-4S (dup)	MW-5S	MW-6S	MW-7S
			Sample Code	11/29/2011	11/29/2011	11/30/2011	11/30/2011	12/1/2011	12/1/2011	11/28/2011	11/28/2011	12/1/2011	11/30/2011	11/29/2011
			Sample Date	MW-1S-112911	MW-1D-112911D-1	MW-2S-113011	MW-2D-113011	MW-3S-120111	MW-3D-120111	MW-04S-112811	DUP-112811-1	MW-5S-120111	MW-6S-113011	MW-7S-112911
2,3,4,6-Tetrachlorophenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**18**
2,4,5-Trichlorophenol	SW8270D	ug/l		2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
2,4,6-Trichlorophenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4-Dichlorophenol	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2-Chlorophenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachlorophenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	**370**
Phenol	SW8270D	ug/l		0.5 U	**2.5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1,2-Benzphenanthracene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1,2-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1,3-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1,4-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1-Methylnaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2,4-Dimethylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2,4-Dinitrotoluene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2,6-Dinitrotoluene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Chloronaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Methylnaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Nitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
3,3-Dichlorobenzidine	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
3and4-Methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
3-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
4,6-Dinitro-o-cresol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
4-Bromophenyl Phenyl Ether	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
4-Chloro-3-methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
4-Chlorophenyl Phenyl Ether	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
4-Nitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(a) anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(a) pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(g,h,i) perylene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzoic acid	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzyl Alcohol	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzyl Butyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloro-1-methylethyl) ether	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethoxy) methane	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Bis(2-chloroethyl) ether	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Bis(2-ethylhexyl) phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Carbazole	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h) anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dibutyl phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Diethyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dimethyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Di-n-Octyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Fluorene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Hexachloro-1,3-Butadiene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Hexachlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Hexachlorocyclopentadiene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Hexachloroethane	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-c,d) pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Isophorone	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Naphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Nitrobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
N-nitrosodi-n-propylamine	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
n-Nitrosodiphenylamine	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
p-Chloroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Phenanthrene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
P-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
Total (B+J+K) Benzofluoranthenes	SW8270D	ug/l		na	na	na	na	na	na	na	na	na	na	na
1,2-Benzphenanthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
1-Methylnaphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
2-Methylnaphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Acenaphthene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Acenaphthylene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(a) anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(a) pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Benzo(g,h,i) perylene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dibenzo(a,h) anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Fluoranthene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Fluorene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Indeno(1,2,3-c,d) pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Naphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Phenanthrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na
Total (B+J+K) Benzofluoranthenes	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	na	na	na	na

Notes and Key:

ug/L = Micrograms per liter
dup = Duplicate Sample
na = Not analyzed
Bold text indicates that compound was detected.

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected.
If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 5

Semi-Volatile Organic Compounds in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Location ID	MW-7S (dup)	MW-10	MW-11	MW-12	MW-13	MW-13 (dup)	MW-14	MW-14D	MW-16	MW-17	MW-18
			Sample Code	11/29/2011	11/29/2011	12/1/2011	12/1/2011	11/29/2011	11/29/2011	12/2/2011	12/2/2011	12/6/2011	11/28/2011	11/30/2011
			Sample Date	DUP-112911-2	MW-10-112911	MW-11-120111	MW-12-120111	MW-13-112911	DUP-112911-3	MW-14-120211	MW-14D-120211	MW-16-120611	MW-17-112811	MW-18-113011
2,3,4,6-Tetrachlorophenol	SW8270D	ug/l		**11**	**1.2**	0.5 U	0.5 U	**9.6**	**11**	0.5 U	0.5 U	**2.2**	0.5 UJ	0.5 U
2,4,5-Trichlorophenol	SW8270D	ug/l		2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 UJ	2.2 U
2,4,6-Trichlorophenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 UJ	2.4 U
2,4-Dichlorophenol	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 UJ	2.6 U
2-Chlorophenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Pentachlorophenol	SW8270D	ug/l		**240**	**15**	2.4 U	2.4 U	**100**	**98**	2.4 U	2.4 U	**24**	2.4 UJ	2.4 U
Phenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
1,2,4-Trichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
1,2-Benzphenanthracene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
1,2-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
1,3-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
1,4-Dichlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
1-Methylnaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
2,4-Dimethylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
2,4-Dinitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	3.5 U	na	na	na
2,4-Dinitrotoluene	SW8270D	ug/l		na	na	na	na	na	na	na	2.5 U	na	na	na
2,6-Dinitrotoluene	SW8270D	ug/l		na	na	na	na	na	na	na	2.4 U	na	na	na
2-Chloronaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
2-Methylnaphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
2-Methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
2-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	2.6 U	na	na	na
2-Nitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	2 U	na	na	na
3,3-Dichlorobenzidine	SW8270D	ug/l		na	na	na	na	na	na	na	1.5 U	na	na	na
3and4-Methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
3-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	2.3 U	na	na	na
4,6-Dinitro-o-cresol	SW8270D	ug/l		na	na	na	na	na	na	na	3.1 U	na	na	na
4-Bromophenyl Phenyl Ether	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
4-Chloro-3-methylphenol	SW8270D	ug/l		na	na	na	na	na	na	na	2.4 U	na	na	na
4-Chlorophenyl Phenyl Ether	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
4-Nitrophenol	SW8270D	ug/l		na	na	na	na	na	na	na	2.6 U	na	na	na
Acenaphthene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Acenaphthylene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Benzo(a) anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Benzo(a) pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Benzo(g,h,i) perylene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Benzoic acid	SW8270D	ug/l		na	na	na	na	na	na	na	5.1 U	na	na	na
Benzyl Alcohol	SW8270D	ug/l		na	na	na	na	na	na	na	2 U	na	na	na
Benzyl Butyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Bis(2-chloro-1-methylethyl) ether	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Bis(2-chloroethoxy) methane	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Bis(2-chloroethyl) ether	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Bis(2-ethylhexyl) phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	1 U	na	na	na
Carbazole	SW8270D	ug/l		na	na	na	na	na	na	na	0.3 U	na	na	na
Dibenzo(a,h) anthracene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Dibenzofuran	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Dibutyl phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Diethyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Dimethyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Di-n-Octyl Phthalate	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Fluoranthene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Fluorene	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
Hexachloro-1,3-Butadiene	SW8270D	ug/l		na	na	na	na	na	na	na	0.3 U	na	na	na
Hexachlorobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Hexachlorocyclopentadiene	SW8270D	ug/l		na	na	na	na	na	na	na	1.2 U	na	na	na
Hexachloroethane	SW8270D	ug/l		na	na	na	na	na	na	na	0.4 U	na	na	na
Indeno(1,2,3-c,d) pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Isophorone	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Naphthalene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Nitrobenzene	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
N-nitrosodi-n-propylamine	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
n-Nitrosodiphenylamine	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
p-Chloroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	2.6 U	na	na	na
Phenanthrene	SW8270D	ug/l		na	na	na	na	na	na	na	0.6 U	na	na	na
P-Nitroaniline	SW8270D	ug/l		na	na	na	na	na	na	na	2.2 U	na	na	na
Pyrene	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
Total (B+J+K) Benzofluoranthenes	SW8270D	ug/l		na	na	na	na	na	na	na	0.5 U	na	na	na
1,2-Benzphenanthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.026 U	na	na	na
1-Methylnaphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.016 U	na	na	na
2-Methylnaphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.02 U	na	na	na
Acenaphthene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.015 U	na	na	na
Acenaphthylene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.024 U	na	na	na
Anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.025 U	na	na	na
Benzo(a) anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.023 U	na	na	na
Benzo(a) pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.059 U	na	na	na
Benzo(g,h,i) perylene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.03 U	na	na	na
Dibenzo(a,h) anthracene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.042 U	na	na	na
Dibenzofuran	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.016 U	na	na	na
Fluoranthene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.021 U	na	na	na
Fluorene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.019 U	na	na	na
Indeno(1,2,3-c,d) pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.029 U	na	na	na
Naphthalene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.02 U	na	na	na
Phenanthrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.026 U	na	na	na
Pyrene	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.028 U	na	na	na
Total (B+J+K) Benzofluoranthenes	SW8270D-SIM	ug/l		na	na	na	na	na	na	na	0.1 U	na	na	na

Notes and Key:

ug/L = Micrograms per liter
dup = Duplicate Sample
na = Not analyzed
Bold text indicates that compound was detected.

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected.
If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 5

Semi-Volatile Organic Compounds in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

		Location ID	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24	MW-26	MW-27	MW-28S	MW-29S	MW-29S (dup)
		Sample Code	12/1/2011	11/30/2011	11/30/2011	11/28/2011	11/28/2011	11/30/2011	12/1/2011	12/1/2011	12/2/2011	12/2/2011	12/2/2011
		Sample Date	MW-19-120111	MW-20-113011	MW-21-113011	MW-22-112811	MW-23-112811	MW-24-113011	MW-26-120111	MW-27-120111	MW-28S-120211	MW-29S-120211	DUP-120211-3
2,3,4,6-Tetrachlorophenol	SW8270D	ug/l	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**21**	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-Trichlorophenol	SW8270D	ug/l	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
2,4,6-Trichlorophenol	SW8270D	ug/l	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4-Dichlorophenol	SW8270D	ug/l	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	**21**	2.6 U	2.6 U	2.6 U	2.6 U
2-Chlorophenol	SW8270D	ug/l	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachlorophenol	SW8270D	ug/l	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	**96**	2.4 U	2.4 U	2.4 U	2.4 U
Phenol	SW8270D	ug/l	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
1,2-Benzphenanthracene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
1,3-Dichlorobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
1,4-Dichlorobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
1-Methylnaphthalene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
2,4-Dimethylphenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
2,4-Dinitrophenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	3.5 U	3.5 U	3.5 U
2,4-Dinitrotoluene	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.5 U	2.5 U	2.5 U
2,6-Dinitrotoluene	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.4 U	2.4 U	2.4 U
2-Chloronaphthalene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
2-Methylnaphthalene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
2-Methylphenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
2-Nitroaniline	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.6 U	2.6 U	2.6 U
2-Nitrophenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	2 U	2 U	2 U
3,3-Dichlorobenzidine	SW8270D	ug/l	na	na	na	na	na	na	na	na	1.5 U	1.5 U	1.5 U
3and4-Methylphenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
3-Nitroaniline	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.3 U	2.3 U	2.3 U
4,6-Dinitro-o-cresol	SW8270D	ug/l	na	na	na	na	na	na	na	na	3.1 U	3.1 U	3.1 U
4-Bromophenyl Phenyl Ether	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
4-Chloro-3-methylphenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.4 U	2.4 U	2.4 U
4-Chlorophenyl Phenyl Ether	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
4-Nitrophenol	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.6 U	2.6 U	2.6 U
Acenaphthene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Acenaphthylene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Anthracene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Benzo(a) anthracene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Benzo(a) pyrene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Benzo(g,h,i) perylene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Benzoic acid	SW8270D	ug/l	na	na	na	na	na	na	na	na	5.1 U	5.1 U	5.1 U
Benzyl Alcohol	SW8270D	ug/l	na	na	na	na	na	na	na	na	2 U	2 U	2 U
Benzyl Butyl Phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Bis(2-chloro-1-methylethyl) ether	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Bis(2-chloroethoxy) methane	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Bis(2-chloroethyl) ether	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Bis(2-ethylhexyl) phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	1 U	1 U	1 U
Carbazole	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.3 U	0.3 U	0.3 U
Dibenzo(a,h) anthracene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Dibenzofuran	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Dibutyl phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Diethyl Phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Dimethyl Phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Di-n-Octyl Phthalate	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Fluoranthene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Fluorene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
Hexachloro-1,3-Butadiene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.3 U	0.3 U	0.3 U
Hexachlorobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Hexachlorocyclopentadiene	SW8270D	ug/l	na	na	na	na	na	na	na	na	1.2 U	1.2 U	1.2 U
Hexachloroethane	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.4 U	0.4 U	0.4 U
Indeno(1,2,3-c,d) pyrene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Isophorone	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Naphthalene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Nitrobenzene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
N-nitrosodi-n-propylamine	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
n-Nitrosodiphenylamine	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
p-Chloroaniline	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.6 U	2.6 U	2.6 U
Phenanthrene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.6 U	0.6 U	0.6 U
P-Nitroaniline	SW8270D	ug/l	na	na	na	na	na	na	na	na	2.2 U	2.2 U	2.2 U
Pyrene	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
Total (B+J+K) Benzofluoranthenes	SW8270D	ug/l	na	na	na	na	na	na	na	na	0.5 U	0.5 U	0.5 U
1,2-Benzphenanthracene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.026 U	0.026 U	0.026 U
1-Methylnaphthalene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.016 U	0.016 U	0.016 U
2-Methylnaphthalene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.02 U	0.02 U	0.02 U
Acenaphthene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.015 U	0.015 U	0.015 U
Acenaphthylene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.024 U	0.024 U	0.024 U
Anthracene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.025 U	0.025 U	0.025 U
Benzo(a) anthracene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.023 U	0.023 U	0.023 U
Benzo(a) pyrene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.059 U	0.059 U	0.059 U
Benzo(g,h,i) perylene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.03 U	0.03 U	0.03 U
Dibenzo(a,h) anthracene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.042 U	0.042 U	0.042 U
Dibenzofuran	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.016 U	0.016 U	0.016 U
Fluoranthene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.021 U	0.021 U	0.021 U
Fluorene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.019 U	0.019 U	0.019 U
Indeno(1,2,3-c,d) pyrene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.029 U	0.029 U	0.029 U
Naphthalene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.02 U	0.02 U	0.02 U
Phenanthrene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.026 U	0.026 U	0.026 U
Pyrene	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.028 U	0.028 U	0.028 U
Total (B+J+K) Benzofluoranthenes	SW8270D-SIM	ug/l	na	na	na	na	na	na	na	na	0.1 U	0.1 U	0.1 U

Notes and Key:

ug/L = Micrograms per liter
dup = Duplicate Sample
na = Not analyzed
Bold text indicates that compound was detected.

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected.
If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.

Table 5

Semi-Volatile Organic Compounds in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Location ID	MW-30S	MW-31S	MW-32S	MW-33S	MW-33S (dup)	MW-34S	MW-35S
			Sample Code	12/5/2011	12/5/2011	12/6/2011	12/5/2011	12/5/2011	12/6/2011	12/6/2011
			Sample Date	MW-30S-120511	MW-31S-120511	MW-32S-120611	MW-33S-120511	DUP-120511-3	MW-34S-120611	MW-35S-120611
2,3,4,6-Tetrachlorophenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4,5-Trichlorophenol	SW8270D	ug/l		2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
2,4,6-Trichlorophenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2,4-Dichlorophenol	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2-Chlorophenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Pentachlorophenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
Phenol	SW8270D	ug/l		**2.1**	**1.1**	0.5 U	**2.3**	**2**	0.5 U	**8.8**
1,2,4-Trichlorobenzene	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Benzphenanthracene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,3-Dichlorobenzene	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,4-Dichlorobenzene	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1-Methylnaphthalene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,4-Dimethylphenol	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
2,4-Dinitrophenol	SW8270D	ug/l		3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
2,4-Dinitrotoluene	SW8270D	ug/l		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,6-Dinitrotoluene	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
2-Chloronaphthalene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylnaphthalene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylphenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Nitroaniline	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
2-Nitrophenol	SW8270D	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U
3,3-Dichlorobenzidine	SW8270D	ug/l		1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
3and4-Methylphenol	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
3-Nitroaniline	SW8270D	ug/l		2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
4,6-Dinitro-o-cresol	SW8270D	ug/l		3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
4-Bromophenyl Phenyl Ether	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
4-Chloro-3-methylphenol	SW8270D	ug/l		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
4-Chlorophenyl Phenyl Ether	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Nitrophenol	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Acenaphthene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acenaphthylene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Anthracene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(a) anthracene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(a) pyrene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(g,h,i) perylene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzoic acid	SW8270D	ug/l		5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U
Benzyl Alcohol	SW8270D	ug/l		2 U	2 U	2 U	2 U	2 U	2 U	2 U
Benzyl Butyl Phthalate	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Bis(2-chloro-1-methylethyl) ether	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Bis(2-chloroethoxy) methane	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Bis(2-chloroethyl) ether	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Bis(2-ethylhexyl) phthalate	SW8270D	ug/l		1 U	1 U	1 U	2.4 U	1.4 U	1 U	1 U
Carbazole	SW8270D	ug/l		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibenzo(a,h) anthracene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibenzofuran	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibutyl phthalate	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Diethyl Phthalate	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Dimethyl Phthalate	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Di-n-Octyl Phthalate	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluoranthene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Fluorene	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Hexachloro-1,3-Butadiene	SW8270D	ug/l		0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Hexachlorobenzene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorocyclopentadiene	SW8270D	ug/l		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Hexachloroethane	SW8270D	ug/l		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Indeno(1,2,3-c,d) pyrene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isophorone	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
N-nitrosodi-n-propylamine	SW8270D	ug/l		0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
n-Nitrosodiphenylamine	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
p-Chloroaniline	SW8270D	ug/l		2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U	2.6 U
Phenanthrene	SW8270D	ug/l		**0.7** j	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
P-Nitroaniline	SW8270D	ug/l		2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Pyrene	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Total (B+J+K) Benzofluoranthenes	SW8270D	ug/l		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Benzphenanthracene	SW8270D-SIM	ug/l		0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
1-Methylnaphthalene	SW8270D-SIM	ug/l		**0.06** j	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	**0.08** j
2-Methylnaphthalene	SW8270D-SIM	ug/l		0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Acenaphthene	SW8270D-SIM	ug/l		**0.22**	0.015 U	0.015 U	**0.05** j	**0.06** j	0.015 U	0.015 U
Acenaphthylene	SW8270D-SIM	ug/l		**0.09** j	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Anthracene	SW8270D-SIM	ug/l		**0.08** j	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benzo(a) anthracene	SW8270D-SIM	ug/l		0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U
Benzo(a) pyrene	SW8270D-SIM	ug/l		0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
Benzo(g,h,i) perylene	SW8270D-SIM	ug/l		0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Dibenzo(a,h) anthracene	SW8270D-SIM	ug/l		0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
Dibenzofuran	SW8270D-SIM	ug/l		0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	**0.36**
Fluoranthene	SW8270D-SIM	ug/l		**0.24**	**0.06** j	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U
Fluorene	SW8270D-SIM	ug/l		**0.17**	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Indeno(1,2,3-c,d) pyrene	SW8270D-SIM	ug/l		0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U
Naphthalene	SW8270D-SIM	ug/l		0.02 U	0.02 U	0.02 U	**0.08** j	**0.07** j	0.02 U	**0.08** j
Phenanthrene	SW8270D-SIM	ug/l		**0.44**	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
Pyrene	SW8270D-SIM	ug/l		**0.31**	**0.08** j	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
Total (B+J+K) Benzofluoranthenes	SW8270D-SIM	ug/l		0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Notes and Key:
ug/L = Micrograms per liter
dup = Duplicate Sample
na = Not analyzed
Bold text indicates that compound was detected.

Data Qualifiers:
j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the La
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected.
If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National I
Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guideli
for Inorganic Data Review, October 2004.

Table 6

Volatile Organic Compounds in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

	Location ID	MW-4S	MW-13	MW-16	MW-28S	MW-28S (dup)	MW-29S	MW-30S	MW-31S
	Sample Code	11/28/2011	11/29/2011	12/6/2011	12/2/2011	12/2/2011	12/2/2011	12/5/2011	12/5/2011
	Sample Date	MW-04S-112811	MW-13-112911	MW-16-120611	MW-28S-120211	DUP-120211-2	MW-29S-120211	MW-30S-120511	MW-31S-120511
1,1,1,2-Tetrachloroethane	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
1,1,1-Trichloroethane	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,1,2,2-Tetrachloroethane	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113)	ug/l	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
1,1,2-Trichloroethane	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,1-Dichloroethane	ug/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	**0.2** j	0.05 U	0.05 U
1,1-Dichloroethylene	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,1-Dichloropropene	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,2,3-Trichlorobenzene	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,2,3-Trichloropropane	ug/l	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2,4-Trichlorobenzene	ug/l	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
1,2,4-Trimethylbenzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-Chloropropane (DBCP)	ug/l	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-Dibromoethane	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichlorobenzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dichloroethane	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2-Dichloropropane	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,3,5-Trimethylbenzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,3-Dichlorobenzene	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,3-Dichloropropane	ug/l	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
1,4-Dichlorobenzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,4-Dichloro-trans-2-butene	ug/l	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
2,2-Dichloropropane	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
2-Butanone (MEK)	ug/l	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
2-Chloroethyl Vinyl Ether	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
2-Chlorotoluene	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
4-Chlorotoluene	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Acetone	ug/l	0.72 U	0.72 U	5.1 U	5 U	5 U	5.1 U	0.72 U	0.72 U
Acrolein	ug/l	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
Acrylonitrile	ug/l	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
Benzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Bromobenzene	ug/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Bromodichloromethane	ug/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromoform	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Bromomethane	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Carbon Disulfide	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Carbon Tetrachloride	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Chlorobenzene	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Chlorodibromomethane	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Chloroethane	ug/l	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Chloroform	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Chloromethane	ug/l	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
cis-1,2-Dichloroethene	ug/l	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
cis-1,3-Dichloropropene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Cymene	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Dibromomethane	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Ethyl bromide	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Ethylbenzene	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Hexachloro-1,3-Butadiene	ug/l	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Isopropylbenzene (Cumene)	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
m&p-xylene	ug/l	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U
Methyl Iodide	ug/l	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Methyl Isobutyl Ketone	ug/l	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U
Methyl n-Butyl Ketone	ug/l	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
Methylene Chloride	ug/l	0.39 U	0.39 U	0.5 U	0.39 U	0.39 U	0.5 U	0.39 U	0.39 U
Methyl-t-butyl ether (MTBE)	ug/l	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Naphthalene	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
N-Butylbenzene	ug/l	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
n-Propylbenzene	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
o-Xylene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
sec-Butylbenzene	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Styrene (Monomer)	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
tert-Butylbenzene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Tetrachloroethene	ug/l	0.09 U	0.09 U	0.09 U	**0.2** j	**0.2**	0.09 U	**0.2**	0.09 U
Toluene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
trans-1,3-Dichloropropene	ug/l	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Trichloroethylene	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Trichlorofluoromethane (CFC-11)	ug/l	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Vinyl Acetate	ug/l	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Vinyl Chloride	ug/l	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U

Notes and Key:
ug/L = Micrograms per liter
dup = Duplicate Sample
Bold text indicates that compound was detected.

Data Qualifiers:
j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.

Table 7

Dioxin/Furans in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

Location ID			MW-7S	MW-7S (dup)	MW-10	MW-13
Sample Code			11/29/2011	11/29/2011	11/29/2011	11/29/2011
Sample Date		TEFs	MW-7S-112911	DUP-112911-2	MW-10-112911	MW-13-112911
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	pg/l	1	0.598 U	0.554 U	0.879 U	0.633 U
Tetrachlorodibenzo-p-dioxin homologs (Total TCDD)	pg/l		**4.69**	**7.68**	0.567 U	**0.634** *
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	pg/l	1	0.598 U	0.554 U	0.567 U	0.561 U
Pentachlorodibenzo-p-dioxin homologs (Total PeCDD)	pg/l		0.598 U	0.554 U	0.567 U	0.561 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	pg/l	0.1	0.598 U	0.554 U	0.567 U	0.561 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	pg/l	0.1	0.598 U	0.554 U	1.14 U	0.716 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	pg/l	0.1	0.598 U	0.554 U	0.704 U	0.561 U
Hexachlorodibenzo-p-dioxin homologs (Total HxCDD)	pg/l		0.598 U	**2.52**	**2.74** *	**1.15**
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	pg/l	0.01	5.28 U	**17.7** j	**16.9** j	**20.2** j
Heptachlorodibenzo-p-dioxin homologs (Total HpCDD)	pg/l		**4.5**	**39.1**	**28.2**	**40.2**
Octachlorodibenzo-p-dioxin (OCDD)	pg/l	0.0003	**140**	**1100**	**369**	**3110**
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	pg/l	0.1	0.598 U	0.554 U	0.567 U	0.561 U
Tetrachlorodibenzofuran homologs (Total TCDF)	pg/l		**5.15**	**7.49**	**1.29**	0.561 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	pg/l	0.03	0.598 U	0.554 U	0.567 U	0.561 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	pg/l	0.3	0.598 U	0.554 U	0.624 U	0.561 U
Pentachlorodibenzofuran homologs (Total PeCDF)	pg/l		0.598 U	0.554 U	**1.7**	0.561 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	pg/l	0.1	0.598 U	0.554 U	3.88 U	0.561 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	pg/l	0.1	0.598 U	0.554 U	**0.719** j	0.561 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	pg/l	0.1	0.598 U	0.554 U	0.567 U	0.561 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	pg/l	0.1	0.598 U	0.554 U	0.567 U	0.561 U
Hexachlorodibenzofuran homologs (Total HxCDF)	pg/l		**0.882**	0.554 U	**12.6**	**2.77**
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	pg/l	0.01	1.79 U	1.56 U	**11.1** j	**6.37** j
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	pg/l	0.01	0.703 U	0.917 U	1.68 U	1.21 U
Heptachlorodibenzofuran homologs (Total HpCDF)	pg/l		**3.89** *	0.917 U	**33**	**16**
Octachlorodibenzofuran (OCDF)	pg/l	0.0003	5.8 U	7.36 U	17 U	**81** j
Calculated TEQ (ND=0)	pg/l		**0.042**	**0.507**	**0.463**	**1.22**
Calculated TEQ (ND=1/2 DL)	pg/l		**1.02**	**1.39**	**1.70**	**2.15**

Notes and Key:

dup = Duplicate Sample

pg/L = Picograms per liter (1E-12 g/L) equivalent to parts per quadrillion.

TEQ = Toxicity Equivalency Quotient to 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD). Only positively identified compounds are included in TEQ calculation.

TEF = Toxicity Equivalency Factors (World Health Organization, 2005)

Bold text indicates that compound was detected.

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.

U = Result is ≤ Reporting Limit (RL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than RL has been revised.

* = May be biased high; associated congeners were U-qualified due to detections in the laboratory blank

Table 8

Total Petroleum Hydrocarbons and Water Quality/
General Chemistry Parameters in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Total Petroleum Hydrocarbons			Water Quality Parameters												
Location ID	Sample Date	Sample ID	TPH as Diesel mg/L	TPH as Motor Oil mg/L	TPH as Gasoline mg/L	Chloride mg/L	Nitrate mg/L	Sulfate mg/L	Ammonia mg-N/L	Alkalinity, Bicarbonate (as CaCO3) mg/L	Alkalinity, Carbonate (as CaCO3) mg/L	Alkalinity, Hydroxide (as CaCO3) mg/L	Alkalinity, Total (as CaCO3) mg/L	Total Suspended Solids mg/L	Phosphorus T mg/L	Hardness T mg/L	TOC mg/L	TOX mg/L
MW-1S	11/29/2011	MW-1S-112911	**0.19**	0.04 U	**0.03** NJ	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	11/29/2011	MW-7S-112911	na	na	na	na	na	na	na	na	na	na	na	**6.6**	na	na	na	na
MW-10	11/29/2011	MW-10-112911	na	na	na	na	na	na	na	na	na	na	na	1.1 U	na	na	na	na
MW-13	11/29/2011	MW-13-112911	na	na	na	na	na	na	na	na	na	na	na	**3.3**	na	na	na	na
MW-14D	12/2/2011	MW-14D-120211	na	na	na	**39.9**	0.007 U	**0.1**	na	**432**	1 U	1 U	**432**	**1.7**	**0.047**	**100**	**28.5**	**24**
MW-28S	12/2/2011	MW-28S-120211	0.02 U	0.04 U	0.03 U	**10.6**	0.007 U	**13.4**	**0.36**	**253**	1 U	1 U	**253**	**12.7**	**0.234**	**220**	**7.59**	**8** j
MW-29S	12/2/2011	MW-29S-120211	**0.11** NJ	0.04 U	0.03 U	**51.1**	0.007 U	**11.6**	**1.82**	**191**	1 U	1 U	**191**	**22.6**	**0.768**	**190**	**6.15**	**5** j
MW-30S	12/5/2011	MW-30S-120511	**0.23** NJ	0.04 U	0.03 U	**6.7**	**0.2**	**1.8**	**2.06**	**216**	1 U	1 U	**216**	**8.2**	**1.22** J	**190**	**4.74**	4 U
MW-30S (dup)	12/5/2011	DUP-120511-1	**0.23** NJ	0.04 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-31S	12/5/2011	MW-31S-120511	**0.27** NJ	0.04 U	0.03 U	**3.5**	**0.2**	**19.4**	**0.471**	**141**	1 U	1 U	**141**	**1.2**	**0.384** J	**150**	**3.6**	**6** j
MW-31S (dup)	12/5/2011	DUP-120511-2	na	na	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-32S	12/6/2011	MW-32S-120611	na	na	na	**7.8**	0.007 U	**0.7**	na	**291**	1 U	1 U	**291**	**31.8**	**1.23**	**190**	**8.79**	**5** j
MW-33S	12/5/2011	MW-33S-120511	na	na	na	**3.5**	0.007 U	**0.4**	na	**218**	1 U	1 U	**218**	**15**	**2.6** J	**94**	**10.4**	**7** j
MW-34S	12/6/2011	MW-34S-120611	na	na	na	**2.3**	**0.4**	**9.4**	**0.04**	**93.4**	1 U	1 U	**93.4**	**1.9**	**0.192**	**97**	**2.34**	**6** j
MW-34S (dup)	12/6/2011	DUP-120611-1	na	na	na	na	na	na	**0.074**	na	na	na	na	na	na	na	na	na
MW-35S	12/6/2011	MW-35S-120611	**2**	0.04 U	0.03 U	**3.4**	0.007 U	**1.5**	**0.207**	**121**	1 U	1 U	**121**	**2.3**	**0.252**	**120**	**2.68**	4 U

Notes and Key:

ug/L = Micrograms per liter
CaCO3 = Calcium carbonate
D = Dissolved
dup = Duplicate sample
mg/L = Milligrams per liter
mg-N/L = Milligrams of Nitrogen per Liter
na = Not analyzed
T = Total
TPH = Total petroleum hydrocarbons
Bold text indicates that compound was detected.

Data Qualifiers:

J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
U = Result is ≤ M,ethod Detection Limit (MDL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern

Table 9

Constituents Detected in Groundwater
Fall 2011 Groundwater Sampling Event
Glacier Northwest, Inc. - Reichhold, Inc. Site
Seattle, Washington

			Inorganic Compounds														Volatile Organic Compounds		Semi-Volatile Organic Compounds						
Location ID	Sample Date	Sample ID	Arsenic D ug/L	Arsenic T ug/L	Chromium D ug/L	Chromium T ug/L	Copper D ug/L	Copper T ug/L	Zinc D ug/L	Zinc T ug/L	Cadmium T ug/L	Nickel D ug/L	Nickel T ug/L	Selenium D ug/L	Selenium T ug/L	Ammonia [1] N mg-N/L	Ammonia [2] NH_3 ug/L	1,1-Dichloroethane ug/L	Tetrachloroethene ug/L	2,3,4,6-Tetrachlorophenol ug/L	2,4-Dichlorophenol ug/L	Pentachlorophenol ug/L	Phenanthrene ug/L	Phenol ug/L	1-Methylnaphthalene (SIM) ug/L	Acenaphthene (SIM) ug/L	Acenaphthylene (SIM) ug/L
MW-1S	11/29/2011	MW-1S-112911	14.9	16.1	1	1.9 U	2	7	70	70	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-1S (dup)	11/29/2011	DUP-112911-1	13	15.4	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1D	11/29/2011	MW-1D-112911	8	9.2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	2.5	na	na	na
MW-2S	11/30/2011	MW-2S-113011	499	462	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-2D	11/30/2011	MW-2D-113011	36.6	34.3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-3S	12/1/2011	MW-3S-120111	412	414	0.11 U	0.11 U	0.92 U	2	1.4 U	1.4 U	0.01 U	0.9	1	0.13 U	0.13 U	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-3D	12/1/2011	MW-3D-120111	35.8	34.8	4	5 U	0.92 U	0.92 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-4S	11/28/2011	MW-04S-112811	42.7 j	44.7	na	na	na	na	na	na	na	na	na	na	na	na	na	0.05 U	0.09 U	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-4S (dup)	11/28/2011	DUP-112811-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-5S	12/1/2011	MW-5S-120111	7.4	7.2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-6S	11/30/2011	MW-6S-113011	27.9	29	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-7S	11/29/2011	MW-7S-112911	22	22.6	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	18	2.6 U	370	na	0.5 U	na	na	na
MW-7S (dup)	11/29/2011	DUP-112911-2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	11	2.6 U	240	na	0.5 U	na	na	na
MW-10	11/29/2011	MW-10-112911	22.4	23.8	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	1.2	2.6 U	15	na	0.5 U	na	na	na
MW-11	12/1/2011	MW-11-120111	97.7	97.6	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-12	12/1/2011	MW-12-120111	116	123	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-13	11/29/2011	MW-13-112911	963	1010	na	na	na	na	na	na	na	na	na	na	na	na	na	0.05 U	0.09 U	9.6	2.6 U	100	na	0.5 U	na	na	na
MW-13 (dup)	11/29/2011	DUP-112911-3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	11	2.6 U	98	na	0.5 U	na	na	na
MW-14	12/2/2011	MW-14-120211	935	933	0.11 U	0.11 U	0.92 U	9	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-14 (dup)	12/2/2011	DUP-120211-1	892	858	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14D	12/2/2011	MW-14D-120211	390	427	9	13	0.92 U	4	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-16	12/6/2011	MW-16-120611	11.7	13.3	na	na	na	na	na	na	na	na	na	na	na	na	na	0.05 U	0.09 U	2.2	2.6 U	24	na	0.5 U	na	na	na
MW-17	11/28/2011	MW-17-112811	47.5 j	49.8	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 UJ	2.6 UJ	2.4 UJ	na	0.5 UJ	na	na	na
MW-18	11/30/2011	MW-18-113011	4	3.6	0.045 U	0.045 U	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	0.6	0.7	0.13 U	0.13 U	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-18 (dup)	11/30/2011	DUP-113011-2	na	na	0.045 U	0.5	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	0.079 U	0.7	0.13 U	0.13 U	na	na	na	na	na	na	na	na	na	na	na	na
MW-19	12/1/2011	MW-19-120111	420	402	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-20	11/30/2011	MW-20-113011	2600	2770	0.045 U	0.045 U	0.92 U	3	1.4 U	1.4 U	0.2	0.5	1.5	0.13 U	0.13 U	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-21	11/30/2011	MW-21-113011	1850	1870	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-21 (dup)	11/30/2011	DUP-113011-1	1800	1820	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	11/28/2011	MW-22-112811	7.9 j	7.9	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-23	11/28/2011	MW-23-112811	2.9	2.7	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-24	11/30/2011	MW-24-113011	0.2	0.048 U	0.045 U	0.11 U	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	0.7	1.1	0.13 U	0.13 U	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-26	12/1/2011	MW-26-120111	448	432	0.22 U	2 U	0.92 U	4	1.4 U	1.4 U	0.01 U	1.8	1.9	0.13 U	0.13 U	na	na	na	na	21	21	96	na	0.5 U	na	na	na
MW-27	12/1/2011	MW-27-120111	13	13	0.11 U	2 U	0.92 U	3	1.4 U	1.4 U	0.025 U	8	8	7	6	na	na	na	na	0.5 U	2.6 U	2.4 U	na	0.5 U	na	na	na
MW-28S	12/2/2011	MW-28S-120211	11.9	11.2	0.045 U	0.11 U	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	1.9	1.8	0.13 U	0.13 U	0.36	0.34	0.05 U	0.2 j	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-28S (dup)	12/2/2011	DUP-120211-2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.05 U	0.2	na	na	na	na	na	na	na	na
MW-29S	12/2/2011	MW-29S-120211	2.4	2.5	0.11 U	0.11 U	3	0.92 U	1.4 U	1.4 U	0.01 U	0.7	0.7	0.13 U	0.13 U	1.82	2.45	0.2 j	0.09 U	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-29S (dup)	12/2/2011	DUP-120211-3	2.5	2.6	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-30S	12/5/2011	MW-30S-120511	9.2	8.5	0.11 U	0.11 U	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	1.1	0.9	0.13 U	0.13 U	2.06	3.57	0.05 U	0.2	0.5 U	2.6 U	2.4 U	0.7 j	2.1	0.06 j	0.22	0.09 j
MW-30S (dup)	12/5/2011	DUP-120511-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-31S	12/5/2011	MW-31S-120511	2.2	2.2	0.045 U	1.1	0.92 U	0.92 U	1.4 U	1.4 U	0.01 U	1	1.7	0.13 U	0.13 U	0.471	0.82	0.05 U	0.09 U	0.5 U	2.6 U	2.4 U	0.6 U	1.1	0.016 U	0.02 U	0.024 U
MW-31S (dup)	12/5/2011	DUP-120511-2	na	na	0.7	0.045 U	0.92 U	0.92 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-32S	12/6/2011	MW-32S-120611	2.1	2.2	0.8	0.045 U	0.92 U	0.92 U	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-33S	12/5/2011	MW-33S-120511	257	299	4	6	3	138	1.4 U	1.4 U	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	0.6 U	2.3	0.016 U	0.05 j	0.024 U
MW-33S (dup)	12/5/2011	DUP-120511-3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	0.5 U	2.6 U	2.4 U	0.6 U	2	0.016 U	0.06 j	0.024 U
MW-34S	12/6/2011	MW-34S-120611	2	2.2	0.045 U	0.045 U	3	3	1.4 U	1.4 U	na	na	na	na	na	0.04	0.05	na	na	0.5 U	2.6 U	2.4 U	0.6 U	0.5 U	0.016 U	0.02 U	0.024 U
MW-34S (dup)	12/6/2011	DUP-120611-1	na	na	na	na	na	na	na	na	na	na	na	na	na	0.074	0.10	na	na	na	na	na	na	na	na	na	na
MW-35S	12/6/2011	MW-35S-120611	1.3	1.4	0.045 U	0.045 U	0.92 U	3	1.4 U	1.4 U	na	na	na	na	na	0.207	0.23	na	na	0.5 U	2.6 U	2.4 U	0.6 U	8.8	0.08 j	0.02 U	0.024 U
Maximum Detected Concentrations			2600	2770	9	13	3	138	70	70	0.2	8	8	7	6	2.06	3.57	0.2	0.2	21	21	370	0.7	8.8	0.08	0.22	0.09
Method B			0.058 ca	0.058 ca	50 a	50 a	640 nc	640 nc	4,800 nc	4,800 nc	16 nc	320 nc	320 nc	80 nc	80 nc	NP	NP	1600 nc	80 nc	480 nc	24 nc	0.219 ca	NP	2400 nc	1.51 ca	960 nc	NP
Method C			0.58 ca	0.58 ca	50 a	50 a	1,400 nc	1,400 nc	10,500 nc	10,500 nc	35 nc	700 nc	700 nc	175 nc	175 nc	NP	NP	3500 nc	175 nc	1,050 nc	52.5 nc	2.19 ca	NP	5250 nc	15.1 ca	2100 nc	NP
SW-AL			36	36	NP	NP	3.1	3.1	81	81	8.8	8.2	8.2	71	71	NP	35 [3]	NP	NP	NP	NP	7.9	NP	NP	NP	NP	NP
SW-HH			0.14	0.14	NP	NP	NP	NP	26,000	26,000	NP	4600	4600	4200	4200	NP	NP	NP	3.3	NP	290	3	NP	1700000	NP	990	NP

Notes and Key:

1/2dl = One-half the detection limit
D = Dissolved
dup = Duplicate sample
mg/L = Milligrams per liter
ND = Non-detect values calculation method
NP = No Cleanup level provided. The screening levels were obtained from Ecology's online Cleanup Levels and Risk Calculation (CLARC) website.
pg/L = Picograms per liter
T = Total
TPH-d = Total petroleum hydrocarbons as diesel
ug/L = Micrograms per liter
ca = carcinogen
nc = non-carinogen
SIM = Selective Ion Monitoring
Method B = State of Washington Model Toxics Control Act Method B Screening Level. Level provided is the lowest of the carcinogenic and non-carcinogenic.
Method C = State of Washington Model Toxics Control Act Method C Screening Level
SW-AL = • Water Quality Criteria for chronic exposure of aquatic life from Washington Administrative Code (WAC) 173-201A.
SW-HH = • Water Quality Criteria for human health in marine environments from the Federal Clean Water Act (WAC not established).
a = State of Washington Model Toxics Control Act Method A Screening Level, no Method B or C screening level available.
Bold text indicates that compound was detected.
Shaded cells indicate values that exceed the Method B or Method A as noted (a).
Boxed cells indicate values that exceed the Method C.
Hatched cells indicate value exceeds Surface Water, Water Quality Criteria - Aquatic Life - Marine/Chronic - Clean Water Act (SW-AL)
Underlined text indicate values exceed Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (SW-HH)

[1] = Analytical results expressed in milligrams of nitrogen per liter (mg-N/L), equivelant to ammonium-N (NH_4+) plus ammonia-N (NH_3).

[2] = Calculated value of ammonia (NH_3) using the dissociation constant (Ka=5.75x10^-10) and pH of each sample (i.e., NH3 = total ammonia as nitrogen[1]/(1+[H+]/Ka).

[3] = SW-AL value expressed in micrograms of ammonia (NH_3) per liter (ug-NH_3/L).

Data Qualifiers:

j = The value reported is below the routine reporting limit and should be considered an estimate; qualifier reported by the Laboratory.
J = The detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
U = Result is ≤ Method Detection Limit (MDL). Result reported as the MDL and is qualified as non detected. If qualified as non-detect due to a detection in associated blank samples, than MDL has been revised.
NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern
UJ = The non detected results are qualified as estimated in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 or USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004.
* = May be biased high; associated congeners were U-qualified due to detections in the laboratory blank

Compound Acronymns

TCDD = Tetrachlorodibenzo-p-dioxin
HxCDD = Hexachlorodibenzo-p-dioxin
HpCDD = Heptachlorodibenzo-p-dioxin
OCDD = Octachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzofuran
PeCDF = Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran
OCDF =Octachlorodibenzofuran

			Semi-Volatile Organic Compounds							TPH		Dioxin/Furans												
Location ID	**Sample Date**	**Sample ID**	**Anthracene (SIM) ug/L**	**Dibenzofuran (SIM) ug/L**	**Fluoranthene (SIM) ug/L**	**Fluorene (SIM) ug/L**	**Naphthalene (SIM) ug/L**	**Phenanthrene (SIM) ug/L**	**Pyrene (SIM) ug/L**	**TPH as Diesel mg/L**	**TPH as Gasoline mg/L**	**Total TCDD pg/L**	**Total HxCDD pg/L**	**1,2,3,4,6,7,8-HpCDD pg/L**	**Total HpCDD pg/L**	**OCDD pg/L**	**Total TCDF pg/L**	**Total PeCDF pg/L**	**1,2,3,6,7,8-HxCDF pg/L**	**Total HxCDF pg/L**	**1,2,3,4,6,7,8-HpCDF pg/L**	**Total HpCDF pg/L**	**OCDF pg/L**	**Calculated TEQ (ND =0) pg/L**	**Calculated TEQ (ND =1/2dl) pg/L**
MW-1S	11/29/2011	MW-1S-112911	na	na	na	na	na	na	na	**0.19**	**0.03** NJ	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1S (dup)	11/29/2011	DUP-112911-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-1D	11/29/2011	MW-1D-112911	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2S	11/30/2011	MW-2S-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-2D	11/30/2011	MW-2D-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-3S	12/1/2011	MW-3S-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-3D	12/1/2011	MW-3D-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S	11/28/2011	MW-04S-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-4S (dup)	11/28/2011	DUP-112811-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-5S	12/1/2011	MW-5S-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-6S	11/30/2011	MW-6S-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-7S	11/29/2011	MW-7S-112911	na	na	na	na	na	na	na	na	na	**4.69**	0.598 U	5.28 U	**4.5**	**140**	**5.15**	0.598 U	0.598 U	**0.882**	1.79 U	**3.89** *	5.8 U	0.042	1.02
MW-7S (dup)	11/29/2011	DUP-112911-2	na	na	na	na	na	na	na	na	na	**7.68**	**2.52**	**17.7** j	**39.1**	**1100**	**7.49**	0.554 U	0.554 U	0.554 U	1.56 U	0.917 U	7.36 U	0.507	1.39
MW-10	11/29/2011	MW-10-112911	na	na	na	na	na	na	na	na	na	0.567 U	**2.74** *	**16.9** j	**28.2**	**369**	**1.29**	**1.7**	**0.719** j	**12.6**	**11.1** j	**33**	17 U	0.463	1.70
MW-11	12/1/2011	MW-11-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-12	12/1/2011	MW-12-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-13	11/29/2011	MW-13-112911	na	na	na	na	na	na	na	na	na	**0.634** *	**1.15**	**20.2** j	**40.2**	**3110**	0.561 U	0.561 U	0.561 U	**2.77**	**6.37** j	**16**	**81** j	1.223	2.15
MW-13 (dup)	11/29/2011	DUP-112911-3	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14	12/2/2011	MW-14-120211	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14 (dup)	12/2/2011	DUP-120211-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-14D	12/2/2011	MW-14D-120211	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-16	12/6/2011	MW-16-120611	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-17	11/28/2011	MW-17-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-18	11/30/2011	MW-18-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-18 (dup)	11/30/2011	DUP-113011-2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-19	12/1/2011	MW-19-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-20	11/30/2011	MW-20-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-21	11/30/2011	MW-21-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-21 (dup)	11/30/2011	DUP-113011-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-22	11/28/2011	MW-22-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-23	11/28/2011	MW-23-112811	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-24	11/30/2011	MW-24-113011	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-26	12/1/2011	MW-26-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-27	12/1/2011	MW-27-120111	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-28S	12/2/2011	MW-28S-120211	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	0.02 U	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-28S (dup)	12/2/2011	DUP-120211-2	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-29S	12/2/2011	MW-29S-120211	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	**0.11** NJ	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-29S (dup)	12/2/2011	DUP-120211-3	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-30S	12/5/2011	MW-30S-120511	**0.08** j	0.016 U	**0.24**	**0.17**	0.02 U	**0.44**	**0.31**	**0.23** NJ	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-30S (dup)	12/5/2011	DUP-120511-1	na	na	na	na	na	na	na	**0.23** NJ	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-31S	12/5/2011	MW-31S-120511	0.025 U	0.016 U	**0.06** j	0.019 U	0.02 U	0.026 U	**0.08** j	**0.27** NJ	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-31S (dup)	12/5/2011	DUP-120511-2	na	na	na	na	na	na	na	na	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-32S	12/6/2011	MW-32S-120611	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-33S	12/5/2011	MW-33S-120511	0.025 U	0.016 U	0.021 U	0.019 U	**0.08** j	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-33S (dup)	12/5/2011	DUP-120511-3	0.025 U	0.016 U	0.021 U	0.019 U	**0.07** j	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-34S	12/6/2011	MW-34S-120611	0.025 U	0.016 U	0.021 U	0.019 U	0.02 U	0.026 U	0.028 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-34S (dup)	12/6/2011	DUP-120611-1	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
MW-35S	12/6/2011	MW-35S-120611	0.025 U	**0.36**	0.021 U	0.019 U	**0.08** j	0.026 U	0.028 U	**2**	0.03 U	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Maximum Detected Concentrations			**0.08**	**0.36**	**0.24**	**0.17**	**0.08**	**0.44**	**0.31**	**2.00**	**0.03**	**7.68**	**2.7**	**20.2**	**40.2**	**3110**	**7.5**	**1.7**	**0.719**	**12.6**	**11.1**	**33.0**	**81**	**1.22**	**2.2**
Method B			**4800** nc	**16** nc	**640** nc	**640** nc	**160** nc	**NP**	**480** nc	**0.5** a	**1** a	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**0.58** ca	**0.58** ca
Method C			**10500** nc	**35** nc	**1400** nc	**1400** nc	**350** nc	**NP**	**1050** nc	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**5.8** ca	**5.8** ca
SW-AL			**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**
SW-HH			**40000**	**NP**	**140**	**5300**	**NP**	**NP**	**4000**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**NP**	**0.0051**	**0.0051**

Notes and Key:

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Bold text indicates that compound was detected.
Shaded cells indicate values that exceed the Method B or Method A as noted (a).
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Underlined text indicate values exceed Surface Water, Water Quality Criteria - Human Health – Marine – Clean Water Act (SW-HH)
[1] = Analytical results expressed in milligrams of nitrogen per liter (mg-N/L), equivelant to ammonium-N (NH_4+) plus ammonia-N (NH_3).
[2] = Calculated value of ammonia (NH_3) using the dissociation constant (Ka=5.75x10^-10) and pH of each sample (i.e., NH3 = total ammonia as nitrogen[1]/(1+[H+]/Ka).
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NJ = Estimated value - chromatogram did not resemble the standard hydrocarbon pattern
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TCDF = Tetrachlorodibenzofuran
PeCDF = Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran
OCDF =Octachlorodibenzofuran

Attachment A
Analytical Laboratory Reports

Table of Contents: ARI Job UA33

Client: ERM-West

Project: 128296.07 RG

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Report and Summary QC Forms	53	69
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PH

Signature

December-19-2011

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 19, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: RG Fall GW Sampling, 128296.07
ARI Job No.: UA33

Dear Mr. Mendes:

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

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

Please note that current ARI control limits are available at www.arilabs.com.

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.

Cheronne Oreiro
Project Manager
-For-
Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile UA33

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UA33

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: WA33	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: ERM	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Mendes		No. of Coolers: 3	Cooler Temps: 1.4, 4.0, 3.4
Client Project Name: RG			
Client Project #: 128296.07	Samplers: Cyrus / Matt		

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	VOCs 8260	Phenols / Chlorinated phenols	Total As	*Dissolved As	TPH-Gx				Notes/Comments
MW-16-120611	12/6/11	1109	water	7	X	X	X	X					
TB-120611-1	12/6/11	0834	water	2	X				X				

Comments/Special Instructions: Dissolved metals samples filtered in the field

Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
Printed Name: Cyrus Gorman	Printed Name: Jose Ulloa	Printed Name:	Printed Name:
Company: ERM	Company: ARI	Company:	Company:
Date & Time: 12/6/11 1357	Date & Time: 12/6/11 13:57	Date & Time:	Date & Time:

WA33 00003

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.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client ERM Project Name RG

COC No(s) _____ (NA) Delivered by Fed-Ex UPS Courier Hand Delivered Other _____

Assigned ARI Job No. UA33 Tracking No _____ (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) 1.1 4.0 3.4 ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 90941619

Cooler Accepted by JM Date 12/6/11 Time ~~13:57~~ JM 13:57

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	12/1/11	

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

Samples Logged by JM Date 12/7/11 Time 1044

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

PRESERVATION VERIFICATION 12/07/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **UA33**

Inquiry Number: NONE
Analysis Requested: 12/06/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: Yes
Deliverables:

PC: Sue D.
VTSR: 12/06/11

Project #: 128296.07
Project: RG
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-28048 **UA33A**	MW-16-120611						TOT															
11-28050 **UA33C**	MW-16-120611						DIS									Y						

UA33 : 00005

Checked By JM Date 12/7/11

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UA33

ANALYTICAL
RESOURCES
INCORPORATED

Narrative

Client: ERM-West, Inc.
Project: RG Fall GW Sampling, 128296.07
ARI Job No.: UA33

Sample receipt

One water sample and a trip blank were received on December 6, 2011 under ARI job UA33. The cooler temperatures measured by IR thermometer following ARI SOP were 1.4, 3.4, and 4.0°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles by SW8260

The samples were analyzed within recommended holding times.

The initial calibrations were within method requirements.

The continuing calibration fell outside the 20% control limit low for Acrolein, 1,2-Dibromo-3-chloropropane, and trans-1,4-Dichloro-2-butene, and was out high for Bromomethane and Trichlorofluoromethane. All detected results for these compounds have been flagged with a "Q" qualifier. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS percent recovery of Acrolein fell outside the control limits low for **LCS-121211**. All other percent recoveries were within control limits. No corrective action was taken.

Semivolatiles by SW8270

The sample was extracted and analyzed within recommended holding times.

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

NWTPH-Gx

The sample was analyzed within recommended holding times.

The 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.

Total and Dissolved Metals by SW6010/6020/7470

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

Initial and continuing calibrations were within limits.

The method blanks were clean at the detection limits. The LCS percent recoveries were within control limits.

The matrix spike percent recovery and duplicate RPD were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UA33
Client: ERM-West
Project Event: 128296.07
Project Name: RG

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-16-120611	UA33A	11-28048	Water	12/06/11 11:09	12/06/11 13:57
2.	TB-120611-1	UA33B	11-28049	Water	12/06/11	12/06/11 13:57
3.	MW-16-120611	UA33C	11-28050	Water	12/06/11 11:09	12/06/11 13:57

Printed 12/07/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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 ≥ 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).

UA33 : 00010

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 ≥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

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1885-1	PEST	01/02/10	ACETONE	12/15/11
4	1885-2	LOW PEST	.1/.2/1	ACETONE	12/15/11
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1888-1	ABN	100	MEOH	08/30/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1838-4	LOW PCB	2	ACETONE	01/31/12
14					
15	1814-2	SIM PNA	15/75	MEOH	01/04/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1814-3	LOW SIM PNA	1.5	ACETONE	01/04/12
19	1873-2	AK103	7500	ACETONE	01/02/12
20	1886-4	PNA	100	ACETONE	01/07/12
21	1874-3	SKY/BHT	100	MEOH	01/14/12
22	1864-3	HERB	02 to 2500	MEOH	12/03/11
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1909-2	TERPINEOL	100	MEOH	02/14/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1904-1	ABN ACID	200-450	MEOH	04/21/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1906-5	ABN	100/150	MEOH	04/30/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1907-4	LOW PCB	0.2	ACETONE	12/16/11
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1896-2	PCP	12.5	ACETONE	12/09/11
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1795-2	MED PCB	20	ACETONE	12/16/11
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1914-4	TPH	450	MECL2	02/04/12
P	1895-4	HCID	2250	MECL2	02/04/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1791-4	LOW PCP	1.25	ACETONE	12/09/11

Spike Recovery Control Limits for Analysis of Aqueous Samples Volatile Organic Compounds (VOA) EPA SW-846 Methods 8260C 10 mL Purge Volume [1,6]

Effective: 8/30/2010

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI Control Limits	ARI ME Control Limits[2]
LCS Spike Recovery [5]		
Dichlorodifluoromethane	69 - 122	60 - 131
Chloromethane	76 - **120**	69 - 123
Vinyl Chloride	**80 - 120**	75 - 123
Bromomethane	71 - 120	63 - 129
Chloroethane	**80 - 120**	75 - 124
1,1,2-Trichloro-1,2,2-trifluoroethane	**80** - 121	76 - 128
Acrolein	69 - 126	60 - 136
Acetone	71 - **120**	64 - **120**
1,1-Dichloroethene	**80 - 120**	79 - 122
Bromoethane	**80 - 120**	80 - 121
Methyl Iodide	76 - 120	69 - 127
Methylene Chloride	**80 - 120**	77 - **120**
Acrylonitrile	79 - **120**	74 - **120**
Methyl tert-Butyl Ether	**80 - 120**	77 - 121
Carbon Disulfide	**80 - 120**	78 - 121
trans-1,2-Dichloroethene	**80 - 120**	**80 - 120**
Vinyl Acetate	**80 - 120**	76 - **120**
1,1-Dichloroethane	**80 - 120**	**80 - 120**
2-Butanone	**80 - 120**	76 - **120**
2,2-Dichloropropane	**80 - 120**	77 - 120
cis-1,2-Dichloroethene	**80 - 120**	**80 - 120**
Chloroform	**80 - 120**	**80 - 120**
Bromodichloromethane	**80 - 120**	**80 - 120**
1,1,1-Trichloroethane	**80 - 120**	**80 - 120**
1,1-Dichloropropene	**80 - 120**	**80 - 120**
Carbon Tetrachloride	**80 - 120**	**80** - 123
1,2-Dichloroethane	**80 - 120**	**80 - 120**
Benzene	**80 - 120**	**80 - 120**
Trichloroethene	**80 - 120**	**80** - 120
1,2-Dichloropropane	**80 - 120**	**80 - 120**
Bromochloromethane	**80 - 120**	**80 - 120**
Dibromomethane	**80 - 120**	**80 - 120**
2-Chloroethylvinylether	**80 - 120**	75 - **120**
4-Methyl-2-Pentanone	**80 - 120**	78 - **120**
cis-1,3-Dichloropropene	**80 - 120**	**80 - 120**
Toluene	**80 - 120**	**80 - 120**
trans-1,3-Dichloropropene	**80 - 120**	**80 - 120**

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2-Hexanone	**80 - 120**	75 - **120**
1,1,2-Trichloroethane	**80 - 120**	**80 - 120**
1,3-Dichloropropane	**80 - 120**	**80 - 120**
Tetrachloroethene	**80 - 120**	**80 - 120**
Dibromochloromethane	**80 - 120**	**80 - 120**
Ethylene Dibromide	**80 - 120**	**80 - 120**
Chlorobenzene	**80 - 120**	**80 - 120**
Ethylbenzene	**80 - 120**	**80** - 121
1,1,2,2-Tetrachloroethane	**80 - 120**	78 - **120**
m,p-Xylene	**80 - 120**	**80 - 120**
o-Xylene	**80 - 120**	**80 - 120**
Styrene	**80 - 120**	**80** - 122
Trichlorofluoromethane	**80 - 120**	78 123
Isopropylbenzene	**80 - 120**	79 - 121
Bromoform	**80 - 120**	79 - **120**
1,1,1,2-Tetrachloroethane	**80 - 120**	**80 - 120**
1,2,3-Trichloropropane	**80 - 120**	77 - **120**
trans-1,4-Dichloro-2-butene	74 - 122	66 - 130
n-Propylbenzene	**80 - 120**	80 - **120**
Bromobenzene	**80 - 120**	78 - **120**
1,3,5-Trimethylbenzene	**80 - 120**	**80** - 120
2-Chlorotoluene	**80 - 120**	80 - **120**
4-Chlorotoluene	**80 - 120**	**80 - 120**
tert-Butylbenzene	**80 - 120**	**80** - 121
1,2,4-Trimethylbenzene	**80 - 120**	**80** - 120
sec-Butylbenzene	**80 - 120**	**80** - 121
4-Isopropyltoluene	**80 - 120**	**80** - 123
1,3-Dichlorobenzene	**80 - 120**	**80 - 120**
1,4-Dichlorobenzene	**80 - 120**	**80 - 120**
n-Butylbenzene	**80 - 120**	**80** - 122
1,2-Dichlorobenzene	**80 - 120**	**80 - 120**
1,2-Dibromo-3-chloropropane	76 - **120**	71 - **120**
1,2,4-Trichlorobenzene	77 - **120**	71 - **120**
Hexachloro-1,3-butadiene	77 - 120	70 - 127
Naphthalene	76 - **120**	70 - **120**
1,2,3-Trichlorobenzene	79 - **120**	74 - **120**
MB/LCS Surrogate Recovery		
Dibromofluoromethane	**80 - 120**	(3)
d4-1,2-Dichloroethane	**80 - 120**	(3)
d8-Toluene	**80 - 120**	(3)
4-Bromofluorobenzene	**80 - 120**	(3)
d4-1,2-Dichlorobenzene	**80 - 120**	(3)
Sample Surrogate Recovery		
Dibromofluoromethane	**80 - 120**	(3)

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d4-1,2-Dichloroethane	**80 - 120**	(3)
d8-Toluene	**80 - 120**	(3)
4-Bromofluorobenzene	**80 - 120**	(3)
D4-1,2-Dichlorobenzene	**80 - 120**	(3)

(1) Control Limits calculated using all data generated 7/1/09 through 6/30/10.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard[(4)] as beyond the LCS-CL but still within the ME limits. ME limits are between 3 and 4 standard deviations around the mean. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances require corrective action.
(3) Marginal Exceedances not allowed for surrogate standards. A corrective action is required for each surrogate recovery outside of the control limit range.
(4) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(5) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(6) Highlighted control limits (**bold font**) are adjusted from the calculated values as follows:

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

UA33 : 00018

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME [1,2]	Separatory Funnel [1]	Separatory Funnel - ME [1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
LCS Spike Recovery [8]				
Phenol [3]	50 - **100**	43 - 103	16 - **100**	6 - **100**
Bis-(2-chloroethyl) ether	52 - **100**	45 - 105	41 - 112	29 - 124
2-Chlorophenol	56 - **100**	49 - 103	43 - 111	32 - 122
1,3-Dichlorobenzene	23 - **100**	15 - **100**	32 - **100**	22 - 103
1,4-Dichlorobenzene	25 - **100**	17 - **100**	32 - **100**	22 - 103
Benzyl Alcohol	19 - 100	**10** - 114	22 - 100	9 - 113
1,2-Dichlorobenzene	30 - **100**	22 - **100**	34 - **100**	24 - 104
2-Methylphenol	52 - **100**	44 - 106	36 - 110	24 - 122
2,2'-oxybis(1-chloropropane)	32 - 111	19 - 124	29 - 118	14 - 133
4-Methylphenol	53 - 102	45 - 110	38 - 104	27 - 115
N-Nitroso-di-n-propylamine	43 - 104	33 - 114	38 - 115	25 - 128
Hexachloroethane	12 - **100**	**10** - **100**	24 - **100**	13 - 100
Nitrobenzene	33 - 125	18 - 140	45 - 106	35 - 116
Isophorone	57 - 115	47 - 125	55 - 119	44 - 130
2-Nitrophenol	56 - 102	48 - 110	46 - 118	34 - 130
2,4-Dimethyphenol	29 - **100**	20 - **100**	28 - 105	15 - 118
Bis-(2-chloroethoxy) methane	54 - 101	46 - 109	44 - 118	32 - 130
Benzoic Acid [3]	**10** - 131	**10** - 151	11 - **100**	**10** - **100**
2,4-Dichlorophenol	56 - 104	48 - 112	43 - 121	30 - 134
1,2,4-Trichlorobenzene	27 - **100**	18 - **100**	35 - **100**	25 - 107
Naphthalene	45 - **100**	38 - **100**	36 - 111	24 - 124
4-Chloroaniline [3]	**10** - 139	**10** - 161	10 - 174	**10** - 201
2-Chloronaphthalene	45 - **100**	37 - 105	39 - 118	26 - 131
Hexachlorobutadiene	**10** - **100**	**10** - **100**	24 - **100**	12 - 108
4-Chloro-3-methylphenol	53 - 109	44 - 118	45 - 122	32 - 135
2-Methylnaphthalene	46 - **100**	38 - 100	45 - 103	35 - 113
Hexachlorocyclopentadiene	**10** - **100**	**10** - **100**	23 - 108	**10** - 122
2,4,6-Trichlorophenol	58 - 108	50 - 116	48 - 122	36 - 134
2,4,5-Trichlorophenol	58 - 107	50 - 115	48 - 122	36 - 134
2-Nitroaniline	50 - 107	41 - 117	48 - 118	36 - 130
Dimethylphthalate	58 - 107	50 - 115	50 - 120	38 - 132
Acenaphthylene	57 - 100	50 - 107	50 - 119	39 - 131
2,6-Dinitrotoluene	58 - 112	49 - 121	48 - 133	34 - 147
3-Nitroaniline [3]	21 - 150	**10** - 172	54 - 140	40 - 154
Acenaphthene	51 - **100**	43 - 106	41 - 120	28 - 133
2,4-Dinitrophenol	12 - 169	**10** - 195	23 - 176	**10** - 202

UA33 : 00019

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Dibenzofuran	57 - 100	50 - 107	51 - 114	41 - 125
4-Nitrophenol [3]	35 - 119	21 - 133	13 - **100**	**10** - **100**
2,4-Dinitrotoluene	58 - 117	48 - 127	51 - 134	37 - 148
Fluorene	56 - 104	48 - 112	50 - 120	38 - 132
Diethylphthlalate	52 - 111	42 - 121	48 - 122	36 - 134
4-Chlorophenyl-phenyl ether	55 - 104	47 - 112	50 - 118	39 - 129
4-Nitroaniline	49 - 112	39 - 123	42 - 136	26 - 152
4,6-Dinitro-2-Methylphenol	13 - 139	**10** - 160	32 - 121	17 - 136
N-Nitrosodiphenylamine	60 - 136	47 - 149	58 - 141	44 - 155
4-Bromophenyl-phenyl ether	55 - 103	47 - 111	50 - 122	38 - 134
Hexachlorobenzene	54 - 106	45 - 115	47 - 125	34 - 138
Pentachlorophenol	46 - 114	35 - 125	35 - 130	19 - 146
Phenanthrene	56 - 102	48 - 110	49 - 120	37 - 132
Anthracene	56 - 101	49 - 109	53 - 116	43 - 127
Carbazole	60 - 108	52 - 116	57 - 122	46 - 133
Di-n-butylphthalate	56 - 112	47 - 121	57 - 121	46 - 132
Fluoranthene	57 - 110	48 - 119	56 - 119	46 - 130
Pyrene	48 - 119	36 - 131	37 - 143	19 - 161
Butylbenzylphthalate	51 - 114	41 - 125	34 - 152	14 - 172
Benzo(a)Anthracene	55 - 105	47 - 113	49 - 129	36 - 142
3,3'-Dichlorbenzidine [3]	**10** - 128	**10** - 148	50 - 128	37 - 141
Chrysene	55 - 104	47 - 112	45 - 128	31 - 142
bis(2-Ethylhexyl) phthalate	28 - 164	**10** - 187	57 - 133	44 - 146
Di-n-octylphthalate	57 - 107	49 - 115	52 - 120	41 - 131
Benzofluoranthene(s) (Total)	30 - 160[10]	30 - 160[10]	30 - 160[10]	30 - 160[10]
Benzo(a)Pyrene	45 - 103	35 - 113	46 - 109	36 - 120
Indeno(1,2,3-cd)Pyrene	35 - 118	21 - 132	34 - 136	17 - 153
Dibenz(a,h)anthracene	42 - 119	29 - 132	41 - 134	26 - 150
Benzo(g,h,i)Perylene	39 - 123	25 - 137	41 - 133	26 - 148
Aniline [3]	**10** - **100**	**10** - **100**	28 - 126	12 - 142
1,2-Diphenylhydrazine /Azobenzene	57 - 109	48 - 118	55 - 119	44 - 130
N-Nitrosodimethylamine	49 - **100**	41 - 104	31 - **100**	21 - 105
1-Methylnaphthalene	46 - **100**	37 - 107	43 - 115	31 - 127
1,4-Dioxane	40 - **100**	30 - 108	30 - 160 [4]	30 - 160 [4]
Pyridine	-	-	25 - **100**	15 - **100**
Tributyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Dibutyl Phenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]

UA33 : 00020

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Butyl Diphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Triphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Butylated Hydroxytoluene (BHT)	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
MB / LCS Surrogate Recovery				
d4-2-Chlorophenol	53 - 100	(5)	49 - 101	(5)
d4-1,2-Dichlorobenzene	38 - **100**	(5)	40 - **100**	(5)
2,4,6-Tribromophenol	52 - 123	(5)	51 - 122	(5)
2-Fluorophenol	46 - **100**	(5)	31 - **100**	(5)
d5-Phenol [3]	50 - 100	52 - 108	19 - **100**	12 - **100**
d5-Nitrobenzene	46 - 100	(5)	46 - 101	(5)
2-Fluorobiphenyl	49 - **100**	(5)	49 - 103	(5)
d14-p-Terphenyl	53 - 119	(5)	49 - 130	(5)
d8-1,4-Dioxane	45 - **100**	(5)	30 - 160 [4]	(5)
Sample Surrogate Recovery				
d4-2-Chlorophenol	44 - **100**	(5)	23 - 104	(5)
d4-1,2-Dichlorobenzene	32 - **100**	(5)	22 - **100**	(5)
2,4,6-Tribromophenol	48 - 118	(5)	22 - 125	(5)
2-Fluorophenol	38 - **100**	(5)	18 - **100**	(5)
d5-Phenol	41 - **100**	32 - 104	**10** - **100**	17 - **100**
d5-Nitrobenzene	39 - **100**	(5)	21 - 106	(5)
2-Fluorobiphenyl	42 - **100**	(5)	26 - 104	(5)
d14-p-Terphenyl	26 - 114	(5)	11 - 132	(5)
d8-1,4-Dioxane	32 - **100**	(5)	30 - 160 [4]	(5)

(1) Control Limits calculated using all data generated 1/1/07 through 12/1/07.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [6] as beyond the CL but still within the ME limits. ARI defines ME limits as between 3 and 4 standard deviations around the mean with upper limit ≥ 100%. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances in an analysis require corrective action.
(3) These are "**poor performers**" defined in the DoD QSM[7] as compounds that "produce low mean recoveries and high standard deviations, resulting in wide LCS control limits with particularly low lower control limits (sometimes-negative values). ARI does not control batch acceptance based on these compounds since there is a high level of uncertainty in their recovery."
(4) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(5) Marginal Exceedances not allowed for surrogate unless it is a "poor performer".
(6) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(7) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based On National Environmental Laboratory Accreditation Conference (NELAC) Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(9) 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.
(10) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

UA33 : 00021

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Quality Control Criteria
Gasoline and BTEX

Method	Analyte	DL[1]	LOD[1]	LOQ[1]	Spike % Recovery Control Limits[3]			RPD[3]
					LCS	MB/LCS Surrogate	Sample Surrogate	
Aqueous Samples (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	75 – 124	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	0.031	0.125	0.25	75 – 124	--	--	
WA-TPH-G	Toluene – nC_{12})	0.087	0.125	0.25	75 – 124	--	--	
AK-101	nC_6 – nC_{12}	0.032	0.050	0.10	75 – 124	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	**80 - 120**	**80** - 120	
	Bromobenzene	--	--	--	--	**80 - 120**	**80** - 120	
8021B	Benzene	0.094	0.5	1.0	73 – **120**	--	--	≤ 40
8021B	Toluene	0.113	0.5	1.0	73 – **120**	--	--	
8021B	Ethylbenzene	0.117	0.5	1.0	69 – **120**	--	--	
8021B	m/p-Xylene	0.265	1.0	2.0	72 – **120**	--	--	
8021B	o-Xylene	0.136	0.5	1.0	73 – **120**	--	--	
8021B	MTBE	0.412	0.5	1.0	30 – 182	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	79 – **120**	**80 - 120**	
	Bromobenzene	--	--	--	--	79 – **120**	**80 - 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	74 – 124	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	1.57	2.5	5	74 – 124	--	--	
WA-TPH-G	Toluene – nC_{12})	1.54	2.5	5	74 – 124	--	--	
AK-101	nC_6 – nC_{12}	1.84	2.5	5	74 – 124	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	**80 - 120**	66-123	
	Bromobenzene	--	--	--	--	**80 - 120**	62-130	
8021B	Benzene	4.59	12.5	25	72 – **120**	--	--	≤ 40
8021B	Toluene	7.13	12.5	25	72 – **120**	--	--	
8021B	Ethylbenzene	4.98	12.5	25	71 – **120**	--	--	
8021B	m/p-Xylene	11.9	25.0	50	72 – **120**	--	--	
8021B	o-Xylene	6.23	12.5	25	72 – **120**	--	--	
8021B	MTBE	3.82	12.5	25	40 – 163	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 – **120**	68 – 124	
	Bromobenzene	--	--	--	--	77 – **120**	62 – 134	

(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

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

UA33 : 00022

Quality Control Parameters for Metals Analysis using ICP-MS								
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	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	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 $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$

UA33 : 00023

Volatile Analysis
Report and Summary QC Forms

ARI Job ID: UA33

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-16-120611**
 SAMPLE

Lab Sample ID: UA33A
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Instrument/Analyst: NT2/PKC
Date Analyzed: 12/12/11 16:04

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	**Methylene Chloride**	**0.5**	**0.2**	**J**
67-64-1	**Acetone**	**5.0**	**5.1**	
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MW-16-120611**
 SAMPLE

Lab Sample ID: UA33A QC Report No: UA33-ERM-West
LIMS ID: 11-28048 Project: RG
Matrix: Water 128296.07
Date Analyzed: 12/12/11 16:04

CAS Number	Analyte	RL	Result	Q
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	95.4%
d8-Toluene	100%
Bromofluorobenzene	98.4%
d4-1,2-Dichlorobenzene	98.6%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TB-120611-1**
Page 1 of 2 **SAMPLE**

Lab Sample ID: UA33B
LIMS ID: 11-28049
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Instrument/Analyst: NT2/PKC
Date Analyzed: 12/12/11 16:31

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	**Methylene Chloride**	**0.5**	**0.3**	**J**
67-64-1	**Acetone**	**5.0**	**2.1**	**J**
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TB-120611-1**
 SAMPLE

Lab Sample ID: UA33B QC Report No: UA33-ERM-West
LIMS ID: 11-28049 Project: RG
Matrix: Water 128296.07
Date Analyzed: 12/12/11 16:31

CAS Number	Analyte	RL	Result	Q
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	94.2%
d8-Toluene	99.0%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	102%

2-Chloroethylvinylether is an acid labile compound and may not be recovered from an acid preserved sample.

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA33-ERM-West
Project: RG
128296.07

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-121211	Method Blank	10	93.7%	100%	99.0%	101%	0
LCS-121211	Lab Control	10	91.5%	101%	102%	101%	0
LCSD-121211	Lab Control Dup	10	95.8%	102%	102%	101%	0
UA33A	MW-16-120611	10	95.4%	100%	98.4%	98.6%	0
UA33B	TB-120611-1	10	94.2%	99.0%	101%	102%	0

SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	80-120	80-120
(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: 11-28048 to 11-28049

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-121211**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-121211
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT2/PKC
LCSD: NT2/PKC
Date Analyzed LCS: 12/12/11 09:43
LCSD: 12/12/11 10:10

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS		Spike Added-LCS	LCS Recovery	LCSD		Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	9.8		10.0	98.0%	10.1		10.0	101%	3.0%
Bromomethane	11.5	Q	10.0	115%	11.6	Q	10.0	116%	0.9%
Vinyl Chloride	9.8		10.0	98.0%	10.3		10.0	103%	5.0%
Chloroethane	10.5		10.0	105%	10.4		10.0	104%	1.0%
Methylene Chloride	10.1		10.0	101%	10.5		10.0	105%	3.9%
Acetone	46.1		50.0	92.2%	49.0		50.0	98.0%	6.1%
Carbon Disulfide	9.9		10.0	99.0%	10.3		10.0	103%	4.0%
1,1-Dichloroethene	9.8		10.0	98.0%	10.1		10.0	101%	3.0%
1,1-Dichloroethane	9.7		10.0	97.0%	10.1		10.0	101%	4.0%
trans-1,2-Dichloroethene	10.1		10.0	101%	10.4		10.0	104%	2.9%
cis-1,2-Dichloroethene	9.7		10.0	97.0%	10.1		10.0	101%	4.0%
Chloroform	10.0		10.0	100%	10.3		10.0	103%	3.0%
1,2-Dichloroethane	9.4		10.0	94.0%	11.8		10.0	118%	22.6%
2-Butanone	44.8		50.0	89.6%	48.0		50.0	96.0%	6.9%
1,1,1-Trichloroethane	10.6		10.0	106%	10.8		10.0	108%	1.9%
Carbon Tetrachloride	10.7		10.0	107%	10.8		10.0	108%	0.9%
Vinyl Acetate	8.5		10.0	85.0%	8.7		10.0	87.0%	2.3%
Bromodichloromethane	10.1		10.0	101%	10.3		10.0	103%	2.0%
1,2-Dichloropropane	9.8		10.0	98.0%	9.8		10.0	98.0%	0.0%
cis-1,3-Dichloropropene	10.2		10.0	102%	10.4		10.0	104%	1.9%
Trichloroethene	10.2		10.0	102%	10.1		10.0	101%	1.0%
Dibromochloromethane	9.9		10.0	99.0%	10.1		10.0	101%	2.0%
1,1,2-Trichloroethane	10.0		10.0	100%	10.3		10.0	103%	3.0%
Benzene	9.8		10.0	98.0%	9.9		10.0	99.0%	1.0%
trans-1,3-Dichloropropene	10.5		10.0	105%	11.0		10.0	110%	4.7%
2-Chloroethylvinylether	9.4		10.0	94.0%	9.8		10.0	98.0%	4.2%
Bromoform	9.8		10.0	98.0%	10.0		10.0	100%	2.0%
4-Methyl-2-Pentanone (MIBK)	48.5		50.0	97.0%	50.1		50.0	100%	3.2%
2-Hexanone	45.0		50.0	90.0%	46.1		50.0	92.2%	2.4%
Tetrachloroethene	10.4		10.0	104%	10.5		10.0	105%	1.0%
1,1,2,2-Tetrachloroethane	8.7		10.0	87.0%	9.0		10.0	90.0%	3.4%
Toluene	10.2		10.0	102%	10.2		10.0	102%	0.0%
Chlorobenzene	9.8		10.0	98.0%	9.8		10.0	98.0%	0.0%
Ethylbenzene	10.0		10.0	100%	10.0		10.0	100%	0.0%
Styrene	10.4		10.0	104%	10.2		10.0	102%	1.9%
Trichlorofluoromethane	11.9	Q	10.0	119%	11.4	Q	10.0	114%	4.3%
1,1,2-Trichloro-1,2,2-trifluoroetha	10.3		10.0	103%	10.9		10.0	109%	5.7%
m,p-Xylene	20.4		20.0	102%	20.5		20.0	102%	0.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-121211**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-121211 QC Report No: UA33-ERM-West
LIMS ID: 11-28048 Project: RG
Matrix: Water 128296.07

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
o-Xylene	10.3	10.0	103%	10.2	10.0	102%	1.0%
1,2-Dichlorobenzene	9.5	10.0	95.0%	9.5	10.0	95.0%	0.0%
1,3-Dichlorobenzene	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
1,4-Dichlorobenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Acrolein	32.1 Q	50.0	64.2%	34.9 Q	50.0	69.8%	8.4%
Methyl Iodide	10.6	10.0	106%	11.0	10.0	110%	3.7%
Bromoethane	10.1	10.0	101%	10.5	10.0	105%	3.9%
Acrylonitrile	8.7	10.0	87.0%	9.5	10.0	95.0%	8.8%
1,1-Dichloropropene	9.8	10.0	98.0%	9.7	10.0	97.0%	1.0%
Dibromomethane	9.6	10.0	96.0%	9.8	10.0	98.0%	2.1%
1,1,1,2-Tetrachloroethane	10.4	10.0	104%	10.5	10.0	105%	1.0%
1,2-Dibromo-3-chloropropane	8.2 Q	10.0	82.0%	8.3 Q	10.0	83.0%	1.2%
1,2,3-Trichloropropane	8.7	10.0	87.0%	9.0	10.0	90.0%	3.4%
trans-1,4-Dichloro-2-butene	8.0 Q	10.0	80.0%	8.0 Q	10.0	80.0%	0.0%
1,3,5-Trimethylbenzene	10.1	10.0	101%	10.2	10.0	102%	1.0%
1,2,4-Trimethylbenzene	10.1	10.0	101%	10.1	10.0	101%	0.0%
Hexachlorobutadiene	11.3	10.0	113%	11.5	10.0	115%	1.8%
Ethylene Dibromide	10.1	10.0	101%	10.4	10.0	104%	2.9%
Bromochloromethane	10.0	10.0	100%	10.4	10.0	104%	3.9%
2,2-Dichloropropane	11.3	10.0	113%	11.4	10.0	114%	0.9%
1,3-Dichloropropane	9.2	10.0	92.0%	9.3	10.0	93.0%	1.1%
Isopropylbenzene	9.8	10.0	98.0%	10.0	10.0	100%	2.0%
n-Propylbenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
Bromobenzene	9.7	10.0	97.0%	9.7	10.0	97.0%	0.0%
2-Chlorotoluene	9.6	10.0	96.0%	9.5	10.0	95.0%	1.0%
4-Chlorotoluene	9.6	10.0	96.0%	9.6	10.0	96.0%	0.0%
tert-Butylbenzene	10.2	10.0	102%	10.3	10.0	103%	1.0%
sec-Butylbenzene	10.1	10.0	101%	10.1	10.0	101%	0.0%
4-Isopropyltoluene	10.3	10.0	103%	10.3	10.0	103%	0.0%
n-Butylbenzene	10.3	10.0	103%	10.2	10.0	102%	1.0%
1,2,4-Trichlorobenzene	9.9	10.0	99.0%	10.0	10.0	100%	1.0%
Naphthalene	8.1	10.0	81.0%	8.5	10.0	85.0%	4.8%
1,2,3-Trichlorobenzene	9.1	10.0	91.0%	9.6	10.0	96.0%	5.3%
Methyl tert-Butyl Ether	9.5	10.0	95.0%	9.9	10.0	99.0%	4.1%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	91.5%	95.8%
d8-Toluene	101%	102%
Bromofluorobenzene	102%	102%
d4-1,2-Dichlorobenzene	101%	101%

4A
VOLATILE METHOD BLANK SUMMARY

Method Blank ID.

MB1212

Lab Name: ANALYTICAL RESOURCES INC
Client: ERM-WEST

ARI Job No: TZ97
Project: TG

Lab File ID: MB1212
Lab Sample ID: MB1212

Date Analyzed: 12/12/11
Time Analyzed: 1037

Instrument ID: NT2
Heated Purge: (Y/N) N

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

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1212	LCS1212	LCS1212	0943
02	LCS1212	LCS1212	LCS1212A	1010
03	MW-30S-12051	TZ97A	TZ97A	1323
04	MW-31S-12051	TZ97B	TZ97B	1350
05	MW-31S-12051	TZ97BMS	TZ97BMS	1417
06	MW-31S-12051	TZ97BMSD	TZ97BMSD	1444
07	FB-120511-1	TZ97D	TZ97D	1511
08	TB-120511-1	TZ97G	TZ97G	1537
09	MW-16-120611	UA33A	UA33A	1604
10	TB-120611-1	UA33B	UA33B	1631
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COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-121211**
 METHOD BLANK

Lab Sample ID: MB-121211
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT2/PKC
Date Analyzed: 12/12/11 10:37

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-121211**
 METHOD BLANK

Lab Sample ID: MB-121211 QC Report No: UA33-ERM-West
LIMS ID: 11-28048 Project: RG
Matrix: Water 128296.07
Date Analyzed: 12/12/11 10:37

CAS Number	Analyte	RL	Result	Q
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U
1634-04-4	Methyl tert-Butyl Ether	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	93.7%
d8-Toluene	100%
Bromofluorobenzene	99.0%
d4-1,2-Dichlorobenzene	101%

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ANALYTICAL RESOURCES INC Contract: ERM-WEST

Lab Code: ARI Case No.: TG SDG No.: TZ97

Lab File ID: BFB1130B BFB Injection Date: 11/30/11

Instrument ID: NT2 BFB Injection Time: 0951

GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.5
75	30.0 - 66.0% of mass 95	46.6
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.3
173	Less than 2.0% of mass 174	0.1 (0.1)1
174	50.0 - 101.0% of mass 95	78.8
175	4.0 - 9.0% of mass 174	5.8 (7.4)1
176	93.0 - 101.0% of mass 174	74.4 (94.4)1
177	5.0 - 9.0% of mass 176	4.9 (6.6)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	IC0.2	IC0.2	0021130	11/30/11	1208
02	IC0.5	IC0.5	0051130	11/30/11	1235
03	IC01	IC01	0101130	11/30/11	1302
04	IC02	IC02	0201130	11/30/11	1328
05	IC10	IC10	1001130	11/30/11	1355
06	IC20	IC20	2001130	11/30/11	1422
07	IC40	IC40	4001130	11/30/11	1449
08	IC60	IC60	6001130	11/30/11	1515
09	ICV10	ICV10	ICV1130	11/30/11	1609
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: ERM-WEST

Lab Code: ARI Case No.: TG SDG No.: TZ97

Lab File ID: BFB1212 BFB Injection Date: 12/12/11

Instrument ID: NT2 BFB Injection Time: 0841

GC Column: RTXVMS ID: 0.18 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.1
75	30.0 - 66.0% of mass 95	47.8
95	Base Peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	8.5
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 101.0% of mass 95	84.0
175	4.0 - 9.0% of mass 174	6.4 (7.6)1
176	93.0 - 101.0% of mass 174	81.8 (97.4)1
177	5.0 - 9.0% of mass 176	6.0 (7.3)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	CC1212	CC1212	CC1212	12/12/11	0916
02	LCS1212	LCS1212	LCS1212	12/12/11	0943
03	LCS1212	LCS1212	LCS1212A	12/12/11	1010
04	MB1212	MB1212	MB1212	12/12/11	1037
05	MW-30S-120511	TZ97A	TZ97A	12/12/11	1323
06	MW-31S-120511	TZ97B	TZ97B	12/12/11	1350
07	MW-31S-120511 MS	TZ97BMS	TZ97BMS	12/12/11	1417
08	MW-31S-120511 MS	TZ97BMSD	TZ97BMSD	12/12/11	1444
09	FB-120511-1	TZ97D	TZ97D	12/12/11	1511
10	TB-120511-1	TZ97G	TZ97G	12/12/11	1537
11	MW-16-120611	UA33A	UA33A	12/12/11	1604
12	TB-120611-1	UA33B	UA33B	12/12/11	1631
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF0.2: 0021130 RF0.5: 0051130 RF1: 0101130
RF2: 0201130 RF10: 1001130

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
Chloromethane		1.127	1.145	1.088	1.139
Vinyl Chloride	0.952	0.955	0.993	0.945	0.994
Bromomethane		0.368	0.368	0.298	0.362
Chloroethane	0.485	0.446	0.420	0.344	0.434
Trichlorofluoromethane	0.611	0.623	0.651	0.596	0.682
Acrolein		0.077	0.082	0.075	0.084
112Trichloro122Trifluoroetha	0.595	0.565	0.568	0.564	0.590
Acetone			0.152	0.140	0.147
1,1-Dichloroethene	0.628	0.634	0.615	0.575	0.616
Bromoethane	0.458	0.469	0.488	0.447	0.481
Iodomethane			0.987	0.921	0.983
Methylene Chloride		0.718	0.706	0.658	0.687
Acrylonitrile		0.195	0.206	0.193	0.201
Carbon Disulfide	2.080	1.977	2.050	1.872	2.156
Trans-1,2-Dichloroethene	0.699	0.687	0.701	0.652	0.690
Vinyl Acetate		0.942	0.982	0.899	1.081
1,1-Dichloroethane	1.271	1.245	1.291	1.207	1.290
2-Butanone		0.209	0.208	0.178	0.215
2,2-Dichloropropane	0.683	0.660	0.686	0.678	0.698
Cis-1,2-Dichloroethene	0.746	0.716	0.686	0.665	0.698
Chloroform	0.997	1.020	1.050	1.016	1.087
Bromochloromethane	0.266	0.284	0.298	0.288	0.307
1,1,1-Trichloroethane	0.901	0.859	0.878	0.832	0.916
1,1-Dichloropropene	0.563	0.571	0.597	0.558	0.585
Carbon Tetrachloride	0.451	0.483	0.476	0.475	0.500
1,2-Dichloroethane	0.451	0.436	0.447	0.424	0.443
Benzene	1.607	1.582	1.645	1.546	1.614
Trichloroethene	0.377	0.415	0.404	0.375	0.400
1,2-Dichloropropane	0.367	0.367	0.386	0.366	0.378
Bromodichloromethane	0.360	0.388	0.376	0.364	0.415
Dibromomethane	0.168	0.172	0.170	0.161	0.170
2-Chloroethyl Vinyl Ether		0.126	0.111	0.101	0.123
4-Methyl-2-Pentanone		0.093	0.096	0.094	0.112
Cis 1,3-dichloropropene	0.407	0.420	0.424	0.384	0.463
Toluene	0.868	0.857	0.862	0.782	0.852
Trans 1,3-Dichloropropene	0.333	0.316	0.330	0.291	0.368
2-Hexanone		0.178	0.180	0.169	0.194

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF0.2: 0021130 RF0.5: 0051130 RF1: 0101130
RF2: 0201130 RF10: 1001130

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
1,1,2-Trichloroethane	0.212	0.214	0.214	0.195	0.215
1,3-Dichloropropane	0.432	0.464	0.448	0.424	0.442
Tetrachloroethene	0.389	0.414	0.404	0.394	0.406
Chlorodibromomethane	0.255	0.239	0.254	0.245	0.285
1,2-Dibromoethane	0.198	0.190	0.191	0.180	0.205
Chlorobenzene	1.038	1.000	1.026	0.970	1.012
Ethyl Benzene	0.555	0.535	0.547	0.552	0.575
1,1,1,2-Tetrachloroethane	0.334	0.359	0.369	0.365	0.405
m,p-xylene	0.644	0.655	0.682	0.682	0.714
o-Xylene	0.655	0.672	0.714	0.707	0.764
Styrene	0.827	0.922	0.934	0.930	1.067
Bromoform	0.211	0.210	0.222	0.218	0.287
1,1,2,2-Tetrachloroethane	0.547	0.526	0.543	0.511	0.583
1,2,3-Trichloropropane		0.172	0.170	0.158	0.168
Trans-1,4-Dichloro 2-Butene		0.160	0.147	0.139	0.162
N-Propyl Benzene	3.194	3.281	3.295	3.149	3.552
Bromobenzene	0.729	0.635	0.701	0.636	0.693
Isopropyl Benzene	2.549	2.737	2.858	2.796	3.285
2-Chloro Toluene	2.329	2.292	2.348	2.262	2.524
4-Chloro Toluene	2.054	2.029	2.129	2.019	2.185
T-Butyl Benzene	1.850	1.944	2.017	1.954	2.415
1,3,5-Trimethyl Benzene	2.241	2.200	2.432	2.369	2.772
1,2,4-Trimethylbenzene	2.292	2.263	2.460	2.381	2.783
S-Butyl Benzene	2.932	2.994	3.236	3.057	3.560
4-Isopropyl Toluene	2.392	2.474	2.609	2.501	2.941
1,3-Dichlorobenzene	1.415	1.465	1.518	1.385	1.476
1,4-Dichlorobenzene	1.607	1.507	1.520	1.407	1.493
N-Butyl Benzene	2.476	2.333	2.449	2.352	2.661
1,2-Dichlorobenzene	1.527	1.423	1.455	1.386	1.458
1,2-Dibromo 3-Chloropropane		0.097	0.087	0.086	0.098
1,2,4-Trichlorobenzene	1.075	0.996	1.019	0.970	1.083
Hexachloro 1,3-Butadiene		0.497	0.486	0.469	0.486
Naphthalene		1.930	1.988	1.857	2.169
1,2,3-Trichlorobenzene		0.856	0.876	0.829	0.917
Dichlorodifluoromethane	0.612	0.638	0.617	0.658	0.682
Methyl tert butyl ether	1.774	1.721	1.772	1.666	1.779

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF0.2: 0021130 RF0.5: 0051130 RF1: 0101130
RF2: 0201130 RF10: 1001130

COMPOUND	RF0.2	RF0.5	RF1	RF2	RF10
d4-1,2-Dichloroethane	0.523	0.539	0.540	0.532	0.529
d8-Toluene	1.129	1.136	1.116	1.106	1.126
4-Bromofluorobenzene	0.519	0.527	0.526	0.538	0.515
d4-1,2-Dichlorobenzene	0.924	0.906	0.924	0.930	0.941
Dibromofluoromethane	0.499	0.501	0.500	0.508	0.521

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF20: 2001130 RF40: 4001130 RF60: 6001130

COMPOUND	RF20	RF40	RF60
Chloromethane	1.095	1.103	1.042
Vinyl Chloride	0.964	0.977	0.919
Bromomethane	0.327	0.336	0.327
Chloroethane	0.416	0.398	
Trichlorofluoromethane	0.665	0.684	0.653
Acrolein	0.082	0.085	0.082
112Trichloro122Trifluoroetha	0.564	0.568	0.532
Acetone	0.143	0.144	0.138
1,1-Dichloroethene	0.564	0.606	0.563
Bromoethane	0.466	0.471	0.445
Iodomethane	0.954	0.948	0.889
Methylene Chloride	0.663	0.668	0.634
Acrylonitrile	0.202	0.205	0.198
Carbon Disulfide	2.048	2.125	1.983
Trans-1,2-Dichloroethene	0.671	0.679	0.639
Vinyl Acetate	1.073	1.205	1.195
1,1-Dichloroethane	1.267	1.284	1.219
2-Butanone	0.210	0.229	
2,2-Dichloropropane	0.700	0.648	0.593
Cis-1,2-Dichloroethene	0.691	0.692	0.662
Chloroform	1.060	1.082	1.024
Bromochloromethane	0.299	0.299	0.288
1,1,1-Trichloroethane	0.901	0.874	0.838
1,1-Dichloropropene	0.571	0.556	0.532
Carbon Tetrachloride	0.488	0.466	0.453
1,2-Dichloroethane	0.422	0.428	0.415
Benzene	1.560	1.546	1.466
Trichloroethene	0.390	0.390	0.373
1,2-Dichloropropane	0.376	0.390	0.384
Bromodichloromethane	0.414	0.436	0.426
Dibromomethane	0.163	0.168	0.164
2-Chloroethyl Vinyl Ether	0.116	0.145	0.153
4-Methyl-2-Pentanone	0.111	0.112	0.108
Cis 1,3-dichloropropene	0.459	0.512	0.524
Toluene	0.832	0.863	0.846
Trans 1,3-Dichloropropene	0.342	0.393	0.401
2-Hexanone	0.182	0.196	0.196

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF20: 2001130 RF40: 4001130 RF60: 6001130

COMPOUND	RF20	RF40	RF60
1,1,2-Trichloroethane	0.203	0.220	0.222
1,3-Dichloropropane	0.430	0.465	0.467
Tetrachloroethene	0.404	0.394	0.377
Chlorodibromomethane	0.297	0.314	0.311
1,2-Dibromoethane	0.189	0.211	0.216
Chlorobenzene	1.006	1.019	0.982
Ethyl Benzene	0.579	0.568	0.548
1,1,1,2-Tetrachloroethane	0.415	0.397	0.374
m,p-xylene	0.714	0.687	0.648
o-Xylene	0.768	0.739	0.697
Styrene	1.105	1.136	1.106
Bromoform	0.293	0.323	0.324
1,1,2,2-Tetrachloroethane	0.584	0.602	0.596
1,2,3-Trichloropropane	0.166	0.170	
Trans-1,4-Dichloro 2-Butene	0.164	0.177	0.181
N-Propyl Benzene	3.573	3.583	3.409
Bromobenzene	0.682	0.723	0.708
Isopropyl Benzene	3.352	3.331	3.122
2-Chloro Toluene	2.522	2.558	2.468
4-Chloro Toluene	2.152	2.255	2.203
T-Butyl Benzene	2.530	2.500	2.369
1,3,5-Trimethyl Benzene	2.798	2.779	2.625
1,2,4-Trimethylbenzene	2.790	2.780	2.656
S-Butyl Benzene	3.625	3.561	3.348
4-Isopropyl Toluene	2.965	2.946	2.783
1,3-Dichlorobenzene	1.448	1.474	1.439
1,4-Dichlorobenzene	1.472	1.489	1.455
N-Butyl Benzene	2.655	2.576	2.458
1,2-Dichlorobenzene	1.444	1.424	1.375
1,2-Dibromo 3-Chloropropane	0.104	0.100	0.101
1,2,4-Trichlorobenzene	1.053	0.976	0.945
Hexachloro 1,3-Butadiene	0.472	0.440	0.420
Naphthalene	2.107	1.944	1.871
1,2,3-Trichlorobenzene	0.871	0.793	0.756
Dichlorodifluoromethane	0.658	0.677	0.643
Methyl tert butyl ether	1.744	1.772	1.683

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

LAB FILE ID: RF20: 2001130 RF40: 4001130 RF60: 6001130

COMPOUND	RF20	RF40	RF60
d4-1,2-Dichloroethane	0.523	0.525	0.527
d8-Toluene	1.126	1.156	1.172
4-Bromofluorobenzene	0.500	0.505	0.513
d4-1,2-Dichlorobenzene	0.935	0.907	0.885
Dibromofluoromethane	0.519	0.512	0.498

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
Chloromethane	AVRG	1.106	3.2
Vinyl Chloride	AVRG	0.962	2.6
Bromomethane	AVRG	0.341	7.8
Chloroethane	AVRG	0.420	10.4
Trichlorofluoromethane	AVRG	0.646	5.0
Acrolein	AVRG	0.081	4.7
112Trichloro122Trifluoroetha	AVRG	0.568	3.3
Acetone	AVRG	0.144	3.4
1,1-Dichloroethene	AVRG	0.600	4.8
Bromoethane	AVRG	0.466	3.2
Iodomethane	AVRG	0.947	4.0
Methylene Chloride	AVRG	0.676	4.3
Acrylonitrile	AVRG	0.200	2.5
Carbon Disulfide	AVRG	2.036	4.5
Trans-1,2-Dichloroethene	AVRG	0.677	3.3
Vinyl Acetate	AVRG	1.054	11.3
1,1-Dichloroethane	AVRG	1.259	2.6
2-Butanone	AVRG	0.208	8.0
2,2-Dichloropropane	AVRG	0.668	5.3
Cis-1,2-Dichloroethene	AVRG	0.694	3.9
Chloroform	AVRG	1.042	3.1
Bromochloromethane	AVRG	0.291	4.3
1,1,1-Trichloroethane	AVRG	0.875	3.5
1,1-Dichloropropene	AVRG	0.567	3.5
Carbon Tetrachloride	AVRG	0.474	3.5
1,2-Dichloroethane	AVRG	0.434	3.0
Benzene	AVRG	1.571	3.5
Trichloroethene	AVRG	0.390	3.9
1,2-Dichloropropane	AVRG	0.377	2.5
Bromodichloromethane	AVRG	0.397	7.4
Dibromomethane	AVRG	0.167	2.3
2-Chloroethyl Vinyl Ether	AVRG	0.125	14.7
4-Methyl-2-Pentanone	AVRG	0.104	8.4
Cis 1,3-dichloropropene	AVRG	0.449	11.1
Toluene	AVRG	0.845	3.3
Trans 1,3-Dichloropropene	AVRG	0.347	11.0
2-Hexanone	AVRG	0.185	5.7

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

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
1,1,2-Trichloroethane	AVRG	0.212	4.1
1,3-Dichloropropane	AVRG	0.446	3.9
Tetrachloroethene	AVRG	0.398	2.9
Chlorodibromomethane	AVRG	0.275	11.0
1,2-Dibromoethane	AVRG	0.197	6.3
Chlorobenzene	AVRG	1.007	2.2
Ethyl Benzene	AVRG	0.557	2.8
1,1,1,2-Tetrachloroethane	AVRG	0.377	7.1
m,p-xylene	AVRG	0.678	4.0
o-Xylene	AVRG	0.714	5.7
Styrene	AVRG	1.003	11.3
Bromoform	AVRG	0.261	19.4
1,1,2,2-Tetrachloroethane	AVRG	0.562	6.1
1,2,3-Trichloropropane	AVRG	0.167	3.0
Trans-1,4-Dichloro 2-Butene	AVRG	0.161	9.2
N-Propyl Benzene	AVRG	3.380	5.2
Bromobenzene	AVRG	0.688	5.2
Isopropyl Benzene	AVRG	3.004	10.2
2-Chloro Toluene	AVRG	2.413	4.9
4-Chloro Toluene	AVRG	2.128	4.1
T-Butyl Benzene	AVRG	2.197	12.8
1,3,5-Trimethyl Benzene	AVRG	2.527	9.8
1,2,4-Trimethylbenzene	AVRG	2.551	8.9
S-Butyl Benzene	AVRG	3.289	8.4
4-Isopropyl Toluene	AVRG	2.701	8.7
1,3-Dichlorobenzene	AVRG	1.452	2.8
1,4-Dichlorobenzene	AVRG	1.494	3.9
N-Butyl Benzene	AVRG	2.495	5.0
1,2-Dichlorobenzene	AVRG	1.436	3.3
1,2-Dibromo 3-Chloropropane	AVRG	0.096	7.0
1,2,4-Trichlorobenzene	AVRG	1.014	5.1
Hexachloro 1,3-Butadiene	AVRG	0.467	5.9
Naphthalene	AVRG	1.981	5.9
1,2,3-Trichlorobenzene	AVRG	0.843	6.4
Dichlorodifluoromethane	AVRG	0.648	3.9
Methyl tert butyl ether	AVRG	1.739	2.6

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

FORM 6
VOLATILE INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Calibration Date: 11/30/11

COMPOUND	CURVE TYPE	AVE RF	%RSD OR R^2
d4-1,2-Dichloroethane	AVRG	0.530	1.2
d8-Toluene	AVRG	1.133	1.9
4-Bromofluorobenzene	AVRG	0.518	2.4
d4-1,2-Dichlorobenzene	AVRG	0.919	2.0
Dibromofluoromethane	AVRG	0.507	1.8

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

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Cont. Calib. Date: 12/12/11

Init. Calib. Date: 11/30/11 Cont. Calib. Time: 0916

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Chloromethane	1.106	1.1330	0.100	AVRG	2.4	
Vinyl Chloride	0.962	0.9905	0.010	AVRG	3.0	
Bromomethane	0.341	0.4139	0.010	AVRG	21.4	<-
Chloroethane	0.420	0.4857	0.010	AVRG	15.6	
Trichlorofluoromethane	0.646	0.8150	0.010	AVRG	26.2	<-
Acrolein	0.081	0.0618	0.010	AVRG	-23.7	<-
112Trichloro122Trifluoroetha	0.568	0.6301	0.010	AVRG	10.9	
Acetone	0.144	0.1329	0.010	AVRG	-7.7	
1,1-Dichloroethene	0.600	0.5896	0.010	AVRG	-1.7	
Bromoethane	0.466	0.4927	0.010	AVRG	5.7	
Iodomethane	0.947	1.0438	0.010	AVRG	10.2	
Methylene Chloride	0.676	0.6939	0.010	AVRG	2.6	
Acrylonitrile	0.200	0.1771	0.010	AVRG	-11.4	
Carbon Disulfide	2.036	2.1372	0.010	AVRG	5.0	
Trans-1,2-Dichloroethene	0.677	0.6941	0.010	AVRG	2.5	
Vinyl Acetate	1.054	0.8623	0.010	AVRG	-18.2	
1,1-Dichloroethane	1.259	1.2348	0.100	AVRG	-1.9	
2-Butanone	0.208	0.1803	0.010	AVRG	-13.3	
2,2-Dichloropropane	0.668	0.7845	0.010	AVRG	17.4	
Cis-1,2-Dichloroethene	0.694	0.6900	0.010	AVRG	-0.6	
Chloroform	1.042	1.0610	0.010	AVRG	1.8	
Bromochloromethane	0.291	0.2972	0.010	AVRG	2.1	
1,1,1-Trichloroethane	0.875	0.9349	0.010	AVRG	6.8	
1,1-Dichloropropene	0.567	0.5649	0.010	AVRG	-0.4	
Carbon Tetrachloride	0.474	0.5311	0.010	AVRG	12.0	
1,2-Dichloroethane	0.433	0.3912	0.010	AVRG	-9.6	
Benzene	1.571	1.5884	0.010	AVRG	1.1	
Trichloroethene	0.390	0.4027	0.010	AVRG	3.2	
1,2-Dichloropropane	0.377	0.3638	0.010	AVRG	-3.5	
Bromodichloromethane	0.397	0.4087	0.010	AVRG	2.9	
Dibromomethane	0.167	0.1593	0.010	AVRG	-4.6	
2-Chloroethyl Vinyl Ether	0.125	0.1127	0.010	AVRG	-9.8	
4-Methyl-2-Pentanone	0.104	0.0987	0.010	AVRG	-5.1	
Cis 1,3-dichloropropene	0.449	0.4495	0.010	AVRG	0.1	
Toluene	0.845	0.8584	0.010	AVRG	1.6	
Trans 1,3-Dichloropropene	0.347	0.3538	0.010	AVRG	2.0	
2-Hexanone	0.185	0.1578	0.010	AVRG	-14.7	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Cont. Calib. Date: 12/12/11

Init. Calib. Date: 11/30/11 Cont. Calib. Time: 0916

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
1,1,2-Trichloroethane	0.212	0.2045	0.010	AVRG	-3.5	
1,3-Dichloropropane	0.446	0.3917	0.010	AVRG	-12.2	
Tetrachloroethene	0.398	0.4257	0.010	AVRG	7.0	
Chlorodibromomethane	0.275	0.2587	0.010	AVRG	-5.9	
1,2-Dibromoethane	0.198	0.1887	0.010	AVRG	-4.7	
Chlorobenzene	1.007	0.9819	0.300	AVRG	-2.5	
Ethyl Benzene	0.557	0.5737	0.010	AVRG	3.0	
1,1,1,2-Tetrachloroethane	0.377	0.4074	0.010	AVRG	8.1	
m,p-xylene	0.678	0.7034	0.010	AVRG	3.7	
o-Xylene	0.714	0.7507	0.010	AVRG	5.1	
Styrene	1.003	1.0479	0.010	AVRG	4.5	
Bromoform	0.261	0.2434	0.100	AVRG	-6.7	
1,1,2,2-Tetrachloroethane	0.562	0.4897	0.300	AVRG	-12.9	
1,2,3-Trichloropropane	0.167	0.1485	0.010	AVRG	-11.1	
Trans-1,4-Dichloro 2-Butene	0.161	0.1251	0.010	AVRG	-22.3	<-
N-Propyl Benzene	3.380	3.3048	0.010	AVRG	-2.2	
Bromobenzene	0.688	0.6451	0.010	AVRG	-6.2	
Isopropyl Benzene	3.004	3.0237	0.010	AVRG	0.6	
2-Chloro Toluene	2.413	2.3228	0.010	AVRG	-3.7	
4-Chloro Toluene	2.128	2.0215	0.010	AVRG	-5.0	
T-Butyl Benzene	2.197	2.2436	0.010	AVRG	2.1	
1,3,5-Trimethyl Benzene	2.527	2.5861	0.010	AVRG	2.3	
1,2,4-Trimethylbenzene	2.551	2.5863	0.010	AVRG	1.4	
S-Butyl Benzene	3.289	3.3577	0.010	AVRG	2.1	
4-Isopropyl Toluene	2.701	2.8332	0.010	AVRG	4.9	
1,3-Dichlorobenzene	1.452	1.4340	0.010	AVRG	-1.2	
1,4-Dichlorobenzene	1.494	1.4362	0.010	AVRG	-3.9	
N-Butyl Benzene	2.495	2.5832	0.010	AVRG	3.5	
1,2-Dichlorobenzene	1.436	1.3885	0.010	AVRG	-3.3	
1,2-Dibromo 3-Chloropropane	0.096	0.0764	0.010	AVRG	-20.4	<-
1,2,4-Trichlorobenzene	1.015	1.0185	0.010	AVRG	0.3	
Hexachloro 1,3-Butadiene	0.467	0.5454	0.010	AVRG	16.8	
Naphthalene	1.981	1.6207	0.010	AVRG	-18.2	
1,2,3-Trichlorobenzene	0.842	0.7747	0.010	AVRG	-8.0	
Dichlorodifluoromethane	0.648	0.6936	0.010	AVRG	7.0	
Methyl tert butyl ether	1.739	1.6856	0.010	AVRG	-3.1	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Instrument ID: NT2 Cont. Calib. Date: 12/12/11

Init. Calib. Date: 11/30/11 Cont. Calib. Time: 0916

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
d4-1,2-Dichloroethane	0.530	0.4850	0.010	AVRG	-8.5
d8-Toluene	1.133	1.1525	0.010	AVRG	1.7
4-Bromofluorobenzene	0.518	0.5241	0.010	AVRG	1.2
d4-1,2-Dichlorobenzene	0.919	0.9227	0.010	AVRG	0.4
Dibromofluoromethane	0.507	0.5131	0.010	AVRG	1.2

<- 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: ERM-WEST

ARI Job No: TZ97 Project: TG

Ical Midpoint ID: 1001130 Ical Date: 11/30/11

Instrument ID: NT2 Project Run Date: 11/30/11

		IS1(PFB) AREA	#	RT	#	IS2(DFB) AREA	#	RT	#	IS3(CLB) AREA	#	RT	#
	ICAL MIDPT	191537		5.45		299924		5.85		260183		7.93	
	UPPER LIMIT	383074		5.95		599848		6.35		520366		8.43	
	LOWER LIMIT	95768		4.95		149962		5.35		130092		7.43	
	Sample ID												
01	ICV10	190629		5.45		298605		5.85		249704		7.92	
02													
03													
04													
05													
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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: ERM-WEST

ARI Job No: TZ97 Project: TG

Ical Midpoint ID: 1001130 Ical Date: 11/30/11

Instrument ID: NT2 Project Run Date: 11/30/11

		IS4(DCB) AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	164199	9.62				
	UPPER LIMIT	328398	10.12				
	LOWER LIMIT	82100	9.12				
	Sample ID						
01	ICV10	160253	9.62				
02							
03							
04							
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.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: TZ97 Project: TG

Ical Midpoint ID: 1001130 Ical Date: 11/30/11

Instrument ID: NT2 Project Run Date: 12/12/11

		IS1(PFB) AREA	#	RT	#	IS2(DFB) AREA	#	RT	#	IS3(CLB) AREA	#	RT	#
	ICAL MIDPT	191537		5.45		299924		5.85		260183		7.93	
	UPPER LIMIT	383074		5.95		599848		6.35		520366		8.43	
	LOWER LIMIT	95768		4.95		149962		5.35		130092		7.43	
	Sample ID												
01	LCS1212	146341		5.45		225497		5.85		205976		7.92	
02	LCS1212	140812		5.45		222890		5.85		206101		7.92	
03	MB1212	146022		5.45		222749		5.85		208486		7.92	
04	MW-30S-12051	133307		5.45		204769		5.85		183479		7.92	
05	MW-31S-12051	131712		5.45		199882		5.85		178014		7.93	
06	MW-31S-12051	135780		5.45		212142		5.85		195473		7.92	
07	MW-31S-12051	147678		5.45		233945		5.85		220880		7.93	
08	FB-120511-1	139101		5.45		218095		5.85		202016		7.93	
09	TB-120511-1	148065		5.45		233725		5.85		216788		7.93	
10	MW-16-120611	145721		5.45		228915		5.85		213124		7.93	
11	TB-120611-1	133866		5.45		205438		5.85		188360		7.92	
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: ERM-WEST

ARI Job No: TZ97 Project: TG

Ical Midpoint ID: 1001130 Ical Date: 11/30/11

Instrument ID: NT2 Project Run Date: 12/12/11

		IS4(DCB) AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	ICAL MIDPT	164199		9.62									
	UPPER LIMIT	328398		10.12									
	LOWER LIMIT	82100		9.12									
	Sample ID												
01	LCS1212	139017		9.62									
02	LCS1212	138354		9.62									
03	MB1212	140301		9.62									
04	MW-30S-12051	129470		9.62									
05	MW-31S-12051	128045		9.62									
06	MW-31S-12051	132605		9.62									
07	MW-31S-12051	141274		9.62									
08	FB-120511-1	134341		9.62									
09	TB-120511-1	141921		9.62									
10	MW-16-120611	140221		9.62									
11	TB-120611-1	131321		9.62									
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.

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: UA33

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MW-16-120611
SAMPLE

Lab Sample ID: UA33A
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 23:02
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	**Pentachlorophenol**	**5.0**	**24**
58-90-2	**2,3,4,6-Tetrachlorophenol**	**1.0**	**2.2**

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	73.6%	2-Fluorobiphenyl	72.0%
d14-p-Terphenyl	86.8%	d4-1,2-Dichlorobenzene	67.6%
d5-Phenol	76.0%	2-Fluorophenol	73.1%
2,4,6-Tribromophenol	91.7%	d4-2-Chlorophenol	76.0%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA33-ERM-West
Project: RG
128296.07

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-121211	76.8%	70.8%	96.0%	63.2%	78.9%	74.4%	83.2%	78.4%	0
LCS-121211	72.8%	73.2%	91.6%	58.4%	78.7%	69.1%	105%	73.9%	0
LCSD-121211	70.0%	70.4%	95.2%	58.0%	75.2%	68.0%	98.9%	71.5%	0
MW-16-120611	73.6%	72.0%	86.8%	67.6%	76.0%	73.1%	91.7%	76.0%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(46-100)	(39-100)
(FBP) = 2-Fluorobiphenyl	(49-100)	(42-100)
(TPH) = d14-p-Terphenyl	(53-119)	(26-114)
(DCB) = d4-1,2-Dichlorobenzene	(38-100)	(32-100)
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-28048 to 11-28048

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: LCS-121211
LCS/LCSD

Lab Sample ID: LCS-121211
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted LCS/LCSD: 12/12/11

Date Analyzed LCS: 12/14/11 21:56
LCSD: 12/14/11 22:29
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ
GPC Cleanup: NO

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	23.0	25.0	92.0%	22.3	25.0	89.2%	3.1%
2-Chlorophenol	21.0	25.0	84.0%	20.8	25.0	83.2%	1.0%
2,4-Dichlorophenol	58.4	75.0	77.9%	58.1	75.0	77.5%	0.5%
2,4,6-Trichlorophenol	65.4	75.0	87.2%	64.8	75.0	86.4%	0.9%
2,4,5-Trichlorophenol	67.5	75.0	90.0%	67.1	75.0	89.5%	0.6%
Pentachlorophenol	80.1	75.0	107%	77.4	75.0	103%	3.4%
2,3,4,6-Tetrachlorophenol	29.8	25.0	119%	28.2	25.0	113%	5.5%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	72.8%	70.0%
2-Fluorobiphenyl	73.2%	70.4%
d14-p-Terphenyl	91.6%	95.2%
d4-1,2-Dichlorobenzene	58.4%	58.0%
d5-Phenol	78.7%	75.2%
2-Fluorophenol	69.1%	68.0%
2,4,6-Tribromophenol	105%	98.9%
d4-2-Chlorophenol	73.9%	71.5%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UA33MBW1

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Lab File ID: 12141117 Date Extracted: 12/12/11

Instrument ID: NT6 Date Analyzed: 12/14/11

Matrix: LIQUID Time Analyzed: 2123

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UA33LCSW1	UA33LCSW1	12141118	12/14/11
02	UA33LCSDW1	UA33LCSDW1	12141119	12/14/11
03	MW-16-120611	UA33A	12141120	12/14/11
04				
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07				
08				
09				
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29				
30				

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-121211
METHOD BLANK

Lab Sample ID: MB-121211
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 21:23
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	76.8%	2-Fluorobiphenyl	70.8%
d14-p-Terphenyl	96.0%	d4-1,2-Dichlorobenzene	63.2%
d5-Phenol	78.9%	2-Fluorophenol	74.4%
2,4,6-Tribromophenol	83.2%	d4-2-Chlorophenol	78.4%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 1033

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	23.9
68	Less than 2.0% of mass 69	0.3 (0.6)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	10.0 - 80.0% of mass 198	51.6
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	22.7
365	Greater than 1.0% of mass 198	2.28
441	0.0 - 24.0% of mass 442	11.1 (14.4)2
442	50.0 - 200.0% of mass 198	76.8
443	15.0 - 24.0% of mass 442	15.1 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC11121	IC11121	11211102	11/21/11	1124
02	IC51121	IC51121	11211103	11/21/11	1157
03	IC101121	IC101121	11211104	11/21/11	1230
04	IC401121	IC401121	11211105	11/21/11	1320
05	IC601121	IC601121	11211106	11/21/11	1353
06	IC801121	IC801121	11211107	11/21/11	1426
07	IC251121	IC250121	11211109	11/21/11	1737
08					
09					
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22					

FORM V SV

UA33:00059

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG

DFTPP Injection Date: 12/14/11 DFTPP Injection Time: 1238

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.9
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	10.0 - 80.0% of mass 198	50.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	23.0
365	Greater than 1.0% of mass 198	2.43
441	0.0 - 24.0% of mass 442	12.5 (14.6)2
442	50.0 - 200.0% of mass 198	86.0
443	15.0 - 24.0% of mass 442	16.9 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC1214	CC1214	12141101	12/14/11	1238
02	UA33MBW1	UA33MBW1	12141117	12/14/11	2123
03	UA33LCSW1	UA33LCSW1	12141118	12/14/11	2156
04	UA33LCSDW1	UA33LCSDW1	12141119	12/14/11	2229
05	MW-16-120611	UA33A	12141120	12/14/11	2302
06					
07					
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17					
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FORM V SV

UA33:00060

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	$\overline{RRF}$	%RSD /R^2
Phenol	2.046	1.795	1.782	1.677	1.628	1.542	1.504	1.710	10.8
Bis(2-Chloroethyl)ether	1.582	1.343	1.489	1.368	1.347	1.304	1.290	1.389	7.7
2-Chlorophenol	1.675	1.408	1.453	1.395	1.346	1.287	1.255	1.403	9.9
1,3-Dichlorobenzene	1.828	1.568	1.759	1.631	1.573	1.502	1.461	1.617	8.3
1,4-Dichlorobenzene	1.834	1.581	1.743	1.617	1.530	1.497	1.436	1.605	8.7
1,2-Dichlorobenzene	1.761	1.496	1.614	1.516	1.428	1.378	1.364	1.508	9.3
Benzyl alcohol	0.890	0.850	0.928	0.863	0.829	0.822	0.831	0.859	4.5
2,2'-oxybis(1-Chloropropane)	1.340	1.123	1.212	1.115	1.072	1.030	0.993	1.126	10.4
2-Methylphenol	1.488	1.327	1.302	1.250	1.219	1.168	1.100	1.265	9.9
Hexachloroethane	0.682	0.585	0.657	0.625	0.606	0.596	0.584	0.619	6.1
N-Nitroso-di-n-propylamine	1.090	0.950	1.005	0.927	0.882	0.878	0.837	0.938	9.2
4-Methylphenol	1.567	1.356	1.352	1.252	1.212	1.181	1.095	1.288	12.0
Nitrobenzene	0.441	0.378	0.428	0.396	0.379	0.363	0.354	0.391	8.3
Isophorone	0.652	0.568	0.635	0.584	0.563	0.567	0.545	0.588	6.8
2-Nitrophenol	0.190	0.181	0.192	0.198	0.192	0.190	0.187	0.190	2.7
2,4-Dimethylphenol	0.399	0.352	0.357	0.347	0.330	0.322	0.310	0.345	8.4
Bis(2-Chloroethoxy)methane	0.471	0.421	0.468	0.435	0.412	0.408	0.400	0.431	6.7
2,4-Dichlorophenol	0.318	0.293	0.300	0.296	0.280	0.273	0.261	0.289	6.6
1,2,4-Trichlorobenzene	0.368	0.310	0.347	0.325	0.307	0.303	0.296	0.322	8.2
Naphthalene	1.178	1.014	1.090	0.992	0.920	0.870	0.814	0.982	12.9
Benzoic acid		0.120	0.164	0.214	0.212	0.239	0.230	0.196	0.992
4-Chloroaniline	0.454	0.417	0.435	0.399	0.366	0.358	0.320	0.393	12.1
Hexachlorobutadiene	0.193	0.165	0.186	0.180	0.165	0.166	0.165	0.174	6.8
4-Chloro-3-methylphenol	0.307	0.288	0.282	0.275	0.262	0.271	0.248	0.276	6.8
2-Methylnaphthalene	0.621	0.531	0.563	0.518	0.478	0.481	0.446	0.520	11.4
Hexachlorocyclopentadiene	0.239	0.256	0.338	0.361	0.358	0.345	0.375	0.324	16.7
2,4,6-Trichlorophenol	0.320	0.312	0.346	0.351	0.343	0.341	0.340	0.336	4.3
2,4,5-Trichlorophenol	0.330	0.320	0.362	0.373	0.360	0.361	0.363	0.353	5.6
2-Chloronaphthalene	1.301	1.086	1.198	1.110	1.029	0.949	0.943	1.088	12.0
2-Nitroaniline	0.247	0.266	0.295	0.281	0.269	0.280	0.266	0.272	5.6
Acenaphthylene	1.786	1.610	1.787	1.664	1.561	1.492	1.445	1.621	8.3
Dimethylphthalate	1.323	1.124	1.212	1.122	1.057	1.097	1.064	1.143	8.3
2,6-Dinitrotoluene	0.234	0.248	0.279	0.271	0.255	0.272	0.262	0.260	6.0
Acenaphthene	1.213	1.012	1.098	1.035	0.964	0.951	0.924	1.028	9.8
3-Nitroaniline	0.293	0.280	0.292	0.270	0.248	0.227		0.268	9.8
2,4-Dinitrophenol		0.060	0.099	0.143	0.140	0.163	0.158	0.127	0.995
Dibenzofuran	1.704	1.471	1.541	1.419	1.315	1.298	1.204	1.422	11.9

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-1

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.066	0.109	0.112	0.127	0.117	0.129	0.117	0.111	19.2
2,4-Dinitrotoluene	0.310	0.315	0.353	0.349	0.328	0.368	0.345	0.338	6.3
Fluorene	1.346	1.162	1.250	1.170	1.074	1.083	1.029	1.159	9.5
4-Chlorophenyl-phenylether	0.668	0.548	0.600	0.565	0.530	0.536	0.516	0.566	9.3
Diethylphthalate	1.263	1.088	1.145	1.067	0.990	1.031	0.971	1.079	9.3
4-Nitroaniline	0.240	0.268	0.269	0.271	0.242	0.279	0.246	0.259	6.2
4,6-Dinitro-2-methylphenol		0.104	0.123	0.142	0.140	0.142	0.145	0.133	12.0
N-Nitrosodiphenylamine (1)	0.697	0.598	0.658	0.597	0.589	0.554	0.568	0.609	8.4
4-Bromophenyl-phenylether	0.252	0.203	0.238	0.215	0.214	0.202	0.210	0.219	8.6
Hexachlorobenzene	0.264	0.220	0.248	0.228	0.223	0.210	0.217	0.230	8.3
Pentachlorophenol		0.079	0.110	0.117	0.122	0.129	0.130	0.114	16.5
Phenanthrene	1.306	1.096	1.165	1.076	1.017	0.962	0.947	1.081	11.6
Anthracene	1.262	1.117	1.215	1.126	1.059	0.993	0.984	1.108	9.5
Carbazole	1.122	1.038	1.095	1.047	0.963	0.951	0.916	1.019	7.6
Di-n-butylphthalate	1.220	1.155	1.248	1.218	1.118	1.088	1.056	1.158	6.4
Fluoranthene	1.098	1.046	1.090	1.062	0.972	0.968	0.951	1.027	6.0
Pyrene	1.517	1.207	1.344	1.210	1.183	1.116	1.090	1.238	11.9
Butylbenzylphthalate	0.485	0.496	0.567	0.559	0.549	0.542	0.534	0.533	5.8
Benzo(a)anthracene	1.044	0.938	1.042	0.994	0.966	0.922	0.913	0.974	5.6
3,3'-Dichlorobenzidine	0.322	0.334	0.357	0.341	0.320	0.286	0.277	0.320	9.1
Chrysene	1.162	0.950	1.057	1.012	0.969	0.934	0.929	1.002	8.4
bis(2-Ethylhexyl)phthalate	0.615	0.538	0.612	0.607	0.594	0.585	0.586	0.591	4.4
Di-n-octylphthalate	1.192	0.962	1.061	1.038	0.988	0.978	0.962	1.026	8.1
Benzo(b)fluoranthene	1.041	0.998	1.057	1.058	1.053	1.000	1.007	1.030	2.7
Benzo(k)fluoranthene	1.261	1.058	1.255	1.092	1.011	0.946	0.903	1.075	13.0
Benzo(a)pyrene	0.926	0.882	0.993	0.956	0.934	0.893	0.893	0.925	4.3
Indeno(1,2,3-cd)pyrene	1.249	1.102	1.325	1.269	1.241	1.177	1.231	1.228	5.8
Dibenzo(a,h)anthracene	1.016	0.916	1.088	1.064	1.018	0.965	0.998	1.009	5.7
Benzo(g,h,i)perylene	1.094	0.968	1.157	1.103	1.103	1.058	1.108	1.084	5.4
N-Nitrosodimethylamine	0.953	0.886	1.001	0.951	0.959	0.934	0.950	0.948	3.6
Aniline	2.291	2.084	2.213	2.022	1.955	1.884	1.752	2.029	9.2
Benzidine		0.092	0.176	0.217	0.248	0.239	0.252	0.204	0.992
Pyridine	1.564	1.631	1.863	1.811	1.771	1.760	1.742	1.734	6.0
1-methylnaphthalene	0.599	0.531	0.555	0.519	0.473	0.485	0.448	0.516	10.0
Azobenzene (1,2-DP-Hydrazine	1.372	1.231	1.322	1.242	1.151	1.159	1.096	1.225	8.0
2,3,4,6-Tetrachlorophenol	0.201	0.214	0.229	0.246	0.238	0.253	0.243	0.232	8.1
1,2,4,5-Tetrachlorobenzene	0.530	0.463	0.526	0.500	0.477	0.452	0.476	0.489	6.2

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-2

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Total Benzofluoranthenes	1.094	0.982	1.099	1.022	0.985	0.921	0.898	1.000	7.8
2-Fluorophenol	1.558	1.439	1.559	1.465	1.394	1.361		1.463	5.6
Phenol-d5	2.012	1.839	1.911	1.729	1.669	1.638		1.800	8.1
2-Chlorophenol-d4	1.543	1.393	1.498	1.381	1.333	1.302		1.408	6.7
1,2-Dichlorobenzene-d4	1.124	0.997	1.030	0.944	0.890	0.858		0.974	10.0
Nitrobenzene-d5	0.414	0.396	0.436	0.417	0.408	0.402		0.412	3.3
2-Fluorobiphenyl	1.483	1.302	1.425	1.318	1.258	1.191		1.330	8.1
2,4,6-Tribromophenol	0.133	0.128	0.146	0.144	0.135	0.149		0.139	6.0
Terphenyl-d14	1.089	0.778	0.826	0.736	0.731	0.708		0.811	17.5

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.710	1.825	0.800	AVRG	6.7
Bis(2-Chloroethyl)ether	1.389	1.427	0.700	AVRG	2.7
2-Chlorophenol	1.403	1.456	0.800	AVRG	3.8
1,3-Dichlorobenzene	1.617	1.618	0.010	AVRG	0.1
1,4-Dichlorobenzene	1.605	1.602	0.010	AVRG	-0.2
1,2-Dichlorobenzene	1.508	1.490	0.010	AVRG	-1.2
Benzyl alcohol	0.859	0.921	0.010	AVRG	7.2
2,2'-oxybis(1-Chloropropane)	1.126	1.176	0.010	AVRG	4.4
2-Methylphenol	1.265	1.364	0.700	AVRG	7.8
Hexachloroethane	0.619	0.601	0.300	AVRG	-2.9
N-Nitroso-di-n-propylamine	0.938	1.068	0.500	AVRG	13.8
4-Methylphenol	1.288	1.407	0.600	AVRG	9.2
Nitrobenzene	0.391	0.403	0.200	AVRG	3.1
Isophorone	0.588	0.618	0.400	AVRG	5.1
2-Nitrophenol	0.190	0.201	0.100	AVRG	5.8
2,4-Dimethylphenol	0.345	0.355	0.200	AVRG	2.9
Bis(2-Chloroethoxy)methane	0.431	0.440	0.300	AVRG	2.1
2,4-Dichlorophenol	0.289	0.298	0.200	AVRG	3.1
1,2,4-Trichlorobenzene	0.322	0.320	0.010	AVRG	-0.6
Naphthalene	0.982	0.990	0.700	AVRG	0.8
Benzoic acid	50.00	42.10	0.010	LINR	-15.8
4-Chloroaniline	0.393	0.389	0.010	AVRG	-1.0
Hexachlorobutadiene	0.174	0.169	0.010	AVRG	-2.9
4-Chloro-3-methylphenol	0.276	0.303	0.200	AVRG	9.8
2-Methylnaphthalene	0.520	0.530	0.400	AVRG	1.9
Hexachlorocyclopentadiene	0.324	0.324	0.050	AVRG	0.0
2,4,6-Trichlorophenol	0.336	0.354	0.200	AVRG	5.4
2,4,5-Trichlorophenol	0.353	0.382	0.200	AVRG	8.2
2-Chloronaphthalene	1.088	1.072	0.800	AVRG	-1.5
2-Nitroaniline	0.272	0.297	0.010	AVRG	9.2
Acenaphthylene	1.621	1.712	0.900	AVRG	5.6
Dimethylphthalate	1.143	1.214	0.010	AVRG	6.2
2,6-Dinitrotoluene	0.260	0.296	0.200	AVRG	13.8
Acenaphthene	1.028	1.046	0.900	AVRG	1.8
3-Nitroaniline	0.268	0.279	0.010	AVRG	4.1
2,4-Dinitrophenol	50.00	40.17	0.010	2ORDR	-19.7
Dibenzofuran	1.422	1.478	0.800	AVRG	3.9

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.111	0.141	0.010	AVRG	27.0	<- NTC
2,4-Dinitrotoluene	0.338	0.394	0.200	AVRG	16.6	
Fluorene	1.159	1.193	0.900	AVRG	2.9	
4-Chlorophenyl-phenylether	0.566	0.594	0.400	AVRG	4.9	
Diethylphthalate	1.079	1.157	0.010	AVRG	7.2	
4-Nitroaniline	0.259	0.280	0.010	AVRG	8.1	
4,6-Dinitro-2-methylphenol	0.133	0.125	0.010	AVRG	-6.0	
N-Nitrosodiphenylamine(1)	0.609	0.596	0.010	AVRG	-2.1	
4-Bromophenyl-phenylether	0.219	0.214	0.100	AVRG	-2.3	
Hexachlorobenzene	0.230	0.227	0.100	AVRG	-1.3	
Pentachlorophenol	0.114	0.105	0.050	AVRG	-7.9	
Phenanthrene	1.081	1.053	0.700	AVRG	-2.6	
Anthracene	1.108	1.099	0.700	AVRG	-0.8	
Carbazole	1.019	0.997	0.010	AVRG	-2.2	
Di-n-butylphthalate	1.158	1.224	0.010	AVRG	5.7	
Fluoranthene	1.027	1.048	0.600	AVRG	2.0	
Pyrene	1.238	1.387	0.600	AVRG	12.0	
Butylbenzylphthalate	0.533	0.642	0.010	AVRG	20.4	<- NTC
Benzo(a)anthracene	0.974	1.051	0.800	AVRG	7.9	
3,3'-Dichlorobenzidine	0.320	0.348	0.010	AVRG	8.8	
Chrysene	1.002	1.012	0.700	AVRG	1.0	
bis(2-Ethylhexyl)phthalate	0.591	0.650	0.010	AVRG	10.0	
Di-n-octylphthalate	1.026	1.005	0.010	AVRG	-2.0	
Benzo(b)fluoranthene	1.030	1.171	0.700	AVRG	13.7	
Benzo(k)fluoranthene	1.075	1.061	0.700	AVRG	-1.3	
Benzo(a)pyrene	0.925	0.974	0.700	AVRG	5.3	
Indeno(1,2,3-cd)pyrene	1.228	1.270	0.500	AVRG	3.4	
Dibenzo(a,h)anthracene	1.009	1.064	0.400	AVRG	5.4	
Benzo(g,h,i)perylene	1.084	1.110	0.500	AVRG	2.4	
N-Nitrosodimethylamine	0.948	0.945	0.010	AVRG	-0.3	
Aniline	2.029	1.919	0.010	AVRG	-5.4	
Benzidine	25.00	19.28	0.010	LINR	-22.9	<- NTC
Pyridine	1.734	1.644	0.010	AVRG	-5.2	
1-methylnaphthalene	0.516	0.534	0.010	AVRG	3.5	
Azobenzene (1,2-DP-Hydrazine	1.225	1.308	0.010	AVRG	6.8	
2,3,4,6-Tetrachlorophenol	0.232	0.269	0.010	AVRG	15.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

12/16/11

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.489		0.010	AVRG	
Total Benzofluoranthenes	1.000	1.052	0.010	AVRG	5.2
2-Fluorophenol	1.463	1.458	0.010	AVRG	-0.3
Phenol-d5	1.800	1.853	0.010	AVRG	2.9
2-Chlorophenol-d4	1.408	1.433	0.010	AVRG	1.8
1,2-Dichlorobenzene-d4	0.974	0.948	0.010	AVRG	-2.7
Nitrobenzene-d5	0.412	0.404	0.010	AVRG	-1.9
2-Fluorobiphenyl	1.330	1.282	0.010	AVRG	-3.6
2,4,6-Tribromophenol	0.139	0.163	0.010	AVRG	17.3
Terphenyl-d14	0.811	0.872	0.010	AVRG	7.5

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-3

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	393702	8.10	1422023	10.15	754629	13.03
	UPPER LIMIT	787404		2844046		1509258	
	LOWER LIMIT	196851		711012		377314	
	CCAL	378072	7.70	1503539	9.76	870773	12.62
	UPPER LIMIT		8.20		10.26		13.12
	LOWER LIMIT		7.20		9.26		12.12
01	UA33MBW1	382734	7.70	1459338	9.75	857267	12.61
02	UA33LCSW1	430246	7.70	1741460	9.76	1022795	12.62
03	UA33LCSDW1	401602	7.70	1600819	9.75	924442	12.62
04	MW-16-120611	413322	7.70	1592552	9.75	916575	12.61
05							
06							
07							
08							
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24							
25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1068116	15.41	993839	19.75	976441	21.91
	UPPER LIMIT	2136232		1987678		1952882	
	LOWER LIMIT	534058		496920		488220	
	CCAL	1343967	14.99	1033459	19.29	872881	21.44
	UPPER LIMIT		15.49		19.79		21.94
	LOWER LIMIT		14.49		18.79		20.94
01	UA33MBW1	1235982	14.98	941593	19.29	812433	21.44
02	UA33LCSW1	1617562	14.99	1390703	19.30	1098287	21.44
03	UA33LCSDW1	1395736	14.98	1082877	19.29	896723	21.44
04	MW-16-120611	1297980	14.98	975601	19.28	830837	21.44
05							
06							
07							
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24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA33 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1256584	20.88				
	UPPER LIMIT	2513168					
	LOWER LIMIT	628292					
	CCAL	1421303	20.47				
	UPPER LIMIT		20.97				
	LOWER LIMIT		19.97				
01	UA33MBW1	1332567	20.47				
02	UA33LCSW1	1944630	20.48				
03	UA33LCSDW1	1492578	20.48				
04	MW-16-120611	1376982	20.47				
05							
06							
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23							
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25							

IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

TPHG Analysis
Report and Summary QC Forms

ARI Job ID: UA33

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized: MW
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

ARI ID	Client ID	Analysis Date	DL	Range	Result
MB-121311	Method Blank	12/13/11	1.0	Gasoline	< 0.03 U
11-28049		PID2		HC ID	---
				Trifluorotoluene	95.4%
				Bromobenzene	95.7%
UA33B	TB-120611-1	12/13/11	1.0	Gasoline	< 0.03 U
11-28049		PID2		HC ID	---
				Trifluorotoluene	96.6%
				Bromobenzene	94.4%

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 INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: UA33
Matrix: Water

QC Report No: UA33-ERM-West
Project: RG
Event: 128296.07

Client ID	TFT	BBZ	TOT OUT
MB-121311	95.4%	95.7%	0
LCS-121311	104%	99.6%	0
LCSD-121311	96.7%	93.5%	0
TB-120611-1	96.6%	94.4%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-28049 to 11-28049

UA33 . 00072

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Page 1 of 1

Sample ID: LCS-121311
LAB CONTROL SAMPLE

Lab Sample ID: LCS-121311
LIMS ID: 11-28049
Matrix: Water
Data Release Authorized: MW
Reported: 12/15/11

QC Report No: UA33-ERM-West
Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 12/13/11 09:30
LCSD: 12/13/11 09:56
Instrument/Analyst LCS: PID2/JLW
LCSD: PID2/JLW

Purge Volume: 15. mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	0.96	1.00	96.0%	0.93	1.00	93.0%	3.2%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	104%	96.7%
Bromobenzene	99.6%	93.5%

4

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB1213

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: UA33 Project No.: RG

Date Analyzed : 12/13/11 Matrix: WATER

Time Analyzed : 1022 Instrument ID : PID2

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LCS1213	LCS1213	12/13/11
02	LCSD1213	LCSD1213	12/13/11
03	TB-120611-1	UA33B	12/13/11
04			
05			
06			
07			
08			
09			
10			
11			
12			
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29			
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6a

GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-West

Instrument/Det: PID2.I/RTX 502-2 FID Project: RG

Calibration Date: 09-DEC-2011 SDG No.: TZ32,TZ84,TZ97,UA20,UA33

Gas Range	RF1 .03	RF2 0.10	RF3 0.25	RF4 1.0	RF5 2.5	RF6 5.0	Ave RF	%RSD
WA Gas	2948167	2304585	2102370	1896113	2023904	2055697	2221806	17.1
AK Gas	4420450	3837380	3569696	3279322	3262011	3268819	3606280	12.7
NW Gas	3078500	2418895	2195392	1982354	2111757	2117465	2317394	17.2
Cal Gas	5608317	4732460	4355392	3998758	4061928	4062875	4469955	13.9
8015Gas	5542283	4776840	4435376	4079243	4095006	4091500	4503375	12.9

Surrogates Rel. Rec.	RF1 22	RF2 44	RF3 67	RF4 100	RF5 133	RF6 178	Ave RF	%RSD
$ TFT(Surr)	85.77273	81.61364	77.97015	76.56000	72.03759	73.65730		
	72.76000						77.19592	6.539
$ BB(Surr)	40.77273	39.09091	36.16418	37.01000	34.22556	35.80337		
	34.93500						36.85739	6.320

<- 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
1209a014.d	09-DEC-2011 19:18
1209a015.d	09-DEC-2011 19:44
1209a016.d	09-DEC-2011 20:10
1209a017.d	09-DEC-2011 20:36
1209a018.d	09-DEC-2011 21:02
1209a019.d	09-DEC-2011 21:28

Surr. Calibration Files	Analysis Time
1209a005.d	09-DEC-2011 15:23
1209a006.d	09-DEC-2011 15:49
1209a007.d	09-DEC-2011 16:15
1209a008.d	09-DEC-2011 16:41
1209a009.d	09-DEC-2011 17:08
1209a010.d	09-DEC-2011 17:34
1209a011.d	09-DEC-2011 18:00

UA33.00075

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-West

ICal Date: 09-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA33

Lab File Name: 1213a003.d Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	1999079	0.90	1.00	-10.0
AKGas (C6-C10)	3448599	0.96	1.00	-4.4
NWGas (Tol-Nap)	2091257	0.90	1.00	-9.8
8015B (2MP-TMB)	4275156	0.95	1.00	-5.1

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: ERM-West

ICal Date: 09-DEC-2011
Project: RG

CCal Date: 13-DEC-2011
SDG No.: UA33

Lab File Name: 1213a003.d
Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	139139	101.6	100.0	1.6
Bromoflrbenz	42605	96.7	100.0	-3.3

FORM VII-Surr

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-West

ICal Date: 09-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA33

Lab File Name: 1213a008.d Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	1988118	0.89	1.00	-10.5
AKGas (C6-C10)	3417926	0.95	1.00	-5.2
NWGas (Tol-Nap)	2079514	0.90	1.00	-10.3
8015B (2MP-TMB)	4229331	0.94	1.00	-6.1

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

UA33:00078

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-West

ICal Date: 09-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA33

Lab File Name: 1213a008.d Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	136622	101.2	100.0	1.2
Bromoflrbenz	42217	96.0	100.0	-4.0

UA33 : 00079

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: UA33 Project: RG

Instrument ID: PID2 GC Detector: RTX 502-2 FID

Run Date: 12/09/11

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

METHOD SURROGATE RT
S1 : 8.15 S2 : 15.18

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	S1 #	S2 RT	S2 #
01		RINSE	12/09/11	0932	8.14		15.19	
02		RT1209+BCAL	12/09/11	0958	8.15		15.18	
03		GCAL 1	12/09/11	1024	8.15		15.18	
04		RINSE	12/09/11	1457	8.15		15.19	
05		BTEX .08	12/09/11	1523	8.15		15.18	
06		BTEX .25	12/09/11	1549	8.15		15.18	
07		BTEX 1	12/09/11	1615	8.15		15.18	
08		BTEX 5	12/09/11	1641	8.15		15.18	
09		BTEX 25	12/09/11	1708	8.15		15.18	
10		BTEX 50	12/09/11	1734	8.15		15.18	
11		BTEX 100	12/09/11	1800	8.15		15.18	
12		BTEX ICV 5	12/09/11	1826	8.14		15.18	
13		RINSE	12/09/11	1852	8.13		15.19	
14		GAS .03	12/09/11	1918	8.15		15.18	
15		GAS .1	12/09/11	1944	8.15		15.18	
16		GAS .25	12/09/11	2010	8.15		15.18	
17		GAS 1	12/09/11	2036	8.15		15.18	
18		GAS 2.5	12/09/11	2102	8.15		15.18	
19		GAS 5	12/09/11	2128	8.14		15.18	
20		GAS ICV 1	12/09/11	2154	8.14		15.18	

QC LIMITS

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: ERM-WEST

SDG No.: UA33 Project: RG

Instrument ID: PID2 GC Detector: RTX 502-2 FID

Run Date: 12/13/11

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

METHOD SURROGATE RT
S1 : 8.15 S2 : 15.18

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	S1 #	S2 RT	S2 #
01	RT+BCAL	RT+BCAL	12/13/11	0838	8.15		15.19	
02	RG	GCAL	12/13/11	0904	8.15		15.18	
03	LCS1213	LCS1213	12/13/11	0930	8.15		15.18	
04	LCSD1213	LCSD1213	12/13/11	0956	8.15		15.18	
05	MB1213	MB1213	12/13/11	1022	8.15		15.18	
06	TB-120611-1	UA33B	12/13/11	1109	8.15		15.18	
07	RG	GCAL2	12/13/11	1135	8.15		15.18	

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: UA33

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
MW-16-120611	UA33A	11-28048	
MW-16-120611D	UA33ADUP	11-28048	
MW-16-120611S	UA33ASPK	11-28048	
PBW	UA33MB1	11-28048	
LCSW	UA33MB1SPK	11-28048	
MW-16-120611	UA33C	11-28050	
PBW	UA33MB2	11-28050	
LCSW	UA33MB2SPK	11-28050	

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: 12/9/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-16-120611**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UA33A
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	12/09/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**13.3**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-16-120611**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: UA33A
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6020	13.3	39.3	25.0	104%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-16-120611
DUPLICATE

Lab Sample ID: UA33A
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6020	13.3	13.3	0.0%	+/- 20%	

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: UA33LCS
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6020	25.1	25.0	100%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: UA33MB
LIMS ID: 11-28048
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	12/09/11	6020	12/15/11	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-16-120611
SAMPLE

Lab Sample ID: UA33C
LIMS ID: 11-28050
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	12/09/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**11.7**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**
Page 1 of 1

Lab Sample ID: UA33LCS
LIMS ID: 11-28050
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6020	26.3	25.0	105%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: METHOD BLANK**

Lab Sample ID: UA33MB
LIMS ID: 11-28050
Matrix: Water
Data Release Authorized:
Reported: 12/19/11

QC Report No: UA33-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
200.8	12/09/11	6020	12/15/11	7440-38-2	Arsenic	0.2	0.2	U

U-Analyte undetected at given RL
RL-Reporting Limit

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Arsenic	AS	PMS	MS121581	50.0	51.45	102.9	50.0	50.57	101.1	49.59	99.2	50.50	101.0	50.28	100.6	49.98	100.0

UA33 : 00092

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Arsenic	AS	PMS	MS121581	50.0	49.96	99.9	50.25	100.5	49.95	99.9	49.85	99.7	49.80	99.6	50.28	100.6

Control Limits: Mercury 80-120; Other Metals 90-110

UA33 : 000053

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

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
Arsenic	AS	PMS	MS121581		0.2	0.25	125.0										

Control Limits: no control limits have been established by the EPA at this time.

UA33 00091

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Arsenic	AS	PMS	MS121581	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

UA33 00095

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Arsenic	AS	PMS	MS121581	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

95000 UA33

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG

RUNID: MS121581

SDG: UA33

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Cadmium		20	0.0	20.0	100.0						
Chromium		20	0.8	20.7	103.5						
Cobalt		20	0.0	19.4	97.0						
Copper		20	0.5	20.1	100.5						
Lead			0.1	0.1							
Manganese		20	0.1	20.1	100.5						
Molybdenum	400	400	402.8	398.9	99.7						
Nickel		20	0.7	19.7	98.5						
Silver		20	0.0	19.9	99.5						
Thallium			0.1	0.1							
Vanadium			0.0	-0.4							
Zinc		20	1.1	20.0	100.0						

UA33 : 00037

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

ANALYSIS METHOD: PMS

SDG: UA33

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFERENCE	Q
Arsenic	MW-16-120611L	UA33A-L	Water	MS121581	13.31		13.65	B	2.6	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33 UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA33

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 12/9/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-16-120611	UA33A	0.000	50.0	25.0
MW-16-120611D	UA33ADUP	0.000	50.0	25.0
MW-16-120611S	UA33ASPK	0.000	50.0	25.0
MW-16-120611	UA33C	0.000	50.0	25.0
PBW	UA33MB1	0.000	50.0	25.0
LCSW	UA33MB1SPK	0.000	50.0	25.0
PBW	UA33MB2	0.000	50.0	25.0
LCSW	UA33MB2SPK	0.000	50.0	25.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA33 | RUNID: MS121581 METHOD: PMS | END DATE: 12/15/2011

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	10370				X																										
S1	S1	1.00	10430				X																										
S2	S2	1.00	10490				X																										
S3	S3	1.00	10550				X																										
S4	S4	1.00	11010				X																										
ZZZZZZ	Rinse Sampl	1.00	11080																														
ICV	MICV	1.00	11190				X																										
ICB	ICB	1.00	11260				X																										
CCV	MCCV1	1.00	11310				X																										
CCB	CCB1	1.00	11380				X																										
CRI	MCRI	1.00	11440				X																										
ICSA	ICSAI	1.00	11500				X																										
ICSAB	ICSABI	1.00	11560				X																										
ZZZZZZ	LR200	1.00	12020																														
ZZZZZZ	LR300	1.00	12090																														
CCV	MCCV2	1.00	12160				X																										
CCB	CCB2	1.00	12220				X																										
ZZZZZZ	TZ73RMB1	2.00	12290																														
ZZZZZZ	TZ73RMB1SPK	2.00	12350																														
ZZZZZZ	TZ73RA-L	25.00	12410																														
ZZZZZZ	TZ73RA	5.00	12480																														
ZZZZZZ	TZ73RADUP	5.00	12540																														
ZZZZZZ	TZ73RASPK	5.00	13000																														
ZZZZZZ	TZ73RB	5.00	13070																														
ZZZZZZ	TZ73RC	5.00	13130																														
ZZZZZZ	TZ73RH	5.00	13190																														
ZZZZZZ	UA51B	100.00	13250																														
CCV	MCCV3	1.00	13320				X																										
CCB	CCB3	1.00	13380				X																										
S0	S0	1.00	13530				X																										
CCV	MCCV4	1.00	14000				X																										
CCB	CCB4	1.00	14070				X																										
ZZZZZZ	ZZZZZZ	10.00	14120																														
ZZZZZZ	TZ97A	2.00	14180																														
ZZZZZZ	TZ97ADUP	2.00	14240																														

FORM XIV

UA33 : 00107

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA33 | RUNID: MS121581 METHOD: PMS | END DATE: 12/15/2011

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	TZ97ASPK	2.00	14300																														
ZZZZZZ	ZZZZZZ	10.00	14370																														
ZZZZZZ	TZ97I	2.00	14430																														
ZZZZZZ	TZ97IDUP	2.00	14490																														
ZZZZZZ	TZ97ISPK	2.00	14550																														
ZZZZZZ	TZ97C	5.00	15020																														
ZZZZZZ	TZ97K	5.00	15080																														
CCV	MCCV5	1.00	15140				X																										
CCB	CCB5	1.00	15210				X																										
S0	S0	1.00	15270				X																										
CCV	MCCV6	1.00	15460				X																										
CCB	CCB6	1.00	15530				X																										
ZZZZZZ	TZ97A-L	25.00	15590																														
ZZZZZZ	TZ97A	5.00	16050																														
ZZZZZZ	TZ97ADUP	5.00	16110																														
ZZZZZZ	TZ97ASPK	5.00	16170																														
ZZZZZZ	TZ97I-L	25.00	16240																														
ZZZZZZ	TZ97I	5.00	16300																														
ZZZZZZ	TZ97IDUP	5.00	16360																														
ZZZZZZ	TZ97ISPK	5.00	16430																														
ZZZZZZ	TZ97C	10.00	16490																														
ZZZZZZ	TZ97K	10.00	16550																														
CCV	MCCV7	1.00	17010				X																										
CCB	CCB7	1.00	17080				X																										
ZZZZZZ	TZ99MB1	2.00	17140																														
ZZZZZZ	TZ99MB2	2.00	17200																														
ZZZZZZ	TZ99MB1SPK	2.00	17250																														
ZZZZZZ	TZ99MB2SPK	2.00	17320																														
ZZZZZZ	TZ99ADUP	2.00	17380																														
ZZZZZZ	TZ99A	2.00	17440																														
ZZZZZZ	TZ99ASPK	2.00	17510																														
ZZZZZZ	TZ99DDUP	2.00	17570																														
ZZZZZZ	TZ99D	2.00	18030																														
ZZZZZZ	TZ99DSPK	2.00	18090																														
CCV	MCCV8	1.00	18160				X																										

UA33 09102

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA33 | RUNID: MS121581 METHOD: PMS | END DATE: 12/15/2011

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
CCB	CCB8	1.00	18220				X																										
ZZZZZZ	TZ99B	2.00	18280																														
ZZZZZZ	UA27B	2.00	18340																														
ZZZZZZ	UA27C	2.00	18410																														
ZZZZZZ	UA27D	2.00	18470																														
ZZZZZZ	UA27D	5.00	18530																														
ZZZZZZ	UA27I	2.00	18590																														
ZZZZZZ	UA27J	2.00	19060																														
ZZZZZZ	UA27K	2.00	19120																														
ZZZZZZ	UA27L	2.00	19180																														
ZZZZZZ	UA27L	5.00	19250																														
CCV	MCCV9	1.00	19310				X																										
CCB	CCB9	1.00	19370				X																										
ZZZZZZ	UA27O	2.00	19430																														
ZZZZZZ	TZ99E	2.00	19500																														
ZZZZZZ	UA27A	2.00	19560																														
ZZZZZZ	UA27E	2.00	20020																														
ZZZZZZ	UA27F	2.00	20080																														
ZZZZZZ	UA27G	2.00	20150																														
ZZZZZZ	UA27M	2.00	20210																														
ZZZZZZ	UA27N	2.00	20270																														
CCV	MCCV10	1.00	20340				X																										
CCB	CCB10	1.00	20400				X																										
PBW	UA33MB1	2.00	20460				X																										
PBW	UA33MB2	2.00	20520				X																										
LCSW	UA33MB1SPK	2.00	20580				X																										
LCSW	UA33MB2SPK	2.00	21050				X																										
MW-16-120611L	UA33A-L	10.00	21110				X																										
MW-16-120611	UA33A	2.00	21170				X																										
MW-16-120611D	UA33ADUP	2.00	21240				X																										
MW-16-120611S	UA33ASPK	2.00	21300				X																										
ZZZZZZ	ZZZZZZ	2.00	21360																														
MW-16-120611	UA33C	2.00	21420				X																										
CCV	MCCV11	1.00	21490				X																										
CCB	CCB11	1.00	21550				X																										

FORM XIV

UA33_00103

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Signature

December-21-2011
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 30, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: RG Fall GW Sampling, 128296.07
ARI Job Nos.: UA17 & UA20

Dear Mr. Mendes:

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

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

Please note that current ARI control limits are available at www.arilabs.com.

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.

Cheronne Oreiro
Project Manager
-For-
Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile UA17_UA20

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UA17, UA20

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UA17	Turn-around Requested: Standard	Page: 1 of 1	
ARI Client Company: ERM	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Mendes		No. of Coolers: 1	Cooler Temps: 0.2
Client Project Name: RG			
Client Project #: 128296.07	Samplers: Chris / Matt		

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: TOC	SVOC full scan + sim cPAH	Alkalinity	TOC / TSS	Anions Cl, SO4, NO3	Total Phosphate	Total Metals	*Dissolved Metals	Hardness	Notes/Comments
MW-325-120611	12/6/11	1612	Water	12	X	X	X	X	X	X	X	X	X	

MC
12/07/2011

Comments/Special Instructions

*Dissolved metals sample filtered in the field

Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
Printed Name: Matt Crandell	Printed Name: A. Volgardsen	Printed Name	Printed Name
Company: ERM-West	Company: ARI	Company	Company
Date & Time: 12/07/2011, 11:15	Date & Time: 12/7/11 1115	Date & Time	Date & Time

UA17 00003

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.*

Total Metals = As, Cr, Cu, Ag, Zn, Ca, K, Mg, Na, Al, Fe, Mn

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.

Dissolved Metals = As, Cr, Cu, Ag, Zn, Al, Fe, Mn

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM Project Name: RG

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No. UA17 Tracking No: _____ (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) 0.2 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID# 90941619

Cooler Accepted by AV Date 12/7/11 Time 1115

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: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by JM Date: 12/7/11 Time: 1119

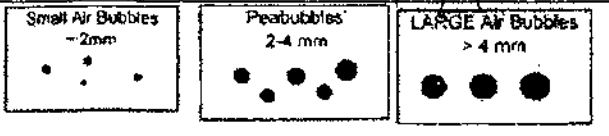
*** Notify Project Manager of discrepancies or concerns ***

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

Additional Notes, Discrepancies, & Resolutions:

Dissolved Metals, TSS, ~~Alk~~, TP, Anions, Alk bottles were partially frozen upon receipt. (Floating ice in samples.)

By: JM Date: 12/7/11



Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

Subject: RE. RG sample received today, 12/7/11
From: Shira DeGrood <Shira DeGrood@erm com>
Date: 12/7/2011 7 11 PM
To: Cheronne Oreiro <cheronneo@anlabs com>
CC: Mike Mendes <Mike Mendes@erm com>

Hi Cheronne,

I appreciate the heads-up, please proceed with analyzing this sample.

Shira DeGrood, R.G.
Main: +1 503 488-5282
Direct: +1 503 621-5911
Cell: +1 503 961-4845
Fax: +1 503 488-5142
shira.degrood@erm.com

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, December 07, 2011 12:33 PM
To: Mike Mendes; Cyrus Gorman
Cc: Matt Crandell; Shira DeGrood
Subject: RG sample received today, 12/7/11

Hi Mike and Cyrus,

Matt dropped off the last sample for the RG project today. It was noted by our login dept that samples arrived with a cooler temperature of 0.2°C and that some sample bottles were partially frozen (i.e. there was floating ice in the plastic bottles). We will have to let samples completely thaw before analyzing. Just thought I would give you a heads up.
Thanks,
-Cheronne

--
NOTE: ARI will close early on Friday, Dec. 23 and be closed Monday, Dec 26th.

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

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Please visit ERM's web site: http://www.erm.com

UA17 : 00005 2011 2:17 PM

PRESERVATION VERIFICATION 12/07/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **UA17**

Inquiry Number: NONE
Analysis Requested: 12/07/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: Yes
Deliverables:

PC: Sue D.
VTSR: 12/07/11

Project #: 128296.07
Project: RG
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-28052 **UA17A**	MW-32S-120611						TOT															
11-28053 **UA17B**	MW-32S-120611						DIS									Y						

UA17:00006

Checked By JM Date 12/7/11

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UA20	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: ERM	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Meades		No. of Coolers: 3	Cooler Temps: 1.4, 4.0, 3.4
Client Project Name: RG			
Client Project #: 128296.07	Samplers: Cyrus / Matt		

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: TOC	SVOCs full scan + SIM cPAHs	Alkalinity	TOX	TSS	Anions Cl, SO4, NO3	T. Phos.	Ammonia	Notes/Comments
MW-345-120611	12/6/11	0707	water	14	X	X	X	X	X	X	X	X	additional analyses continued on page 2
DUP-120611-1	12/6/11	0530	water	2								X	
MW-355-120611	12/6/11	833	water	17	X	X	X	X	X	X	X	X	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Cyrus Gorm	Printed Name: Jose Ugas	Printed Name:	Printed Name:
	Company: ERM	Company: ART	Company	Company
	Date & Time: 12/6/11 1357	Date & Time 12/6/11 17:57	Date & Time	Date & Time

UA20 00001

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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: UA20	Turn-around Requested: standard	Page: 2 of 2	
ARI Client Company: Ecm	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Mendes		No. of Coolers: 3	Cooler Temps: 1.4, 4.0, 3.4
Client Project Name: 126			
Client Project #: 128296.07	Samplers: Cyrus / Matt		

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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: Total Metals ①	Dissolved Metals ②	Hardness	Hex Chrome	TPH-Gx	TPH-Dx			Notes/Comments
MW-345-120611	12/6/11	0707	water	14	X	X	X						
DUP-120611-1	12/6/11	0530	water	2			~~X~~	X					
MW-355-120611	12/6/11	0833	water	17	X	X	X		X	X			

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
* Dissolved metals samples filtered in the field	Printed Name: Cyrus Gumy	Printed Name: Jose Vigil	Printed Name:	Printed Name:
	Company: Ecm	Company: ARI	Company:	Company:
	Date & Time: 12/6/11 1357	Date & Time: 12/6/11 13:57	Date & Time:	Date & Time:

UA120

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.*

① Total Metals = As, Cr, Cu, Ag, Zn, Ca, K, Mg, Na, Al, Fe, Mn

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.

② Dissolved Metals = As, Cr, Cu, Ag, Zn, Al, Fe, Mn

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: ERM Project Name: R.G

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No.: UA20 Tracking No: _____ (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): 1.1 4.0 3.4

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90911619

Cooler Accepted by: JW Date: 12/6/11 Time: ~~13:57~~ JW 13.57

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: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 12/7/11 Time: 847

*** 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:

~~Cr6 bottle has 10 of MW-345-120611~~ AV

MW-345-120611 has a bottle for Cr6, not marked on C.O.C ← logged sample for Cr6 per ERM on 12/6/11

By: AV Date: 12/6/11 Trip blank logged with UH33.

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	• • •	● ● ●

Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

Subject: RE: UA20 RG Sample Receipt and COC
From: Shira DeGrood <Shira.DeGrood@erm.com>
Date: 12:34 PM
To: Cheronne Oreiro <cheronneo@arilabs.com>
CC: Mike Mendes <Mike.Mendes@erm.com>, Sue Dunnihoo <sue@arilabs.com>

I apologize, Cheronne. Ammonia SHOULD be on that dup sample. Can you please revise again.

Shira DeGrood, R.G.
Main: +1 503 488-5282
Direct: +1 503 621-5911
Cell: +1 503 961-4845
Fax: +1 503 488-5142
shira.degrood@erm.com

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Thursday, December 08, 2011 10:46 AM
To: Shira DeGrood
Cc: Mike Mendes; Sue Dunnihoo
Subject: Re: UA20 RG Sample Receipt and COC

Hi Shira,

Ammonia has been removed from the DUP sample. Please see attached.
Thanks,
-Cheronne

NOTE: ARI will close early on Friday, Dec. 23 and be closed Monday, Dec 26th.

On 12/8/2011 10:02 AM, Cheronne Oreiro wrote:
Hi Shira,

I called Cyrus when the samples arrived to confirm that MW-34S did need Hex Chrom because we had an extra bottle for it. I made a note on the Cooler Receipt Form saying we did log this sample for Hex Chrom per ERM.

I will have Ammonia removed from the DUP sample and resend you a revised sample receipt shortly.

Thanks,
-Cheronne

NOTE: ARI will close early on Friday, Dec. 23 and be closed Monday, Dec 26th.

On 12/7/2011 7:31 PM, Shira DeGrood wrote:
Thanks, Cheronne.

I want to confirm on this one...the chain does not note Hex Chrome for MW-34S, but the sample receipt does. The sample receipt is correct. Please DO include Hex Chrome for MW-34S. I'll send over a revised chain tomorrow.

Also, we need to remove ammonia analysis from the sample DUP-120611-1.

Thank you,
Shira

Shira DeGrood, R.G.
Main: +1 503 488-5282
Direct: +1 503 621-5911
Cell: +1 503 961-4845
Fax: +1 503 488-5142
shira.degrood@erm.com

-----Original Message-----
From: Cheronne Oreiro (mailto:cheronneo@arilabs.com)
Sent: Wednesday, December 07, 2011 11:15 AM
To: Shira DeGrood
Cc: Mike Mendes; Sue Dunnihoo
Subject: UA20 RG Sample Receipt and COC

Hi Shira,

Please see attached.
Thanks,

-Cheronne

--
NOTE: ARI will close early on Friday, Dec. 23 and be closed Monday, Dec 26th.

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

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Please visit ERM's web site: http://www.erm.com

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UA20	Turn-around Requested: Standard	Page: 1 of 2	
ARI Client Company: ERM	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Mendes		No. of Coolers: 3	Cooler Temps: 1.4, 4.0, 3.4
Client Project Name: RG			
Client Project #: 128796.07	Samplers: Cyrus / Matt		

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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: TOC	SVOCs full scan + SIM cPAHs	Alkalinity	TOX	TSS	Anions F, Cl, SO4, NO3	T. Phos.	Ammonia	Notes/Comments
MW-345-120611	12/6/11	0707	water	14	X	X	X	X	X	X	X	X	additional analyses continued on page 2
DUP-120611-1	12/6/11	0530	water	2								X	
MW-355-120611	12/6/11	833	water	17	X	X	X	X	X	X	X	X	

Request removal

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Cyrus Gorm	Printed Name: Jose Ugus	Printed Name:	Printed Name:
	Company: ERM	Company: ARI	Company:	Company:
	Date & Time: 12/6/11 1357	Date & Time: 12/6/11 17:57	Date & Time:	Date & Time:

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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.

Last Revised 2/1/2009

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UH20	Turn-around Requested: Standard	Page: 2 of 2	
ARI Client Company: Ecm	Phone: 425 214 0458	Date: 12/6/11	Ice Present? Y
Client Contact: Mike Mendes		No. of Coolers: 3	Cooler Temps: 1.4, 4.0, 3.4
Client Project Name: 126			
Client Project #: 128296.09	Samplers: Cyrus / Matt		

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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	Total Metals ①	*Dissolved Metals ②	Hardness	Hex Chrome	TPH-Gx	TPH-Dx			Notes/Comments
					Analysis Requested								Included on sample receipt.
MW-345-120611	12/6/11	0707	water	14	X	X	X	X					
DUP-120611-1	12/6/11	0530	water	2			X	X					
MW-355-120611	12/6/11	0833	water	17	X	X	X		X	X			

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
* Dissolved metals samples filtered in the field	Printed Name: Cyrus Gomez	Printed Name: Jose Vigil	Printed Name:	Printed Name:
	Company: Ecm	Company: ARI	Company:	Company
	Date & Time: 12/6/11 1357	Date & Time: 12/6/11 13:57	Date & Time:	Date & Time:

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① Total Metals = As, Cr, Cu, Ag, Zn, Ca, K, Mg, Na, Al, Fe, Mn

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.

② Dissolved metals = As Cr Cu Ag Zn Al, Fe Mn

UH20

PRESERVATION VERIFICATION 12/07/11
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **UA20**

PC: Sue D.
VTSR: 12/06/11

Inquiry Number: NONE
Analysis Requested: 12/06/11
Contact: Mendes, Michael F.
Client: ERM-West
Logged by: JM
Sample Set Used: Yes-481
Validatable Package: Yes
Deliverables:

Project #: 128296.07
Project: RG
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	AK102 <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
11-28025 **UA20A**	MW-34S-120611			pres			TOT pres		pres			pres										
11-28026 **UA20B**	MW-35S-120611			"			TOT "		"			"										
11-28027 **UA20C**	DUP-120611-1			"																		
11-28028 **UA20D**	MW-34S-120611						DIS pres									Y						
11-28029 **UA20E**	MW-35S-120611						DIS "									Y						

UA20: 00024

Checked By JM Date 12/7/11

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UA17, UA20

Narrative

Client: ERM-West, Inc.
Project: RG Fall GW Sampling, 128296.07
ARI Job Nos.: UA17 & UA20

Sample receipt

One water sample was received December 7, 2011 under ARI job UA17. The cooler temperature measured by IR thermometer following ARI SOP was 0.2°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

Three water samples were received on December 6, 2011 under ARI job UA20. The cooler temperatures measured by IR thermometer following ARI SOP were 1.4, 3.4, and 4.0°C. For further details regarding sample receipt, please refer to the Cooler Receipt Form.

The TOX analysis was subcontracted to Columbia Analytical Services in Kelso, WA. All data have been included in this package.

Semivolatiles by SW8270

The samples were extracted and analyzed within recommended holding times.

The initial calibrations were within method requirements.

The 12/13/11 continuing calibration (CCAL) was outside the 20% control limit high for 4-Nitrophenol and out low for Benzoic Acid. All detected results for these compounds have been flagged with a "Q" qualifier. No further corrective action was taken.

The 12/14/11 CCAL was outside the 20% control limit high for 4-Nitrophenol and Butylbenzylphthalate. Associated samples were undetected for these compounds. No corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

Bis(2-Ethylhexyl)phthalate was present in **MB-120911** at a level that was greater than the reporting limit. All detected results for this compound have been flagged with a "B" qualifier. No further corrective action was taken.

The LCSD percent recovery of 4-Nitrophenol was outside the control limits high for **LCS-120911**. All other percent recoveries were within control limits. No corrective action was taken.

UA17 : 00016

SIM PAHs by SW8270

The samples were extracted and analyzed within recommended holding times.

The initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

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.

NWTPH-Dx

The sample was extracted and analyzed within recommended holding times.

The 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.

NWTPH-Gx

The sample was analyzed within recommended holding times.

The 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.

Total and Dissolved Metals by SW6010/6020/7470

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

Initial and continuing calibrations were within limits.

Chromium was present in the total metals method blank at a level that was greater than the reporting limit. All associated samples were undetected for chromium. No corrective action was taken.

The LCS percent recoveries were within control limits.

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

Conventional Parameters

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

Chloride was present in the method blank for ARI job UA17 at a level that was greater than the reporting limit. Associated sample results had concentrations of chloride that were greater than ten times the level found in the method blank. No corrective action was taken.

The LCS percent recovery was within control limits.

The SRM percent recoveries were within limits.

The matrix spike percent recoveries and replicate RPDs were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UA17
Client: ERM-West
Project Event: 128296.07
Project Name: RG

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-32S-120611	UA17A	11-28052	Water	12/06/11 16:12	12/07/11 11:15
2.	MW-32S-120611	UA17B	11-28053	Water	12/06/11 16:12	12/07/11 11:15

Printed 12/07/11

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UA20
Client: ERM-West
Project Event: 128296.07
Project Name: RG

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-34S-120611	UA20A	11-28025	Water	12/06/11 07:07	12/06/11 13:57
2.	MW-35S-120611	UA20B	11-28026	Water	12/06/11 08:33	12/06/11 13:57
3.	DUP-120611-1	UA20C	11-28027	Water	12/06/11 05:30	12/06/11 13:57
4.	MW-34S-120611	UA20D	11-28028	Water	12/06/11 07:07	12/06/11 13:57
5.	MW-35S-120611	UA20E	11-28029	Water	12/06/11 08:33	12/06/11 13:57

Printed 12/07/11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

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 ≥ 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).

UA17:00021

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 ≥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

UA17:00023

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1885-1	PEST	01/02/10	ACETONE	12/15/11
4	1885-2	LOW PEST	.1/.2/1	ACETONE	12/15/11
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1888-1	ABN	100	MEOH	08/30/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1838-4	LOW PCB	2	ACETONE	01/31/12
14					
15	1814-2	SIM PNA	15/75	MEOH	01/04/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1814-3	LOW SIM PNA	1.5	ACETONE	01/04/12
19	1873-2	AK103	7500	ACETONE	01/02/12
20	1886-4	PNA	100	ACETONE	01/07/12
21	1874-3	SKY/BHT	100	MEOH	01/14/12
22	1864-3	HERB	02 to 2500	MEOH	12/03/11
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

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LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1909-2	TERPINEOL	100	MEOH	02/14/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1904-1	ABN ACID	200-450	MEOH	04/21/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					
*=REVERIFIED SOLUTION					

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SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1906-5	ABN	100/150	MEOH	04/30/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1907-4	LOW PCB	0.2	ACETONE	12/16/11
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1896-2	PCP	12.5	ACETONE	12/09/11
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1795-2	MED PCB	20	ACETONE	12/16/11
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1914-4	TPH	450	MECL2	02/04/12
P	1895-4	HCID	2250	MECL2	02/04/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1791-4	LOW PCP	1.25	ACETONE	12/09/11

Analytical Resources,Incorporated
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Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
LCS Spike Recovery [8]				
Phenol [3]	50 - **100**	43 - 103	16 - **100**	6 - **100**
Bis-(2-chloroethyl) ether	52 - **100**	45 - 105	41 - 112	29 - 124
2-Chlorophenol	56 - **100**	49 - 103	43 - 111	32 - 122
1,3-Dichlorobenzene	23 - **100**	15 - **100**	32 - **100**	22 - 103
1,4-Dichlorobenzene	25 - **100**	17 - **100**	32 - **100**	22 - 103
Benzyl Alcohol	19 - 100	**10** - 114	22 - 100	9 - 113
1,2-Dichlorobenzene	30 - **100**	22 - **100**	34 - **100**	24 - 104
2-Methylphenol	52 - **100**	44 - 106	36 - 110	24 - 122
2,2'-oxybis(1-chloropropane)	32 - 111	19 - 124	29 - 118	14 - 133
4-Methylphenol	53 - 102	45 - 110	38 - 104	27 - 115
N-Nitroso-di-n-propylamine	43 - 104	33 - 114	38 - 115	25 - 128
Hexachloroethane	12 - **100**	**10** - **100**	24 - **100**	13 - 100
Nitrobenzene	33 - 125	18 - 140	45 - 106	35 - 116
Isophorone	57 - 115	47 - 125	55 - 119	44 - 130
2-Nitrophenol	56 - 102	48 - 110	46 - 118	34 - 130
2,4-Dimethyphenol	29 - **100**	20 - **100**	28 - 105	15 - 118
Bis-(2-chloroethoxy) methane	54 - 101	46 - 109	44 - 118	32 - 130
Benzoic Acid [3]	**10** - 131	**10** - 151	11 - **100**	**10** - **100**
2,4-Dichlorophenol	56 - 104	48 - 112	43 - 121	30 - 134
1,2,4-Trichlorobenzene	27 - **100**	18 - **100**	35 - **100**	25 - 107
Naphthalene	45 - **100**	38 - **100**	36 - 111	24 - 124
4-Chloroaniline [3]	**10** - 139	**10** - 161	10 - 174	**10** - 201
2-Chloronaphthalene	45 - **100**	37 - 105	39 - 118	26 - 131
Hexachlorobutadiene	**10** - **100**	**10** - **100**	24 - **100**	12 - 108
4-Chloro-3-methylphenol	53 - 109	44 - 118	45 - 122	32 - 135
2-Methylnaphthalene	46 - **100**	38 - 100	45 - 103	35 - 113
Hexachlorocyclopentadiene	**10** - **100**	**10** - **100**	23 - 108	**10** - 122
2,4,6-Trichlorophenol	58 - 108	50 - 116	48 - 122	36 - 134
2,4,5-Trichlorophenol	58 - 107	50 - 115	48 - 122	36 - 134
2-Nitroaniline	50 - 107	41 - 117	48 - 118	36 - 130
Dimethylphthalate	58 - 107	50 - 115	50 - 120	38 - 132
Acenaphthylene	57 - 100	50 - 107	50 - 119	39 - 131
2,6-Dinitrotoluene	58 - 112	49 - 121	48 - 133	34 - 147
3-Nitroaniline [3]	21 - 150	**10** - 172	54 - 140	40 - 154
Acenaphthene	51 - **100**	43 - 106	41 - 120	28 - 133
2,4-Dinitrophenol	12 - 169	**10** - 195	23 - 176	**10** - 202

UA17:00027

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Dibenzofuran	57 - 100	50 - 107	51 - 114	41 - 125
4-Nitrophenol [3]	35 - 119	21 - 133	13 - **100**	**10 - 100**
2,4-Dinitrotoluene	58 - 117	48 - 127	51 - 134	37 - 148
Fluorene	56 - 104	48 - 112	50 - 120	38 - 132
Diethylphthlalate	52 - 111	42 - 121	48 - 122	36 - 134
4-Chlorophenyl-phenyl ether	55 - 104	47 - 112	50 - 118	39 - 129
4-Nitroaniline	49 - 112	39 - 123	42 - 136	26 - 152
4,6-Dinitro-2-Methylphenol	13 - 139	**10** - 160	32 - 121	17 - 136
N-Nitrosodiphenylamine	60 - 136	47 - 149	58 - 141	44 - 155
4-Bromophenyl-phenyl ether	55 - 103	47 - 111	50 - 122	38 - 134
Hexachlorobenzene	54 - 106	45 - 115	47 - 125	34 - 138
Pentachlorophenol	46 - 114	35 - 125	35 - 130	19 - 146
Phenanthrene	56 - 102	48 - 110	49 - 120	37 - 132
Anthracene	56 - 101	49 - 109	53 - 116	43 - 127
Carbazole	60 - 108	52 - 116	57 - 122	46 - 133
Di-n-butylphthalate	56 - 112	47 - 121	57 - 121	46 - 132
Fluoranthene	57 - 110	48 - 119	56 - 119	46 - 130
Pyrene	48 - 119	36 - 131	37 - 143	19 - 161
Butylbenzylphthalate	51 - 114	41 - 125	34 - 152	14 - 172
Benzo(a)Anthracene	55 - 105	47 - 113	49 - 129	36 - 142
3,3'-Dichlorbenzidine [3]	**10** - 128	**10** - 148	50 - 128	37 - 141
Chrysene	55 - 104	47 - 112	45 - 128	31 - 142
bis(2-Ethylhexyl) phthalate	28 - 164	**10** - 187	57 - 133	44 - 146
Di-n-octylphthalate	57 - 107	49 - 115	52 - 120	41 - 131
Benzofluoranthene(s) (Total)	30 - 160[10]	30 - 160[10]	30 - 160[10]	30 - 160[10]
Benzo(a)Pyrene	45 - 103	35 - 113	46 - 109	36 - 120
Indeno(1,2,3-cd)Pyrene	35 - 118	21 - 132	34 - 136	17 - 153
Dibenz(a,h)anthracene	42 - 119	29 - 132	41 - 134	26 - 150
Benzo(g,h,i)Perylene	39 - 123	25 - 137	41 - 133	26 - 148
Aniline [3]	**10 - 100**	**10 - 100**	28 - 126	12 - 142
1,2-Diphenylhydrazine /Azobenzene	57 - 109	48 - 118	55 - 119	44 - 130
N-Nitrosodimethylamine	49 - **100**	41 - 104	31 - **100**	21 - 105
1-Methylnaphthalene	46 - **100**	37 - 107	43 - 115	31 - 127
1,4-Dioxane	40 - **100**	30 - 108	30 - 160 [4]	30 - 160 [4]
Pyridine	-	-	25 - **100**	15 - **100**
Tributyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Dibutyl Phenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]

UA17 : 00028

Spike Recovery Control Limits for Analysis of Aqueous Samples Semi-Volatile Organic Compounds (SVOA) EPA SW-846 Methods 8270D [9]

Effective: 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

Extraction Method:	Liquid-Liquid Extract [1]	Liquid-Liquid ME[1,2]	Separatory Funnel [1]	Separatory Funnel - ME[1,2]
Sample Weight / Final Volume:	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL	500 to 0.5 mL
Butyl Diphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Triphenyl Phosphate	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
Butylated Hydroxytoluene (BHT)	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]	30 - 160 [4]
MB / LCS Surrogate Recovery				
d4-2-Chlorophenol	53 - 100	(5)	49 - 101	(5)
d4-1,2-Dichlorobenzene	38 - **100**	(5)	40 - **100**	(5)
2,4,6-Tribromophenol	52 - 123	(5)	51 - 122	(5)
2-Fluorophenol	46 - **100**	(5)	31 - **100**	(5)
d5-Phenol [3]	50 - 100	52 - 108	19 - **100**	12 - **100**
d5-Nitrobenzene	46 - 100	(5)	46 - 101	(5)
2-Fluorobiphenyl	49 - **100**	(5)	49 - 103	(5)
d14-p-Terphenyl	53 - 119	(5)	49 - 130	(5)
d8-1,4-Dioxane	45 - **100**	(5)	30 - 160 [4]	(5)
Sample Surrogate Recovery				
d4-2-Chlorophenol	44 - **100**	(5)	23 - 104	(5)
d4-1,2-Dichlorobenzene	32 - **100**	(5)	22 - **100**	(5)
2,4,6-Tribromophenol	48 - 118	(5)	22 - 125	(5)
2-Fluorophenol	38 - **100**	(5)	18 - **100**	(5)
d5-Phenol	41 - **100**	32 - 104	**10** - **100**	17 - **100**
d5-Nitrobenzene	39 - **100**	(5)	21 - 106	(5)
2-Fluorobiphenyl	42 - **100**	(5)	26 - 104	(5)
d14-p-Terphenyl	26 - 114	(5)	11 - 132	(5)
d8-1,4-Dioxane	32 - **100**	(5)	30 - 160 [4]	(5)

(1) Control Limits calculated using all data generated 1/1/07 through 12/1/07.
(2) **ME** = A **marginal exceedance** defined in the NELAC Standard [6] as beyond the CL but still within the ME limits. ARI defines ME limits as between 3 and 4 standard deviations around the mean with upper limit ≥ 100%. A maximum of four marginal exceedances are acceptable. Five or more marginal exceedances in an analysis require corrective action.
(3) These are "**poor performers**" defined in the DoD QSM[7] as compounds that "produce low mean recoveries and high standard deviations, resulting in wide LCS control limits with particularly low lower control limits (sometimes-negative values). ARI does not control batch acceptance based on these compounds since there is a high level of uncertainty in their recovery."
(4) 30 – 160 are default, advisory control limits used when there is insufficient data to calculate historic control limits. **DO NOT** use these limits as the sole reason to reject the data from a batch of analyses.
(5) Marginal Exceedances not allowed for surrogate unless it is a "poor performer".
(6) **2003 NELAC Standard (EPA/600/R-04/003), July 2003**, Chapter 5, pages 251-252.
(7) Page 182 of: **Department of Defense Quality Systems Manual for Environmental Laboratories, Version 3 Final, March 2005** Prepared By Environmental Data Quality Workgroup, Department of Navy, Lead Service (Based On National Environmental Laboratory Accreditation Conference (NELAC) Chapter 5 (Quality Systems) NELAC Voted Version – 5 June 2003
(8) Laboratory Control Sample (LCS) spike recovery control limits also used as advisory control limits for sample matrix spike (MS) analyzes. MS recovery values are advisory and not used to assess the acceptability of an analytical batch.
(9) 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.
(10) Default limits pending generation of historic limits for total benzofluoranthrenes (7/29/10)

UA17 : 00029

DL[1], LOD[2], LOQ[3] and Control Limits Summary
Analysis of Water Samples for PNA
EPA Method 8270 – SIM
ARI Analyses: PNSWLL & PNSWSL

Separatory Funnel (EPA Method 3510C) or Liq-Liq (EPA Method 3520C) Extraction using 500 mL sample with extract concentrated to 0.5 mL final volume. ARI Bench Sheet 3053F or 3054F

LOD Spike level = LOQ = 0.1ppb

Analyte	DL[1] µg/L	LOD[2] µg/L	LOQ[3] µg/L	LCS Control Limit[4,5]	Replicate RPD[6]
Naphthalene	0.020	**0.050**	**0.1**	37 – 100	≤ 40
2-Methylnaphthalene	0.020	**0.050**	**0.1**	34 – 107	≤ 40
Acenaphthylene	0.024	**0.050**	**0.1**	32 – 104	≤ 40
Acenaphthene	0.015	**0.050**	**0.1**	40 – 102	≤ 40
Dibenzofuran	0.016	**0.050**	**0.1**	44 – 104	≤ 40
Fluorene	0.019	**0.050**	**0.1**	43 – 114	≤ 40
Phenanthrene	0.026	**0.050**	**0.1**	43 – 116	≤ 40
Anthracene	0.025	**0.050**	**0.1**	30 – 121	≤ 40
Fluoranthene	0.021	**0.050**	**0.1**	46 – 138	≤ 40
Pyrene	0.028	**0.050**	**0.1**	47 – 124	≤ 40
Benzo(a)anthracene	0.023	**0.050**	**0.1**	38 – 134	≤ 40
Chrysene	0.026	**0.050**	**0.1**	52 – 112	≤ 40
Benzo(b)fluoranthene	0.027	**0.050**	**0.1**	49 – 123	≤ 40
Benzo(k)fluoranthene	0.027	**0.050**	**0.1**	50 – 127	≤ 40
Benzo(a)pyrene	0.059	**0.075**	**0.1**	24 – 118	≤ 40
Indeno(1,2,3-cd)pyrene	0.029	**0.050**	**0.1**	32 – 123	≤ 40
Dibenz(a,h)anthracene	0.042	**0.050**	**0.1**	30 – 127	≤ 40
Benzo(g,h,i)perylene	0.030	**0.050**	**0.1**	26 – 124	≤ 40
1-Methylnaphthalene	0.016	**0.050**	**0.1**	30 – 160[7]	≤ 40
Perylene	0.061	**0.075**	**0.1**	30 – 160[7]	≤ 40
Surrogate Standard Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			40 – 110	33 – 107	≤ 40
Dibenzo(a,h)anthracene-d_{14}			33 – 140	**10** – 142	≤ 40

(1) Detection Limit (DL) as defined in ARI SOP 1018S
(2) Limit of Detection (LOD) as defined in ARI SOP 1018S
(3) Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(4) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(5) Control limits calculated using all data from 6/1/10 through 5/31/11.
(6) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(7) Default limits pending generation of historic limits for total benzofluoranthenes and 1-Methylnaphthalene.

UA17:00030

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Quality Control Criteria
Total Petroleum Hydrocarbons
(Diesel & Motor Oil)

Analysis Code	Analyte[5]	LOD[1]	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	0.1	64-112	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.022	0.1	75-125 [6]	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.044	0.2	64-112	50-150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [8]	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	0.1	61-104	50-150	50-150	≤ 40
AK2WSI	DRO – AK102 (C_{10}-C_{25})	0.042	0.1	75-125 [6]	60-120	50-150	
OILWSI	RRO – NWTPH-Dext (C_{24}-C_{38})	0.010	0.2	61-104	50-150	50-150	
AK3WSI	RRO – AK103 (C_{25}-C_{36})	0.030 [8]	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	5	62-119	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.43	5	75-125 [6]	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{38})	2.48	10	62-119	50-150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [9]	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	5	60-108	50-150	50-150	≤ 40
AK2SMI	DRO – AK102 (C_{10}-C_{25})	2.06	5	75-125 [6]	60-120	50-150	
OILSMI	RRO – NWTPH-Dext (C_{24}-C_{38})	1.57	10	60-108	50-150	50-150	
AK3SMI	RRO – AK103 (C_{25}-C_{36})	0.665 [9]	10	60-120 [6]	60-120	50-150	

(1) 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 LOD 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 $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(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) MDL study QD55 completed 2/12/10
(9) MDL study QD35 completed 1/29/10

UA17:00031

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Quality Control Criteria
Gasoline and BTEX

Method	Analyte	DL[1]	LOD[1]	LOQ[1]	Spike % Recovery Control Limits[3]			RPD[3]
					LCS	MB/LCS Surrogate	Sample Surrogate	
Aqueous Samples (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	75 – 124	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	0.031	0.125	0.25	75 – 124	--	--	
WA-TPH-G	Toluene – nC_{12})	0.087	0.125	0.25	75 – 124	--	--	
AK-101	nC_6 – nC_{12}	0.032	0.050	0.10	75 – 124	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	**80 - 120**	**80** - 120	
	Bromobenzene	--	--	--	--	**80 - 120**	**80** - 120	
8021B	Benzene	0.094	0.5	1.0	73 – **120**	--	--	≤ 40
8021B	Toluene	0.113	0.5	1.0	73 – **120**	--	--	
8021B	Ethylbenzene	0.117	0.5	1.0	69 – **120**	--	--	
8021B	m/p-Xylene	0.265	1.0	2.0	72 – **120**	--	--	
8021B	o-Xylene	0.136	0.5	1.0	73 – **120**	--	--	
8021B	MTBE	0.412	0.5	1.0	30 – 182	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	79 – **120**	**80 - 120**	
	Bromobenzene	--	--	--	--	79 – **120**	**80 - 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	74 – 124	--	--	≤ 40
8015B	2-methylpentane – 1,2,4-Trimethylbenzene	1.57	2.5	5	74 – 124	--	--	
WA-TPH-G	Toluene – nC_{12})	1.54	2.5	5	74 – 124	--	--	
AK-101	nC_6 – nC_{12}	1.84	2.5	5	74 – 124	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	**80 - 120**	66-123	
	Bromobenzene	--	--	--	--	**80 - 120**	62-130	
8021B	Benzene	4.59	12.5	25	72 – **120**	--	--	≤ 40
8021B	Toluene	7.13	12.5	25	72 – **120**	--	--	
8021B	Ethylbenzene	4.98	12.5	25	71 – **120**	--	--	
8021B	m/p-Xylene	11.9	25.0	50	72 – **120**	--	--	
8021B	o-Xylene	6.23	12.5	25	72 – **120**	--	--	
8021B	MTBE	3.82	12.5	25	40 – 163	--	--	
	Trifluorotoluene (TFT)	--	--	--	--	80 – **120**	68 – 124	
	Bromobenzene	--	--	--	--	77 – **120**	62 – 134	

(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

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

UA17 : 00032

Quality Control Parameters for Metals Analysis using ICP-OES

	Aqueous Samples[2]			Spike Recovery		RPD[5]	Solids[3]	Tissue[4]
Analyte	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	**0.1**	**0.02**
Potassium	65.70	250	**500**	75 – 125	80 – 120	≤ 20	**5.0**	**1.0**
Selenium	4.99	25	**50**	75 – 125	80 – 120	≤ 20	**0.5**	**0.01**
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	**5.0**	**1.0**
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

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

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

UA17 : 00033

Quality Control Parameters for Metals Analysis using ICP-MS

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	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	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

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

UA17:00034

Quality Control Parameters for Mercury Analysis using CVAA

	Aqueous Samples[2]			Spike Recovery		RPD[5]
	DL[1] µg/L	LOD[1] µg/L	LOQ[1] µg/L	Matrix Spike	LCS	
Mercury	0.0069	0.05	**0.10**[2]	75 – 125	80 – 120	≤ 20
Mercury (low level)	0.0026	0.01	**0.02**[3]	75 – 125	80 – 120	≤ 20
	Soil / Sediment / Tissue[4] Samples			**Spike Recovery**		**RPD[5]**
	DL[1] mg/kg	**LOD[1] mg/kg**	**LOQ[1] mg/kg**	**Matrix Spike**	**LCS**	
Mercury	0.0021	0.0125	**0.025**[3,4]	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 $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$

UA17 : 00035

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Spike Recovery Control Limits for Conventional Wet Chemistry

Effective 5/1/09

Control limits are updated periodically. Assure that you have ARI's current control limits by downloading the files at the time of use. http://www.arilabs.com/portal/downloads/ARI-CLs.zip

	ARI's Control Limits	
Sample Matrix:	Water	Soil / Sediment
Matrix Spike Recoveries	% Recovery	% Recovery
Ammonia	75 - 125	75 - 125
Bromide	75 125	75 - 125
Chloride	75 125	75 - 125
Cyanide	75 - 125	75 - 125
Ferrous Iron	75 - 125	75 - 125
Fluoride	75 - 125	75 - 125
Formaldehyde	75 - 125	75 - 125
Hexane Extractable Material	-- - --	78 - 114
Hexavalent Chromium	75 - 125	75 - 125
Nitrate/Nitrite	75 - 125	75 - 125
Oil and Grease	75 - 125	75 - 125
Phenol	75 - 125	75 - 125
Phosphorous	75 - 125	75 - 125
Sulfate	75 - 125	75 - 125
Sulfide	75 - 125	75 - 125
Total Kjeldahl Nitrogen	75 - 125	75 - 125
Total Organic Carbon	75 - 125	75 - 125
Duplicate RPDs		
Acidity	±20%	±20%
Alkalinity	±20%	±20%
BOD	±20%	±20%
Cation Exchange	±20%	±20%
COD	±20%	±20%
Conductivity	±20%	±20%
Salinity	±20%	±20%
Solids	±20%	±20%
Turbidity	±20%	±20%

UA17 : 00036

Semivolatile Analysis
Report and Summary QC Forms

ARI Job ID: UA17, UA20

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-32S-120611
SAMPLE

Lab Sample ID: UA17A
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Date Extracted: 12/09/11
Date Analyzed: 12/14/11 14:16
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	5.0	< 5.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	1.0	< 1.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	1.0	< 1.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	1.0	< 1.0 U
65-85-0	Benzoic Acid	10	< 10 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	1.0	< 1.0 U
59-50-7	4-Chloro-3-methylphenol	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	5.0	< 5.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	5.0	< 5.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	10	< 10 U
100-02-7	4-Nitrophenol	5.0	< 5.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	5.0	< 5.0 U
121-14-2	2,4-Dinitrotoluene	5.0	< 5.0 U
84-66-2	Diethylphthalate	1.0	< 1.0 U

Lab Sample ID: UA17A
LIMS ID: 11-28052
Matrix: Water
Date Analyzed: 12/14/11 14:16

QC Report No: UA17-ERM-West
Project: RG
128296.07

CAS Number	Analyte	RL	Result
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	5.0	< 5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	1.0	< 1.0

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	58.8%
d14-p-Terphenyl	50.0%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	65.1%	2-Fluorophenol	62.1%
2,4,6-Tribromophenol	76.5%	d4-2-Chlorophenol	66.9%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA17-ERM-West
Project: RG
128296.07

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-120911	63.6%	58.4%	79.2%	58.0%	63.7%	59.5%	71.7%	67.2%	0
LCS-120911	65.6%	70.0%	88.4%	56.4%	69.9%	62.9%	93.6%	68.3%	0
LCSD-120911	69.6%	72.4%	90.8%	63.6%	76.0%	68.5%	99.7%	74.4%	0
MW-32S-120611	63.6%	58.8%	50.0%	58.0%	65.1%	62.1%	76.5%	66.9%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(46-100)	(39-100)
(FBP) = 2-Fluorobiphenyl	(49-100)	(42-100)
(TPH) = d14-p-Terphenyl	(53-119)	(26-114)
(DCB) = d4-1,2-Dichlorobenzene	(38-100)	(32-100)
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-28052 to 11-28052

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-34S-120611
SAMPLE

Lab Sample ID: UA20A
LIMS ID: 11-28025
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted: 12/09/11
Date Analyzed: 12/14/11 13:11
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	5.0	< 5.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	1.0	< 1.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	1.0	< 1.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	1.0	< 1.0 U
65-85-0	Benzoic Acid	10	< 10 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	1.0	< 1.0 U
59-50-7	4-Chloro-3-methylphenol	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	5.0	< 5.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	5.0	< 5.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	10	< 10 U
100-02-7	4-Nitrophenol	5.0	< 5.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	5.0	< 5.0 U
121-14-2	2,4-Dinitrotoluene	5.0	< 5.0 U
84-66-2	Diethylphthalate	1.0	< 1.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-34S-120611
SAMPLE

Lab Sample ID: UA20A
LIMS ID: 11-28025
Matrix: Water
Date Analyzed: 12/14/11 13:11

QC Report No: UA20-ERM-West
Project: RG
128296.07

CAS Number	Analyte	RL	Result
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	5.0	< 5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	1.0	< 1.0

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	49.6%	2-Fluorobiphenyl	49.2%
d14-p-Terphenyl	76.0%	d4-1,2-Dichlorobenzene	46.0%
d5-Phenol	46.1%	2-Fluorophenol	45.1%
2,4,6-Tribromophenol	62.7%	d4-2-Chlorophenol	50.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MW-35S-120611
SAMPLE

Lab Sample ID: UA20B
LIMS ID: 11-28026
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted: 12/09/11
Date Analyzed: 12/14/11 13:43
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**1.0**	**8.8**
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	5.0	< 5.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	1.0	< 1.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	1.0	< 1.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	1.0	< 1.0 U
65-85-0	Benzoic Acid	10	< 10 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	1.0	< 1.0 U
59-50-7	4-Chloro-3-methylphenol	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	5.0	< 5.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	5.0	< 5.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	10	< 10 U
100-02-7	4-Nitrophenol	5.0	< 5.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	5.0	< 5.0 U
121-14-2	2,4-Dinitrotoluene	5.0	< 5.0 U
84-66-2	Diethylphthalate	1.0	< 1.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS **Sample ID: MW-35S-120611**
 SAMPLE

Lab Sample ID: UA20B QC Report No: UA20-ERM-West
LIMS ID: 11-28026 Project: RG
Matrix: Water 128296.07
Date Analyzed: 12/14/11 13:43

CAS Number	Analyte	RL	Result
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	5.0	< 5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	bis(2-Ethylhexyl)phthalate	1.0	< 1.0 U
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	1.0	< 1.0

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.2%	2-Fluorobiphenyl	57.2%
d14-p-Terphenyl	75.6%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	66.4%	2-Fluorophenol	61.3%
2,4,6-Tribromophenol	76.8%	d4-2-Chlorophenol	66.4%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA20-ERM-West
Project: RG
128296.07

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-120911	63.6%	58.4%	79.2%	58.0%	63.7%	59.5%	71.7%	67.2%	0
LCS-120911	65.6%	70.0%	88.4%	56.4%	69.9%	62.9%	93.6%	68.3%	0
LCSD-120911	69.6%	72.4%	90.8%	63.6%	76.0%	68.5%	99.7%	74.4%	0
MW-34S-120611	49.6%	49.2%	76.0%	46.0%	46.1%	45.1%	62.7%	50.9%	0
MW-35S-120611	63.2%	57.2%	75.6%	58.0%	66.4%	61.3%	76.8%	66.4%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(46-100)	(39-100)
(FBP) = 2-Fluorobiphenyl	(49-100)	(42-100)
(TPH) = d14-p-Terphenyl	(53-119)	(26-114)
(DCB) = d4-1,2-Dichlorobenzene	(38-100)	(32-100)
(PHL) = d5-Phenol	(50-100)	(41-100)
(2FP) = 2-Fluorophenol	(46-100)	(38-100)
(TBP) = 2,4,6-Tribromophenol	(52-123)	(48-118)
(2CP) = d4-2-Chlorophenol	(53-100)	(44-100)

Prep Method: SW3520C
Log Number Range: 11-28025 to 11-28026

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-120911
LCS/LCSD

Lab Sample ID: LCS-120911
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/16/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Date Extracted LCS/LCSD: 12/09/11

Date Analyzed LCS: 12/13/11 15:55
LCSD: 12/13/11 16:28
Instrument/Analyst LCS: NT6/JZ
LCSD: NT6/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

GPC Cleanup: NO

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Phenol	20.0	25.0	80.0%	22.6	25.0	90.4%	12.2%
Bis-(2-Chloroethyl) Ether	18.3	25.0	73.2%	21.1	25.0	84.4%	14.2%
2-Chlorophenol	18.3	25.0	73.2%	21.2	25.0	84.8%	14.7%
1,3-Dichlorobenzene	14.0	25.0	56.0%	16.8	25.0	67.2%	18.2%
1,4-Dichlorobenzene	14.6	25.0	58.4%	17.2	25.0	68.8%	16.4%
Benzyl Alcohol	21.2	25.0	84.8%	24.2	25.0	96.8%	13.2%
1,2-Dichlorobenzene	14.8	25.0	59.2%	17.5	25.0	70.0%	16.7%
2-Methylphenol	19.1	25.0	76.4%	21.7	25.0	86.8%	12.7%
2,2'-Oxybis(1-Chloropropane)	18.1	25.0	72.4%	20.5	25.0	82.0%	12.4%
4-Methylphenol	38.8	50.0	77.6%	43.8	50.0	87.6%	12.1%
N-Nitroso-Di-N-Propylamine	19.7	25.0	78.8%	22.9	25.0	91.6%	15.0%
Hexachloroethane	13.2	25.0	52.8%	15.7	25.0	62.8%	17.3%
Nitrobenzene	18.1	25.0	72.4%	19.8	25.0	79.2%	9.0%
Isophorone	21.6	25.0	86.4%	23.6	25.0	94.4%	8.8%
2-Nitrophenol	19.1	25.0	76.4%	21.4	25.0	85.6%	11.4%
2,4-Dimethylphenol	43.1	75.0	57.5%	46.7	75.0	62.3%	8.0%
Benzoic Acid	114 Q	138	82.6%	124 Q	138	89.9%	8.4%
bis(2-Chloroethoxy) Methane	18.4	25.0	73.6%	20.3	25.0	81.2%	9.8%
2,4-Dichlorophenol	53.2	75.0	70.9%	56.5	75.0	75.3%	6.0%
1,2,4-Trichlorobenzene	15.2	25.0	60.8%	16.9	25.0	67.6%	10.6%
Naphthalene	17.6	25.0	70.4%	19.6	25.0	78.4%	10.8%
4-Chloroaniline	50.8	75.0	67.7%	54.0	75.0	72.0%	6.1%
Hexachlorobutadiene	14.4	25.0	57.6%	16.7	25.0	66.8%	14.8%
4-Chloro-3-methylphenol	60.6	75.0	80.8%	64.5	75.0	86.0%	6.2%
2-Methylnaphthalene	18.9	25.0	75.6%	20.8	25.0	83.2%	9.6%
Hexachlorocyclopentadiene	28.2	75.0	37.6%	31.4	75.0	41.9%	10.7%
2,4,6-Trichlorophenol	60.7	75.0	80.9%	64.2	75.0	85.6%	5.6%
2,4,5-Trichlorophenol	62.1	75.0	82.8%	64.8	75.0	86.4%	4.3%
2-Chloronaphthalene	19.3	25.0	77.2%	20.7	25.0	82.8%	7.0%
2-Nitroaniline	63.8	75.0	85.1%	67.3	75.0	89.7%	5.3%
Dimethylphthalate	22.2	25.0	88.8%	23.9	25.0	95.6%	7.4%
Acenaphthylene	20.5	25.0	82.0%	22.3	25.0	89.2%	8.4%
3-Nitroaniline	64.7	75.0	86.3%	69.9	75.0	93.2%	7.7%
Acenaphthene	20.1	25.0	80.4%	21.5	25.0	86.0%	6.7%
2,4-Dinitrophenol	117	138	84.8%	126	138	91.3%	7.4%
4-Nitrophenol	86.2 Q	75.0	115%	93.5 Q	75.0	125%	8.1%
Dibenzofuran	21.5	25.0	86.0%	23.0	25.0	92.0%	6.7%
2,6-Dinitrotoluene	63.0	75.0	84.0%	67.5	75.0	90.0%	6.9%
2,4-Dinitrotoluene	64.1	75.0	85.5%	69.8	75.0	93.1%	8.5%
Diethylphthalate	22.0	25.0	88.0%	23.9	25.0	95.6%	8.3%
4-Chlorophenyl-phenylether	20.6	25.0	82.4%	22.5	25.0	90.0%	8.8%
Fluorene	21.0	25.0	84.0%	22.5	25.0	90.0%	6.9%
4-Nitroaniline	66.8	75.0	89.1%	74.0	75.0	98.7%	10.2%
4,6-Dinitro-2-Methylphenol	119	138	86.2%	123	138	89.1%	3.3%
N-Nitrosodiphenylamine	16.2	25.0	64.8%	17.1	25.0	68.4%	5.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: LCS-120911
LCS/LCSD

Lab Sample ID: LCS-120911
LIMS ID: 11-28052
Matrix: Water
Date Analyzed LCS: 12/13/11 15:55
LCSD: 12/13/11 16:28

QC Report No: UA17-ERM-West
Project: RG
128296.07

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
4-Bromophenyl-phenylether	19.6	25.0	78.4%	20.2	25.0	80.8%	3.0%
Hexachlorobenzene	20.2	25.0	80.8%	20.5	25.0	82.0%	1.5%
Pentachlorophenol	68.6	75.0	91.5%	71.8	75.0	95.7%	4.6%
Phenanthrene	20.7	25.0	82.8%	21.6	25.0	86.4%	4.3%
Carbazole	20.4	25.0	81.6%	21.2	25.0	84.8%	3.8%
Anthracene	19.5	25.0	78.0%	20.4	25.0	81.6%	4.5%
Di-n-Butylphthalate	21.5	25.0	86.0%	22.7	25.0	90.8%	5.4%
Fluoranthene	21.8	25.0	87.2%	23.2	25.0	92.8%	6.2%
Pyrene	24.4	25.0	97.6%	26.4	25.0	106%	7.9%
Butylbenzylphthalate	24.6	25.0	98.4%	25.7	25.0	103%	4.4%
3,3'-Dichlorobenzidine	48.0	75.0	64.0%	47.7	75.0	63.6%	0.6%
Benzo(a)anthracene	23.0	25.0	92.0%	23.8	25.0	95.2%	3.4%
bis(2-Ethylhexyl)phthalate	23.8 B	25.0	95.2%	23.8 B	25.0	95.2%	0.0%
Chrysene	22.0	25.0	88.0%	22.5	25.0	90.0%	2.2%
Di-n-Octyl phthalate	19.3	25.0	77.2%	19.6	25.0	78.4%	1.5%
Benzo(a)pyrene	19.6	25.0	78.4%	20.4	25.0	81.6%	4.0%
Indeno(1,2,3-cd)pyrene	20.4	25.0	81.6%	19.4	25.0	77.6%	5.0%
Dibenz(a,h)anthracene	20.5	25.0	82.0%	19.7	25.0	78.8%	4.0%
Benzo(g,h,i)perylene	20.8	25.0	83.2%	18.7	25.0	74.8%	10.6%
2,3,4,6-Tetrachlorophenol	25.2	25.0	101%	28.2	25.0	113%	11.2%
1-Methylnaphthalene	19.6	25.0	78.4%	21.8	25.0	87.2%	10.6%
Total Benzofluoranthenes	45.1	50.0	90.2%	47.7	50.0	95.4%	5.6%

Semivolatile Surrogate Recovery

	LCS	LCSD
d5-Nitrobenzene	65.6%	69.6%
2-Fluorobiphenyl	70.0%	72.4%
d14-p-Terphenyl	88.4%	90.8%
d4-1,2-Dichlorobenzene	56.4%	63.6%
d5-Phenol	69.9%	76.0%
2-Fluorophenol	62.9%	68.5%
2,4,6-Tribromophenol	93.6%	99.7%
d4-2-Chlorophenol	68.3%	74.4%

Results reported in µg/L
RPD calculated using sample concentrations per SW846.

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

TZ99MBW1

Lab Name: ANALYTICAL RESOURCES INC Client: BOEING

ARI Job No: UA20 Project: ISAACSON-THOMPSON

Lab File ID: 12131102 Date Extracted: 12/09/11

Instrument ID: NT6 Date Analyzed: 12/13/11

Matrix: LIQUID Time Analyzed: 1522

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	TZ99LCSW1	TZ99LCSW1	12131103	12/13/11
02	TZ99LCSDW1	TZ99LCSDW1	12131104	12/13/11
03	MW-34S-120611	UA20A	12141102	12/14/11
04	MW-35S-120611	UA20B	12141103	12/14/11
05	MW-32S-120611	UA17A	12141104	12/14/11
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-120911
METHOD BLANK

Lab Sample ID: MB-120911
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized: B
Reported: 12/16/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Date Extracted: 12/09/11
Date Analyzed: 12/13/11 15:22
Instrument/Analyst: NT6/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
108-95-2	Phenol	1.0	< 1.0 U
111-44-4	Bis-(2-Chloroethyl) Ether	1.0	< 1.0 U
95-57-8	2-Chlorophenol	1.0	< 1.0 U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0 U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0 U
100-51-6	Benzyl Alcohol	5.0	< 5.0 U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0 U
95-48-7	2-Methylphenol	1.0	< 1.0 U
108-60-1	2,2'-Oxybis(1-Chloropropane)	1.0	< 1.0 U
106-44-5	4-Methylphenol	1.0	< 1.0 U
621-64-7	N-Nitroso-Di-N-Propylamine	1.0	< 1.0 U
67-72-1	Hexachloroethane	1.0	< 1.0 U
98-95-3	Nitrobenzene	1.0	< 1.0 U
78-59-1	Isophorone	1.0	< 1.0 U
88-75-5	2-Nitrophenol	5.0	< 5.0 U
105-67-9	2,4-Dimethylphenol	1.0	< 1.0 U
65-85-0	Benzoic Acid	10	< 10 U
111-91-1	bis(2-Chloroethoxy) Methane	1.0	< 1.0 U
120-83-2	2,4-Dichlorophenol	5.0	< 5.0 U
120-82-1	1,2,4-Trichlorobenzene	1.0	< 1.0 U
91-20-3	Naphthalene	1.0	< 1.0 U
106-47-8	4-Chloroaniline	5.0	< 5.0 U
87-68-3	Hexachlorobutadiene	1.0	< 1.0 U
59-50-7	4-Chloro-3-methylphenol	5.0	< 5.0 U
91-57-6	2-Methylnaphthalene	1.0	< 1.0 U
77-47-4	Hexachlorocyclopentadiene	5.0	< 5.0 U
88-06-2	2,4,6-Trichlorophenol	5.0	< 5.0 U
95-95-4	2,4,5-Trichlorophenol	5.0	< 5.0 U
91-58-7	2-Chloronaphthalene	1.0	< 1.0 U
88-74-4	2-Nitroaniline	5.0	< 5.0 U
131-11-3	Dimethylphthalate	1.0	< 1.0 U
208-96-8	Acenaphthylene	1.0	< 1.0 U
99-09-2	3-Nitroaniline	5.0	< 5.0 U
83-32-9	Acenaphthene	1.0	< 1.0 U
51-28-5	2,4-Dinitrophenol	10	< 10 U
100-02-7	4-Nitrophenol	5.0	< 5.0 U
132-64-9	Dibenzofuran	1.0	< 1.0 U
606-20-2	2,6-Dinitrotoluene	5.0	< 5.0 U
121-14-2	2,4-Dinitrotoluene	5.0	< 5.0 U
84-66-2	Diethylphthalate	1.0	< 1.0 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by SW8270D GC/MS

Sample ID: MB-120911
METHOD BLANK

Lab Sample ID: MB-120911
LIMS ID: 11-28052
Matrix: Water
Date Analyzed: 12/13/11 15:22

QC Report No: UA17-ERM-West
Project: RG
128296.07

CAS Number	Analyte	RL	Result
7005-72-3	4-Chlorophenyl-phenylether	1.0	< 1.0 U
86-73-7	Fluorene	1.0	< 1.0 U
100-01-6	4-Nitroaniline	5.0	< 5.0 U
534-52-1	4,6-Dinitro-2-Methylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	1.0	< 1.0 U
101-55-3	4-Bromophenyl-phenylether	1.0	< 1.0 U
118-74-1	Hexachlorobenzene	1.0	< 1.0 U
87-86-5	Pentachlorophenol	5.0	< 5.0 U
85-01-8	Phenanthrene	1.0	< 1.0 U
86-74-8	Carbazole	1.0	< 1.0 U
120-12-7	Anthracene	1.0	< 1.0 U
84-74-2	Di-n-Butylphthalate	1.0	< 1.0 U
206-44-0	Fluoranthene	1.0	< 1.0 U
129-00-0	Pyrene	1.0	< 1.0 U
85-68-7	Butylbenzylphthalate	1.0	< 1.0 U
91-94-1	3,3'-Dichlorobenzidine	5.0	< 5.0 U
56-55-3	Benzo(a)anthracene	1.0	< 1.0 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**1.0**	**1.0**
218-01-9	Chrysene	1.0	< 1.0 U
117-84-0	Di-n-Octyl phthalate	1.0	< 1.0 U
50-32-8	Benzo(a)pyrene	1.0	< 1.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	1.0	< 1.0 U
53-70-3	Dibenz(a,h)anthracene	1.0	< 1.0 U
191-24-2	Benzo(g,h,i)perylene	1.0	< 1.0 U
58-90-2	2,3,4,6-Tetrachlorophenol	1.0	< 1.0 U
90-12-0	1-Methylnaphthalene	1.0	< 1.0 U
TOTBFA	Total Benzofluoranthenes	1.0	< 1.0 U

Reported in µg/L (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	58.4%
d14-p-Terphenyl	79.2%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	63.7%	2-Fluorophenol	59.5%
2,4,6-Tribromophenol	71.7%	d4-2-Chlorophenol	67.2%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 1033

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	23.9
68	Less than 2.0% of mass 69	0.3 (0.6)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.2 (0.4)1
127	10.0 - 80.0% of mass 198	51.6
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	22.7
365	Greater than 1.0% of mass 198	2.28
441	0.0 - 24.0% of mass 442	11.1 (14.4)2
442	50.0 - 200.0% of mass 198	76.8
443	15.0 - 24.0% of mass 442	15.1 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC11121	IC11121	11211102	11/21/11	1124
02	IC51121	IC51121	11211103	11/21/11	1157
03	IC101121	IC101121	11211104	11/21/11	1230
04	IC401121	IC401121	11211105	11/21/11	1320
05	IC601121	IC601121	11211106	11/21/11	1353
06	IC801121	IC801121	11211107	11/21/11	1426
07	IC251121	IC250121	11211109	11/21/11	1737
08					
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UA17:00051

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG

DFTPP Injection Date: 12/13/11 DFTPP Injection Time: 1449

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.7
70	Less than 2.0% of mass 69	0.2 (0.6)1
127	10.0 - 80.0% of mass 198	50.8
197	Less than 2.0% of mass 198	0.2
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.0
275	10.0 - 60.0% of mass 198	21.8
365	Greater than 1.0% of mass 198	2.24
441	0.0 - 24.0% of mass 442	11.8 (14.5)2
442	50.0 - 200.0% of mass 198	81.3
443	15.0 - 24.0% of mass 442	15.6 (19.3)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC1213	CC1213	12131101	12/13/11	1449
02	TZ99MBW1	TZ99MBW1	12131102	12/13/11	1522
03	TZ99LCSW1	TZ99LCSW1	12131103	12/13/11	1555
04	TZ99LCSDW1	TZ99LCSDW1	12131104	12/13/11	1628
05					
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FORM V SV

UA17:00052

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT6 Project: RG

DFTPP Injection Date: 12/14/11 DFTPP Injection Time: 1238

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.9
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	42.9
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	10.0 - 80.0% of mass 198	50.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	23.0
365	Greater than 1.0% of mass 198	2.43
441	0.0 - 24.0% of mass 442	12.5 (14.6)2
442	50.0 - 200.0% of mass 198	86.0
443	15.0 - 24.0% of mass 442	16.9 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC1214	CC1214	12141101	12/14/11	1238
02	MW-34S-120611	UA20A	12141102	12/14/11	1311
03	MW-35S-120611	UA20B	12141103	12/14/11	1343
04	MW-32S-120611	UA17A	12141104	12/14/11	1416
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20					
21					
22					

UA17:00053

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Phenol	2.046	1.795	1.782	1.677	1.628	1.542	1.504	1.710	10.8
Bis(2-Chloroethyl)ether	1.582	1.343	1.489	1.368	1.347	1.304	1.290	1.389	7.7
2-Chlorophenol	1.675	1.408	1.453	1.395	1.346	1.287	1.255	1.403	9.9
1,3-Dichlorobenzene	1.828	1.568	1.759	1.631	1.573	1.502	1.461	1.617	8.3
1,4-Dichlorobenzene	1.834	1.581	1.743	1.617	1.530	1.497	1.436	1.605	8.7
1,2-Dichlorobenzene	1.761	1.496	1.614	1.516	1.428	1.378	1.364	1.508	9.3
Benzyl alcohol	0.890	0.850	0.928	0.863	0.829	0.822	0.831	0.859	4.5
2,2'-oxybis(1-Chloropropane)	1.340	1.123	1.212	1.115	1.072	1.030	0.993	1.126	10.4
2-Methylphenol	1.488	1.327	1.302	1.250	1.219	1.168	1.100	1.265	9.9
Hexachloroethane	0.682	0.585	0.657	0.625	0.606	0.596	0.584	0.619	6.1
N-Nitroso-di-n-propylamine	1.090	0.950	1.005	0.927	0.882	0.878	0.837	0.938	9.2
4-Methylphenol	1.567	1.356	1.352	1.252	1.212	1.181	1.095	1.288	12.0
Nitrobenzene	0.441	0.378	0.428	0.396	0.379	0.363	0.354	0.391	8.3
Isophorone	0.652	0.568	0.635	0.584	0.563	0.567	0.545	0.588	6.8
2-Nitrophenol	0.190	0.181	0.192	0.198	0.192	0.190	0.187	0.190	2.7
2,4-Dimethylphenol	0.399	0.352	0.357	0.347	0.330	0.322	0.310	0.345	8.4
Bis(2-Chloroethoxy)methane	0.471	0.421	0.468	0.435	0.412	0.408	0.400	0.431	6.7
2,4-Dichlorophenol	0.318	0.293	0.300	0.296	0.280	0.273	0.261	0.289	6.6
1,2,4-Trichlorobenzene	0.368	0.310	0.347	0.325	0.307	0.303	0.296	0.322	8.2
Naphthalene	1.178	1.014	1.090	0.992	0.920	0.870	0.814	0.982	12.9
Benzoic acid		0.120	0.164	0.214	0.212	0.239	0.230	0.196	0.992
4-Chloroaniline	0.454	0.417	0.435	0.399	0.366	0.358	0.320	0.393	12.1
Hexachlorobutadiene	0.193	0.165	0.186	0.180	0.165	0.166	0.165	0.174	6.8
4-Chloro-3-methylphenol	0.307	0.288	0.282	0.275	0.262	0.271	0.248	0.276	6.8
2-Methylnaphthalene	0.621	0.531	0.563	0.518	0.478	0.481	0.446	0.520	11.4
Hexachlorocyclopentadiene	0.239	0.256	0.338	0.361	0.358	0.345	0.375	0.324	16.7
2,4,6-Trichlorophenol	0.320	0.312	0.346	0.351	0.343	0.341	0.340	0.336	4.3
2,4,5-Trichlorophenol	0.330	0.320	0.362	0.373	0.360	0.361	0.363	0.353	5.6
2-Chloronaphthalene	1.301	1.086	1.198	1.110	1.029	0.949	0.943	1.088	12.0
2-Nitroaniline	0.247	0.266	0.295	0.281	0.269	0.280	0.266	0.272	5.6
Acenaphthylene	1.786	1.610	1.787	1.664	1.561	1.492	1.445	1.621	8.3
Dimethylphthalate	1.323	1.124	1.212	1.122	1.057	1.097	1.064	1.143	8.3
2,6-Dinitrotoluene	0.234	0.248	0.279	0.271	0.255	0.272	0.262	0.260	6.0
Acenaphthene	1.213	1.012	1.098	1.035	0.964	0.951	0.924	1.028	9.8
3-Nitroaniline	0.293	0.280	0.292	0.270	0.248	0.227		0.268	9.8
2,4-Dinitrophenol		0.060	0.099	0.143	0.140	0.163	0.158	0.127	0.995
Dibenzofuran	1.704	1.471	1.541	1.419	1.315	1.298	1.204	1.422	11.9

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-1

UA17:00054

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
4-Nitrophenol	0.066	0.109	0.112	0.127	0.117	0.129	0.117	0.111	19.2
2,4-Dinitrotoluene	0.310	0.315	0.353	0.349	0.328	0.368	0.345	0.338	6.3
Fluorene	1.346	1.162	1.250	1.170	1.074	1.083	1.029	1.159	9.5
4-Chlorophenyl-phenylether	0.668	0.548	0.600	0.565	0.530	0.536	0.516	0.566	9.3
Diethylphthalate	1.263	1.088	1.145	1.067	0.990	1.031	0.971	1.079	9.3
4-Nitroaniline	0.240	0.268	0.269	0.271	0.242	0.279	0.246	0.259	6.2
4,6-Dinitro-2-methylphenol		0.104	0.123	0.142	0.140	0.142	0.145	0.133	12.0
N-Nitrosodiphenylamine (1)	0.697	0.598	0.658	0.597	0.589	0.554	0.568	0.609	8.4
4-Bromophenyl-phenylether	0.252	0.203	0.238	0.215	0.214	0.202	0.210	0.219	8.6
Hexachlorobenzene	0.264	0.220	0.248	0.228	0.223	0.210	0.217	0.230	8.3
Pentachlorophenol		0.079	0.110	0.117	0.122	0.129	0.130	0.114	16.5
Phenanthrene	1.306	1.096	1.165	1.076	1.017	0.962	0.947	1.081	11.6
Anthracene	1.262	1.117	1.215	1.126	1.059	0.993	0.984	1.108	9.5
Carbazole	1.122	1.038	1.095	1.047	0.963	0.951	0.916	1.019	7.6
Di-n-butylphthalate	1.220	1.155	1.248	1.218	1.118	1.088	1.056	1.158	6.4
Fluoranthene	1.098	1.046	1.090	1.062	0.972	0.968	0.951	1.027	6.0
Pyrene	1.517	1.207	1.344	1.210	1.183	1.116	1.090	1.238	11.9
Butylbenzylphthalate	0.485	0.496	0.567	0.559	0.549	0.542	0.534	0.533	5.8
Benzo(a)anthracene	1.044	0.938	1.042	0.994	0.966	0.922	0.913	0.974	5.6
3,3'-Dichlorobenzidine	0.322	0.334	0.357	0.341	0.320	0.286	0.277	0.320	9.1
Chrysene	1.162	0.950	1.057	1.012	0.969	0.934	0.929	1.002	8.4
bis(2-Ethylhexyl)phthalate	0.615	0.538	0.612	0.607	0.594	0.585	0.586	0.591	4.4
Di-n-octylphthalate	1.192	0.962	1.061	1.038	0.988	0.978	0.962	1.026	8.1
Benzo(b)fluoranthene	1.041	0.998	1.057	1.058	1.053	1.000	1.007	1.030	2.7
Benzo(k)fluoranthene	1.261	1.058	1.255	1.092	1.011	0.946	0.903	1.075	13.0
Benzo(a)pyrene	0.926	0.882	0.993	0.956	0.934	0.893	0.893	0.925	4.3
Indeno(1,2,3-cd)pyrene	1.249	1.102	1.325	1.269	1.241	1.177	1.231	1.228	5.8
Dibenzo(a,h)anthracene	1.016	0.916	1.088	1.064	1.018	0.965	0.998	1.009	5.7
Benzo(g,h,i)perylene	1.094	0.968	1.157	1.103	1.103	1.058	1.108	1.084	5.4
N-Nitrosodimethylamine	0.953	0.886	1.001	0.951	0.959	0.934	0.950	0.948	3.6
Aniline	2.291	2.084	2.213	2.022	1.955	1.884	1.752	2.029	9.2
Benzidine		0.092	0.176	0.217	0.248	0.239	0.252	0.204	0.992
Pyridine	1.564	1.631	1.863	1.811	1.771	1.760	1.742	1.734	6.0
1-methylnaphthalene	0.599	0.531	0.555	0.519	0.473	0.485	0.448	0.516	10.0
Azobenzene (1,2-DP-Hydrazine	1.372	1.231	1.322	1.242	1.151	1.159	1.096	1.225	8.0
2,3,4,6-Tetrachlorophenol	0.201	0.214	0.229	0.246	0.238	0.253	0.243	0.232	8.1
1,2,4,5-Tetrachlorobenzene	0.530	0.463	0.526	0.500	0.477	0.452	0.476	0.489	6.2

(1) Cannot be seperated from Diphenylamine

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-2

UA17:00055

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Calibration Date: 11/21/11

LAB FILE ID: RRF1 =11211102 RRF5 =11211103 RRF10 =11211104
RRF25 =11211109 RRF40 =11211105 RRF60 =11211106
RRF80 =11211107

COMPOUND	RRF 1	RRF 5	RRF 10	RRF 25	RRF 40	RRF 60	RRF 80	RRF	%RSD /R^2
Total Benzofluoranthenes	1.094	0.982	1.099	1.022	0.985	0.921	0.898	1.000	7.8
2-Fluorophenol	1.558	1.439	1.559	1.465	1.394	1.361		1.463	5.6
Phenol-d5	2.012	1.839	1.911	1.729	1.669	1.638		1.800	8.1
2-Chlorophenol-d4	1.543	1.393	1.498	1.381	1.333	1.302		1.408	6.7
1,2-Dichlorobenzene-d4	1.124	0.997	1.030	0.944	0.890	0.858		0.974	10.0
Nitrobenzene-d5	0.414	0.396	0.436	0.417	0.408	0.402		0.412	3.3
2-Fluorobiphenyl	1.483	1.302	1.425	1.318	1.258	1.191		1.330	8.1
2,4,6-Tribromophenol	0.133	0.128	0.146	0.144	0.135	0.149		0.139	6.0
Terphenyl-d14	1.089	0.778	0.826	0.736	0.731	0.708		0.811	17.5

<- Outside QC limits: %RSD <20% or R^2 > 0.990

FORM VI SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/13/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1449

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Phenol	1.710	1.810	0.800	AVRG	5.8	
Bis(2-Chloroethyl)ether	1.389	1.420	0.700	AVRG	2.2	
2-Chlorophenol	1.403	1.460	0.800	AVRG	4.1	
1,3-Dichlorobenzene	1.617	1.651	0.010	AVRG	2.1	
1,4-Dichlorobenzene	1.605	1.639	0.010	AVRG	2.1	
1,2-Dichlorobenzene	1.508	1.520	0.010	AVRG	0.8	
Benzyl alcohol	0.859	0.922	0.010	AVRG	7.3	
2,2'-oxybis(1-Chloropropane)	1.126	1.146	0.010	AVRG	1.8	
2-Methylphenol	1.265	1.349	0.700	AVRG	6.6	
Hexachloroethane	0.619	0.595	0.300	AVRG	-3.9	
N-Nitroso-di-n-propylamine	0.938	1.019	0.500	AVRG	8.6	
4-Methylphenol	1.288	1.395	0.600	AVRG	8.3	
Nitrobenzene	0.391	0.397	0.200	AVRG	1.5	
Isophorone	0.588	0.599	0.400	AVRG	1.9	
2-Nitrophenol	0.190	0.199	0.100	AVRG	4.7	
2,4-Dimethylphenol	0.345	0.352	0.200	AVRG	2.0	
Bis(2-Chloroethoxy)methane	0.431	0.434	0.300	AVRG	0.7	
2,4-Dichlorophenol	0.289	0.302	0.200	AVRG	4.5	
1,2,4-Trichlorobenzene	0.322	0.322	0.010	AVRG	0.0	
Naphthalene	0.982	0.994	0.700	AVRG	1.2	
Benzoic acid	50.00	39.86	0.010	LINR	-20.3	<-
4-Chloroaniline	0.393	0.382	0.010	AVRG	-2.8	
Hexachlorobutadiene	0.174	0.174	0.010	AVRG	0.0	
4-Chloro-3-methylphenol	0.276	0.287	0.200	AVRG	4.0	
2-Methylnaphthalene	0.520	0.533	0.400	AVRG	2.5	
Hexachlorocyclopentadiene	0.324	0.330	0.050	AVRG	1.8	
2,4,6-Trichlorophenol	0.336	0.356	0.200	AVRG	6.0	
2,4,5-Trichlorophenol	0.353	0.380	0.200	AVRG	7.6	
2-Chloronaphthalene	1.088	1.096	0.800	AVRG	0.7	
2-Nitroaniline	0.272	0.287	0.010	AVRG	5.5	
Acenaphthylene	1.621	1.690	0.900	AVRG	4.2	
Dimethylphthalate	1.143	1.171	0.010	AVRG	2.4	
2,6-Dinitrotoluene	0.260	0.285	0.200	AVRG	9.6	
Acenaphthene	1.028	1.039	0.900	AVRG	1.1	
3-Nitroaniline	0.268	0.263	0.010	AVRG	-1.9	
2,4-Dinitrophenol	50.00	45.90	0.010	2ORDR	-8.2	
Dibenzofuran	1.422	1.463	0.800	AVRG	2.9	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/13/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1449

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.111	0.141	0.010	AVRG	27.0	<-
2,4-Dinitrotoluene	0.338	0.364	0.200	AVRG	7.7	
Fluorene	1.159	1.184	0.900	AVRG	2.2	
4-Chlorophenyl-phenylether	0.566	0.586	0.400	AVRG	3.5	
Diethylphthalate	1.079	1.099	0.010	AVRG	1.8	
4-Nitroaniline	0.259	0.265	0.010	AVRG	2.3	
4,6-Dinitro-2-methylphenol	0.133	0.134	0.010	AVRG	0.8	
N-Nitrosodiphenylamine(1)	0.609	0.621	0.010	AVRG	2.0	
4-Bromophenyl-phenylether	0.219	0.224	0.100	AVRG	2.3	
Hexachlorobenzene	0.230	0.238	0.100	AVRG	3.5	
Pentachlorophenol	0.114	0.109	0.050	AVRG	-4.4	
Phenanthrene	1.081	1.077	0.700	AVRG	-0.4	
Anthracene	1.108	1.124	0.700	AVRG	1.4	
Carbazole	1.019	1.004	0.010	AVRG	-1.5	
Di-n-butylphthalate	1.158	1.204	0.010	AVRG	4.0	
Fluoranthene	1.027	1.033	0.600	AVRG	0.6	
Pyrene	1.238	1.378	0.600	AVRG	11.3	
Butylbenzylphthalate	0.533	0.617	0.010	AVRG	15.8	
Benzo(a)anthracene	0.974	1.055	0.800	AVRG	8.3	
3,3'-Dichlorobenzidine	0.320	0.350	0.010	AVRG	9.4	
Chrysene	1.002	1.010	0.700	AVRG	0.8	
bis(2-Ethylhexyl)phthalate	0.591	0.638	0.010	AVRG	8.0	
Di-n-octylphthalate	1.026	1.015	0.010	AVRG	-1.1	
Benzo(b)fluoranthene	1.030	1.089	0.700	AVRG	5.7	
Benzo(k)fluoranthene	1.075	1.144	0.700	AVRG	6.4	
Benzo(a)pyrene	0.925	0.968	0.700	AVRG	4.6	
Indeno(1,2,3-cd)pyrene	1.228	1.238	0.500	AVRG	0.8	
Dibenzo(a,h)anthracene	1.009	1.042	0.400	AVRG	3.3	
Benzo(g,h,i)perylene	1.084	1.088	0.500	AVRG	0.4	
N-Nitrosodimethylamine	0.948	0.941	0.010	AVRG	-0.7	
Aniline	2.029	1.901	0.010	AVRG	-6.3	
Benzidine	25.00	24.35	0.010	LINR	-2.6	
Pyridine	1.734	1.652	0.010	AVRG	-4.7	
1-methylnaphthalene	0.516	0.529	0.010	AVRG	2.5	
Azobenzene (1,2-DP-Hydrazine	1.225	1.243	0.010	AVRG	1.5	
2,3,4,6-Tetrachlorophenol	0.232	0.254	0.010	AVRG	9.5	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

UA17:00058

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/13/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1449

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.489		0.010	AVRG	
Total Benzofluoranthenes	1.000	1.054	0.010	AVRG	5.4
2-Fluorophenol	1.463	1.474	0.010	AVRG	0.8
Phenol-d5	1.800	1.835	0.010	AVRG	1.9
2-Chlorophenol-d4	1.408	1.459	0.010	AVRG	3.6
1,2-Dichlorobenzene-d4	0.974	0.966	0.010	AVRG	-0.8
Nitrobenzene-d5	0.412	0.407	0.010	AVRG	-1.2
2-Fluorobiphenyl	1.330	1.297	0.010	AVRG	-2.5
2,4,6-Tribromophenol	0.139	0.154	0.010	AVRG	10.8
Terphenyl-d14	0.811	0.848	0.010	AVRG	4.6

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-3

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Phenol	1.710	1.825	0.800	AVRG	6.7
Bis(2-Chloroethyl)ether	1.389	1.427	0.700	AVRG	2.7
2-Chlorophenol	1.403	1.456	0.800	AVRG	3.8
1,3-Dichlorobenzene	1.617	1.618	0.010	AVRG	0.1
1,4-Dichlorobenzene	1.605	1.602	0.010	AVRG	-0.2
1,2-Dichlorobenzene	1.508	1.490	0.010	AVRG	-1.2
Benzyl alcohol	0.859	0.921	0.010	AVRG	7.2
2,2'-oxybis(1-Chloropropane)	1.126	1.176	0.010	AVRG	4.4
2-Methylphenol	1.265	1.364	0.700	AVRG	7.8
Hexachloroethane	0.619	0.601	0.300	AVRG	-2.9
N-Nitroso-di-n-propylamine	0.938	1.068	0.500	AVRG	13.8
4-Methylphenol	1.288	1.407	0.600	AVRG	9.2
Nitrobenzene	0.391	0.403	0.200	AVRG	3.1
Isophorone	0.588	0.618	0.400	AVRG	5.1
2-Nitrophenol	0.190	0.201	0.100	AVRG	5.8
2,4-Dimethylphenol	0.345	0.355	0.200	AVRG	2.9
Bis(2-Chloroethoxy)methane	0.431	0.440	0.300	AVRG	2.1
2,4-Dichlorophenol	0.289	0.298	0.200	AVRG	3.1
1,2,4-Trichlorobenzene	0.322	0.320	0.010	AVRG	-0.6
Naphthalene	0.982	0.990	0.700	AVRG	0.8
Benzoic acid	50.00	42.10	0.010	LINR	-15.8
4-Chloroaniline	0.393	0.389	0.010	AVRG	-1.0
Hexachlorobutadiene	0.174	0.169	0.010	AVRG	-2.9
4-Chloro-3-methylphenol	0.276	0.303	0.200	AVRG	9.8
2-Methylnaphthalene	0.520	0.530	0.400	AVRG	1.9
Hexachlorocyclopentadiene	0.324	0.324	0.050	AVRG	0.0
2,4,6-Trichlorophenol	0.336	0.354	0.200	AVRG	5.4
2,4,5-Trichlorophenol	0.353	0.382	0.200	AVRG	8.2
2-Chloronaphthalene	1.088	1.072	0.800	AVRG	-1.5
2-Nitroaniline	0.272	0.297	0.010	AVRG	9.2
Acenaphthylene	1.621	1.712	0.900	AVRG	5.6
Dimethylphthalate	1.143	1.214	0.010	AVRG	6.2
2,6-Dinitrotoluene	0.260	0.296	0.200	AVRG	13.8
Acenaphthene	1.028	1.046	0.900	AVRG	1.8
3-Nitroaniline	0.268	0.279	0.010	AVRG	4.1
2,4-Dinitrophenol	50.00	40.17	0.010	2ORDR	-19.7
Dibenzofuran	1.422	1.478	0.800	AVRG	3.9

<- Exceeds QC limit of 20% D

* RF less than minimum RF

UA17:00060

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
4-Nitrophenol	0.111	0.141	0.010	AVRG	27.0	<-
2,4-Dinitrotoluene	0.338	0.394	0.200	AVRG	16.6	
Fluorene	1.159	1.193	0.900	AVRG	2.9	
4-Chlorophenyl-phenylether	0.566	0.594	0.400	AVRG	4.9	
Diethylphthalate	1.079	1.157	0.010	AVRG	7.2	
4-Nitroaniline	0.259	0.280	0.010	AVRG	8.1	
4,6-Dinitro-2-methylphenol	0.133	0.125	0.010	AVRG	-6.0	
N-Nitrosodiphenylamine(1)	0.609	0.596	0.010	AVRG	-2.1	
4-Bromophenyl-phenylether	0.219	0.214	0.100	AVRG	-2.3	
Hexachlorobenzene	0.230	0.227	0.100	AVRG	-1.3	
Pentachlorophenol	0.114	0.105	0.050	AVRG	-7.9	
Phenanthrene	1.081	1.053	0.700	AVRG	-2.6	
Anthracene	1.108	1.099	0.700	AVRG	-0.8	
Carbazole	1.019	0.997	0.010	AVRG	-2.2	
Di-n-butylphthalate	1.158	1.224	0.010	AVRG	5.7	
Fluoranthene	1.027	1.048	0.600	AVRG	2.0	
Pyrene	1.238	1.387	0.600	AVRG	12.0	
Butylbenzylphthalate	0.533	0.642	0.010	AVRG	20.4	<-
Benzo(a)anthracene	0.974	1.051	0.800	AVRG	7.9	
3,3'-Dichlorobenzidine	0.320	0.348	0.010	AVRG	8.8	
Chrysene	1.002	1.012	0.700	AVRG	1.0	
bis(2-Ethylhexyl)phthalate	0.591	0.650	0.010	AVRG	10.0	
Di-n-octylphthalate	1.026	1.005	0.010	AVRG	-2.0	
Benzo(b)fluoranthene	1.030	1.171	0.700	AVRG	13.7	
Benzo(k)fluoranthene	1.075	1.061	0.700	AVRG	-1.3	
Benzo(a)pyrene	0.925	0.974	0.700	AVRG	5.3	
Indeno(1,2,3-cd)pyrene	1.228	1.270	0.500	AVRG	3.4	
Dibenzo(a,h)anthracene	1.009	1.064	0.400	AVRG	5.4	
Benzo(g,h,i)perylene	1.084	1.110	0.500	AVRG	2.4	
N-Nitrosodimethylamine	0.948	0.945	0.010	AVRG	-0.3	
Aniline	2.029	1.919	0.010	AVRG	-5.4	
Benzidine	25.00	19.28	0.010	LINR	-22.9	<-
Pyridine	1.734	1.644	0.010	AVRG	-5.2	
1-methylnaphthalene	0.516	0.534	0.010	AVRG	3.5	
Azobenzene (1,2-DP-Hydrazine	1.225	1.308	0.010	AVRG	6.8	
2,3,4,6-Tetrachlorophenol	0.232	0.269	0.010	AVRG	15.9	

(1) Cannot be separated from Diphenylamine

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-2

7C

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT6 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1238

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
1,2,4,5-Tetrachlorobenzene	0.489		0.010	AVRG	
Total Benzofluoranthenes	1.000	1.052	0.010	AVRG	5.2
2-Fluorophenol	1.463	1.458	0.010	AVRG	-0.3
Phenol-d5	1.800	1.853	0.010	AVRG	2.9
2-Chlorophenol-d4	1.408	1.433	0.010	AVRG	1.8
1,2-Dichlorobenzene-d4	0.974	0.948	0.010	AVRG	-2.7
Nitrobenzene-d5	0.412	0.404	0.010	AVRG	-1.9
2-Fluorobiphenyl	1.330	1.282	0.010	AVRG	-3.6
2,4,6-Tribromophenol	0.139	0.163	0.010	AVRG	17.3
Terphenyl-d14	0.811	0.872	0.010	AVRG	7.5

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-3

UA17:00062

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/13/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	393702	8.10	1422023	10.15	754629	13.03
	UPPER LIMIT	787404		2844046		1509258	
	LOWER LIMIT	196851		711012		377314	
	CCAL	399289	7.70	1558056	9.76	875315	12.62
	UPPER LIMIT		8.20		10.26		13.12
	LOWER LIMIT		7.20		9.26		12.12
01	TZ99MBW1	454571	7.70	1799487	9.75	1067726	12.61
02	TZ99LCSW1	456526	7.70	1808480	9.76	1004469	12.62
03	TZ99LCSDW1	511312	7.70	2110746	9.76	1204737	12.62
04							
05							
06							
07							
08							
09							
10							
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12							
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19							
20							
21							
22							
23							
24							
25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

UA17:00063

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/13/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1068116	15.41	993839	19.75	976441	21.91
	UPPER LIMIT	2136232		1987678		1952882	
	LOWER LIMIT	534058		496920		488220	
	CCAL	1244760	14.99	945130	19.29	827350	21.45
	UPPER LIMIT		15.49		19.79		21.95
	LOWER LIMIT		14.49		18.79		20.95
01	TZ99MBW1	1572161	14.98	1271645	19.29	1040304	21.44
02	TZ99LCSW1	1526247	14.99	1125122	19.29	979842	21.45
03	TZ99LCSDW1	1955444	14.99	1429620	19.30	1129183	21.44
04							
05							
06							
07							
08							
09							
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17							
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19							
20							
21							
22							
23							
24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

UA17:00064

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/13/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1256584	20.88				
	UPPER LIMIT	2513168					
	LOWER LIMIT	628292					
	CCAL	1228739	20.48				
	UPPER LIMIT		20.98				
	LOWER LIMIT		19.98				
01	TZ99MBW1	1623506	20.48				
02	TZ99LCSW1	1521893	20.47				
03	TZ99LCSDW1	1924794	20.48				
04							
05							
06							
07							
08							
09							
10							
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17							
18							
19							
20							
21							
22							
23							
24							
25							

IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

UA17:00065

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	ICAL MIDPT	393702	8.10	1422023	10.15	754629	13.03
	UPPER LIMIT	787404		2844046		1509258	
	LOWER LIMIT	196851		711012		377314	
	CCAL	378072	7.70	1503539	9.76	870773	12.62
	UPPER LIMIT		8.20		10.26		13.12
	LOWER LIMIT		7.20		9.26		12.12
01	MW-34S-12061	456600	7.70	1776057	9.76	1064211	12.61
02	MW-35S-12061	436779	7.70	1729128	9.75	1081431	12.62
03	MW-32S-12061	463893	7.70	1829821	9.75	1087154	12.61
04							
05							
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25							

IS1 = 1,4-Dichlorobenzene-d4
IS2 = Naphthalene-d8
IS3 = Acenaphthene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

UA17:00066

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	ICAL MIDPT	1068116	15.41	993839	19.75	976441	21.91
	UPPER LIMIT	2136232		1987678		1952882	
	LOWER LIMIT	534058		496920		488220	
	CCAL	1343967	14.99	1033459	19.29	872881	21.44
	UPPER LIMIT		15.49		19.79		21.94
	LOWER LIMIT		14.49		18.79		20.94
01	MW-34S-12061	1521311	14.98	1169501	19.29	971386	21.44
02	MW-35S-12061	1566457	14.98	1243413	19.28	1018555	21.44
03	MW-32S-12061	1577052	14.98	1221884	19.28	983829	21.44
04							
05							
06							
07							
08							
09							
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23							
24							
25							

IS4 = Phenanthrene-d10
IS5 = Chrysene-d12
IS6 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

UA17:00067

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211109 Ical Date: 11/21/11

Instrument ID: NT6 Cont. Cal Date: 12/14/11

		IS7 AREA #	RT #	AREA #	RT #	AREA #	RT #
	ICAL MIDPT	1256584	20.88				
	UPPER LIMIT	2513168					
	LOWER LIMIT	628292					
	CCAL	1421303	20.47				
	UPPER LIMIT		20.97				
	LOWER LIMIT		19.97				
01	MW-34S-12061	1639185	20.47				
02	MW-35S-12061	1756374	20.47				
03	MW-32S-12061	1795230	20.47				
04							
05							
06							
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25							

IS7 = Di-n-octylphthalate-d4

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-3

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UA17, UA20

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: MW-32S-120611
SAMPLE

Lab Sample ID: UA17A
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA17-ERM-West
Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 15:48
Instrument/Analyst: NT4/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	0.10	< 0.10 U
91-57-6	2-Methylnaphthalene	0.10	< 0.10 U
90-12-0	1-Methylnaphthalene	0.10	< 0.10 U
208-96-8	Acenaphthylene	0.10	< 0.10 U
83-32-9	Acenaphthene	0.10	< 0.10 U
86-73-7	Fluorene	0.10	< 0.10 U
85-01-8	Phenanthrene	0.10	< 0.10 U
120-12-7	Anthracene	0.10	< 0.10 U
206-44-0	Fluoranthene	0.10	< 0.10 U
129-00-0	Pyrene	0.10	< 0.10 U
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
191-24-2	Benzo(g,h,i)perylene	0.10	< 0.10 U
132-64-9	Dibenzofuran	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	50.0%
d14-Dibenzo(a,h)anthracene	72.3%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA17-ERM-West
Project: RG
128296.07

Client ID	MNP	DBA	TOT OUT
MB-121211	61.0%	89.3%	0
LCS-121211	59.3%	97.3%	0
LCSD-121211	62.3%	45.7%	0
MW-32S-120611	50.0%	72.3%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(40-110)	(33-107)
(DBA) = d14-Dibenzo(a,h)anthracene	(33-140)	(10-142)

Prep Method: SW3520C
Log Number Range: 11-28052 to 11-28052

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: MW-34S-120611
SAMPLE

Lab Sample ID: UA20A
LIMS ID: 11-28025
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA20-ERM-West
Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 14:53
Instrument/Analyst: NT4/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	0.10	< 0.10 U
91-57-6	2-Methylnaphthalene	0.10	< 0.10 U
90-12-0	1-Methylnaphthalene	0.10	< 0.10 U
208-96-8	Acenaphthylene	0.10	< 0.10 U
83-32-9	Acenaphthene	0.10	< 0.10 U
86-73-7	Fluorene	0.10	< 0.10 U
85-01-8	Phenanthrene	0.10	< 0.10 U
120-12-7	Anthracene	0.10	< 0.10 U
206-44-0	Fluoranthene	0.10	< 0.10 U
129-00-0	Pyrene	0.10	< 0.10 U
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
191-24-2	Benzo(g,h,i)perylene	0.10	< 0.10 U
132-64-9	Dibenzofuran	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	69.3%
d14-Dibenzo(a,h)anthracene	88.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MW-35S-120611
SAMPLE

Lab Sample ID: UA20B
LIMS ID: 11-28026
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA20-ERM-West
Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 15:21
Instrument/Analyst: NT4/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**0.10**	**0.08 J**
91-57-6	2-Methylnaphthalene	0.10	< 0.10 U
90-12-0	**1-Methylnaphthalene**	**0.10**	**0.08 J**
208-96-8	Acenaphthylene	0.10	< 0.10 U
83-32-9	Acenaphthene	0.10	< 0.10 U
86-73-7	Fluorene	0.10	< 0.10 U
85-01-8	Phenanthrene	0.10	< 0.10 U
120-12-7	Anthracene	0.10	< 0.10 U
206-44-0	Fluoranthene	0.10	< 0.10 U
129-00-0	Pyrene	0.10	< 0.10 U
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
191-24-2	Benzo(g,h,i)perylene	0.10	< 0.10 U
132-64-9	**Dibenzofuran**	**0.10**	**0.36**
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	67.7%
d14-Dibenzo(a,h)anthracene	93.3%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA20-ERM-West
Project: RG
128296.07

Client ID	MNP	DBA	TOT OUT
MW-34S-120611	69.3%	88.3%	0
MB-121211	61.0%	89.3%	0
LCS-121211	59.3%	97.3%	0
LCSD-121211	62.3%	45.7%	0
MW-35S-120611	67.7%	93.3%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(40-110)	(33-107)
(DBA) = d14-Dibenzo(a,h)anthracene	(33-140)	(10-142)

Prep Method: SW3520C
Log Number Range: 11-28025 to 11-28026

UA17:00074

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: LCS-121211
LAB CONTROL SAMPLE

Lab Sample ID: LCS-121211
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA17-ERM-West
Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Date Extracted LCS/LCSD: 12/12/11

Date Analyzed LCS: 12/14/11 13:58
LCSD: 12/14/11 14:25
Instrument/Analyst LCS: NT4/JZ
LCSD: NT4/JZ

Sample Amount LCS: 500 mL
LCSD: 500 mL
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Naphthalene	1.61	3.00	53.7%	1.82	3.00	60.7%	12.2%
2-Methylnaphthalene	1.59	3.00	53.0%	1.78	3.00	59.3%	11.3%
1-Methylnaphthalene	1.72	3.00	57.3%	1.86	3.00	62.0%	7.8%
Acenaphthylene	1.74	3.00	58.0%	1.73	3.00	57.7%	0.6%
Acenaphthene	1.75	3.00	58.3%	1.82	3.00	60.7%	3.9%
Fluorene	1.93	3.00	64.3%	1.99	3.00	66.3%	3.1%
Phenanthrene	2.12	3.00	70.7%	2.24	3.00	74.7%	5.5%
Anthracene	2.20	3.00	73.3%	2.27	3.00	75.7%	3.1%
Fluoranthene	2.35	3.00	78.3%	2.39	3.00	79.7%	1.7%
Pyrene	2.35	3.00	78.3%	2.37	3.00	79.0%	0.8%
Benzo(a)anthracene	2.36	3.00	78.7%	2.33	3.00	77.7%	1.3%
Chrysene	2.40	3.00	80.0%	2.40	3.00	80.0%	0.0%
Benzo(a)pyrene	2.23	3.00	74.3%	2.23	3.00	74.3%	0.0%
Indeno(1,2,3-cd)pyrene	2.56	3.00	85.3%	2.51	3.00	83.7%	2.0%
Dibenz(a,h)anthracene	2.69	3.00	89.7%	2.64	3.00	88.0%	1.9%
Benzo(g,h,i)perylene	2.38	3.00	79.3%	2.40	3.00	80.0%	0.8%
Dibenzofuran	1.86	3.00	62.0%	1.94	3.00	64.7%	4.2%
Total Benzofluoranthenes	5.56	6.00	92.7%	5.61	6.00	93.5%	0.9%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	59.3%	62.3%
d14-Dibenzo(a,h)anthracene	97.3%	45.7%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UA20MBW1

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Lab File ID: 12141103 Date Extracted: 12/12/11

Instrument ID: NT4 Date Analyzed: 12/14/11

Matrix: LIQUID Time Analyzed: 1330

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UA20LCSW1	UA20LCSW1	12141104	12/14/11
02	UA20LCSDW1	UA20LCSDW1	12141105	12/14/11
03	MW-34S-120611	UA20A	12141106	12/14/11
04	MW-35S-120611	UA20B	12141107	12/14/11
05	MW-32S-120611	UA17A	12141108	12/14/11
06				
07				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: MB-121211
METHOD BLANK

Lab Sample ID: MB-121211
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/15/11

QC Report No: UA17-ERM-West
Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Date Extracted: 12/12/11
Date Analyzed: 12/14/11 13:30
Instrument/Analyst: NT4/JZ

Sample Amount: 500 mL
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	0.10	< 0.10 U
91-57-6	2-Methylnaphthalene	0.10	< 0.10 U
90-12-0	1-Methylnaphthalene	0.10	< 0.10 U
208-96-8	Acenaphthylene	0.10	< 0.10 U
83-32-9	Acenaphthene	0.10	< 0.10 U
86-73-7	Fluorene	0.10	< 0.10 U
85-01-8	Phenanthrene	0.10	< 0.10 U
120-12-7	Anthracene	0.10	< 0.10 U
206-44-0	Fluoranthene	0.10	< 0.10 U
129-00-0	Pyrene	0.10	< 0.10 U
56-55-3	Benzo(a)anthracene	0.10	< 0.10 U
218-01-9	Chrysene	0.10	< 0.10 U
50-32-8	Benzo(a)pyrene	0.10	< 0.10 U
193-39-5	Indeno(1,2,3-cd)pyrene	0.10	< 0.10 U
53-70-3	Dibenz(a,h)anthracene	0.10	< 0.10 U
191-24-2	Benzo(g,h,i)perylene	0.10	< 0.10 U
132-64-9	Dibenzofuran	0.10	< 0.10 U
TOTBFA	Total Benzofluoranthenes	0.10	< 0.10 U

Reported in µg/L (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.0%
d14-Dibenzo(a,h)anthracene	89.3%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT4 Project: RG

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
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UA17:00078

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

Instrument ID: NT4 Project: RG

DFTPP Injection Date: 12/14/11 DFTPP Injection Time: 1244

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	28.5
70	Less than 2.0% of mass 69	0.3 (1.2)1
127	10.0 - 80.0% of mass 198	42.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	32.6
365	Greater than 1.0% of mass 198	4.50
441	0.0 - 24.0% of mass 442	26.0 (14.6)2
442	50.0 - 200.0% of mass 198	178.0
443	15.0 - 24.0% of mass 442	34.7 (19.5)2

1-Value is % mass 69 2-Value is % mass 442

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC1214	CC1214	12141102	12/14/11	1258
02	UA20MBW1	UA20MBW1	12141103	12/14/11	1330
03	UA20LCSW1	UA20LCSW1	12141104	12/14/11	1358
04	UA20LCSDW1	UA20LCSDW1	12141105	12/14/11	1425
05	MW-34S-120611	UA20A	12141106	12/14/11	1453
06	MW-35S-120611	UA20B	12141107	12/14/11	1521
07	MW-32S-120611	UA17A	12141108	12/14/11	1548
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FORM V SV

UA17:00079

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

UA17:00080

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Instrument ID: NT4 Cont. Calib. Date: 12/14/11

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1258

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	0.966	0.883	0.700	AVRG	-8.6
2-Methylnaphthalene	0.560	0.546	0.400	AVRG	-2.5
Acenaphthylene	1.534	1.536	0.900	AVRG	0.1
Acenaphthene	1.064	0.978	0.900	AVRG	-8.1
Dibenzofuran	1.520	1.437	0.800	AVRG	-5.5
Fluorene	1.201	1.123	0.900	AVRG	-6.5
Phenanthrene	1.054	0.989	0.700	AVRG	-6.2
Anthracene	0.989	1.024	0.700	AVRG	3.5
Fluoranthene	1.152	1.072	0.600	AVRG	-6.9
Pyrene	1.018	0.893	0.600	AVRG	-12.3
Benzo(a)anthracene	0.943	0.893	0.800	AVRG	-5.3
Chrysene	0.984	0.862	0.700	AVRG	-12.4
Benzo(b)fluoranthene	1.024	0.862	0.700	AVRG	-15.8
Benzo(k)fluoranthene	1.009	1.003	0.700	AVRG	-0.6
Benzo(j)fluoranthene	0.888	0.842	0.010	AVRG	-5.2
Benzo(a)pyrene	0.872	0.926	0.700	AVRG	6.2
Indeno(1,2,3-cd)pyrene	1.159	1.117	0.500	AVRG	-3.6
Dibenzo(a,h)anthracene	0.895	0.946	0.400	AVRG	5.7
Benzo(g,h,i)perylene	1.094	0.981	0.500	AVRG	-10.3
1-methylnaphthalene	0.548	0.505	0.010	AVRG	-7.8
Perylene	0.971	0.913	0.010	AVRG	-6.0
2-Methylnaphthalene-d10	0.606	0.582	0.010	AVRG	-4.0
Dibenzo(a,h)anthracene-d14	0.703	0.777	0.010	AVRG	10.5

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 12/14/11

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	342834	4.70	205878	6.94	349323	8.88
	UPPER LIMIT		5.20		7.44		9.38
	LOWER LIMIT		4.20		6.44		8.38
01	UA20MBW1	312216	4.70	191771	6.94	324154	8.88
02	UA20LCSW1	310916	4.69	186599	6.94	319345	8.87
03	UA20LCSDW1	303927	4.69	184443	6.94	311956	8.87
04	MW-34S-12061	275583	4.69	164171	6.94	280899	8.87
05	MW-35S-12061	295089	4.69	179530	6.94	305406	8.87
06	MW-32S-12061	251509	4.69	144785	6.94	246291	8.87
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

UA17:00082

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

ARI Job No: UA20 Project: RG

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 12/14/11

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	440654	13.46	476804	17.08		
	UPPER LIMIT		13.96		17.58		
	LOWER LIMIT		12.96		16.58		
01	UA20MBW1	368095	13.46	332110	17.07		
02	UA20LCSW1	368272	13.46	339762	17.07		
03	UA20LCSDW1	361715	13.45	318191	17.07		
04	MW-34S-12061	322757	13.45	269181	17.07		
05	MW-35S-12061	345950	13.45	293475	17.07		
06	MW-32S-12061	277832	13.46	236964	17.07		
07							
08							
09							
10							
11							
12							
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16							
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19							
20							
21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

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 Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: UA17, UA20

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID
Page 1 of 1
Matrix: Water

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Received: 12/06/11

Data Release Authorized:
Reported: 12/14/11

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	RL	Result
MB-121211	Method Blank	12/12/11	12/13/11	1.00	Diesel Range	0.10	< 0.10 U
11-28026	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		91.3%
UA20B	MW-35S-120611	12/12/11	12/13/11	1.00	**Diesel Range**	**0.10**	**2.0**
11-28026	HC ID: **DRO**		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		99.3%

Reported in mg/L (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 indicates results of organics or additional hydrocarbons in ranges are not identifiable.

FORM I

Analytical Resources Inc.
NWTPH Quantitation Report

AR 12/14/2011

Data file: /chem2/fid9.i/20111213.b/1213A016.D
Method: /chem2/fid9.i/20111213.b/ftphfid9a.m
Instrument: fid9.i
Operator: MH
Report Date: 12/14/2011

ARI ID: UA20MBW1
Client ID: UA20MBW1
Injection: 13-DEC-2011 11:13
Dilution Factor: 1
Macro: 05-DEC-2011

FID:9 RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.395	0.009	7814	9517	GAS (Tol-C12)	213738	10.17
C8	1.412	0.089	7521	6968	DIESEL (C12-C24)	137490	9.04
C10	1.494	0.000	6325	11896	M.OIL (C24-C38)	77248	5.66
C12	2.178	0.007	2340	2515	AK-102 (C10-C25)	299198	16.02
C14	2.717	-0.002	1218	797	AK-103 (C25-C36)	69369	8.16
C16	3.190	0.001	835	512			
C18	3.607	-0.001	637	524			
C20	3.998	-0.002	1177	723			
C22	4.358	-0.001	501	810			
C24	4.706	-0.003	267	82			
C25	4.953	0.009	220	296			
C26	5.209	-0.003	87	16			
C28	5.633	0.004	1446	924			
C32	6.255	-0.008	1182	1298	JP-4 (Tol-C14)	262923	16.04
C34	6.526	-0.003	522	386	BUNKERC (C10-C38)	375224	50.40
Filter Peak	9.935	-0.004	637	576			
C36	6.781	0.000	436	351			
C38	7.022	0.003	721	1134			
C40	7.250	-0.004	558	262			
o-terph	3.701	-0.002	1090884	826880	JET-A (C10-C18)	252378	18.26
Triacon Surr	5.969	-0.007	688514	649615	JP8 (Tol-C16)	287533	16.34

M Indicates manual integration within range.
Range Times: NW Diesel(2.171 - 4.709) AK102(1.49 - 4.94) Jet A(1.49 - 3.61)
NW M.Oil(4.71 - 7.02) AK103(4.94 - 6.78) OR Diesel(1.49 - 5.63)

Surrogate	Area	Amount	%Rec
o-Terphenyl	826880	41.1	91.3
Triacontane	649615	31.9	70.9

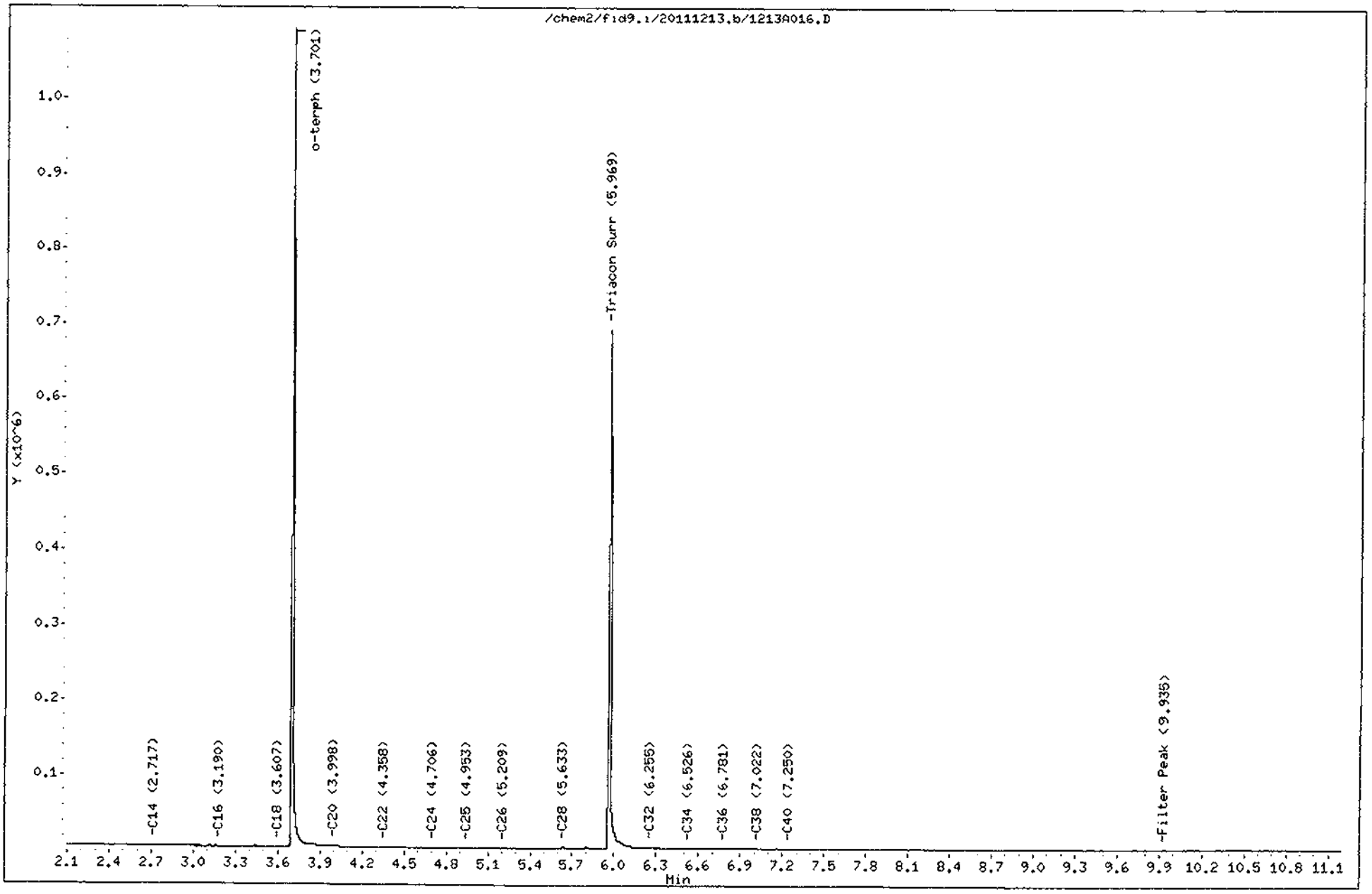
Analyte	RF	Curve Date
o-Terph Surr	20129.7	05-DEC-2011
Triacon Surr	20364.9	05-DEC-2011
Gas	21009.8	15-JUN-2010
Diesel	15202.0	05-DEC-2011
Motor Oil	13640.0	05-DEC-2011
AK102	18682.0	05-DEC-2011
AK103	8498.1	07-SEP-2010
JP4	16396.5	09-JUN-2010
JetA	13819.1	11-JUN-2010
Bunker C	7444.4	15-FEB-2011
JP-8	17594.0	25-MAY-2010

Data File: /chem2/fid9.i/20111213.b/1213A016.D
Date : 13-DEC-2011 11:13
Client ID: UA20MBW1
Sample Info: UA20MBW1

Column phase: RTX-1

Instrument: fid9.i

Operator: MH
Column diameter: 0.25



UA17 : 00007

Analytical Resources Inc.
NWTPH Quantitation Report

AR 12/14/2011

Data file: /chem2/fid9.i/20111213.b/1213A020.D
Method: /chem2/fid9.i/20111213.b/ftphfid9a.m
Instrument: fid9.i
Operator: MH
Report Date: 12/14/2011

ARI ID: UA20B
Client ID: MW-35S-120611
Injection: 13-DEC-2011 12:40
Dilution Factor: 1
Macro: 05-DEC-2011

FID:9 RESULTS

Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.397	0.011	26351	51712	GAS (Tol-C12)	324309	15.44
C8	----				DIESEL (C12-C24)	14957816	983.94 DRO
C10	1.493	-0.002	8908	9357	M.OIL (C24-C38)	204728	15.01 ORV
C12	2.165	-0.005	3538	3057	AK-102 (C10-C25)	15209247	814.11 M
C14	2.755	0.036	29371	44129	AK-103 (C25-C36)	178442	21.00
C16	3.195	0.007	8409	2338			
C18	3.608	0.000	7911	4363			
C20	4.005	0.004	6062	6944			
C22	4.359	0.000	4763	3346			
C24	4.713	0.003	2892	1922			
C25	4.947	0.002	1813	534			
C26	5.209	-0.003	1243	437			
C28	5.639	0.009	5777	10987			
C32	6.268	0.005	1808	1053	JP-4 (Tol-C14)	14441496	880.77
C34	6.530	0.001	1018	947	BUNKERC (C10-C38)	15396691	2068.23 M
Filter Peak	9.937	-0.002	77	32			
C36	6.782	0.001	719	794			
C38	7.022	0.003	579	504			
C40	7.248	-0.006	525	410			
o-terph	3.702	-0.001	1412591	899774	JET-A (C10-C18)	14845684	1074.29
Triacon Surr	5.970	-0.006	744405	735131	JP8 (Tol-C16)	14742095	837.90

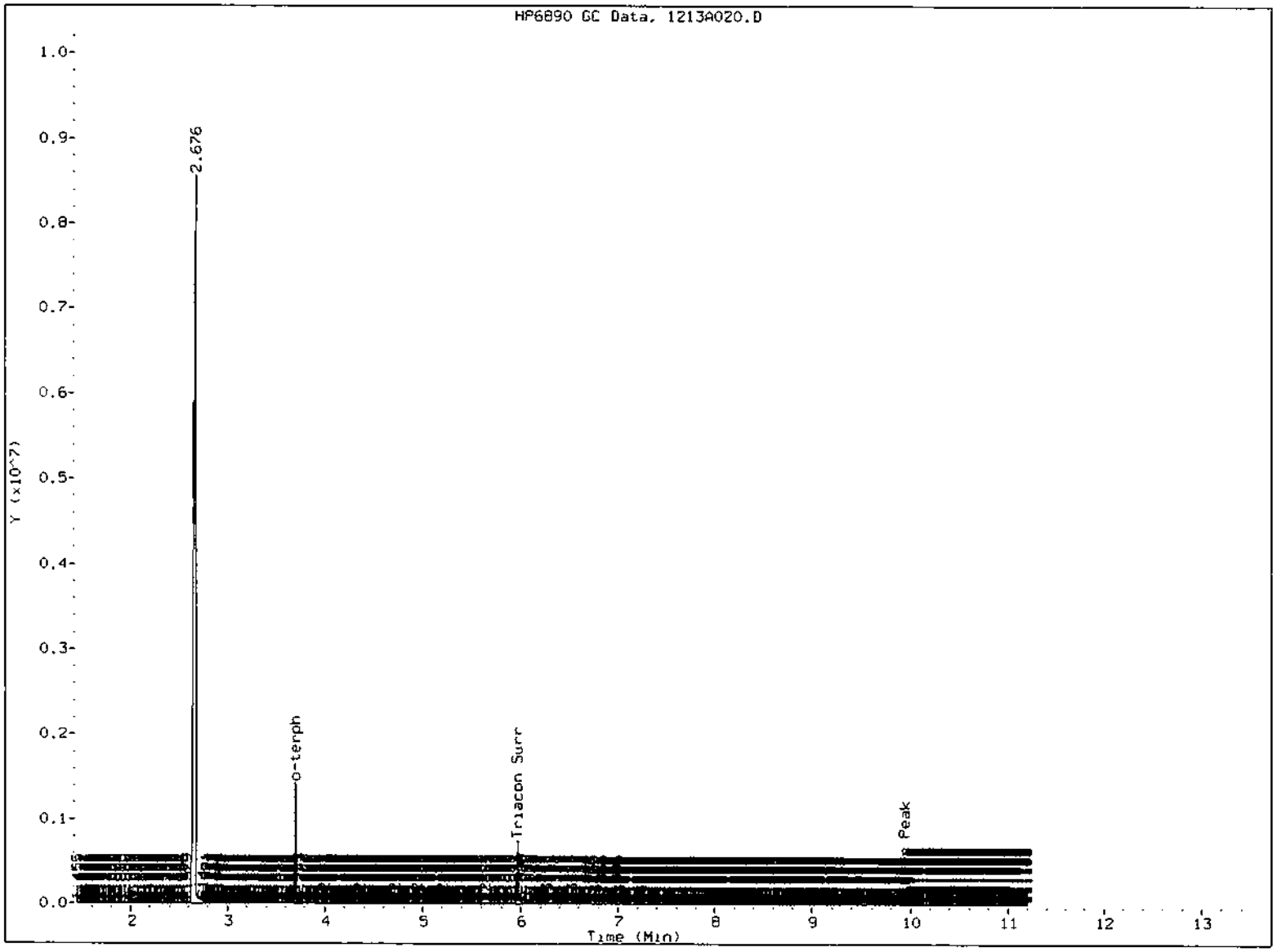
M Indicates manual integration within range.
Range Times: NW Diesel(2.171 - 4.709) AK102(1.49 - 4.94) Jet A(1.49 - 3.61)
NW M.Oil(4.71 - 7.02) AK103(4.94 - 6.78) OR Diesel(1.49 - 5.63)

Surrogate	Area	Amount	%Rec
o-Terphenyl	899774	44.7	99.3
Triacontane	735131	36.1	80.2

DRO single peak in range

Analyte	RF	Curve Date
o-Terph Surr	20129.7	05-DEC-2011
Triacon Surr	20364.9	05-DEC-2011
Gas	21009.8	15-JUN-2010
Diesel	15202.0	05-DEC-2011
Motor Oil	13640.0	05-DEC-2011
AK102	18682.0	05-DEC-2011
AK103	8498.1	07-SEP-2010
JP4	16396.5	09-JUN-2010
JetA	13819.1	11-JUN-2010
Bunker C	7444.4	15-FEB-2011
JP-8	17594.0	25-MAY-2010

FID:9A-2C/RTX-1 UA20B FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other Surr pk overlap

Analyst: AR Date: 12/14/2011

Data File: /chem2/fid9.i/20111213.b/1213A020.D

Date : 13-DEC-2011 12:40

Client ID: MW-35S-120611

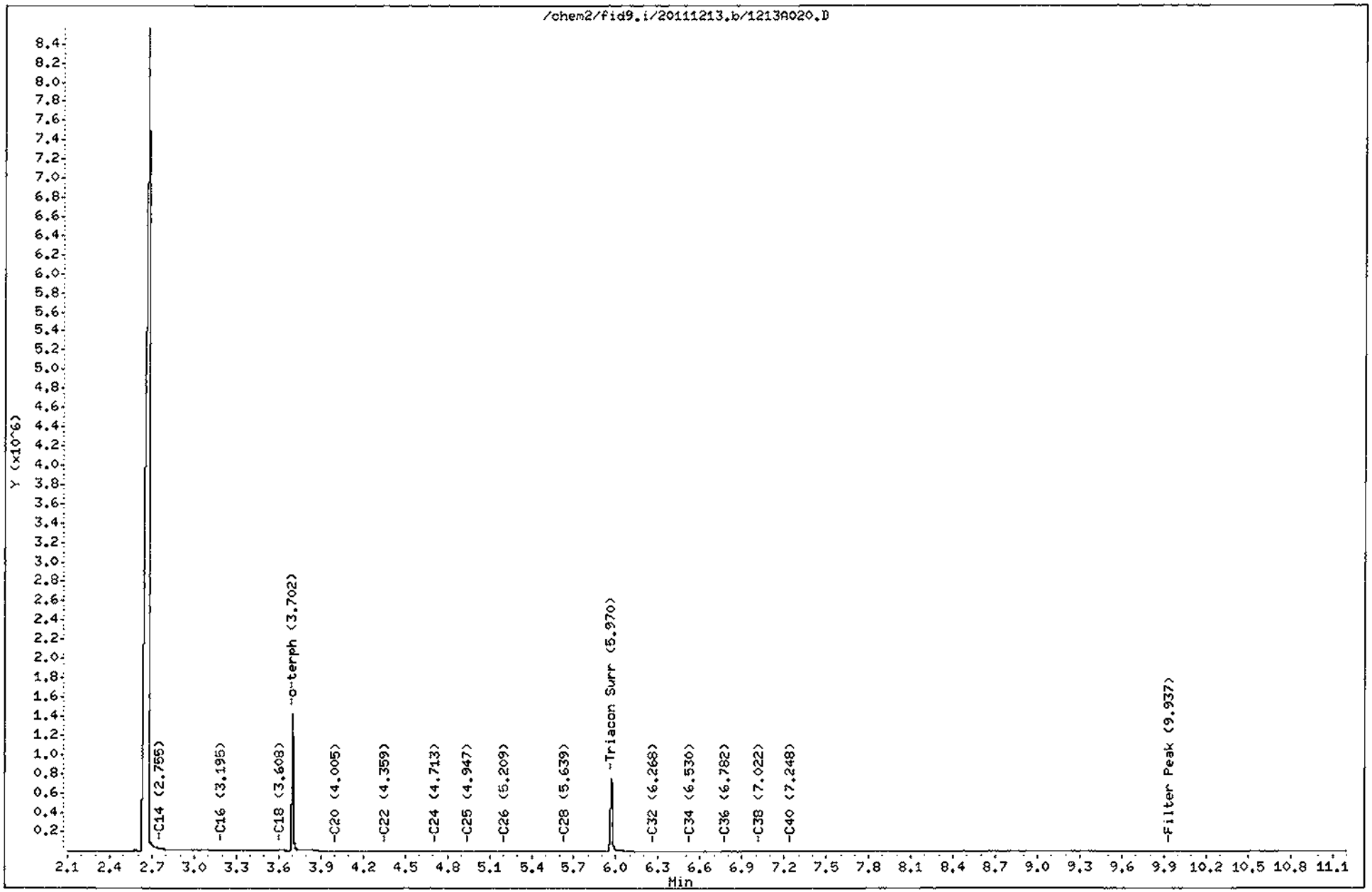
Sample Info: UA20B

Column phase: RTX-1

Instrument: fid9.i

Operator: MH

Column diameter: 0.25



UA17 05999

ANALYTICAL RESOURCES INCORPORATED

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: UA20-ERM-West
Project: RG
128296.07

Client ID	OTER	TOT OUT
MB-121211	91.3%	0
LCS-121211	91.8%	0
LCSD-121211	98.7%	0
MW-35S-120611	99.3%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 11-28026 to 11-28026

FORM-II TPHD

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID **Sample ID: LCS-121211**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-121211 QC Report No: UA20-ERM-West
LIMS ID: 11-28026 Project: RG
Matrix: Water 128296.07
Data Release Authorized: Date Sampled: NA
Reported: 12/14/11 Date Received: NA

Date Extracted LCS/LCSD: 12/12/11 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 12/13/11 11:35 Final Extract Volume LCS: 1.0 mL
LCSD: 12/13/11 11:56 LCSD: 1.0 mL
Instrument/Analyst LCS: FID9/AAR Dilution Factor LCS: 1.00
LCSD: FID9/AAR LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2.68	3.00	89.3%	2.84	3.00	94.7%	5.8%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	91.8%	98.7%

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

Analytical Resources Inc.
NWTPH Quantitation Report

AR 12/14/2011

Data file: /chem2/fid9.i/20111213.b/1213A017.D
Method: /chem2/fid9.i/20111213.b/ftphfid9a.m
Instrument: fid9.i
Operator: MH
Report Date: 12/14/2011

ARI ID: UA20LCSW1
Client ID: UA20LCSW1
Injection: 13-DEC-2011 11:35
Dilution Factor: 1
Macro: 05-DEC-2011

FID:9 RESULTS

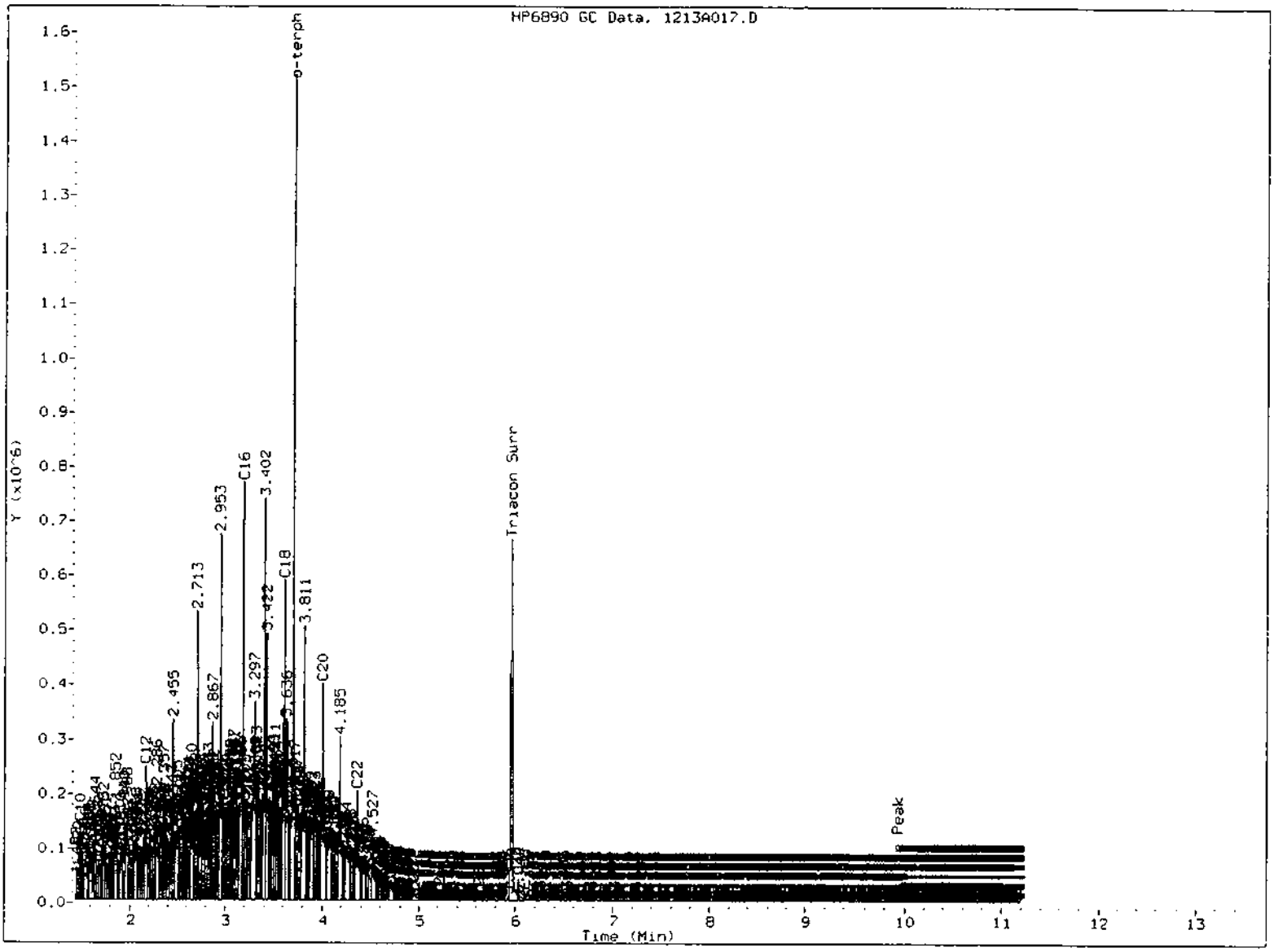
Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.384	-0.002	90429	67273	GAS (Tol-C12)	3949517	187.98
C8	1.322	-0.001	89753	82309	DIESEL (C12-C24)	20373952	1340.22 89.38
C10	1.494	-0.001	140719	96353	M.OIL (C24-C38)	287430	21.07 LRL
C12	2.170	-0.001	245156	210234	AK-102 (C10-C25)	23922166	1280.49 M
C14	2.724	0.006	155948	90080	AK-103 (C25-C36)	210534	24.77
C16	3.183	-0.005	766804	553247			
C18	3.611	0.003	587111	561725			
C20	4.003	0.003	396516	512622			
C22	4.360	0.001	202090	276176			
C24	4.710	0.000	36532	68328			
C25	4.948	0.003	14282	36068			
C26	5.214	0.002	5590	12710			
C28	5.633	0.004	5437	9180			
C32	6.261	-0.002	934	571	JP-4 (Tol-C14)	8044575	490.63
C34	6.536	0.007	308	47	BUNKERC (C10-C38)	24139871	3242.69 M
Filter Peak	9.937	-0.002	57	10			
C36	6.779	-0.002	206	122			
C38	7.021	0.002	209	36			
C40	7.252	-0.003	247	94			
o-terph	3.706	0.002	1336106	831914	JET-A (C10-C18)	18058479	1306.78
Triacon Surr	5.968	-0.007	661583	674679	JP8 (Tol-C16)	13166009	748.32

M Indicates manual integration within range.
Range Times: NW Diesel(2.171 - 4.709) AK102(1.49 - 4.94) Jet A(1.49 - 3.61)
NW M.Oil(4.71 - 7.02) AK103(4.94 - 6.78) OR Diesel(1.49 - 5.63)

Surrogate	Area	Amount	%Rec
o-Terphenyl	831914	41.3	91.8
Triacontane	674679	33.1	73.6

Analyte	RF	Curve Date
o-Terph Surr	20129.7	05-DEC-2011
Triacon Surr	20364.9	05-DEC-2011
Gas	21009.8	15-JUN-2010
Diesel	15202.0	05-DEC-2011
Motor Oil	13640.0	05-DEC-2011
AK102	18682.0	05-DEC-2011
AK103	8498.1	07-SEP-2010
JP4	16396.5	09-JUN-2010
JetA	13819.1	11-JUN-2010
Bunker C	7444.4	15-FEB-2011
JP-8	17594.0	25-MAY-2010

FID:9A-2C/RTX-1 UA20LCSW1 FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other Surr pk overlap

Analyst: AR Date: 12/14/2011

UA17 00094

Data File: /chem2/fid9.i/20111213.b/1213A017.D

Date : 13-DEC-2011 11:35

Client ID: UA20LCSW1

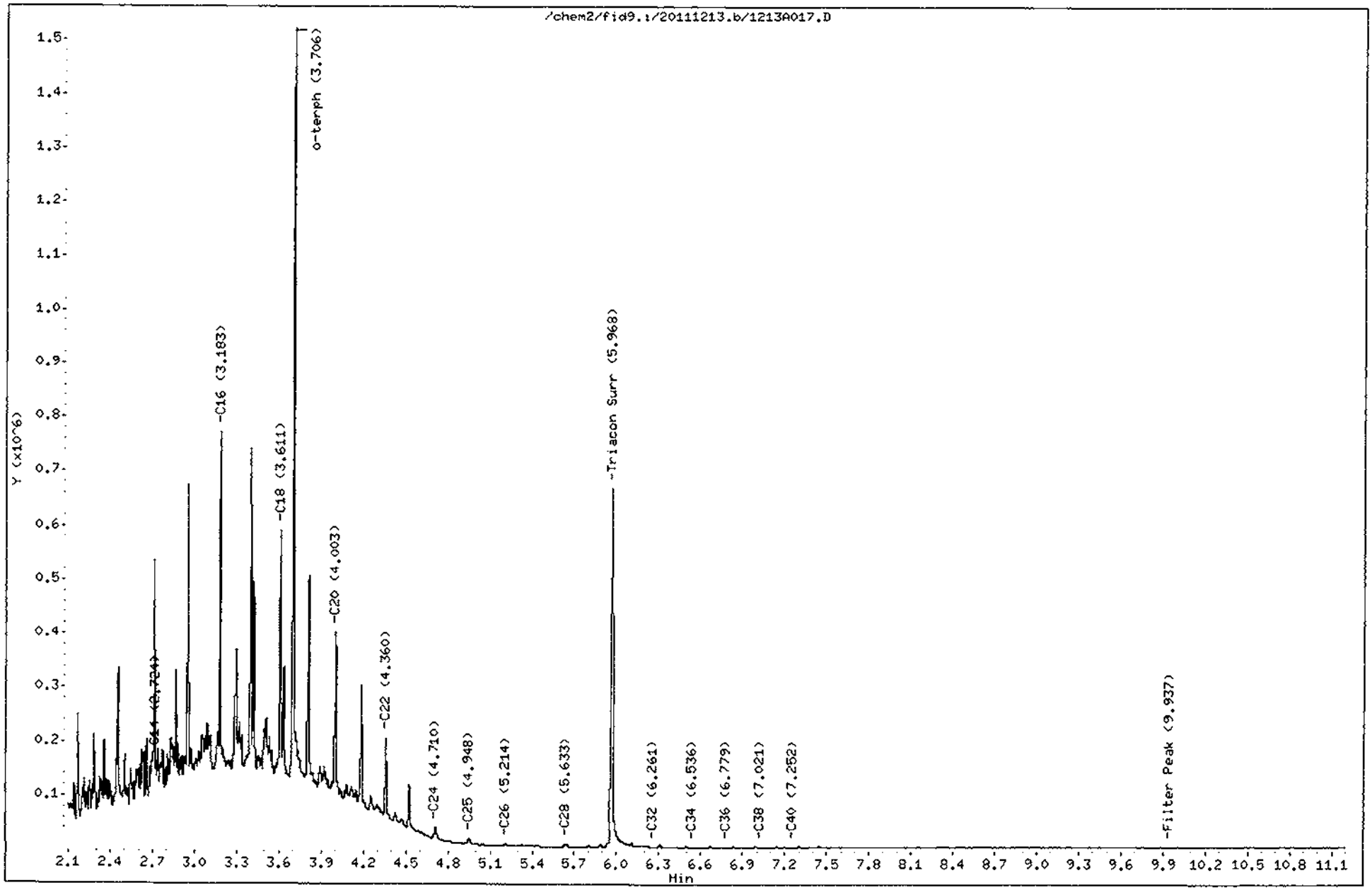
Sample Info: UA20LCSW1

Column phase: RTX-1

Instrument: fid9.i

Operator: MH

Column diameter: 0.25



UA17 : 55009

Analytical Resources Inc.
NWTPH Quantitation Report

AR 12/14/2011

Data file: /chem2/fid9.i/20111213.b/1213A018.D
Method: /chem2/fid9.i/20111213.b/ftphfid9a.m
Instrument: fid9.i
Operator: MH
Report Date: 12/14/2011

ARI ID: UA20LCSDW1
Client ID: UA20LCSDW1
Injection: 13-DEC-2011 11:56
Dilution Factor: 1
Macro: 05-DEC-2011

FID:9 RESULTS

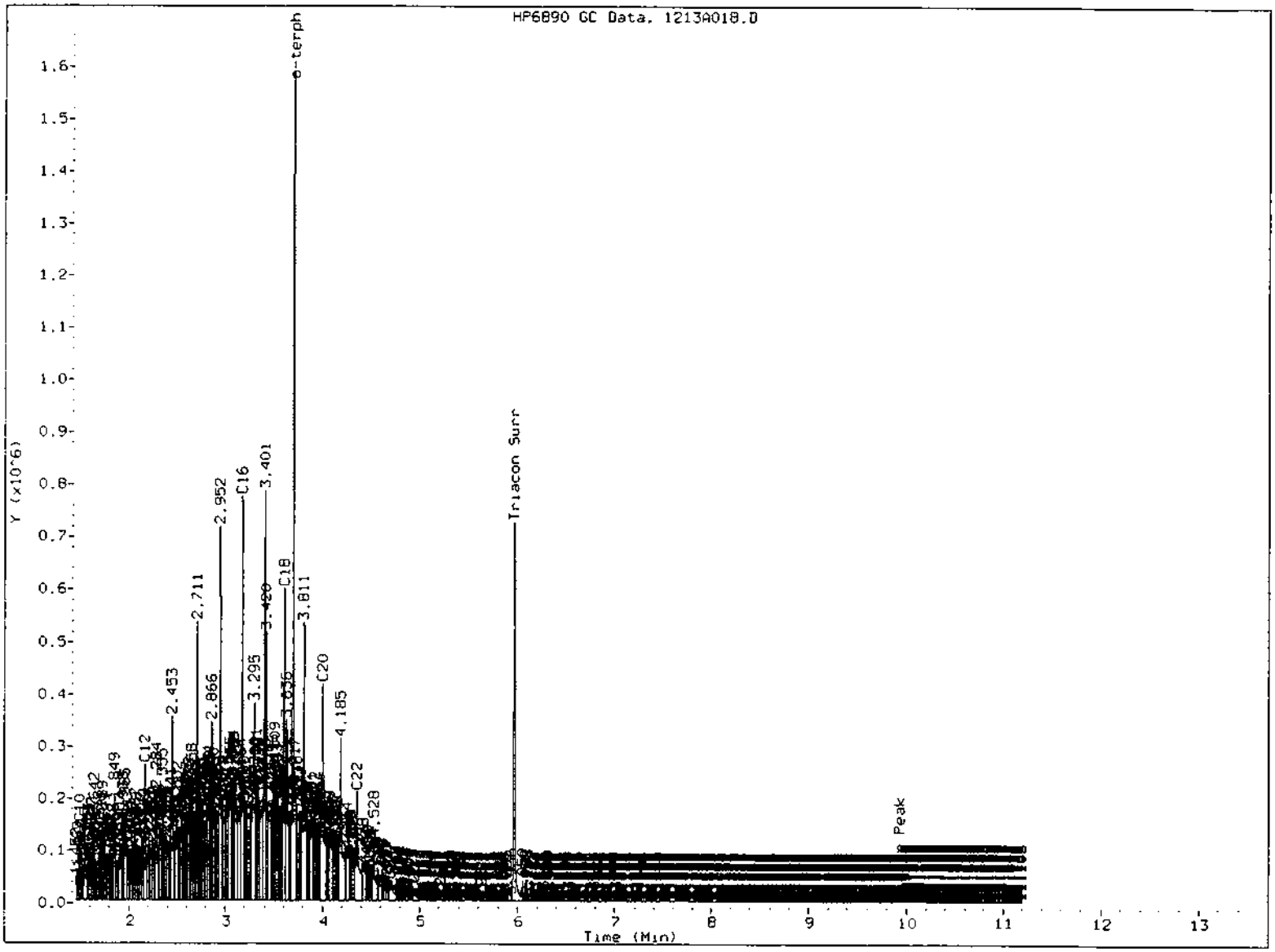
Compound	RT	Shift	Height	Area	Range	Total Area	Conc
Toluene	1.382	-0.004	98107	66219	GAS (Tol-C12)	4056605	193.08
C8	1.320	-0.002	97123	73496	DIESEL (C12-C24)	21573179	1419.10 94.6%
C10	1.493	-0.002	146935	99938	M.OIL (C24-C38)	303795	22.27 CRL
C12	2.166	-0.004	259342	218909	AK-102 (C10-C25)	25222274	1350.08 M
C14	2.724	0.005	160353	86047	AK-103 (C25-C36)	222727	26.21
C16	3.181	-0.007	773639	577704			
C18	3.610	0.002	596980	592291			
C20	4.002	0.002	416351	544022			
C22	4.361	0.002	208347	349841			
C24	4.709	0.000	37639	89936			
C25	4.948	0.004	14885	36962			
C26	5.216	0.004	6060	11529			
C28	5.633	0.003	6226	11079			
C32	6.268	0.005	1130	980	JP-4 (Tol-C14)	8264237	504.02
C34	6.528	-0.001	472	351	BUNKERC (C10-C38)	25453829	3419.19 M
Filter Peak	9.943	0.004	101	67			
C36	6.787	0.006	312	73			
C38	7.024	0.005	337	177			
C40	7.251	-0.003	343	302			
o-terph	3.705	0.002	1390983	894390	JET-A (C10-C18)	18774737	1358.61
Triacon Surr	5.970	-0.006	723422	739672	JP8 (Tol-C16)	13681834	777.64

M Indicates manual integration within range.
Range Times: NW Diesel(2.171 - 4.709) AK102(1.49 - 4.94) Jet A(1.49 - 3.61)
NW M.Oil(4.71 - 7.02) AK103(4.94 - 6.78) OR Diesel(1.49 - 5.63)

Surrogate	Area	Amount	%Rec
o-Terphenyl	894390	44.4	98.7
Triacontane	739672	36.3	80.7

Analyte	RF	Curve Date
o-Terph Surr	20129.7	05-DEC-2011
Triacon Surr	20364.9	05-DEC-2011
Gas	21009.8	15-JUN-2010
Diesel	15202.0	05-DEC-2011
Motor Oil	13640.0	05-DEC-2011
AK102	18682.0	05-DEC-2011
AK103	8498.1	07-SEP-2010
JP4	16396.5	09-JUN-2010
JetA	13819.1	11-JUN-2010
Bunker C	7444.4	15-FEB-2011
JP-8	17594.0	25-MAY-2010

FID:9A-2C/RTX-1 UA20LCSDW1 FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Other surr pk overlap

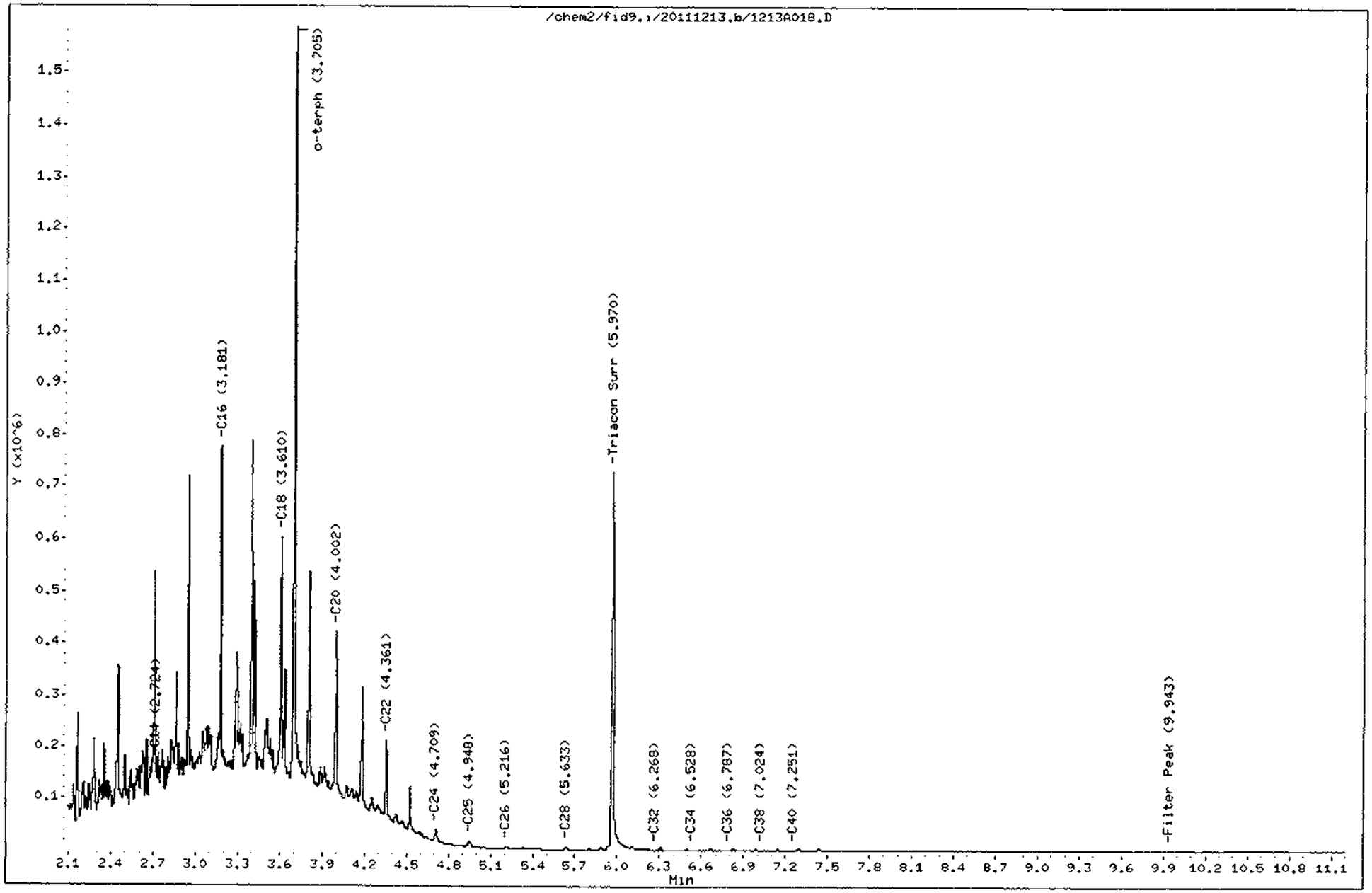
Analyst: AZ Date: 12/14/2011

Data File: /chem2/fid9.1/20111213.b/1213A018.D
Date : 13-DEC-2011 11:56
Client ID: UA20LCSDW1
Sample Info: UA20LCSDW1

Column phase: RTX-1

Instrument: fid9.1

Operator: MH
Column diameter: 0.25



36000 : 1 TVD

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: UA20
Matrix: Water Project: RG
Date Received: 12/06/11 128296.07

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
11-28026-121211MB1	Method Blank	500 mL	1.00 mL	12/12/11
11-28026-121211LCS1	Lab Control	500 mL	1.00 mL	12/12/11
11-28026-121211LCSD1	Lab Control Dup	500 mL	1.00 mL	12/12/11
11-28026-UA20B	MW-35S-120611	500 mL	1.00 mL	12/12/11

TPH METHOD BLANK SUMMARY

BLANK NO.

UA20MBW1

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: UA20 Project No.: RG

Date Extracted: 12/12/11 Matrix: LIQUID

Date Analyzed : 12/13/11 Instrument ID : FID9

Time Analyzed : 1113

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	UA20LCSW1	UA20LCSW1	12/13/11
02	UA20LCSDW1	UA20LCSDW1	12/13/11
03	MW-35S-12061	UA20B	12/13/11
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			

FORM IV TPH

6a
DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-WEST

Instrument: FID9.I Project: RG

Calibration Date: 05-DEC-2011 SDG No.: UA20

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	16304	15264	15079	15578	14684	14304	15202	4.6
AK Diesel	20608	19082	18947	18774	17588	17094	18682	6.6
OR Diesel	20878	19175	19034	18863	17682	17179	18802	6.9
Cal Diesel	20543	19027	18901	18724	17548	17050	18632	6.6
o-Terph	18268	18740	19852	21366	21035	21518	20130	6.9

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

Quant Ranges : WA Diesel C12-C24 (2.186-4.724)
AK Diesel C10-C25 (1.503-4.932)
OR Diesel C10-C28 (1.503-5.624)
Cal Diesel C10-C24 (1.503-4.724)

Calibration Files	Analysis Time
1205A017.D	05-DEC-2011 14:08
1205A018.D	05-DEC-2011 14:30
1205A019.D	05-DEC-2011 14:52
1205A020.D	05-DEC-2011 15:14
1205A021.D	05-DEC-2011 15:35
1205A022.D	05-DEC-2011 15:57

6a

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-WEST

Instrument: FID9.I Project: RG

Calibration Date: 05-DEC-2011 SDG No.: UA20

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	13094	13444	13779	13813	13561	14151	13640	2.7
Triac Surr	18439	20375	20703	20907	20923	20842	20365	4.7

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

Calibration Files	Analysis Time
1205A024.D	05-DEC-2011 16:41
1205A025.D	05-DEC-2011 17:03
1205A026.D	05-DEC-2011 17:25
1205A027.D	05-DEC-2011 17:47
1205A028.D	05-DEC-2011 18:08
1205A029.D	05-DEC-2011 18:30

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM - WEST

ICal Date: 05-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA20

Analysis Time: 10:29 Lab ID: DIESEL #1

Instrument: FID9.I Lab File Name: 1213A014.D

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3832758	252.1	250	0.8
AK102 (C10-C25)	4613131	246.9	250	-1.2
Terphenyl	944783	46.9	45	4.3

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

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM - WEST

ICal Date: 05-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA20

Analysis Time: 10:51 Lab ID: MOIL #2

Instrument: FID9.I Lab File Name: 1213A015.D

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	6668731	488.9	500	-2.2	
AK103 (C25-C36)	5781010	680.3	500	36.1	<-
n-Triacontane	819724	40.3	45	-10.6	

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

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM - WEST

ICal Date: 05-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA20

Analysis Time: 13:46 Lab ID: DIESEL #3

Instrument: FID9.I Lab File Name: 1213A023.D

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3796665	249.7	250	-0.1
AK102 (C10-C25)	4621098	247.4	250	-1.1
Terphenyl	946931	47.0	45	4.5

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

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

7a

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM - WEST

ICal Date: 05-DEC-2011 Project: RG

CCal Date: 13-DEC-2011 SDG No.: UA20

Analysis Time: 14:07 Lab ID: MOIL #3

Instrument: FID9.I Lab File Name: 1213A024.D

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	6757400	495.4	500	-0.9	
AK103 (C25-C36)	5885646	692.6	500	38.5	<-
n-Triacontane	849512	41.7	45	-7.3	

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

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: UA20 Project: RG

Instrument ID: FID9 GC Column: RTX-1

Run Date: 12/13/11

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

SURROGATE RT FROM DAILY STANDARD
TERPH: 3.70 TRIAC: 5.98

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RT	12/13/11	0602	3.70	5.98
02		IB	12/13/11	0624	3.70	5.97
03	DIESEL #1	DIESEL #1	12/13/11	1029	3.70	5.97
04	MOIL #2	MOIL #2	12/13/11	1051	3.70	5.98
05	UA20MBW1	UA20MBW1	12/13/11	1113	3.70	5.97
06	UA20LCSW1	UA20LCSW1	12/13/11	1135	3.71	5.97
07	UA20LCSDW1	UA20LCSDW1	12/13/11	1156	3.70	5.97
08	ZZZZZ	ZZZZZ	12/13/11	1218	3.70	5.97
09	MW-35S-12061	UA20B	12/13/11	1240	3.70	5.97
10	DIESEL #3	DIESEL #3	12/13/11	1346	3.70	5.98
11	MOIL #3	MOIL #3	12/13/11	1407	3.71	5.98

QC LIMITS

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

* Values outside of QC limits.

FORM VIII TPH

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: 20111205A Project: RG

Instrument ID: FID9 GC Column: RTX-1

Run Date: 12/05/11

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

SURROGATE RT FROM DAILY STANDARD
TERPH: 3.72 TRIAC: 5.96

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RINSE	12/05/11	0710	3.72	5.97
02		RT	12/05/11	0731	3.72	5.96
03		IB	12/05/11	0753	3.72	5.96
04		DIESEL 50	12/05/11	1408	3.72	5.97
05		DIESEL 100	12/05/11	1430	3.71	5.97
06		DIESEL 250	12/05/11	1452	3.72	5.97
07		DIESEL 500	12/05/11	1514	3.72	5.97
08		DIESEL 1000	12/05/11	1535	3.73	5.97
09		DIESEL 2500	12/05/11	1557	3.76	5.98
10		DIESEL ICV	12/05/11	1619	3.74	5.98
11		MOIL 100	12/05/11	1641	3.74	5.95
12		MOIL 250	12/05/11	1703	3.73	5.96
13		MOIL 500	12/05/11	1725	3.73	5.97
14		MOIL 1000	12/05/11	1747	3.72	5.99
15		MOIL 2500	12/05/11	1808	3.72	6.04*
16		MOIL 5000	12/05/11	1830	3.72	6.08*
17		MOIL ICV	12/05/11	1852	3.72	5.99

QC LIMITS

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

* Values outside of QC limits.

UA17:00108

TPHG Analysis
Report and Summary QC Forms

ARI Job ID: UA17, UA20

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG
Matrix: Water

Data Release Authorized: VJS
Reported: 12/17/11

QC Report No: UA20-ERM-West
Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

ARI ID	Client ID	Analysis Date	DL	Range	Result
MB-121011	Method Blank	12/10/11	1.0	Gasoline	< 0.03 U
11-28026		PID2		HC ID	---
				Trifluorotoluene	83.3%
				Bromobenzene	84.3%
UA20B	MW-35S-120611	12/10/11	1.0	Gasoline	< 0.03 U
11-28026		PID2		HC ID	---
				Trifluorotoluene	102%
				Bromobenzene	100%

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/111210-1.b/1210a006.d
Data file 2: /chem3/pid2.i/111210-2.b/1210a006.d
Method: /chem3/pid2.i/111210-2.b/PIDB15ml.m
Instrument: pid2.i
Gas Ical Date: 09-DEC-2011
BETX Ical Date: 09-DEC-2011

ARI ID: MB1210
Client ID:
Injection Date: 10-DEC-2011 11:19
Matrix: WATER
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
8.148	0.005	6432	84769	83.3	TFT(Surr)
15.178	0.003	3108	37673	84.3	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Range		RF	Total Area*	Amount
WAGas Tol-C12	(9.94 to 18.22)	2221806	51884	0.023
8015B 2MP-TMB	(4.58 to 16.10)	4503375	80708	0.018
AK101 nC6-nC10	(5.07 to 14.70)	3606280	69637	0.019
NWTPHG Tol-Nap	(9.94 to 19.40)	2317394	58079	0.025

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
8.162	0.005	30073	82.9	TFT(Surr)
15.192	0.003	51772	84.6	BB(Surr)

SW8021 (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
10.057	-0.001	135	0.02	Toluene
ND	---	---	---	Ethylbenzene
12.802	-0.001	228	0.04	M/P-Xylene
ND	---	---	---	O-Xylene
ND	---	---	---	MTBE

JW 12/12/11

A Indicates Peak Area was used for quantitation instead of Height
N Indicates peak was manually integrated

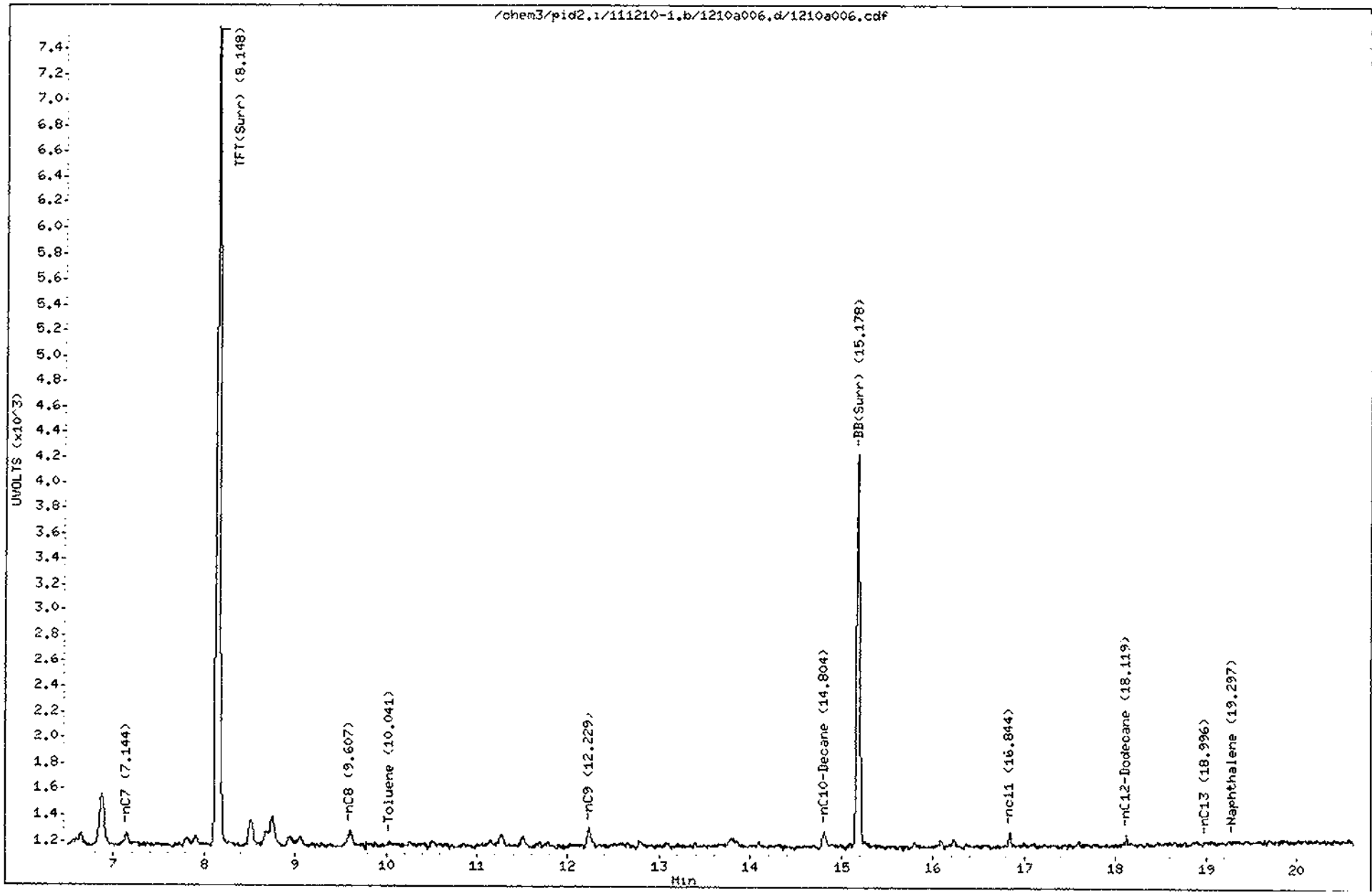
UA17:00111

Data File: /chem3/pid2.i/111210-1.b/1210a006.d
Date : 10-DEC-2011 11:19
Client ID:
Sample Info: MB1210

Instrument: pid2.i

Operator: JW
Column diameter: 0.18

Column phase: RTX 502-2 FID



Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/111210-1.b/1210a019.d
Data file 2: /chem3/pid2.i/111210-2.b/1210a019.d
Method: /chem3/pid2.i/111210-2.b/PIDB15ml.m
Instrument: pid2.i
Gas Ical Date: 09-DEC-2011
BETX Ical Date: 09-DEC-2011

ARI ID: UA20B
Client ID: MW-35S-120611
Injection Date: 10-DEC-2011 17:24
Matrix: WATER
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
8.148	-0.005	7835	102999	101.5	TFT(Surr)
15.178	-0.004	3687	42474	100.0	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Range		RF	Total Area*	Amount
WAGas Tol-C12	(9.95 to 18.22)	2221806	20373	0.009
8015B 2MP-TMB	(4.59 to 16.18)	4503375	22978	0.005
AK101 nC6-nC10	(5.08 to 14.71)	3606280	20503	0.006
NWTPHG Tol-Nap	(9.95 to 19.40)	2317394	25096	0.011

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
8.161	0.004	36644	101.0	TFT(Surr)
15.191	0.002	61530	100.6	BB(Surr)

JW 12/16/11

SW8021 (PID)

RT	Shift	Response	Amount	Compound
ND	---	---	---	Benzene
10.059	0.000	244	0.04	Toluene
12.660	0.001	227	0.04	Ethylbenzene
12.801	-0.002	257	0.05	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/111210-1.b/1210a019.d

Date : 10-DEC-2011 17:24

Client ID: MW-35S-120611

Sample Info: UA20B

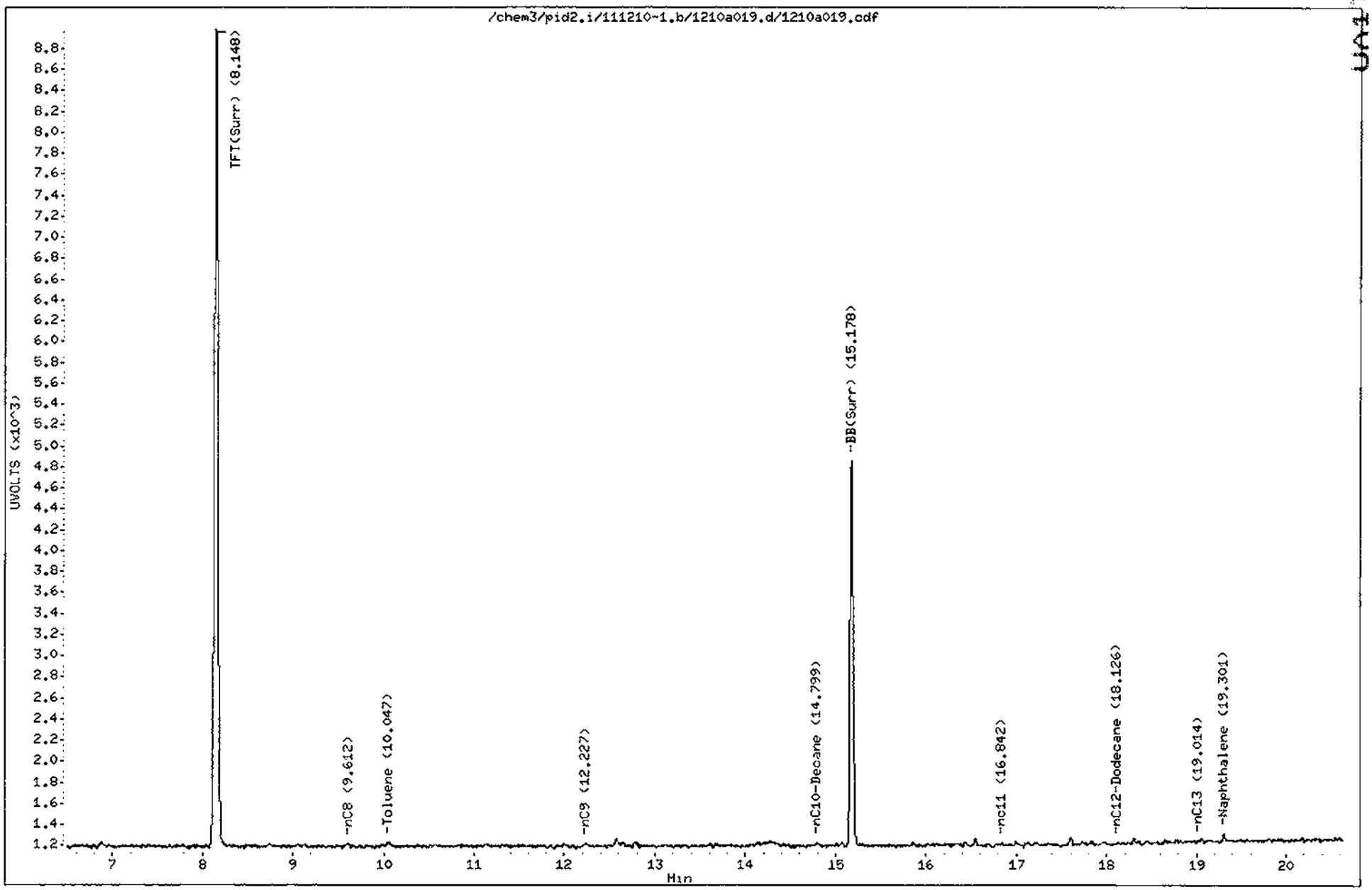
Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JW

Column diameter: 0.18

UA17:061114



ANALYTICAL RESOURCES INCORPORATED

TPHG WATER SURROGATE RECOVERY SUMMARY

ARI Job: UA20
Matrix: Water

QC Report No: UA20-ERM-West
Project: RG
Event: 128296.07

Client ID	TFT	BBZ	TOT OUT
MB-121011	83.3%	84.3%	0
LCS-121011	103%	96.5%	0
LCSD-121011	102%	101%	0
MW-35S-120611	102%	100%	0

	LCS/MB LIMITS	QC LIMITS
(TFT) = Trifluorotoluene	(80-120)	(80-120)
(BBZ) = Bromobenzene	(80-120)	(80-120)

Log Number Range: 11-28026 to 11-28026

FORM II TPHG

UA17:00115

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TPHG by Method NWTPHG

Sample ID: LCS-121011
LAB CONTROL SAMPLE

Lab Sample ID: LCS-121011
LIMS ID: 11-28026
Matrix: Water
Data Release Authorized: VB
Reported: 12/17/11

QC Report No: UA20-ERM-West
Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Date Analyzed LCS: 12/10/11 11:52
LCSD: 12/10/11 10:53
Instrument/Analyst LCS: PID2/JLW
LCSD: PID2/JLW

Purge Volume: 15. mL

Dilution Factor LCS: 1.0
LCSD: 1.0

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	0.99	1.00	99.0%	0.90	1.00	90.0%	9.5%

Reported in mg/L (ppm)

RPD calculated using sample concentrations per SW846.

TPHG Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	103%	102%
Bromobenzene	96.5%	101%

Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/111210-1.b/1210a007.d
Data file 2: /chem3/pid2.i/111210-2.b/1210a007.d
Method: /chem3/pid2.i/111210-2.b/PIDB15ml.m
Instrument: pid2.i
Gas Ical Date: 09-DEC-2011
BETX Ical Date: 09-DEC-2011

ARI ID: LCS21210
Client ID:
Injection Date: 10-DEC-2011 11:52
Matrix: WATER
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
8.147	0.004	7918	145208	102.6	TFT(Surr)
15.180	0.005	3557	43010	96.5	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Range		RF	Total Area*	Amount
WAGas Tol-C12	(9.94 to 18.22)	2221806	2194890	0.988 M
8015B 2MP-TMB	(4.58 to 16.10)	4503375	4792341	1.064 M
AK101 nC6-nC10	(5.07 to 14.70)	3606280	3862994	1.071 M
NWTPHG Tol-Nap	(9.94 to 19.40)	2317394	2293316	0.990 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
8.160	0.003	37193	102.5	TFT(Surr)
15.195	0.005	60652	99.1	BB(Surr)

SW8021 (PID)

RT	Shift	Response	Amount	Compound
7.409	0.004	19408	3.62	Benzene
10.063	0.004	221269	38.92	Toluene
12.663	0.005	59318	11.15	Ethylbenzene
12.808	0.005	234581	41.48	M/P-Xylene
13.627	0.005	92228	18.85	O-Xylene
4.943	0.001	4491	3.48	MTBE

JW 12/12/11

A Indicates Peak Area was used for quantitation instead of Height
N Indicates peak was manually integrated

UA17:00117

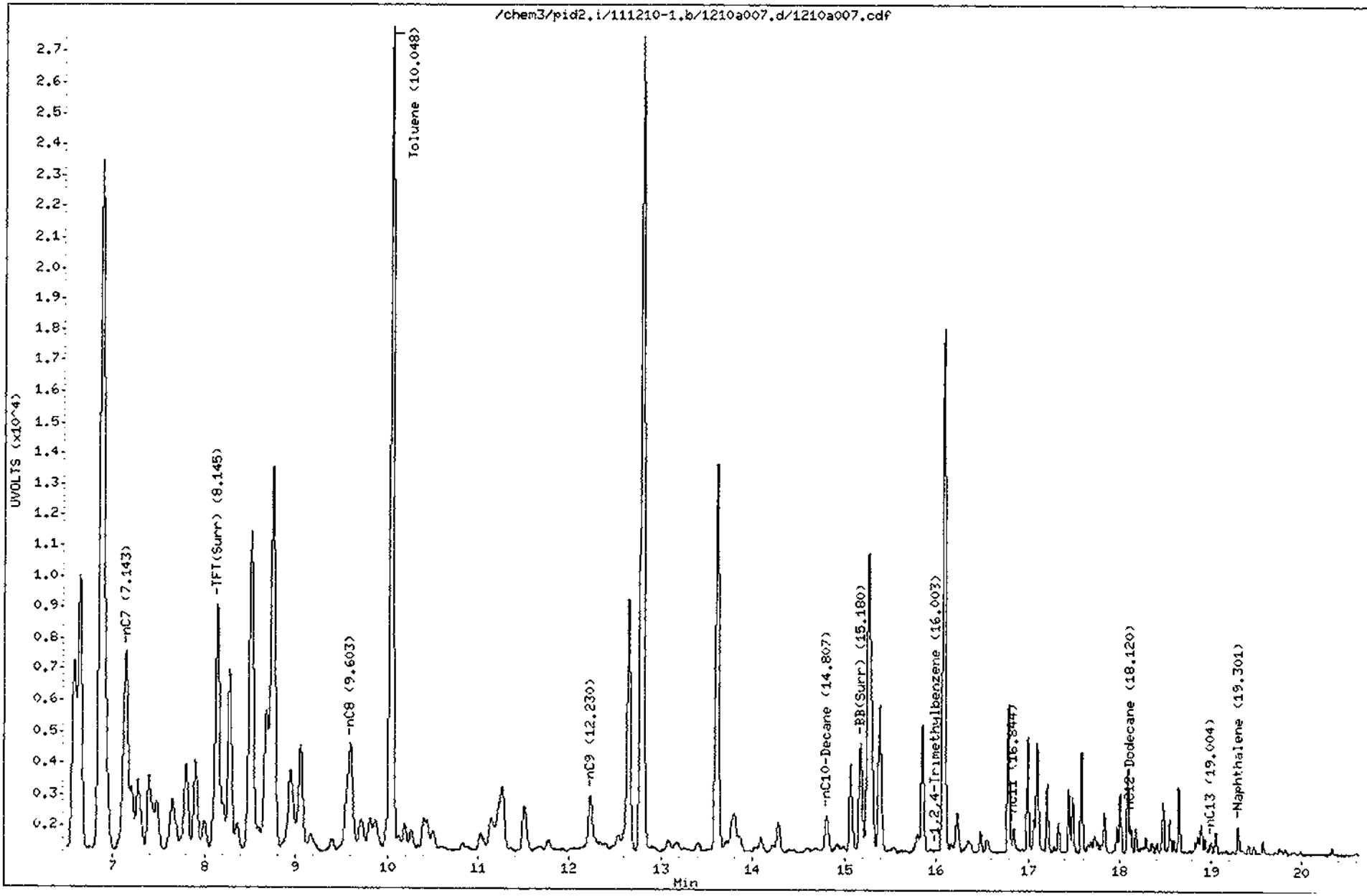
Data File: /chem3/pid2.i/111210-1.b/1210a007.d
Date : 10-DEC-2011 11:52
Client ID:
Sample Info: LCS21210

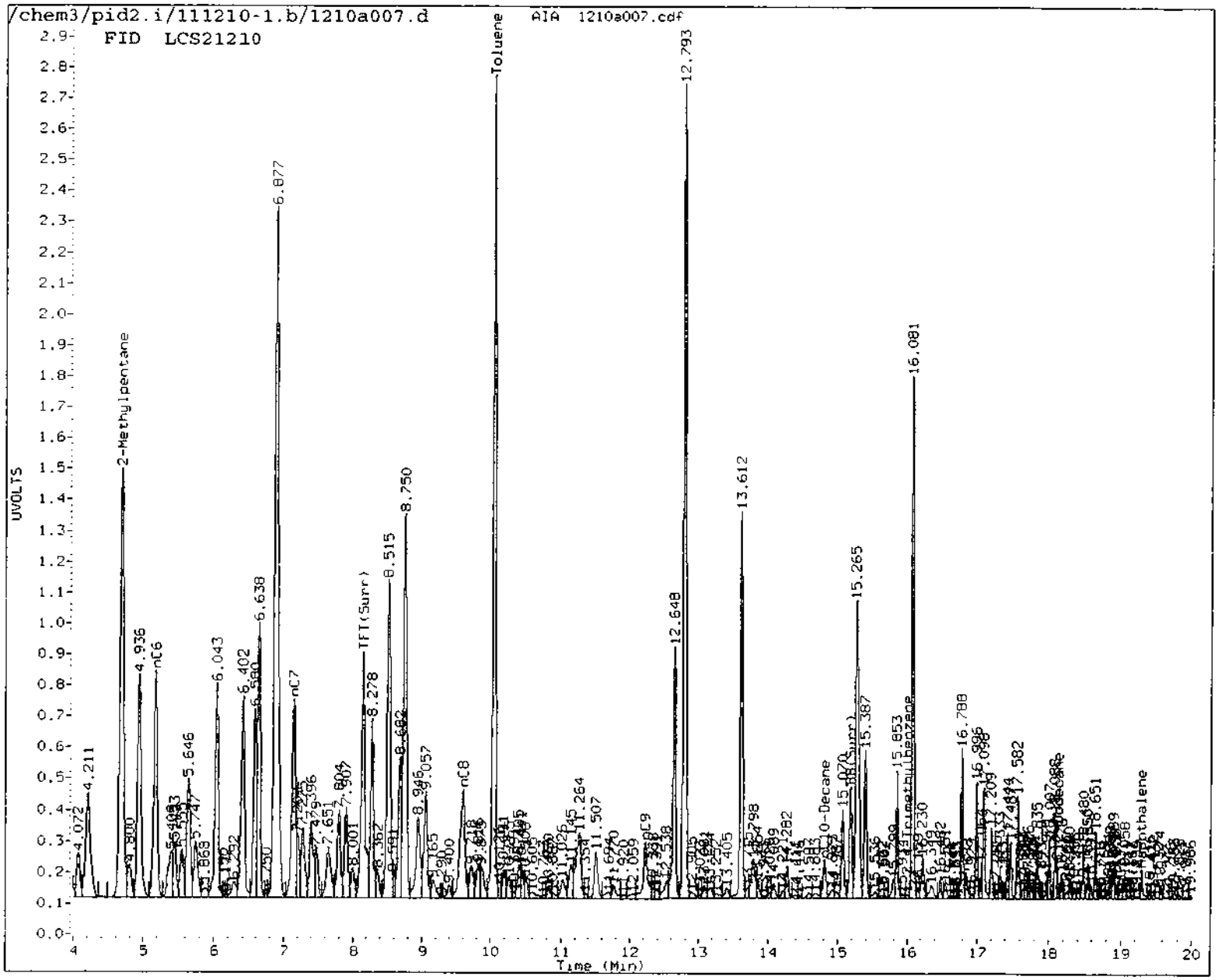
Column phase: RTX 502-2 FID

Instrument: pid2.i

Operator: JW
Column diameter: 0.18

DA17:00118



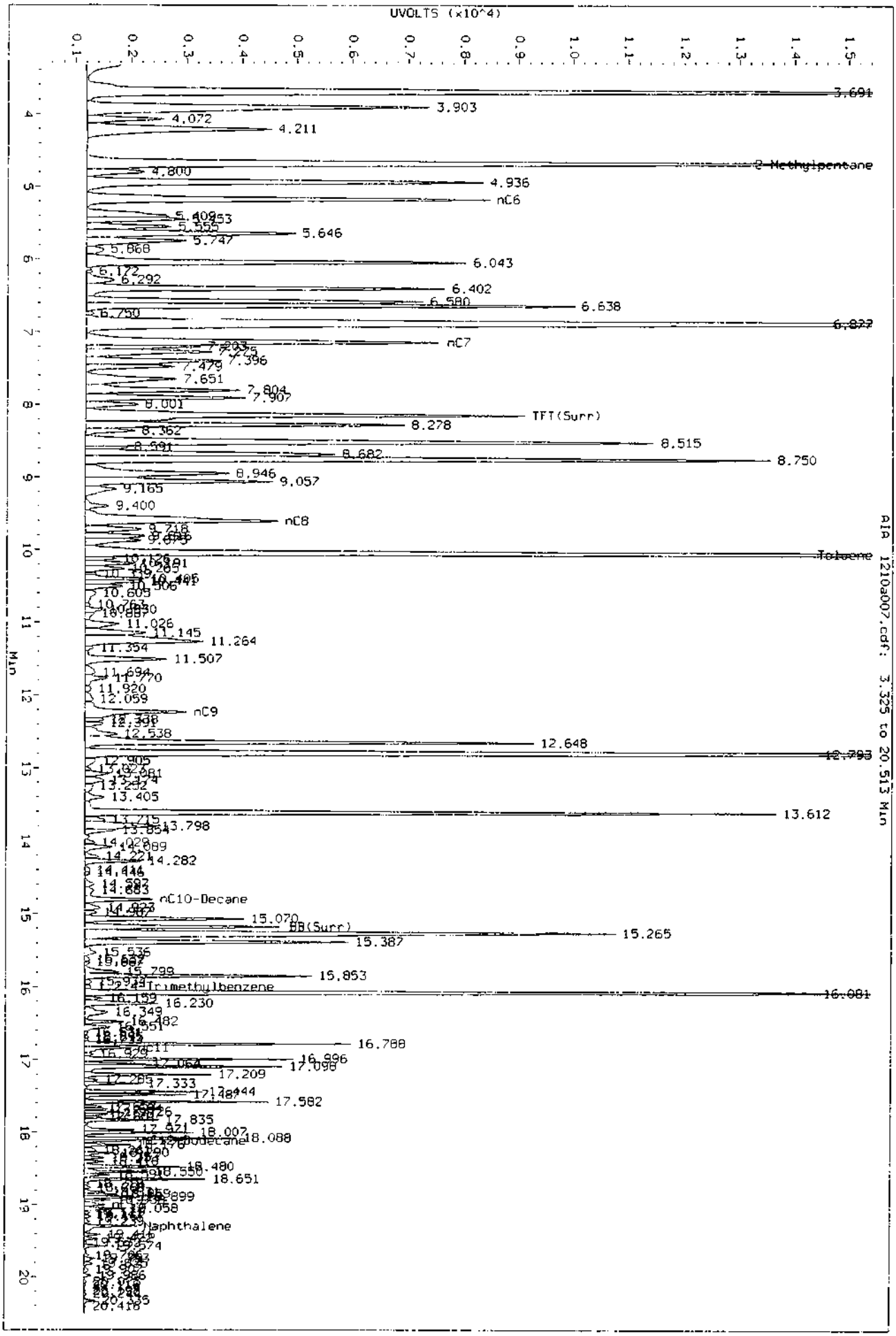


MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: JW Date: 12/12/11



Before 12/12/11

Analytical Resources Inc.
BETX/Gas Quantitation Report

Data file 1: /chem3/pid2.i/111210-1.b/1210a005.d
Data file 2: /chem3/pid2.i/111210-2.b/1210a005.d
Method: /chem3/pid2.i/111210-2.b/PIDB15ml.m
Instrument: pid2.i
Gas Ical Date: 09-DEC-2011
BETX Ical Date: 09-DEC-2011

ARI ID: LCSD1210
Client ID:
Injection Date: 10-DEC-2011 10:53
Matrix: WATER
Dilution Factor: 1.000

FID Surrogates

RT	Shift	Height	Area	%Rec	Compound
8.150	0.007	7894	142123	102.3	TFT(Surr)
15.180	0.005	3718	44196	100.9	BB(Surr)

PETROLEUM HYDROCARBONS (FID)

Range		RF	Total Area*	Amount
WAGas Tol-C12	(9.94 to 18.22)	2221806	1998775	0.900 M
8015B 2MP-TMB	(4.58 to 16.10)	4503375	4316691	0.959 M
AK101 nC6-nC10	(5.07 to 14.70)	3606280	3480039	0.965 M
NWTPHG Tol-Nap	(9.94 to 19.40)	2317394	2090191	0.902 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
8.163	0.006	37375	103.0	TFT(Surr)
15.194	0.005	63128	103.2	BB(Surr)

SW8021 (PID)

RT	Shift	Response	Amount	Compound
7.412	0.007	17479	3.26	Benzene
10.064	0.005	200195	35.22	Toluene
12.663	0.005	53990	10.15	Ethylbenzene
12.807	0.005	211721	37.44	M/P-Xylene
13.626	0.005	83186	17.01	O-Xylene
4.948	0.006	4110	3.18	MTBE

JW 12/12/11

A Indicates Peak Area was used for quantitation instead of Height
N Indicates peak was manually integrated

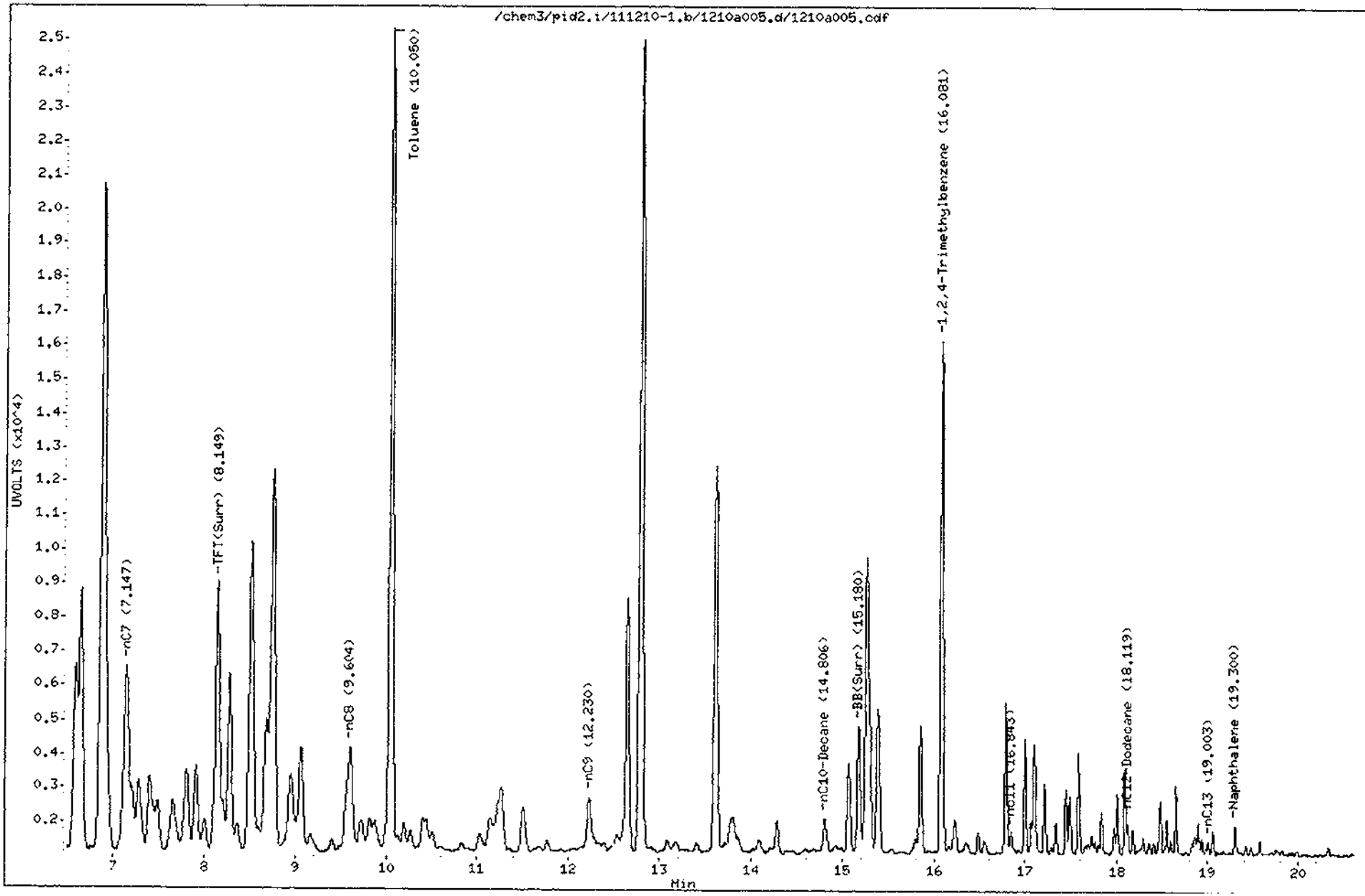
Data File: /chem3/pid2.i/111210-1.b/1210a005.d
Date : 10-DEC-2011 10:53
Client ID:
Sample Info: LCSD1210

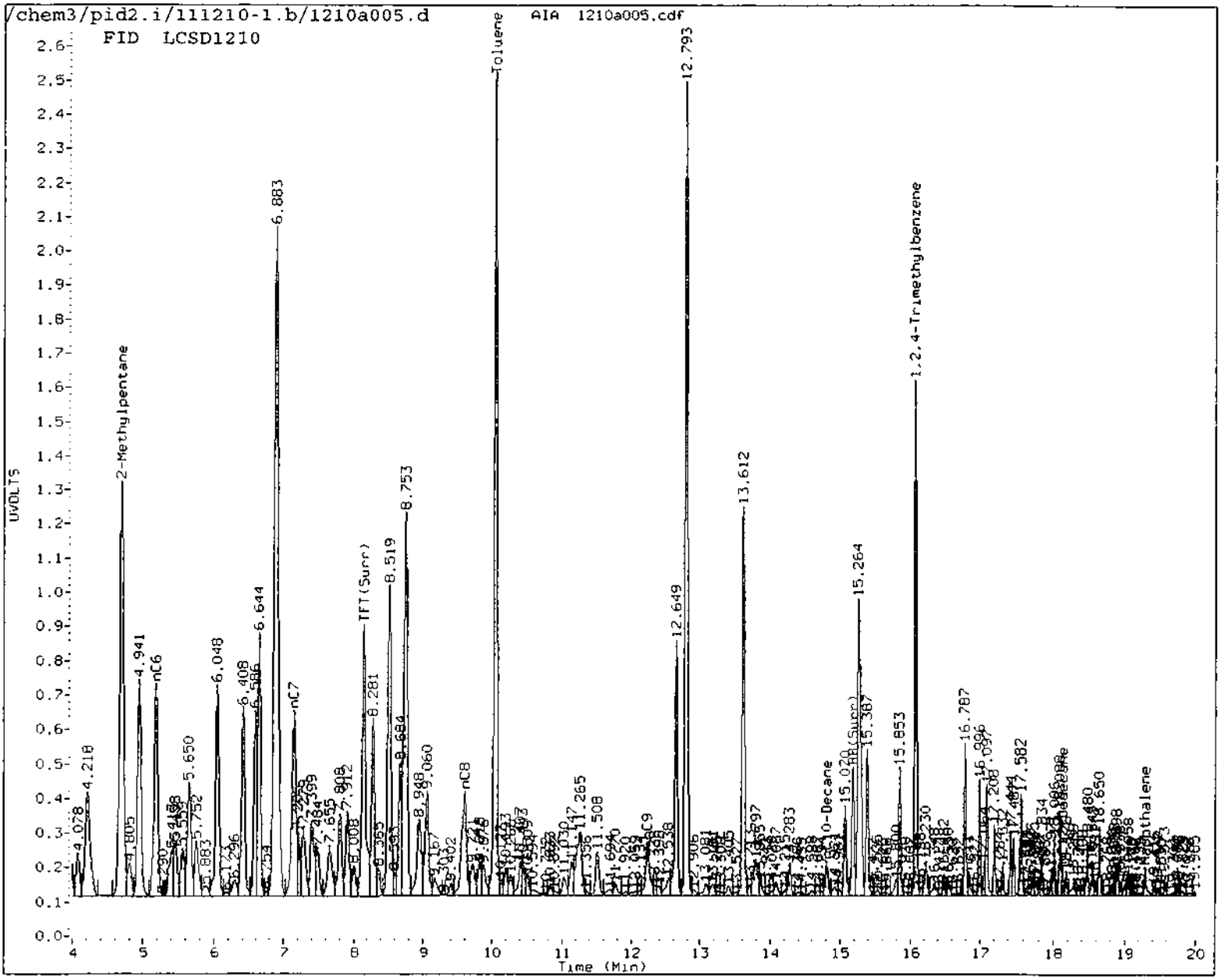
Instrument: pid2.i

Operator: JM
Column diameter: 0.18

Column phase: RTX 502-2 FID

Unit 7 001222





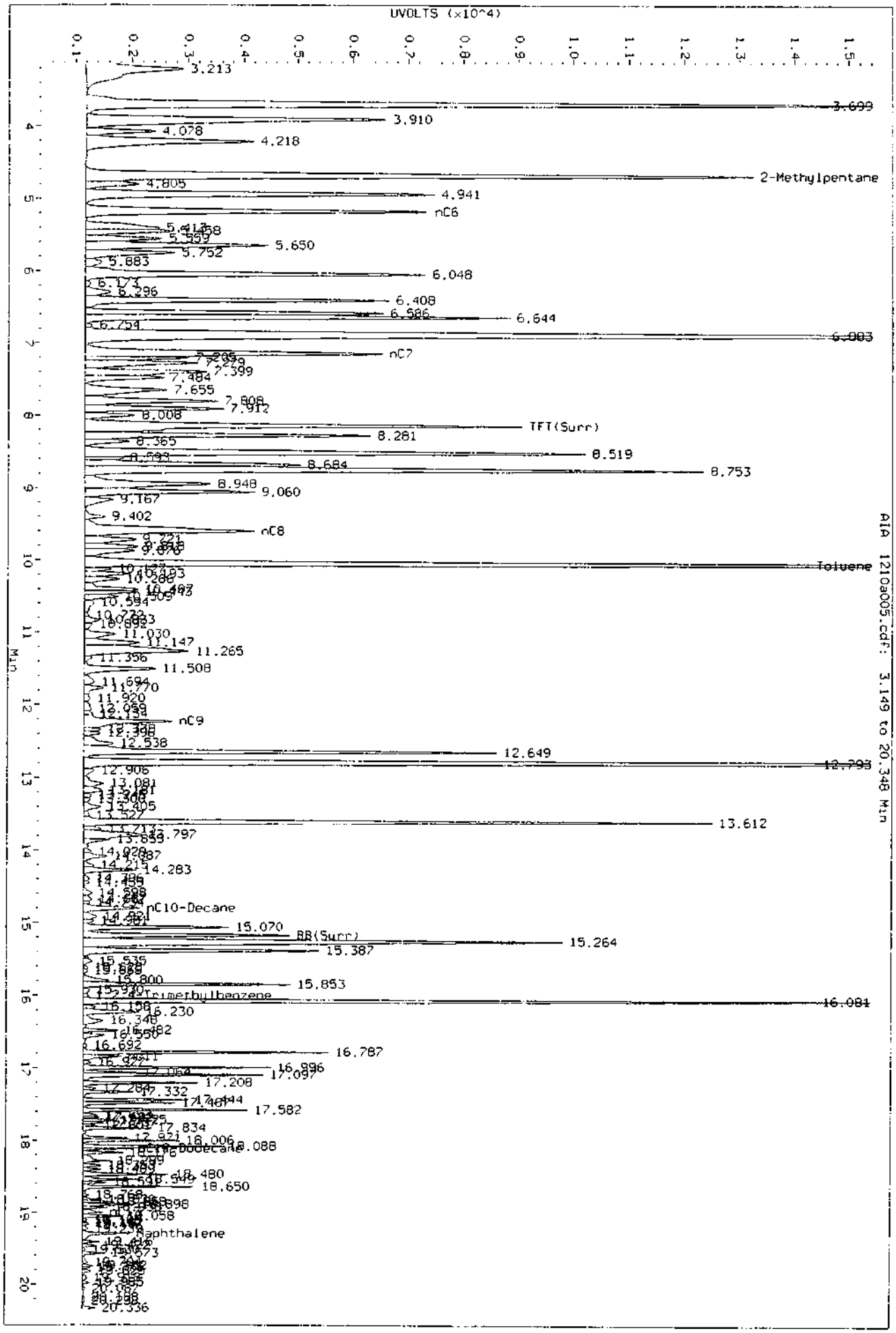
MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: JC Date: 12/12/11

UA17:00123



Before
12/12/11
JW

BETX/GAS METHOD BLANK SUMMARY

BLANK NO.

MB1210

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: TZ97 Project No.: RG

Date Analyzed : 12/10/11 Matrix: WATER

Time Analyzed : 1119 Instrument ID : PID2

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	RT+BCAL1	RT+BCAL1	12/10/11
02	LCSD1210	LCSD1210	12/10/11
03	LCS21210	LCS21210	12/10/11
04	TB-120511-1	TZ97G	12/10/11
05	MW-30S-12051	TZ97A	12/10/11
06	MW-31S-12051	TZ97B	12/10/11
07	FB-120511-1	TZ97D	12/10/11
08	DUP-120511-2	TZ97F	12/10/11
09	MW-35S-12061	UA20B	12/10/11
10			
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6a

GAS INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-West

Instrument/Det: PID2.I/RTX 502-2 FID Project: RG

Calibration Date: 09-DEC-2011 SDG No.: TZ32,TZ84,TZ97,UA20,UA33

Gas Range	RF1 .03	RF2 0.10	RF3 0.25	RF4 1.0	RF5 2.5	RF6 5.0	Ave RF	%RSD
WA Gas	2948167	2304585	2102370	1896113	2023904	2055697	2221806	17.1
AK Gas	4420450	3837380	3569696	3279322	3262011	3268819	3606280	12.7
NW Gas	3078500	2418895	2195392	1982354	2111757	2117465	2317394	17.2
Cal Gas	5608317	4732460	4355392	3998758	4061928	4062875	4469955	13.9
8015Gas	5542283	4776840	4435376	4079243	4095006	4091500	4503375	12.9
Surrogates Rel. Rec.	RF1 22	RF2 44	RF3 67	RF4 100	RF5 133	RF6 178	Ave RF	%RSD
$ TFT(Surr)	85.77273	81.61364	77.97015	76.56000	72.03759	73.65730		
	72.76000						77.19592	6.539
$ BB(Surr)	40.77273	39.09091	36.16418	37.01000	34.22556	35.80337		
	34.93500						36.85739	6.320

<- 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
1209a014.d	09-DEC-2011 19:18
1209a015.d	09-DEC-2011 19:44
1209a016.d	09-DEC-2011 20:10
1209a017.d	09-DEC-2011 20:36
1209a018.d	09-DEC-2011 21:02
1209a019.d	09-DEC-2011 21:28

Surr. Calibration Files	Analysis Time
1209a005.d	09-DEC-2011 15:23
1209a006.d	09-DEC-2011 15:49
1209a007.d	09-DEC-2011 16:15
1209a008.d	09-DEC-2011 16:41
1209a009.d	09-DEC-2011 17:08
1209a010.d	09-DEC-2011 17:34
1209a011.d	09-DEC-2011 18:00

7a

GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-WEST

ICal Date: 09-DEC-2011 Project: RG

CCal Date: 10-DEC-2011 SDG No.: TZ97

Lab File Name: 1210a003.d Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	1987084	0.89	1.00	-10.6
AKGas (C6-C10)	3431314	0.95	1.00	-4.9
NWGas (Tol-Nap)	2078995	0.90	1.00	-10.3
8015B (2MP-TMB)	4269237	0.95	1.00	-5.2

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

UA17 00127

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: ERM-WEST

ICal Date: 09-DEC-2011
Project: RG

CCal Date: 10-DEC-2011
SDG No.: TZ97

Lab File Name: 1210a003.d
Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	134039	97.5	100.0	-2.5
Bromoflrbenz	40752	93.4	100.0	-6.6

UA17:00128

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: ERM-WEST

ICal Date: 09-DEC-2011
Project: RG

CCal Date: 10-DEC-2011
SDG No.: TZ97

Lab File Name: 1210a011.d
Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	2139744	0.96	1.00	-3.7
AKGas (C6-C10)	3687229	1.02	1.00	2.2
NWGas (Tol-Nap)	2235814	0.96	1.00	-3.5
8015B (2MP-TMB)	4585818	1.02	1.00	1.8

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

FORM VII-GAS

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: ERM-WEST

ICal Date: 09-DEC-2011
Project: RG

CCal Date: 10-DEC-2011
SDG No.: TZ97

Lab File Name: 1210a011.d
Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	142303	102.9	100.0	2.9
Bromoflrbenz	43353	97.7	100.0	-2.3

UA17:00130

7a
GAS CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: ERM-WEST

ICal Date: 09-DEC-2011 Project: RG

CCal Date: 10-DEC-2011 SDG No.: TZ97

Lab File Name: 1210a020.d Inst/Det: PID2.I/RTX 502-2 FID

Gas Range	Area*	CalcAmnt	NomAmnt	%D
WAGas (Tol-C12)	2061544	0.93	1.00	-7.2
AKGas (C6-C10)	3488986	0.97	1.00	-3.3
NWGas (Tol-Nap)	2153548	0.93	1.00	-7.1
8015B (2MP-TMB)	4336941	0.96	1.00	-3.7

* Surrogate areas are subtracted from Total Area
<- Indicates an RPD outside QC limits

7b
FID SURROGATE CONTINUING CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: ERM-WEST

ICal Date: 09-DEC-2011
Project: RG

CCal Date: 10-DEC-2011
SDG No.: TZ97

Lab File Name: 1210a020.d
Inst/Det: PID2.I/RTX 502-2 FID

Surrogate	Area	CalcAmnt	NomAmnt	RPD
Trifluorotol	137992	100.3	100.0	0.3
Bromoflrbenz	42762	98.5	100.0	-1.5

FORM VII-Surr

UA17:00132

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: TZ97 Project: RG

Instrument ID: PID2 GC Detector: RTX 502-2 FID

Run Date: 12/10/11

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

METHOD SURROGATE RT
S1 : 8.15 S2 : 15.18

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	S1 #	S2 RT	S2 #
01	RT+BCAL1	RT+BCAL1	12/10/11	0935	8.15		15.18	
02	RG	GCAL1	12/10/11	1001	8.15		15.18	
03	LCSD1210	LCSD1210	12/10/11	1053	8.15		15.18	
04	MB1210	MB1210	12/10/11	1119	8.15		15.18	
05	LCS21210	LCS21210	12/10/11	1152	8.15		15.18	
06	RG	GCAL2	12/10/11	1355	8.15		15.18	
07	TB-120511-1	TZ97G	12/10/11	1448	8.15		15.18	
08	MW-30S-12051	TZ97A	12/10/11	1540	8.15		15.18	
09	MW-31S-12051	TZ97B	12/10/11	1606	8.15		15.18	
10	FB-120511-1	TZ97D	12/10/11	1632	8.15		15.18	
11	DUP-120511-2	TZ97F	12/10/11	1658	8.15		15.18	
12	MW-35S-12061	UA20B	12/10/11	1724	8.15		15.18	
13	RG	GCAL3	12/10/11	1750	8.14		15.18	

QC LIMITS

S1 = TFT(Surr) (+/- 0.07 MINUTES)

S2 = BB(Surr) (+/- 0.07 MINUTES)

* Values outside of QC limits.

UA17:00133

BETX/GAS ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: ERM-WEST

SDG No.: TZ97,UA20 Project: RG

Instrument ID: PID2 GC Detector: RTX 502-2 FID

Run Date: 12/09/11

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

METHOD SURROGATE RT
S1 : 8.15 S2 : 15.18

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	S1 #	S2 RT	S2 #
01		RINSE	12/09/11	0932	8.14		15.19	
02		RT1209+BCAL	12/09/11	0958	8.15		15.18	
03		GCAL 1	12/09/11	1024	8.15		15.18	
04		RINSE	12/09/11	1457	8.15		15.19	
05		BTEX .08	12/09/11	1523	8.15		15.18	
06		BTEX .25	12/09/11	1549	8.15		15.18	
07		BTEX 1	12/09/11	1615	8.15		15.18	
08		BTEX 5	12/09/11	1641	8.15		15.18	
09		BTEX 25	12/09/11	1708	8.15		15.18	
10		BTEX 50	12/09/11	1734	8.15		15.18	
11		BTEX 100	12/09/11	1800	8.15		15.18	
12		BTEX ICV 5	12/09/11	1826	8.14		15.18	
13		RINSE	12/09/11	1852	8.13		15.19	
14		GAS .03	12/09/11	1918	8.15		15.18	
15		GAS .1	12/09/11	1944	8.15		15.18	
16		GAS .25	12/09/11	2010	8.15		15.18	
17		GAS 1	12/09/11	2036	8.15		15.18	
18		GAS 2.5	12/09/11	2102	8.15		15.18	
19		GAS 5	12/09/11	2128	8.14		15.18	
20		GAS ICV 1	12/09/11	2154	8.14		15.18	

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: UA17, UA20

Cover Page

INORGANIC ANALYSIS DATA PACKAGE

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

CLIENT ID	ARI ID	ARI LIMS ID	REPREP
MW-34S-120611	UA20A	11-28025	
MW-35S-120611	UA20B	11-28026	
MW-34S-120611	UA20D	11-28028	
MW-35S-120611	UA20E	11-28029	
MW-32S-120611	UA17A	11-28052	
MW-32S-120611D	UA17ADUP	11-28052	
MW-32S-120611S	UA17ASPK	11-28052	
PBW	UA17MB1	11-28052	
LCSW	UA17MB1SPK	11-28052	
MW-32S-120611	UA17B	11-28053	
MW-32S-120611D	UA17BDUP	11-28053	
MW-32S-120611S	UA17BSPK	11-28053	
PBW	UA17MB2	11-28053	
LCSW	UA17MB2SPK	11-28053	

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: 12/20/11 Title: Inorganics Director

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-32S-120611**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UA17A
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3010A	12/12/11	6010B	12/14/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**2.2**	
3010A	12/12/11	6010B	12/14/11	**7440-70-2**	**Calcium**	50	**33,000**	
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
3010A	12/12/11	6010B	12/14/11	7440-50-8	Copper	2	2	U
3010A	12/12/11	6010B	12/14/11	**7439-89-6**	**Iron**	50	**19,100**	
3010A	12/12/11	6010B	12/14/11	**7439-95-4**	**Magnesium**	50	**26,600**	
3010A	12/12/11	6010B	12/14/11	**7439-96-5**	**Manganese**	1	**819**	
3010A	12/12/11	6010B	12/14/11	**7440-09-7**	**Potassium**	500	**20,500**	
3010A	12/12/11	6010B	12/14/11	7440-22-4	Silver	3	3	U
3010A	12/12/11	6010B	12/14/11	**7440-23-5**	**Sodium**	500	**32,300**	
3010A	12/12/11	6010B	12/14/11	7440-66-6	Zinc	10	10	U

Calculated Hardness (mg-CaCO3/L): 190

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-34S-120611
SAMPLE

Lab Sample ID: UA20A
LIMS ID: 11-28025
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3010A	12/12/11	6010B	12/14/11	**7429-90-5**	**Aluminum**	50	**290**	
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**2.2**	
3010A	12/12/11	6010B	12/14/11	**7440-70-2**	**Calcium**	50	**35,900**	
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
3010A	12/12/11	6010B	12/14/11	**7440-50-8**	**Copper**	2	**3**	
3010A	12/12/11	6010B	12/14/11	**7439-89-6**	**Iron**	50	**140**	
3010A	12/12/11	6010B	12/14/11	**7439-95-4**	**Magnesium**	50	**1,680**	
3010A	12/12/11	6010B	12/14/11	**7439-96-5**	**Manganese**	1	**9**	
3010A	12/12/11	6010B	12/14/11	**7440-09-7**	**Potassium**	500	**1,390**	
3010A	12/12/11	6010B	12/14/11	7440-22-4	Silver	3	3	U
3010A	12/12/11	6010B	12/14/11	**7440-23-5**	**Sodium**	500	**4,330**	
3010A	12/12/11	6010B	12/14/11	7440-66-6	Zinc	10	10	U

Calculated Hardness (mg-CaCO3/L): 97

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: MW-35S-120611
SAMPLE

Lab Sample ID: UA20B
LIMS ID: 11-28026
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3010A	12/12/11	6010B	12/14/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**1.4**	
3010A	12/12/11	6010B	12/14/11	**7440-70-2**	**Calcium**	50	**43,000**	
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
3010A	12/12/11	6010B	12/14/11	**7440-50-8**	**Copper**	2	**3**	
3010A	12/12/11	6010B	12/14/11	**7439-89-6**	**Iron**	50	**4,060**	
3010A	12/12/11	6010B	12/14/11	**7439-95-4**	**Magnesium**	50	**2,720**	
3010A	12/12/11	6010B	12/14/11	**7439-96-5**	**Manganese**	1	**124**	
3010A	12/12/11	6010B	12/14/11	**7440-09-7**	**Potassium**	500	**2,760**	
3010A	12/12/11	6010B	12/14/11	7440-22-4	Silver	3	3	U
3010A	12/12/11	6010B	12/14/11	**7440-23-5**	**Sodium**	500	**5,580**	
3010A	12/12/11	6010B	12/14/11	7440-66-6	Zinc	10	10	U

Calculated Hardness (mg-CaCO3/L): 120

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-32S-120611**
Page 1 of 1 **MATRIX SPIKE**

Lab Sample ID: UA17A QC Report No: UA17-ERM-West
LIMS ID: 11-28052 Project: RG
Matrix: Water 128296.07
Data Release Authorized: Date Sampled: 12/06/11
Reported: 12/20/11 Date Received: 12/07/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	50.0 U	2,070	2,000	104%	
Arsenic	6020	2.16	27.4	25.0	101%	
Calcium	6010B	33,000	42,900	10,000	99.0%	
Chromium	6020	0.500 U	19.6	25.0	78.4%	
Copper	6010B	2.00 U	523	500	105%	
Iron	6010B	19,100	20,600	2,000	75.0%	H
Magnesium	6010B	26,600	35,500	10,000	89.0%	
Manganese	6010B	819	1,280	500	92.2%	
Potassium	6010B	20,500	30,500	10,000	100%	
Silver	6010B	3.00 U	523	500	105%	
Sodium	6010B	32,300	42,300	10,000	100%	
Zinc	6010B	10.0 U	481	500	96.2%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked
NR-Not Recovered

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: MW-32S-120611**
Page 1 of 1 **DUPLICATE**

Lab Sample ID: UA17A
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	50 U	50 U	0.0%	+/- 50	L
Arsenic	6020	2.2	2.1	4.7%	+/- 20%	
Calcium	6010B	33,000	33,100	0.3%	+/- 20%	
Chromium	6020	0.5 U	0.5 U	0.0%	+/- 0.5	L
Copper	6010B	2 U	2 U	0.0%	+/- 2	L
Iron	6010B	19,100	19,400	1.6%	+/- 20%	
Magnesium	6010B	26,600	26,900	1.1%	+/- 20%	
Manganese	6010B	819	832	1.6%	+/- 20%	
Potassium	6010B	20,500	20,600	0.5%	+/- 20%	
Silver	6010B	3 U	3 U	0.0%	+/- 3	L
Sodium	6010B	32,300	32,500	0.6%	+/- 20%	
Zinc	6010B	10 U	10 U	0.0%	+/- 10	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: UA17LCS
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	2060	2000	103%	
Arsenic	6020	26.6	25.0	106%	
Calcium	6010B	9820	10000	98.2%	
Chromium	6020	26.1	25.0	104%	
Copper	6010B	514	500	103%	
Iron	6010B	2050	2000	102%	
Magnesium	6010B	10300	10000	103%	
Manganese	6010B	481	500	96.2%	
Potassium	6010B	10300	10000	103%	
Silver	6010B	519	500	104%	
Sodium	6010B	9930	10000	99.3%	
Zinc	6010B	490	500	98.0%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: UA17MB
LIMS ID: 11-28052
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
3010A	12/12/11	6010B	12/14/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/16/11	7440-38-2	Arsenic	0.2	0.2	U
3010A	12/12/11	6010B	12/14/11	7440-70-2	Calcium	50	50	U
200.8	12/12/11	6020	12/16/11	**7440-47-3**	**Chromium**	0.5	**0.5**	
3010A	12/12/11	6010B	12/14/11	7440-50-8	Copper	2	2	U
3010A	12/12/11	6010B	12/14/11	7439-89-6	Iron	50	50	U
3010A	12/12/11	6010B	12/14/11	7439-95-4	Magnesium	50	50	U
3010A	12/12/11	6010B	12/14/11	7439-96-5	Manganese	1	1	U
3010A	12/12/11	6010B	12/14/11	7440-09-7	Potassium	500	500	U
3010A	12/12/11	6010B	12/14/11	7440-22-4	Silver	3	3	U
3010A	12/12/11	6010B	12/14/11	7440-23-5	Sodium	500	500	U
3010A	12/12/11	6010B	12/14/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS

Sample ID: MW-32S-120611
SAMPLE

Lab Sample ID: UA17B
LIMS ID: 11-28053
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
6010B	12/12/11	6010B	12/13/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**2.1**	
200.8	12/12/11	6020	12/15/11	**7440-47-3**	**Chromium**	0.5	**0.8**	
6010B	12/12/11	6010B	12/13/11	7440-50-8	Copper	2	2	U
6010B	12/12/11	6010B	12/13/11	**7439-89-6**	**Iron**	50	**19,400**	
6010B	12/12/11	6010B	12/13/11	**7439-96-5**	**Manganese**	1	**821**	
6010B	12/12/11	6010B	12/13/11	7440-22-4	Silver	3	3	U
6010B	12/12/11	6010B	12/13/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-34S-120611
SAMPLE

Lab Sample ID: UA20D
LIMS ID: 11-28028
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
6010B	12/12/11	6010B	12/13/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**2.0**	
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
6010B	12/12/11	6010B	12/13/11	**7440-50-8**	**Copper**	2	**3**	
6010B	12/12/11	6010B	12/13/11	7439-89-6	Iron	50	50	U
6010B	12/12/11	6010B	12/13/11	**7439-96-5**	**Manganese**	1	**7**	
6010B	12/12/11	6010B	12/13/11	7440-22-4	Silver	3	3	U
6010B	12/12/11	6010B	12/13/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-35S-120611
SAMPLE

Lab Sample ID: UA20E
LIMS ID: 11-28029
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA20-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
6010B	12/12/11	6010B	12/13/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	**7440-38-2**	**Arsenic**	0.2	**1.3**	
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
6010B	12/12/11	6010B	12/13/11	7440-50-8	Copper	2	2	U
6010B	12/12/11	6010B	12/13/11	**7439-89-6**	**Iron**	50	**3,940**	
6010B	12/12/11	6010B	12/13/11	**7439-96-5**	**Manganese**	1	**121**	
6010B	12/12/11	6010B	12/13/11	7440-22-4	Silver	3	3	U
6010B	12/12/11	6010B	12/13/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-32S-120611
MATRIX SPIKE

Lab Sample ID: UA17B
LIMS ID: 11-28053
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Aluminum	6010B	50.0 U	2,020	2,000	101%	
Arsenic	6020	2.13	27.2	25.0	100%	
Chromium	6020	0.750	20.6	25.0	79.4%	
Copper	6010B	2.00 U	505	500	101%	
Iron	6010B	19,400	21,400	2,000	100%	H
Manganese	6010B	821	1,270	500	89.8%	
Silver	6010B	3.00 U	464	500	92.8%	
Zinc	6010B	10.0 U	495	500	99.0%	

Reported in µg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-32S-120611
DUPLICATE

Lab Sample ID: UA17B
LIMS ID: 11-28053
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Aluminum	6010B	50 U	50 U	0.0%	+/- 50	L
Arsenic	6020	2.1	2.2	4.7%	+/- 20%	
Chromium	6020	0.8	0.5 U	46.2%	+/- 0.5	L
Copper	6010B	2 U	2 U	0.0%	+/- 2	L
Iron	6010B	19,400	19,400	0.0%	+/- 20%	
Manganese	6010B	821	820	0.1%	+/- 20%	
Silver	6010B	3 U	3 U	0.0%	+/- 3	L
Zinc	6010B	10 U	10 U	0.0%	+/- 10	L

Reported in µg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS **Sample ID: LAB CONTROL**

Lab Sample ID: UA17LCS
LIMS ID: 11-28053
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Aluminum	6010B	2030	2000	102%	
Arsenic	6020	26.0	25.0	104%	
Chromium	6020	25.7	25.0	103%	
Copper	6010B	499	500	99.8%	
Iron	6010B	2020	2000	101%	
Manganese	6010B	473	500	94.6%	
Silver	6010B	516	500	103%	
Zinc	6010B	500	500	100%	

Reported in µg/L

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: UA17MB
LIMS ID: 11-28053
Matrix: Water
Data Release Authorized:
Reported: 12/20/11

QC Report No: UA17-ERM-West
Project: RG
128296.07
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	µg/L	Q
6010B	12/12/11	6010B	12/13/11	7429-90-5	Aluminum	50	50	U
200.8	12/12/11	6020	12/15/11	7440-38-2	Arsenic	0.2	0.2	U
200.8	12/12/11	6020	12/15/11	7440-47-3	Chromium	0.5	0.5	U
6010B	12/12/11	6010B	12/13/11	7440-50-8	Copper	2	2	U
6010B	12/12/11	6010B	12/13/11	7439-89-6	Iron	50	50	U
6010B	12/12/11	6010B	12/13/11	7439-96-5	Manganese	1	1	U
6010B	12/12/11	6010B	12/13/11	7440-22-4	Silver	3	3	U
6010B	12/12/11	6010B	12/13/11	7440-66-6	Zinc	10	10	U

U-Analyte undetected at given RL
RL-Reporting Limit

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP121371	2000.0	1989.06	**99.5**	2000.0	1998.99	**99.9**	1980.12	**99.0**	1992.09	**99.6**				
Arsenic	AS	PMS	MS121581	50.0	51.45	**102.9**	50.0	50.57	**101.1**	49.59	**99.2**	50.50	**101.0**	50.28	**100.6**	49.98	**100.0**
Chromium	CR	PMS	MS121581	50.0	51.08	**102.2**	50.0	51.24	**102.5**	48.01	**96.0**	52.19	**104.4**	51.46	**102.9**	50.08	**100.2**
Copper	CU	ICP	IP121371	1000.0	1021.61	**102.2**	1000.0	1031.25	**103.1**	1028.46	**102.8**	1033.27	**103.3**				
Iron	FE	ICP	IP121371	2000.0	2025.65	**101.3**	2000.0	2045.16	**102.3**	2019.54	**101.0**	2012.28	**100.6**				
Manganese	MN	ICP	IP121371	1000.0	998.99	**99.9**	1000.0	1001.26	**100.1**	988.47	**98.8**	980.10	**98.0**				
Silver	AG	ICP	IP121371	1000.0	1033.36	**103.3**	1000.0	1035.65	**103.6**	1022.68	**102.3**	1024.33	**102.4**				
Zinc	ZN	ICP	IP121371	1000.0	1000.46	**100.0**	1000.0	1010.56	**101.1**	1003.35	**100.3**	1001.10	**100.1**				

UA17-00151

Control Limits: Mercury 80-120; Other Metals 90-110

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV6	%R	CCV7	%R	CCV8	%R	CCV9	%R	CCV10	%R	CCV11	%R
Aluminum	AL	ICP	IP121371	2000.0												
Arsenic	AS	PMS	MS121581	50.0	49.96	99.9	50.25	100.5	49.95	99.9	49.85	99.7	49.80	99.6	50.28	100.6
Chromium	CR	PMS	MS121581	50.0	48.56	97.1	49.57	99.1	49.25	98.5	49.24	98.5	50.15	100.3	49.27	98.5
Copper	CU	ICP	IP121371	1000.0												
Iron	FE	ICP	IP121371	2000.0												
Manganese	MN	ICP	IP121371	1000.0												
Silver	AG	ICP	IP121371	1000.0												
Zinc	ZN	ICP	IP121371	1000.0												

Control Limits: Mercury 80-120; Other Metals 90-110

UA17.00152

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	M	RUN	CCVTV	CCV12	%R	CCV13	%R	CCV14	%R	CCV15	%R	CCV16	%R	CCV17	%R
Aluminum	AL	ICP	IP121371	2000.0												
Arsenic	AS	PMS	MS121581	50.0	49.79	99.6	50.36	100.7								
Chromium	CR	PMS	MS121581	50.0	49.64	99.3	49.49	99.0								
Copper	CU	ICP	IP121371	1000.0												
Iron	FE	ICP	IP121371	2000.0												
Manganese	MN	ICP	IP121371	1000.0												
Silver	AG	ICP	IP121371	1000.0												
Zinc	ZN	ICP	IP121371	1000.0												

Control Limits: Mercury 80-120; Other Metals 90-110

UA17 00153

Calibration Verification

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	M	RUN	ICVTV	ICV	%R	CCVTV	CCV1	%R	CCV2	%R	CCV3	%R	CCV4	%R	CCV5	%R
Aluminum	AL	ICP	IP121471	2000.0	1987.85	**99.4**	2000.0	1996.90	**99.8**	1991.31	**99.6**	1965.59	**98.3**				
Arsenic	AS	PMS	MS121681	50.0	50.84	**101.7**	50.0	49.89	**99.8**	49.96	**99.9**	49.70	**99.4**	49.48	**99.0**	49.61	**99.2**
Calcium	CA	ICP	IP121471	2000.0	2038.73	**101.9**	2000.0	2036.27	**101.8**	2032.33	**101.6**	2020.36	**101.0**				
Chromium	CR	PMS	MS121681	50.0	51.22	**102.4**	50.0	50.81	**101.6**	50.19	**100.4**	50.62	**101.2**	49.57	**99.1**	50.48	**101.0**
Copper	CU	ICP	IP121471	1000.0	1010.80	**101.1**	1000.0	1016.18	**101.6**	1026.19	**102.6**	1011.87	**101.2**				
Iron	FE	ICP	IP121471	2000.0	2016.95	**100.8**	2000.0	2012.91	**100.6**	1995.21	**99.8**	1983.15	**99.2**				
Magnesium	MG	ICP	IP121471	2000.0	1975.26	**98.8**	2000.0	1983.71	**99.2**	1980.17	**99.0**	1970.72	**98.5**				
Manganese	MN	ICP	IP121471	1000.0	1006.59	**100.7**	1000.0	996.36	**99.6**	994.16	**99.4**	981.32	**98.1**				
Potassium	K	ICP	IP121471	20000.0	20003.00	**100.0**	20000.0	20254.34	**101.3**	20363.74	**101.8**	20199.84	**101.0**				
Silver	AG	ICP	IP121471	1000.0	1023.41	**102.3**	1000.0	1022.68	**102.3**	1033.47	**103.3**	1017.42	**101.7**				
Sodium	NA	ICP	IP121471	50000.0	52067.30	**104.1**	50000.0	51763.79	**103.5**	49958.49	**99.9**	49269.60	**98.5**				
Zinc	ZN	ICP	IP121471	1000.0	1000.10	**100.0**	1000.0	989.49	**98.9**	988.99	**98.9**	983.35	**98.3**				

UA17:60154

Control Limits: Mercury 80-120; Other Metals 90-110

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

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
Aluminum	AL	ICP	IP121371	50.0	55.91	111.8	56.57	113.1								
Arsenic	AS	PMS	MS121581	0.2	0.25	125.0										
Chromium	CR	PMS	MS121581	0.5	0.55	110.0										
Copper	CU	ICP	IP121371	2.0	2.25	112.5	2.56	128.0								
Iron	FE	ICP	IP121371	50.0	52.87	105.7	53.77	107.5								
Manganese	MN	ICP	IP121371	1.0	1.15	115.0	1.00	100.0								
Silver	AG	ICP	IP121371	3.0	2.97	99.0	3.02	100.7								
Zinc	ZN	ICP	IP121371	10.0	9.34	93.4	10.52	105.2								

Control Limits: no control limits have been established by the EPA at this time.

UA17 : 001555

CRDL Standard

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

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
Aluminum	AL	ICP	IP121471	50.0	54.85	**109.7**	50.02	**100.0**								
Arsenic	AS	PMS	MS121681	0.2	0.20	**100.0**										
Calcium	CA	ICP	IP121471	50.0	48.90	**97.8**	50.21	**100.4**								
Chromium	CR	PMS	MS121681	0.5	0.54	**108.0**										
Copper	CU	ICP	IP121471	2.0	2.44	**122.0**	2.36	**118.0**								
Iron	FE	ICP	IP121471	50.0	53.47	**106.9**	50.85	**101.7**								
Magnesium	MG	ICP	IP121471	50.0	43.03	**86.1**	43.04	**86.1**								
Manganese	MN	ICP	IP121471	1.0	0.85	**85.0**	1.10	**110.0**								
Potassium	K	ICP	IP121471	500.0	508.42	**101.7**	496.53	**99.3**								
Silver	AG	ICP	IP121471	3.0	3.13	**104.3**	3.06	**102.0**								
Sodium	NA	ICP	IP121471	500.0	483.05	**96.6**	477.59	**95.5**								
Zinc	ZN	ICP	IP121471	10.0	10.51	**105.1**	9.55	**95.5**								

UA17.00156

Control Limits: no control limits have been established by the EPA at this time.

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS:ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP121371	200.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Arsenic	AS	PMS	MS121581	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chromium	CR	PMS	MS121581	10.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Copper	CU	ICP	IP121371	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U				
Iron	FE	ICP	IP121371	100.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Manganese	MN	ICP	IP121371	15.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U				
Silver	AG	ICP	IP121371	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U				
Zinc	ZN	ICP	IP121371	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U				

UA17: 00157

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB6	C	CCB7	C	CCB8	C	CCB9	C	CCB10	C	CCB11	C
Aluminum	AL	ICP	IP121371	200.0	50.0												
Arsenic	AS	PMS	MS121581	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chromium	CR	PMS	MS121581	10.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Copper	CU	ICP	IP121371	25.0	2.0												
Iron	FE	ICP	IP121371	100.0	50.0												
Manganese	MN	ICP	IP121371	15.0	1.0												
Silver	AG	ICP	IP121371	10.0	3.0												
Zinc	ZN	ICP	IP121371	20.0	10.0												

UA17:001158

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	CCB12	C	CCB13	C	CCB14	C	CCB15	C	CCB16	C	CCB17	C
Aluminum	AL	ICP	IP121371	200.0	50.0												
Arsenic	AS	PMS	MS121581	10.0	0.2	0.2	U	0.2	U								
Chromium	CR	PMS	MS121581	10.0	0.5	0.5	U	0.5	U								
Copper	CU	ICP	IP121371	25.0	2.0												
Iron	FE	ICP	IP121371	100.0	50.0												
Manganese	MN	ICP	IP121371	15.0	1.0												
Silver	AG	ICP	IP121371	10.0	3.0												
Zinc	ZN	ICP	IP121371	20.0	10.0												

UA17:00159

Calibration Blanks

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

UNITS: ug/L

ANALYTE	EL	METH	RUN	CRDL	IDL	ICB	C	CCB1	C	CCB2	C	CCB3	C	CCB4	C	CCB5	C
Aluminum	AL	ICP	IP121471	200.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Arsenic	AS	PMS	MS121681	10.0	0.2	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Calcium	CA	ICP	IP121471	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Chromium	CR	PMS	MS121681	10.0	0.5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Copper	CU	ICP	IP121471	25.0	2.0	2.0	U	2.0	U	2.0	U	2.0	U				
Iron	FE	ICP	IP121471	100.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Magnesium	MG	ICP	IP121471	5000.0	50.0	50.0	U	50.0	U	50.0	U	50.0	U				
Manganese	MN	ICP	IP121471	15.0	1.0	1.0	U	1.0	U	1.0	U	1.0	U				
Potassium	K	ICP	IP121471	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U				
Silver	AG	ICP	IP121471	10.0	3.0	3.0	U	3.0	U	3.0	U	3.0	U				
Sodium	NA	ICP	IP121471	5000.0	500.0	500.0	U	500.0	U	500.0	U	500.0	U				
Zinc	ZN	ICP	IP121471	20.0	10.0	10.0	U	10.0	U	10.0	U	10.0	U				

UA17:00166

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG

RUNID: IP121371

SDG: UA17

INSTRUMENT ID: OPTIMA ICP 2

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	199622.8	199504.4	**99.8**	199213.7	197469.3	**98.7**			
Antimony		1000	-2.5	969.5	**97.0**	-3.8	973.4	**97.3**			
Arsenic		1000	0.5	1017.0	**101.7**	-0.2	1016.5	**101.7**			
Barium		1000	-0.1	1012.3	**101.2**	-0.9	997.9	**99.8**			
Beryllium		1000	0.0	993.7	**99.4**	0.0	974.9	**97.5**			
Boron			-12.1	-8.9		-12.6	-12.7				
Cadmium		1000	1.2	1032.4	**103.2**	1.1	1044.5	**104.5**			
Calcium	100000	100000	100048.6	101121.6	**101.1**	100990.0	100708.5	**100.7**			
Chromium		1000	-1.0	1023.9	**102.4**	-0.8	1016.2	**101.6**			
Cobalt		1000	1.2	959.8	**96.0**	1.4	976.1	**97.6**			
Copper		1000	-1.4	1070.2	**107.0**	-0.6	1084.2	**108.4**			
Iron	200000	200000	196527.0	196926.6	**98.5**	195157.0	193473.3	**96.7**			
Lead		1000	-7.1	1000.3	**100.0**	-6.6	1001.9	**100.2**			
Magnesium	100000	100000	102458.7	98712.3	**98.7**	101568.8	97987.5	**98.0**			
Manganese		1000	0.5	950.2	**95.0**	0.6	927.5	**92.8**			
Molybdenum			8.0	7.7		7.7	7.9				
Nickel		1000	-0.7	966.7	**96.7**	-0.2	949.1	**94.9**			
Potassium			29.6	222.2		31.3	229.7				
Selenium		1000	10.6	1024.1	**102.4**	18.6	1031.9	**103.2**			
Silicon			-23.2	-23.0		-28.3	-22.2				
Silver		1000	-0.8	1063.6	**106.4**	-0.7	1060.0	**106.0**			
Sodium			14.7	13.8		10.2	11.1				
Strontium			10.5	10.4		10.3	10.3				
Thallium		1000	0.8	978.5	**97.9**	5.7	981.1	**98.1**			
Tin			-15.0	-14.9		-14.0	-16.1				
Titanium			0.2	-0.3		-0.2	-0.1				
Vanadium		1000	5.5	1000.6	**100.1**	4.5	1011.4	**101.1**			
Zinc		1000	-3.1	956.2	**95.6**	-2.7	954.3	**95.4**			

UA17.00151

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

ICS SOURCE: I.V.

RUNID: MS121581

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Antimony			0.1	0.1							
Arsenic		20	0.0	19.8	99.0						
Cadmium		20	0.0	20.0	100.0						
Chromium		20	0.8	20.7	103.5						
Cobalt		20	0.0	19.4	97.0						
Copper		20	0.5	20.1	100.5						
Lead			0.1	0.1							
Manganese		20	0.1	20.1	100.5						
Molybdenum	400	400	402.8	398.9	99.7						
Nickel		20	0.7	19.7	98.5						
Silver		20	0.0	19.9	99.5						
Thallium			0.1	0.1							
Vanadium			0.0	-0.4							
Zinc		20	1.1	20.0	100.0						

UA17:001622

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG

RUNID: IP121471

SDG: UA17

INSTRUMENT ID: OPTIMA ICP 2

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Aluminum	200000	200000	198461.4	198298.4	**99.1**	197848.5	196303.9	**98.2**			
Antimony		1000	-2.4	976.1	**97.6**	-5.9	959.5	**96.0**			
Arsenic		1000	0.7	1008.2	**100.8**	2.7	994.0	**99.4**			
Barium		1000	0.0	1004.7	**100.5**	-0.9	995.1	**99.5**			
Beryllium		1000	0.0	997.9	**99.8**	0.0	975.2	**97.5**			
Boron			-14.3	-12.6		-14.8	-12.4				
Cadmium		1000	1.0	1030.5	**103.1**	1.1	1027.2	**102.7**			
Calcium	100000	100000	99228.7	99825.2	**99.8**	98520.5	98703.4	**98.7**			
Chromium		1000	-1.6	1013.5	**101.4**	-1.6	1006.9	**100.7**			
Cobalt		1000	1.4	964.2	**96.4**	1.4	958.2	**95.8**			
Copper		1000	-0.6	1064.4	**106.4**	-0.4	1057.5	**105.8**			
Iron	200000	200000	194408.3	195180.0	**97.6**	192231.4	191494.3	**95.7**			
Lead		1000	-5.9	996.8	**99.7**	-6.0	985.1	**98.5**			
Magnesium	100000	100000	101235.8	98063.0	**98.1**	100386.8	96919.7	**96.9**			
Manganese		1000	0.6	948.4	**94.8**	0.4	931.2	**93.1**			
Molybdenum			8.2	8.2		7.5	8.2				
Nickel		1000	-1.3	953.0	**95.3**	-0.6	939.9	**94.0**			
Potassium			47.6	229.2		52.8	241.6				
Selenium		1000	7.5	1012.5	**101.3**	17.6	1008.8	**100.9**			
Silicon			-19.7	-18.2		-8.3	-16.2				
Silver		1000	-0.4	1064.2	**106.4**	-0.4	1056.8	**105.7**			
Sodium			18.7	17.2		19.0	18.1				
Strontium			10.3	10.3		10.3	10.1				
Thallium		1000	7.3	972.8	**97.3**	7.5	960.6	**96.1**			
Tin			-16.7	-15.5		-14.4	-16.1				
Titanium			0.8	0.4		0.5	0.7				
Vanadium		1000	4.0	999.3	**99.9**	3.6	992.1	**99.2**			
Zinc		1000	-2.7	947.7	**94.8**	-2.1	937.6	**93.8**			

(UA17_06169)

ICP Interference Check Sample

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

ICS SOURCE: I.V.

PROJECT: RG

RUNID: MS121681

SDG: UA17

INSTRUMENT ID: PE ELAN 6000

UNITS: ug/L

ANALYTE	ICSA TV	ICSAB TV	ICSA1	ICSAB1	%R	ICSA2	ICSAB2	%R	ICSA3	ICSAB3	%R
Arsenic		20	0.0	19.7	98.5						
Cadmium		20	0.0	20.2	101.0						
Chromium		20	0.8	20.7	103.5						
Cobalt		20	0.0	19.8	99.0						
Copper		20	0.5	19.8	99.0						
Lead			0.1	0.1							
Manganese		20	0.1	19.6	98.0						
Molybdenum	400	400	397.1	393.2	98.3						
Nickel		20	0.6	19.3	96.5						
Selenium			-0.2	-0.1							
Silver		20	0.0	20.0	100.0						
Thallium			0.1	0.1							
Vanadium			0.0	-0.5							
Zinc		20	1.0	19.9	99.5						

UA17.00164

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

ANALYSIS METHOD: ICP

SDG: UA17

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFERENCE	Q
Aluminum	MW-32S-120611L	UA17B-L	Water	IP121371	50.00	U	250.00	U		
Copper	MW-32S-120611L	UA17B-L	Water	IP121371	2.00	U	10.00	U		
Iron	MW-32S-120611L	UA17B-L	Water	IP121371	19375.02		19106.05		1.4	
Manganese	MW-32S-120611L	UA17B-L	Water	IP121371	821.12		813.45		0.9	
Silver	MW-32S-120611L	UA17B-L	Water	IP121371	3.00	U	15.00	U		
Zinc	MW-32S-120611L	UA17B-L	Water	IP121371	10.00	U	50.00	U		

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

ANALYSIS METHOD: ICP

SDG: UA17

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFERENCE	Q
Aluminum	MW-32S-120611L	UA17A-L	Water	IP121471	50.00	U	250.00	U		
Calcium	MW-32S-120611L	UA17A-L	Water	IP121471	33016.59		32667.65		1.1	
Copper	MW-32S-120611L	UA17A-L	Water	IP121471	2.00	U	10.00	U		
Iron	MW-32S-120611L	UA17A-L	Water	IP121471	19109.78		19367.10		1.3	
Magnesium	MW-32S-120611L	UA17A-L	Water	IP121471	26569.49		26774.30		0.8	
Manganese	MW-32S-120611L	UA17A-L	Water	IP121471	819.15		830.50		1.4	
Potassium	MW-32S-120611L	UA17A-L	Water	IP121471	20512.78		20611.20	B	0.5	
Silver	MW-32S-120611L	UA17A-L	Water	IP121471	3.00	U	15.00	U		
Sodium	MW-32S-120611L	UA17A-L	Water	IP121471	32342.49		32658.60		1.0	
Zinc	MW-32S-120611L	UA17A-L	Water	IP121471	10.00	U	50.00	U		

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

ANALYSIS METHOD: PMS

SDG: UA17

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFERENCE	Q
Arsenic	MW-32S-120611L	UA17A-L	Water	MS121581	2.16	B	2.70	B	25.0	
Chromium	MW-32S-120611L	UA17A-L	Water	MS121581	0.43	U	0.00	B		

ICP Serial Dilutions

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

ANALYSIS METHOD: PMS

SDG: UA17

UNITS: ug/L

ANALYTE	CLIENT ID	ARI ID	MATRIX	RUNID	INITIAL SAMPLE RESULT (I)	C	SERIAL DILUTION RESULT (S)	C	% DIFFERENCE	Q
Arsenic	MW-32S-120611L	UA17B-L	Water	MS121581	2.13	B	2.60	B	22.1	
Chromium	MW-32S-120611L	UA17B-L	Water	MS121581	0.75	B	0.45	B	40.0	

IDLs and ICP Linear Ranges

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17 UNITS: ug/L

ANALYTE	EL	METH	INSTRUMENT	WAVELENTH (nm)	GFA BACK-GROUND	CLP CRDL	RL	RL DATE	ICP LINEAR RANGE (ug/L)	ICP LR DATE
Aluminum	AL	ICP	OPTIMA ICP 2	308.22		200	50.0	4/1/2011	250000.0	8/3/2011
Arsenic	AS	PMS	PE ELAN 6000 MS	0.00		10	0.2	4/1/2011		
Calcium	CA	ICP	OPTIMA ICP 2	317.93		5000	50.0	4/1/2011	500000.0	8/3/2011
Chromium	CR	PMS	PE ELAN 6000 MS	0.00		10	0.5	4/1/2011		
Copper	CU	ICP	OPTIMA ICP 2	324.75		25	2.0	4/1/2011	40000.0	8/3/2011
Iron	FE	ICP	OPTIMA ICP 2	259.94		100	50.0	4/1/2011	250000.0	8/3/2011
Magnesium	MG	ICP	OPTIMA ICP 2	279.08		5000	50.0	4/1/2011	500000.0	8/3/2011
Manganese	MN	ICP	OPTIMA ICP 2	257.61		15	1.0	4/1/2011	30000.0	8/3/2011
Potassium	K	ICP	OPTIMA ICP 2	766.49		5000	500.0	4/1/2011	500000.0	8/3/2011
Silver	AG	ICP	OPTIMA ICP 2	328.07		10	3.0	4/1/2011	5000.0	8/3/2011
Sodium	NA	ICP	OPTIMA ICP 2	589.00		5000	500.0	4/1/2011	5000000.0	8/3/2011
Zinc	ZN	ICP	OPTIMA ICP 2	213.86		20	10.0	4/1/2011	100000.0	8/3/2011

ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

IEC DATE: 11/29/2011

SDG: UA17

INSTRUMENT ID: OPTIMA ICP 2

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	0.3891270	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	10.6149000	0.0000000	0.1208350
Arsenic	188.98	0.0000000	0.0000000	0.0000000	0.0000000	0.0339516	0.0000000	-0.8345790	1.1215100	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0000000	-0.0076716	0.0000000	-0.1892080	0.0000000	0.0000000	0.0522067
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	5.2418600	0.0000000	0.0000000	0.0000000	0.0000000	0.1195910	0.0000000	0.0000000	0.0000000
Calcium	317.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.5252460	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0242504	0.0000000	0.0000000	0.0000000	0.0000000	-0.0377814
Cobalt	228.62	0.0000000	0.0000000	0.1238430	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.2279050	-0.0318969	0.0000000	-0.0584929
Iron	273.96	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.6163900	0.0000000	0.0000000
Lead	220.35	-0.2018030	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-2.3072100	1.2452600	0.0540270
Magnesium	279.08	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-1.6380600	-1.2519300	0.0000000	0.5652870
Manganese	257.61	0.0071394	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.0051324
Molybdenum	202.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0123608	0.0000000	0.0000000	0.0000000	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	-0.2053280	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.3514040	0.0000000	0.0000000	-0.1233420
Silicon	288.16	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.4885200	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0108199	0.0000000	0.0000000	0.0000000	0.0000000	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	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.7836600	0.3510820	0.0000000	-0.1141760
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0387268	0.0000000	0.0000000	0.1632010	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-3.9361800	0.0000000	0.0730907
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0258303	0.0000000	0.0000000	-0.1475900	0.0000000	0.0000000

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ICP Interelement Correction Factors

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

IEC DATE: 11/29/2011

INSTRUMENT ID: OPTIMA ICP 2

ANALYTE	WAVELENGTH	MG	MN	MO	NI	PB	SB	TI	TL	V	ZN
Aluminum	308.22	0.0000000	0.0000000	15.3131000	0.0000000	0.0000000	0.0000000	1.5167500	0.0000000	17.6996000	0.0000000
Antimony	206.84	0.0000000	0.0000000	0.0000000	-0.4730780	0.0000000	0.0000000	-0.8897510	0.0000000	-3.3546800	0.0000000
Arsenic	188.98	0.0000000	0.0000000	2.3330800	0.0000000	0.0000000	0.0000000	-5.4412000	0.0000000	0.0000000	0.0000000
Barium	233.53	0.0000000	0.0000000	0.0000000	0.0766262	0.0000000	0.0000000	0.0000000	0.0000000	0.6419380	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2960780	0.0000000
Cadmium	228.80	0.0000000	0.0000000	0.0000000	-0.7324130	0.0000000	0.0000000	0.0000000	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	0.0405628	0.0000000	0.1395070	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.2773470	0.0000000
Cobalt	228.62	0.0000000	0.0000000	-0.1579570	0.1588330	0.0000000	0.0000000	1.8115900	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0057432	0.0000000	0.2688440	0.0000000	0.0000000	0.0000000	0.2461180	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	8.4403600	0.0000000
Lead	220.35	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Magnesium	279.08	0.0000000	0.0000000	-4.6256200	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.61	0.0041261	0.0000000	0.0000000	0.0000000	-0.2175850	0.0000000	0.0000000	0.0000000	-0.0271775	0.0000000
Molybdenum	202.03	0.0107429	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.7744280	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	0.0736777	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silicon	288.16	0.0000000	0.0000000	-2.7358100	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.2442620	0.2419260	0.0000000	0.0000000	0.0000000	-0.0470302	0.0000000	-0.2758080	0.0000000
Sodium	589.59	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	242.4230000	0.0000000	0.0000000	318.1570000
Thallium	190.80	0.0000000	-1.4179000	1.9562000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	1.2892100	0.0000000
Tin	189.93	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	-0.5848020	-0.3044710	0.0000000	0.0000000	0.0000000
Titanium	334.90	0.0000000	0.0000000	0.9873960	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	-0.1398510	-0.6804250	0.0000000	0.0000000	0.0000000	0.6004670	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.2377960	0.0000000	-0.0708227	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

UA17 6012

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

ANALYSIS METHOD: ICP

ARI PREP CODE: TWC

PREPDATE: 12/12/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-32S-120611	UA17A	0.000	50.0	50.0
MW-32S-120611D	UA17ADUP	0.000	50.0	50.0
MW-32S-120611S	UA17ASPK	0.000	50.0	50.0
PBW	UA17MB1	0.000	50.0	50.0
LCSW	UA17MB1SPK	0.000	50.0	50.0
MW-34S-120611	UA20A	0.000	50.0	50.0
MW-35S-120611	UA20B	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

ANALYSIS METHOD: ICP

ARI PREP CODE: WMN

PREPDATE: 12/12/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-32S-120611	UA17B	0.000	50.0	50.0
MW-32S-120611D	UA17BDUP	0.000	50.0	50.0
MW-32S-120611S	UA17BSPK	0.000	50.0	50.0
PBW	UA17MB2	0.000	50.0	50.0
LCSW	UA17MB2SPK	0.000	50.0	50.0
MW-34S-120611	UA20D	0.000	50.0	50.0
MW-35S-120611	UA20E	0.000	50.0	50.0

Preparation Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG

SDG: UA17

ANALYSIS METHOD: PMS

ARI PREP CODE: REN

PREPDATE: 12/12/2011

CLIENT ID	ARI ID	MASS (g)	INITIAL VOLUME (mL)	FINAL VOLUME (mL)
MW-32S-120611	UA17A	0.000	50.0	25.0
MW-32S-120611D	UA17ADUP	0.000	50.0	25.0
MW-32S-120611S	UA17ASPK	0.000	50.0	25.0
MW-32S-120611	UA17B	0.000	50.0	25.0
MW-32S-120611D	UA17BDUP	0.000	50.0	25.0
MW-32S-120611S	UA17BSPK	0.000	50.0	25.0
PBW	UA17MB1	0.000	50.0	25.0
LCSW	UA17MB1SPK	0.000	50.0	25.0
PBW	UA17MB2	0.000	50.0	25.0
LCSW	UA17MB2SPK	0.000	50.0	25.0
MW-34S-120611	UA20A	0.000	50.0	25.0
MW-35S-120611	UA20B	0.000	50.0	25.0
MW-34S-120611	UA20D	0.000	50.0	25.0
MW-35S-120611	UA20E	0.000	50.0	25.0

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 12/13/2011

SDG: UA17 | RUNID: IP121371 | METHOD: ICP | END DATE: 12/13/2011

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	10332		X	X									X	X				X													X
S2	S2	1.00	10373												X					X													
S3	S3	1.00	10393		X																												X
S4	S4	1.00	10420																														
S5	S5	1.00	10442			X										X																	
ICV	ICV	1.00	10483		X	X									X	X				X													X
ICB	ICB	1.00	10523		X	X									X	X				X													X
CRI	CRII	1.00	10564		X	X									X	X				X													X
ICSA	ICSAI	1.00	11010		X	X									X	X				X													X
ICSAB	ICSABI	1.00	11051		X	X									X	X				X													X
CCV	CCV1	1.00	11091		X	X									X	X				X													X
CCB	CCB1	1.00	11131		X	X									X	X				X													X
PBW	UA17MB2	1.00	11172		X	X									X	X				X													X
MW-32S-120611L	UA17B-L	5.00	11214		X	X									X	X				X													X
MW-32S-120611	UA17B	1.00	11255		X	X									X	X				X													X
MW-32S-120611D	UA17BDUP	1.00	11301		X	X									X	X				X													X
MW-32S-120611S	UA17BSPK	1.00	11342		X	X									X	X				X													X
MW-34S-120611	UA20D	1.00	11382																														
MW-35S-120611	UA20E	1.00	11423		X	X									X	X				X													X
MW-34S-120611	UA20D	1.00	11480		X	X									X	X				X													X
ZZZZZZ	UA39C	2.00	11521																														
LCSW	UA17MB2SPK	1.00	11561		X	X									X	X				X													X
CCV	CCV2	1.00	12001		X	X									X	X				X													X
CCB	CCB2	1.00	12041		X	X									X	X				X													X
CRI	CRIF	1.00	12082		X	X									X	X				X													X
ICSA	ICSAF	1.00	12124		X	X									X	X				X													X
ICSAB	ICSABF	1.00	12165		X	X									X	X				X													X
CCV	CCV3	1.00	12205		X	X									X	X				X													X
CCB	CCB3	1.00	12245		X	X									X	X				X													X

UA17 : 00175

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: OPTIMA ICP 2 | START DATE: 12/14/2011

SDG: UA17 | RUNID: IP121471 | METHOD: ICP | END DATE: 12/14/2011

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	10312		X	X					X				X	X		X	X	X		X											X
S2	S2	1.00	10354												X					X													
S3	S3	1.00	10374		X																												X
S4	S4	1.00	10401																														
S5	S5	1.00	10422			X					X					X		X	X			X											
ICV	ICV	1.00	10455		X	X					X				X	X		X	X	X		X											X
ICB	ICB	1.00	10495		X	X					X				X	X		X	X	X		X											X
CRI	CRII	1.00	10540		X	X					X				X	X		X	X	X		X											X
ICSA	ICSAI	1.00	10581		X	X					X				X	X		X	X	X		X											X
ICSAB	ICSABI	1.00	11023		X	X					X				X	X		X	X	X		X											X
CCV	CCV1	1.00	11062		X	X					X				X	X		X	X	X		X											X
CCB	CCB1	1.00	11102		X	X					X				X	X		X	X	X		X											X
ZZZZZZ	UA40MB1	1.00	11144																														
PBW	UA17MB1	1.00	11185		X	X					X				X	X		X	X	X		X											X
MW-32S-120611L	UA17A-L	5.00	11230		X	X					X				X	X		X	X	X		X											X
MW-32S-120611	UA17A	1.00	11272		X	X					X				X	X		X	X	X		X											X
MW-32S-120611D	UA17ADUP	1.00	11313		X	X					X				X	X		X	X	X		X											X
MW-32S-120611S	UA17ASPK	1.00	11354		X	X					X				X	X		X	X	X		X											X
ZZZZZZ	ZZZZZZ	1.00	11394																														
MW-34S-120611	UA20A	1.00	11434		X	X					X				X	X		X	X	X		X											X
MW-35S-120611	UA20B	1.00	11475		X	X					X				X	X		X	X	X		X											X
LCSW	UA17MB1SPK	1.00	11521		X	X					X				X	X		X	X	X		X											X
CCV	CCV2	1.00	11560		X	X					X				X	X		X	X	X		X											X
CCB	CCB2	1.00	12001		X	X					X				X	X		X	X	X		X											X
CRI	CRIF	1.00	12042		X	X					X				X	X		X	X	X		X											X
ICSA	ICSAF	1.00	12083		X	X					X				X	X		X	X	X		X											X
ICSAB	ICSABF	1.00	12125		X	X					X				X	X		X	X	X		X											X
CCV	CCV3	1.00	12164		X	X					X				X	X		X	X	X		X											X
CCB	CCB3	1.00	12204		X	X					X				X	X		X	X	X		X											X

UA17 : 60176

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA17 | RUNID: MS121581 METHOD: PMS | END DATE: 12/16/2011

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	10370				X							X																			
S1	S1	1.00	10430				X							X																			
S2	S2	1.00	10490				X							X																			
S3	S3	1.00	10550				X							X																			
S4	S4	1.00	11010				X							X																			
ZZZZZZ	Rinse Sampl	1.00	11080																														
ICV	MICV	1.00	11190				X							X																			
ICB	ICB	1.00	11260				X							X																			
CCV	MCCV1	1.00	11310				X							X																			
CCB	CCB1	1.00	11380				X							X																			
CRI	MCRI	1.00	11440				X							X																			
ICSA	ICSAI	1.00	11500				X							X																			
ICSAB	ICSABI	1.00	11560				X							X																			
ZZZZZZ	LR200	1.00	12020																														
ZZZZZZ	LR300	1.00	12090																														
CCV	MCCV2	1.00	12160				X							X																			
CCB	CCB2	1.00	12220				X							X																			
ZZZZZZ	TZ73RMB1	2.00	12290																														
ZZZZZZ	TZ73RMB1SPK	2.00	12350																														
ZZZZZZ	TZ73RA-L	25.00	12410																														
ZZZZZZ	TZ73RA	5.00	12480																														
ZZZZZZ	TZ73RADUP	5.00	12540																														
ZZZZZZ	TZ73RASPK	5.00	13000																														
ZZZZZZ	TZ73RB	5.00	13070																														
ZZZZZZ	TZ73RC	5.00	13130																														
ZZZZZZ	TZ73RH	5.00	13190																														
ZZZZZZ	UA51B	100.00	13250																														
CCV	MCCV3	1.00	13320				X							X																			
CCB	CCB3	1.00	13380				X							X																			
S0	S0	1.00	13530				X							X																			
CCV	MCCV4	1.00	14000				X							X																			
CCB	CCB4	1.00	14070				X							X																			
ZZZZZZ	ZZZZZZ	10.00	14120																														
ZZZZZZ	TZ97A	2.00	14180																														
ZZZZZZ	TZ97ADUP	2.00	14240																														

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Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA17 | RUNID: MS121581 METHOD: PMS | END DATE: 12/16/2011

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	TZ97ASPK	2.00	14300																														
ZZZZZZ	ZZZZZZ	10.00	14370																														
ZZZZZZ	TZ97I	2.00	14430																														
ZZZZZZ	TZ97IDUP	2.00	14490																														
ZZZZZZ	TZ97ISPK	2.00	14550																														
ZZZZZZ	TZ97C	5.00	15020																														
ZZZZZZ	TZ97K	5.00	15080																														
CCV	MCCV5	1.00	15140				X							X																			
CCB	CCB5	1.00	15210				X							X																			
S0	S0	1.00	15270				X							X																			
CCV	MCCV6	1.00	15460				X							X																			
CCB	CCB6	1.00	15530				X							X																			
ZZZZZZ	TZ97A-L	25.00	15590																														
ZZZZZZ	TZ97A	5.00	16050																														
ZZZZZZ	TZ97ADUP	5.00	16110																														
ZZZZZZ	TZ97ASPK	5.00	16170																														
ZZZZZZ	TZ97I-L	25.00	16240																														
ZZZZZZ	TZ97I	5.00	16300																														
ZZZZZZ	TZ97IDUP	5.00	16360																														
ZZZZZZ	TZ97ISPK	5.00	16430																														
ZZZZZZ	TZ97C	10.00	16490																														
ZZZZZZ	TZ97K	10.00	16550																														
CCV	MCCV7	1.00	17010				X							X																			
CCB	CCB7	1.00	17080				X							X																			
ZZZZZZ	TZ99MB1	2.00	17140																														
ZZZZZZ	TZ99MB2	2.00	17200																														
ZZZZZZ	TZ99MB1SPK	2.00	17250																														
ZZZZZZ	TZ99MB2SPK	2.00	17320																														
ZZZZZZ	TZ99ADUP	2.00	17380																														
ZZZZZZ	TZ99A	2.00	17440																														
ZZZZZZ	TZ99ASPK	2.00	17510																														
ZZZZZZ	TZ99DDUP	2.00	17570																														
ZZZZZZ	TZ99D	2.00	18030																														
ZZZZZZ	TZ99DSPK	2.00	18090																														
CCV	MCCV8	1.00	18160				X							X																			

UA17 091 76

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA17 | RUNID: MS121581 METHOD: PMS | END DATE: 12/16/2011

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
CCB	CCB8	1.00	18220				X							X																			
ZZZZZZ	TZ99B	2.00	18280																														
ZZZZZZ	UA27B	2.00	18340																														
ZZZZZZ	UA27C	2.00	18410																														
ZZZZZZ	UA27D	2.00	18470																														
ZZZZZZ	UA27D	5.00	18530																														
ZZZZZZ	UA27I	2.00	18590																														
ZZZZZZ	UA27J	2.00	19060																														
ZZZZZZ	UA27K	2.00	19120																														
ZZZZZZ	UA27L	2.00	19180																														
ZZZZZZ	UA27L	5.00	19250																														
CCV	MCCV9	1.00	19310				X							X																			
CCB	CCB9	1.00	19370				X							X																			
ZZZZZZ	UA27O	2.00	19430																														
ZZZZZZ	TZ99E	2.00	19500																														
ZZZZZZ	UA27A	2.00	19560																														
ZZZZZZ	UA27E	2.00	20020																														
ZZZZZZ	UA27F	2.00	20080																														
ZZZZZZ	UA27G	2.00	20150																														
ZZZZZZ	UA27M	2.00	20210																														
ZZZZZZ	UA27N	2.00	20270																														
CCV	MCCV10	1.00	20340				X							X																			
CCB	CCB10	1.00	20400				X							X																			
ZZZZZZ	UA33MB1	2.00	20460																														
ZZZZZZ	UA33MB2	2.00	20520																														
ZZZZZZ	UA33MB1SPK	2.00	20580																														
ZZZZZZ	UA33MB2SPK	2.00	21050																														
ZZZZZZ	UA33A-L	10.00	21110																														
ZZZZZZ	UA33A	2.00	21170																														
ZZZZZZ	UA33ADUP	2.00	21240																														
ZZZZZZ	UA33ASPK	2.00	21300																														
ZZZZZZ	ZZZZZZ	2.00	21360																														
ZZZZZZ	UA33C	2.00	21420																														
CCV	MCCV11	1.00	21490				X							X																			
CCB	CCB11	1.00	21550				X							X																			

FORM XIV

UA17_091215

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/15/2011

SDG: UA17 | RUNID: MS121581 METHOD: PMS | END DATE: 12/16/2011

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
PBW	UA17MB1	2.00	22010																														
LCSW	UA17MB1SPK	2.00	22070				X							X																			
MW-32S-120611L	UA17A-L	10.00	22140				X							X																			
MW-32S-120611	UA17A	2.00	22200				X							X																			
MW-32S-120611D	UA17ADUP	2.00	22260				X							X																			
MW-32S-120611S	UA17ASPK	2.00	22330				X							X																			
ZZZZZZ	ZZZZZZ	2.00	22390																														
MW-34S-120611	UA20A	2.00	22450				X							X																			
MW-35S-120611	UA20B	2.00	22510				X							X																			
CCV	MCCV12	1.00	22580				X							X																			
CCB	CCB12	1.00	23040				X							X																			
PBW	UA17MB2	2.00	23100				X							X																			
LCSW	UA17MB2SPK	2.00	23160				X							X																			
MW-32S-120611L	UA17B-L	10.00	23230				X							X																			
MW-32S-120611	UA17B	2.00	23290				X							X																			
MW-32S-120611D	UA17BDUP	2.00	23350				X							X																			
MW-32S-120611S	UA17BSPK	2.00	23420				X							X																			
ZZZZZZ	ZZZZZZ	2.00	23480																														
MW-34S-120611	UA20D	2.00	23540				X							X																			
MW-35S-120611	UA20E	2.00	00000				X							X																			
CCV	MCCV13	1.00	00070				X							X																			
CCB	CCB13	1.00	00130				X							X																			

UA17: 98185

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/16/2011

SDG: UA17 | RUNID: MS121681 METHOD: PMS | END DATE: 12/16/2011

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	09550				X							X																			
S1	S1	1.00	10010				X							X																			
S2	S2	1.00	10070				X							X																			
S3	S3	1.00	10130				X							X																			
S4	S4	1.00	10190				X							X																			
ZZZZZZ	Rinse Sampl	1.00	10260																														
ICV	MICV	1.00	10380				X							X																			
ICB	ICB	1.00	10450				X							X																			
CCV	MCCV1	1.00	10500				X							X																			
CCB	CCB1	1.00	10570				X							X																			
ZZZZZZ	ZZZZZZ	1.00	11030																														
ZZZZZZ	ZZZZZZ	1.00	11090																														
ZZZZZZ	ZZZZZZ	1.00	11150																														
ZZZZZZ	ZZZZZZ	1.00	11210																														
ZZZZZZ	ZZZZZZ	1.00	11280																														
CCV	MCCV2	1.00	11350				X							X																			
CCB	CCB2	1.00	11410				X							X																			
S0	S0	1.00	11470				X							X																			
CCV	MCCV3	1.00	11550				X							X																			
CCB	CCB3	1.00	12020				X							X																			
CRI	MCRI	1.00	12080				X							X																			
ICSA	ICSAI	1.00	12140				X							X																			
ICSAB	ICSABI	1.00	12200				X							X																			
ZZZZZZ	LR200	1.00	12260																														
ZZZZZZ	LR300	1.00	12330																														
CCV	MCCV4	1.00	12390				X							X																			
CCB	CCB4	1.00	12460				X							X																			
PBW	UA17MB1	2.00	12550				X							X																			
ZZZZZZ	TZ97A-L	10.00	13010																														
ZZZZZZ	TZ97A	2.00	13070																														
ZZZZZZ	TZ97ADUP	2.00	13130																														
ZZZZZZ	TZ97ASPK	2.00	13200																														
ZZZZZZ	TZ97I-L	10.00	13260																														
ZZZZZZ	TZ97I	2.00	13320																														
ZZZZZZ	TZ97IDUP	2.00	13380																														

FORM XIV

12/16/11 08:13

Analysis Run Log

ANALYTICAL RESOURCES INCORPORATED

CLIENT: ERM-West

PROJECT: RG | INSTRUMENT ID: PE ELAN 6000 MS | START DATE: 12/16/2011

SDG: UA17 | RUNID: MS121681 METHOD: PMS | END DATE: 12/16/2011

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	TZ97ISPK	2.00	13450																														
CCV	MCCV5	1.00	13510				X							X																			
CCB	CCB5	1.00	13580				X							X																			

UA17:00182

General Chemistry Analysis
Report and Summary QC Forms

ARI Job ID: UA17, UA20

SAMPLE RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Client ID: MW-32S-120611
ARI ID: 11-28052 UA17A

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	12/12/11 121211#1	SM 2320	mg/L CaCO3	1.0	291
Carbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Bicarbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	291
Hydroxide	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Total Suspended Solids	12/08/11 120811#1	SM2540D	mg/L	1.1	31.8
Chloride	12/08/11 120811#1	EPA 300.0	mg/L	0.5	7.8
N-Nitrate	12/07/11 120711#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
Total Phosphorus	12/15/11 121511#1	SM4500-PE	mg-P/L	0.060	1.23
Sulfate	12/07/11 120711#1	EPA 300.0	mg/L	0.1	0.7
Total Organic Carbon	12/08/11 120811#1	EPA 9060M	mg/L	1.50	8.79

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: UA17A Client ID: MW-32S-120611							
Chloride	EPA 300.0	12/08/11	mg/L	7.8	17.9	10.0	101.0%
N-Nitrate	EPA 300.0	12/07/11	mg-N/L	< 0.1	1.9	2.0	95.0%
Sulfate	EPA 300.0	12/07/11	mg/L	0.7	2.6	2.0	95.0%
Total Organic Carbon	EPA 9060M	12/08/11	mg/L	8.79	30.8	20.0	110.0%

REPLICATE RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/07/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: UA17A Client ID: MW-32S-120611						
Chloride	EPA 300.0	12/08/11	mg/L	7.8	7.8	0.0%
N-Nitrate	EPA 300.0	12/07/11	mg-N/L	< 0.1	< 0.1	NA
Sulfate	EPA 300.0	12/07/11	mg/L	0.7	0.6	15.4%
Total Organic Carbon	EPA 9060M	12/08/11	mg/L	8.79	9.00	2.4%

LAB CONTROL RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Suspended Solids SM2540D	ICVL	12/08/11	mg/L	47.8	50.0	95.6%

METHOD BLANK RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Total Suspended Solids	SM2540D	12/08/11	mg/L	< 1.0 U	
Chloride	EPA 300.0	12/08/11	mg/L	0.1	
N-Nitrate	EPA 300.0	12/07/11	mg-N/L	< 0.1 U	
Total Phosphorus	SM4500-PE	12/15/11	mg-P/L	< 0.060 U	
Sulfate	EPA 300.0	12/07/11	mg/L	< 0.1 U	
Total Organic Carbon	EPA 9060M	12/08/11	mg/L	< 1.50 U	

LAB CONTROL RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Suspended Solids SM2540D	ICVL	12/08/11	mg/L	47.8	50.0	95.6%

STANDARD REFERENCE RESULTS-CONVENTIONALS
UA17-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	12/12/11	mg/L CaCO3	51.2	49.2	104.1%
Chloride ERA #411010	EPA 300.0	12/08/11	mg/L	3.0	3.0	100.0%
N-Nitrate ERA #230511	EPA 300.0	12/07/11	mg-N/L	2.9	3.0	96.7%
Total Phosphorus ERA #35064	SM4500-PE	12/15/11	mg-P/L	0.180	0.160	112.5%
Sulfate ERA #160111	EPA 300.0	12/07/11	mg/L	3.0	3.0	100.0%
Total Organic Carbon ERA 0523-11-05	EPA 9060M	12/08/11	mg/L	20.6	20.0	103.0%

SAMPLE RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Client ID: MW-34S-120611
ARI ID: 11-28025 UA20A

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	12/12/11 121211#1	SM 2320	mg/L CaCO3	1.0	93.4
Carbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Bicarbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	93.4
Hydroxide	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Hexavalent Chrome	12/06/11 120611#1	SW7196A	mg/L	0.010	< 0.010 U
Total Suspended Solids	12/08/11 120811#1	SM2540D	mg/L	1.1	1.9
Chloride	12/06/11 120611#1	EPA 300.0	mg/L	0.1	2.3
N-Nitrate	12/06/11 120611#1	EPA 300.0	mg-N/L	0.1	0.4
N-Ammonia	12/08/11 120811#1	EPA 350.1M	mg-N/L	0.010	0.040
Total Phosphorus	12/15/11 121511#1	SM4500-PE	mg-P/L	0.060	0.192
Sulfate	12/10/11 121011#1	EPA 300.0	mg/L	0.5	9.4
Total Organic Carbon	12/08/11 120811#1	EPA 9060M	mg/L	1.50	2.34

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/20/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Client ID: MW-35S-120611
ARI ID: 11-28026 UA20B

Analyte	Date Batch	Method	Units	RL	Sample
Alkalinity	12/12/11 121211#1	SM 2320	mg/L CaCO3	1.0	121
Carbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Bicarbonate	12/12/11	SM 2320	mg/L CaCO3	1.0	121
Hydroxide	12/12/11	SM 2320	mg/L CaCO3	1.0	< 1.0 U
Total Suspended Solids	12/08/11 120811#1	SM2540D	mg/L	1.1	2.3
Chloride	12/06/11 120611#1	EPA 300.0	mg/L	0.1	3.4
N-Nitrate	12/06/11 120611#1	EPA 300.0	mg-N/L	0.1	< 0.1 U
N-Ammonia	12/08/11 120811#1	EPA 350.1M	mg-N/L	0.010	0.207
Total Phosphorus	12/15/11 121511#1	SM4500-PE	mg-P/L	0.060	0.252
Sulfate	12/10/11 121011#1	EPA 300.0	mg/L	0.1	1.5
Total Organic Carbon	12/08/11 120811#1	EPA 9060M	mg/L	1.50	2.68

RL Analytical reporting limit
U Undetected at reported detection limit

UA17:00192

SAMPLE RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Client ID: DUP-120611-1
ARI ID: 11-28027 UA20C

Analyte	Date Batch	Method	Units	RL	Sample
Hexavalent Chrome	12/06/11 120611#1	SW7196A	mg/L	0.010	< 0.010 U
N-Ammonia	12/08/11 120811#1	EPA 350.1M	mg-N/L	0.010	0.074

RL Analytical reporting limit
U Undetected at reported detection limit

MS/MSD RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: UA20A Client ID: MW-34S-120611							
Hexavalent Chrome	SW7196A	12/06/11	mg/L	< 0.010	0.616	0.627	98.2%

REPLICATE RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: 12/06/11
Date Received: 12/06/11

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: UA20A Client ID: MW-34S-120611						
Hexavalent Chrome	SW7196A	12/06/11	mg/L	< 0.010	< 0.010	NA

UA17:00195

METHOD BLANK RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
Hexavalent Chrome	SW7196A	12/06/11	mg/L	< 0.010 U	
Total Suspended Solids	SM2540D	12/08/11	mg/L	< 1.0 U	
Chloride	EPA 300.0	12/06/11	mg/L	< 0.1 U	
N-Nitrate	EPA 300.0	12/06/11	mg-N/L	< 0.1 U	
N-Ammonia	EPA 350.1M	12/08/11	mg-N/L	< 0.010 U	FB
Total Phosphorus	SM4500-PE	12/15/11	mg-P/L	< 0.060 U	
Sulfate	EPA 300.0	12/10/11	mg/L	< 0.1 U	
Total Organic Carbon	EPA 9060M	12/08/11	mg/L	< 1.50 U	

FB Filtration Blank

UA17:00196

STANDARD REFERENCE RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
Alkalinity ERA #P114506	SM 2320	12/12/11	mg/L CaCO3	49.1	49.2	99.8%
Hexavalent Chrome ERA #41065	SW7196A	12/06/11	mg/L	0.613	0.630	97.3%
Chloride ERA #411010	EPA 300.0	12/06/11	mg/L	3.0	3.0	100.0%
N-Nitrate ERA #230511	EPA 300.0	12/06/11	mg-N/L	3.0	3.0	100.0%
N-Ammonia ERA #15125	EPA 350.1M	12/08/11	mg-N/L	0.459	0.500	91.8%
Total Phosphorus ERA #35064	SM4500-PE	12/15/11	mg-P/L	0.180	0.160	112.5%
Sulfate ERA #160111	EPA 300.0	12/10/11	mg/L	2.9	3.0	96.7%
Total Organic Carbon ERA 0523-11-05	EPA 9060M	12/08/11	mg/L	20.6	20.0	103.0%

LAB CONTROL RESULTS-CONVENTIONALS
UA20-ERM-West

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized
Reported: 12/21/11

Project: RG
Event: 128296.07
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Total Suspended Solids SM2540D	ICVL	12/08/11	mg/L	47.8	50.0	95.6%

Subcontracted Results
Total Organic Halides Analyzed by Columbia Analytical Services Inc.

ARI Job ID: UA17, UA20

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

December 22, 2011 Analytical Report for Service Request No: K1111923

Sue Dunnihoo
Analytical Resources, Incorporated
4611 So. 134th Place
Suite 100
Tukwila, WA 98168

RE: UA17

Dear Sue:

Enclosed are the results of the sample submitted to our laboratory on December 08, 2011. For your reference, these analyses have been assigned our service request number K1111923

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at LDomenighini@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Lisa A Domenighini

Lisa Domenighini
Project Chemist

LD/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

UA17:00201

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

UA17:00202

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
DOD ELAP	L11-119
Florida DOH	E87412
Georgia DNR	881
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
ISO 17025	L11-118
Louisiana DEQ	3016
Louisiana DHH	LA080001
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon – DEQ (NELAP)	WA100010
South Carolina DHEC	61002
Texas CEQ	04704427-08-TX
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

UA17:00204

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Analytical Resources, Incorporated	**Service Request No.:**	K1111923
Project:	UA17	**Date Received:**	12/08/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 12/08/11. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Organic Halides by Method 9020B:
The as per the method the samples were analyzed in duplicate. The initial result of the sample was a J Flag hit and the replicate was Non-Detect. The initial value was reported. No further corrective action taken.

No other anomalies associated with the analysis of these samples were observed.

Approved by Lisa A Openshaw Date 12/23/11

UA17:00205

Chain of Custody

UA17:00206

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 12/07/11

ANALYTICAL RESOURCES INCORPORATED

ARI Project: UA17

Laboratory: Columbia Analytical Services Inc.
Lab Contact: Ed Wallace
Lab Address: 1317 South 13th Street
Kelso, WA 98626
Phone: 360-577-7222
Fax: 360-636-1068

ARI Client: ERM-West
Project ID: RG
ARI PM: Sue Dunnihoo
Phone: 206-695-6207
Fax: 206-695-6201
Email: subdata@arilabs.com

Analytical Protocol: In-house
Special Instructions:

Requested Turn Around: **12/21/11**
Email Results (Y/N): **email**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases 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 Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
11-28052-UA17A	MW-32S-120611	12/06/11 16:12	Water	1	Total Organic Halides

Special Instructions: None

Method 9020

Carrier UPS		Airbill 1Z832 695 03 5132 6490	Date 12/7/11
Relinquished by	Company ARI	Date 12/7/11	Time 1310
Received by	Company CAS	Date 12/8/11	Time 1030

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Lisa

Client / Project: Analytical Resources Inc. Service Request K11 11923

Received: 12/8/11 Opened: 12/8/11 By: SMW Unloaded: 12/8/11 By: SMW

1. Samples were received via? *Mail* *Fed Ex* (*UPS*) *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? One, front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.2		249		1E 832 695 03 5132 6490	

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

General Chemistry Parameters

UA17:00209

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Analytical Resources, Incorporated	**Service Request:**	K1111923
Project:	UA17	**Date Collected:**	12/6/2011
Sample Matrix:	Water	**Date Received:**	12/8/2011

Halides, Total Organic (TOX)

Prep Method	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
11-28052-UA17A / MW-32S-120611	K1111923-001	10	4	1	NA	12/19/2011	5	J
Method Blank	K1111923-MB	10	4	1	NA	12/19/2011	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Analytical Resources, Incorporated	**Service Request:**	K1111923
Project:	UA17	**Date Collected:**	12/6/2011
Sample Matrix:	Water	**Date Received:**	12/8/2011
		Date Extracted:	NA
		Date Analyzed:	12/19/2011

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name	11-28052-UA17A / MW-32S-120611	Units:	ug/L (ppb)
Lab Code	K1111923-001MS, K1111923-001DMS	Basis:	NA
Test Notes:			

									Percent Recovery				
	Prep	Analysis		Spike Level		Sample	Spike Result				CAS Acceptance	Relative Percent	Result
Analyte	**Method**	**Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**	**Notes**
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	5 J	101	99	96	94	82-121	2	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Analytical Resources, Incorporated
Project: UA17
Sample Matrix: Water

Service Request: K1111923
Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/2011

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.72	10.7	97	ND
Percent Recovery	102	107	97	
Run B	3.63	10.6		
Percent Recovery	100	106		

Work Request # Original (K11923): K11924 K11930 2735 80

Tier: IV IV

Date Analyzed: 12/19/11

Analyst: EM

Analysis: TOX 9020B KTOX03

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS:

K11923
K11924 > Due 12/18
K11930

See bench sheet for QC failure comment.

Final Approved by: [signature] Date: 12/20/11

DQREPORT

UA17:00213

AOX/TOX Benchsheet

Service Request #: K1111923, K1111924, K1111930 Method # : TOX-9020B

Analysis For : Total Organic Halides Instrument: Crackers

Calibration Date: 7/5/2001 IPR Date: 5/9/2000

Instrument:	Volume	Concentration	Result	Reported Value	% Rec.
Halide Check	Run A = 10 µL	3.64	3.7240	3.7240	102
	Run B = 10 µL	3.64	3.6240	3.6240	100
NO_3 Wash Blank	2 mL	1) 0.2270	2) 0.1220	Average =	0.1745
Inst Cal Std	Run A = 10 µL	10.0	10.8360	10.6615	107
	Run B = 10 µL	10.0	10.7900	10.6155	106

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
MB	100	100	0.1480	0.1320	-1	< 10					
PAR STD	100	100	9.8940	0.1860	97	97	<1				97
K11923-1	100	100	0.4650	0.3530	5J		38.1		n	2	
K11924-1	100	100	0.7490	0.2260	6J		8.2		n	2	
K11924-2	100	100	0.4600	NA	3		<1		y	2	
K11930-1	100	100	0.5600	NA	3.9		<1		n	2	
K11930-2	100	100	0.6790	0.3010	6J		20.0		y	2	
K11930-3	10	100	0.2840	NA	11	NR	268.5		y	2	
NO_3 Wash Blank	2 mL		1) 0.1970		2) 0.2480		Average =				0.2225
ICS	10 µl				10.841	10.6185					106

Comments: NA signifies B column is equal to or less than the nitrate wash blank and should be disregarded as per method.
High break through is disregarded if sample concentration is less than or equal to the MRL.

sulfuric acid: EMD 51164 nitric acid: JTB41037

Halide Check = 3.64 µg/L **Inst. Cal Std. =** 10.0 µg/L

TOX-9020B (ppb) = [(OBS.A - NO_3 Blank) + (OBS.B - NO_3 Blank)] x (DF) / Volume Analyzed (L)

AOX-506 (ppb)

AOX-1650C (ppb) = ((OBS.A + OBS.B) - (MB OBS.A + MB OBS.B)) / Initial Volume Analyzed (L)

% Breakthrough = (OBS.B - MB OBS.B) x 100 / (OBS.A - MB OBS.A) + (OBS.B - MB OBS.B)

Matrix Spike = 10 µl x 1 µg x 100 ml / 1 µl x 100ml x 0.1 L = 100 µg/L

NO_3 Wash ID #: TOX/3-27-J
Electrolyte ID #: TOX/3-60-N
Carbon Lot #: 1106134
0.0103 NaCl ID #: TOX/3-70-M
1000 ppm TCP (PAR) ID #: TOX/3-72-E
1000 ppm TCP (ICS) ID #: TOX/3-72-D

NO3 = < 1.0
ICS = 90%-110%
PAR = 87-113%
MS =82-121%

Analyzed By:	DM	Date:	12/19/11 0925
Reviewed By:	[illegible]	Date:	12/20/11

UA17 : 00214

AOX/TOX Benchsheet

Service Request #: K1111923,'K1111924, K1111930 Method # : TOX-9020B

Analysis For Total Organic Halides Instrument: Crackers

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
K11923-1D	100	100	0.4760	0.2590	3	NC	12 6	NC			1+1d
K11923-1MS	100	100	9 7710	0.7900	101	101	5.6				96
K11923-1MSD	100	100	9.7190	0.6100	99	99	3.9	2			94
K11924-1D	100	100	0.5480	NA	3	NC	<1	NC			1+1d
K11924-2D	100	100	0.3270	NA	1	<4	188.6	-			2+2d
K11930-1D	100	100	0.4950	NA	3	<4	<1	-			1+1d
K11930-2D	100	100	0.4750	NA	3	NC	<1	NC			2+2d
K11930-3D	100	100	0 7520	NA	5		<1				
NO3 Wash Blank	2 mL		1)	0.2050	2)	0.1850	Average =				0.1950
ICS	10 µl				11.059	10.8640					109
K11930-3T	100	100	0.8920	0.3730	9	7J	20.3	57*			3d+3t
ICS	10 µl				10.940	10.7450					107

Comments: K11930-3d/3t high RPD due to sample concentration less than MRL.

Analyzed By: EM	Date: 12/19/11
Reviewed By: [illegible]	Date: 12/20/11

Blank Report

Blank Results

Data ID : AOX212192011.001 lw 1/12/2011

Reps.	Mode	Counts(µg)	Total Counts	$\bar{X}$	SD	RSD(%)	ABC No.	Date
1-1	AOX-2	0.227					1	12/19/11 09:25
1-2	AOX-2	0.122	0.349	0.349	***.**	***.**	1	12/19/11 09:35

BM 12/19/11

UA17:00216

Sample Report

Sample All Data

Data ID : AOX212192011.001
Blank : 0.349 µg/2Column LL 1/12/20/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	ICS	10.00 µl	1.0000	10.836			1
1-2	ICS	10.00 µl	1.0000	10.790	21.626	0.21 %	1
n = 1		$\bar{X}$ = 0.21 %		SD = ****.**		RSD(%) = ***.**	

EM 12/19/11

UA17:00217

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column 12/12/20/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	MB	100.00 ml	1.0000	0.148			1
1-2	MB	100.00 ml	1.0000	0.132	0.280	0.00 ppm	1
n = 1	$\bar{X}$ = 0.00 ppm			SD = ****.**		RSD(%) = ***.**	
1-1	PAR	100.00 ml	1.0000	9.894			1
1-2	PAR	100.00 ml	1.0000	0.186	10.080	97.31 ppb	1
n = 1	$\bar{X}$ = 97.31 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11923-1	100.00 ml	1.0000	0.465			1
1-2	K11923-1	100.00 ml	1.0000	0.353	0.818	4.69 ppb	1
n = 1	$\bar{X}$ = 4.69 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11924-1	100.00 ml	1.0000	0.749			1
1-2	K11924-1	100.00 ml	1.0000	0.226	0.975	6.26 ppb	1
n = 1	$\bar{X}$ = 6.26 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11924-2	100.00 ml	1.0000	0.460			1
1-2	K11924-2	100.00 ml	1.0000	0.149 NA	0.609	2.60 ppb	1
n = 1	$\bar{X}$ = 2.60 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-1	100.00 ml	1.0000	0.560			1
1-2	K11930-1	100.00 ml	1.0000	0.165 NA	0.725	3.76 ppb	1
n = 1	$\bar{X}$ = 3.76 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-2	100.00 ml	1.0000	0.679			1
1-2	K11930-2	100.00 ml	1.0000	0.301	0.980	6.31 ppb	1
n = 1	$\bar{X}$ = 6.31 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-3 overdilute	100.00 ml	0.1000	0.284			1
1-2	K11930-3	100.00 ml	0.1000	0.093 NA	0.377	2.80 ppb	1
n = 1	$\bar{X}$ = 2.80 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.197			1
1-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.248	0.445	0.96 ppb	1
n = 1	$\bar{X}$ = 0.96 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	ICS	100.00 ml	1.0000	10.841	10.841	104.92 ppb	1
n = 1	$\bar{X}$ = 104.92 ppb			SD = ****.**		RSD(%) = ***.**	

overdilute EM 12/19/11

EM 12/19/11

UA17:00218

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column 12/12/2011

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	K11923-1D	100.00 ml	1.0000	0.476			1
1-2	K11923-1D	100.00 ml	1.0000	0.259	0.735	3.86 ppb	1
n = 1	$\bar{X}$ = 3.86 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11923-1MS	100.00 ml	1.0000	9.771			1
1-2	K11923-1MS	100.00 ml	1.0000	0.790	10.561	102.12 ppb	1
n = 1	$\bar{X}$ = 102.12 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11923-1MSD	100.00 ml	1.0000	9.719			1
1-2	K11923-1MSD	100.00 ml	1.0000	0.610	10.329	99.80 ppb	1
n = 1	$\bar{X}$ = 99.80 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11924-1D	100.00 ml	1.0000	0.548			1
1-2	K11924-1D	100.00 ml	1.0000	0.132 NA	0.680	3.31 ppb	1
n = 1	$\bar{X}$ = 3.31 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11924-2D	100.00 ml	1.0000	0.327			1
1-2	K11924-2D	100.00 ml	1.0000	0.083 NA	0.410	0.61 ppb	1
n = 1	$\bar{X}$ = 0.61 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-1D	100.00 ml	1.0000	0.495			1
1-2	K11930-1D	100.00 ml	1.0000	0.049 NA	0.544	1.95 ppb	1
n = 1	$\bar{X}$ = 1.95 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-2D	100.00 ml	1.0000	0.475			1
1-2	K11930-2D	100.00 ml	1.0000	0.162 NA	0.637	2.88 ppb	1
n = 1	$\bar{X}$ = 2.88 ppb			SD = ****.**		RSD(%) = ***.**	
1-1	K11930-3D	100.00 ml	1.0000	0.752			1
1-2	K11930-3D	100.00 ml	1.0000	0.148 NA	0.900	5.51 ppb	1
n = 1	$\bar{X}$ = 5.51 ppb			SD = ****.**		RSD(%) = ***.**	
2-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.205			1
2-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.185	0.390	0.41 ppb	1
n = 1	$\bar{X}$ = 0.41 ppb			SD = ****.**		RSD(%) = ***.**	
2-1	ICS	100.00 ml	1.0000	11.059	11.059	107.10 ppb	1
n = 1	$\bar{X}$ = 107.10 ppb			SD = ****.**		RSD(%) = ***.**	

12/19/11

UA17:00219

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column

12/12/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	K11930-3T	100.00 ml	1.0000	0.892			1
1-2	K11930-3T	100.00 ml	1.0000	0.373	1.265	9.16 ppb	1
n = 1	$\bar{X}$ = 9.16 ppb			SD = ****.**		RSD(%) = ***.**	
3-1	ICS	100.00 ml	1.0000	10.940	10.940	105.91 ppb	1
n = 1	$\bar{X}$ = 105.91 ppb			SD = ****.**		RSD(%) = ***.**	

JDM 12/19/11

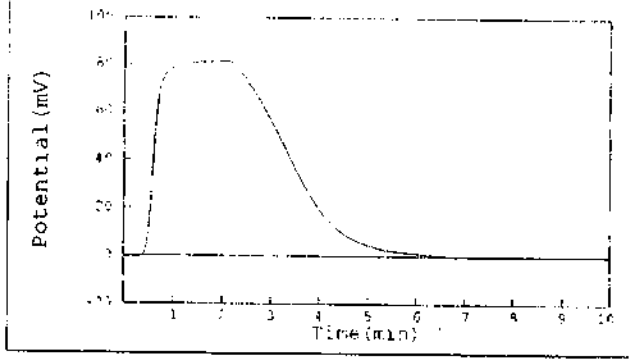
UA17:00220

Sample Report

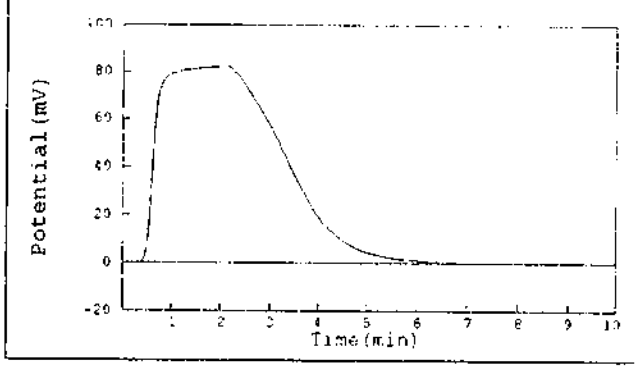
Sample Charts

Data ID : AOX212192011.001 12/12/2011

Reps. : 1-1 12/19/11 09:42
Sample ID : ICS
Counts(µg): 10.836



Reps. : 1-2 12/19/11 09:49
Sample ID : ICS
Counts(µg): 10.790



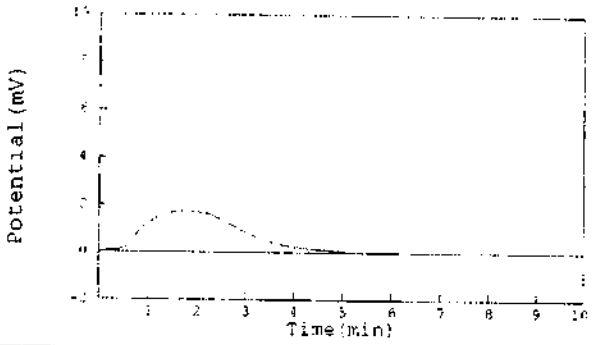
UA17 : 00221

Sample Report

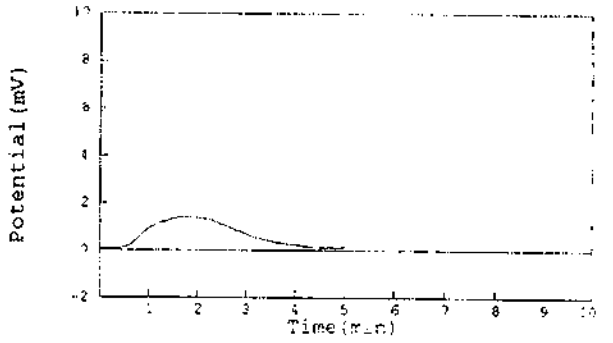
Sample Charts

Data ID : AOX212192011.002 12/12/2011

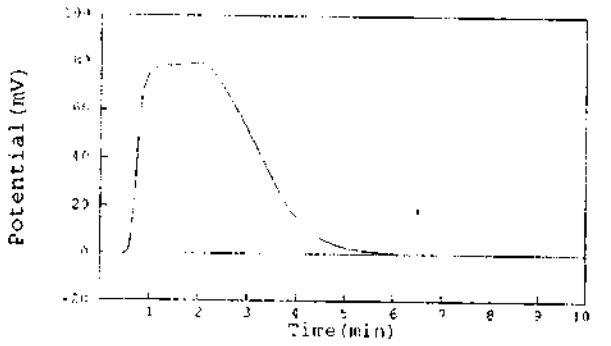
Reps. : 1-1 12/19/11 09:57
Sample ID : MB
Counts(µg): 0.148



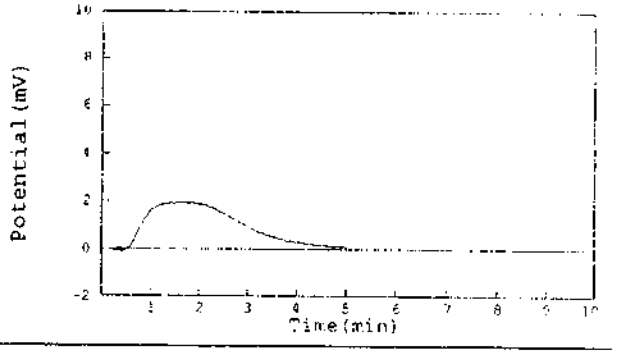
Reps. : 1-2 12/19/11 10:23
Sample ID : MB
Counts(µg): 0.132



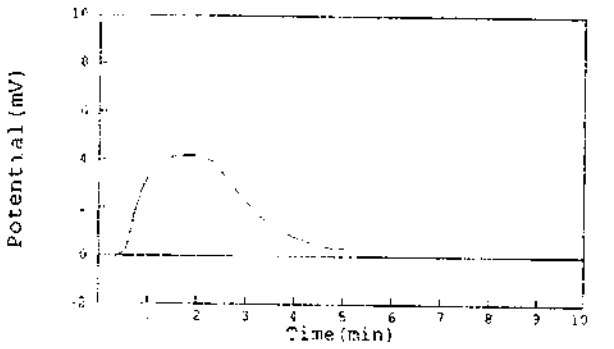
Reps. : 1-1 12/19/11 10:30
Sample ID : PAR
Counts(µg): 9.894



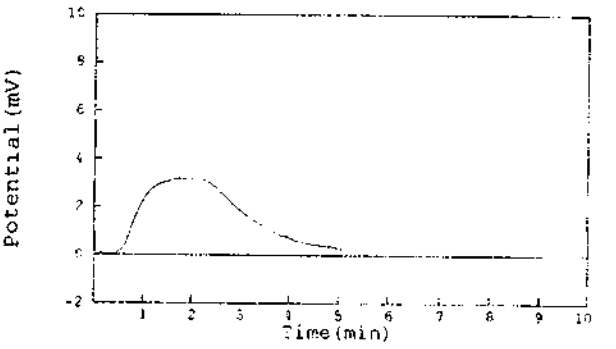
Reps. : 1-2 12/19/11 10:35
Sample ID : PAR
Counts(µg): 0.186



Reps. : 1-1 12/19/11 10:42
Sample ID : K11923-1
Counts(µg): 0.465



Reps. : 1-2 12/19/11 10:48
Sample ID : K11923-1
Counts(µg): 0.353



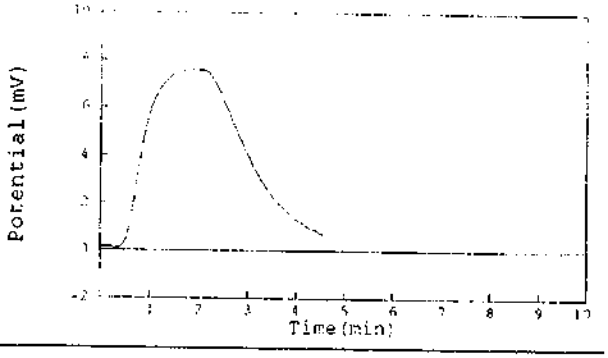
UA17:00222

Sample Report

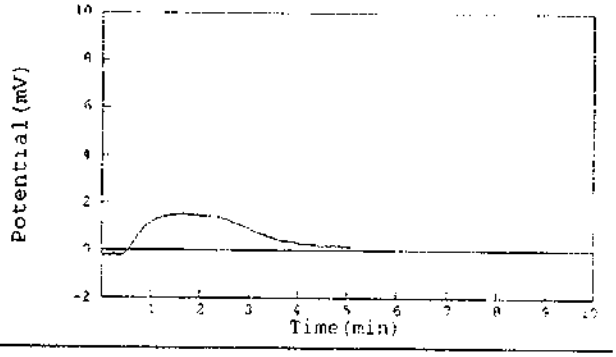
Sample Charts

Data ID : AOX212192011.002

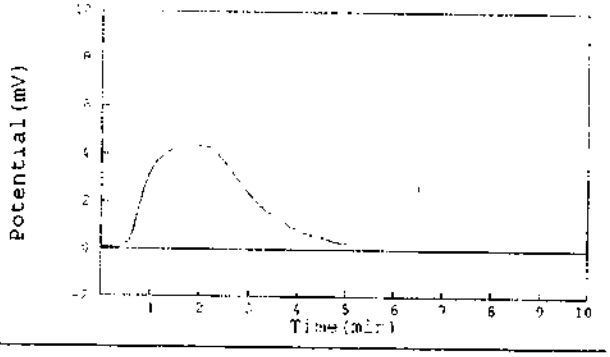
Reps. : 1-1 12/19/11 10:54
Sample ID : K11924-1
Counts(µg): 0.749



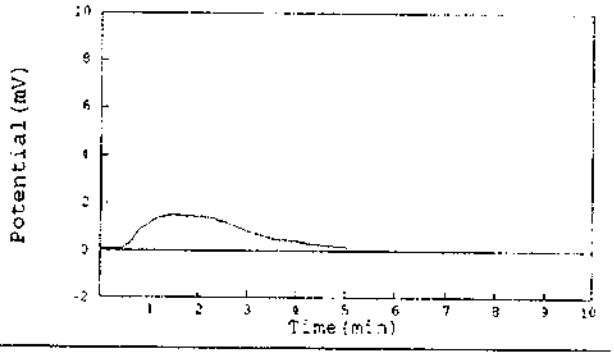
Reps. : 1-2 12/19/11 11:03
Sample ID : K11924-1
Counts(µg): 0.226



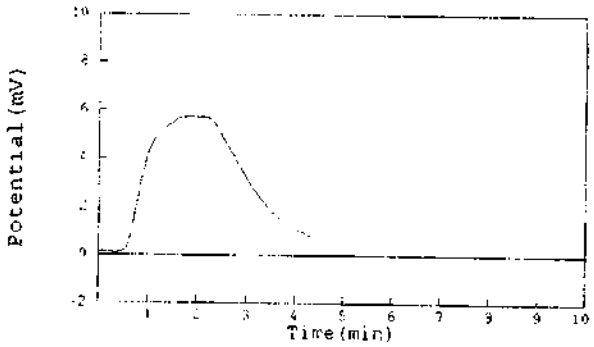
Reps. : 1-1 12/19/11 11:11
Sample ID : K11924-2
Counts(µg): 0.460



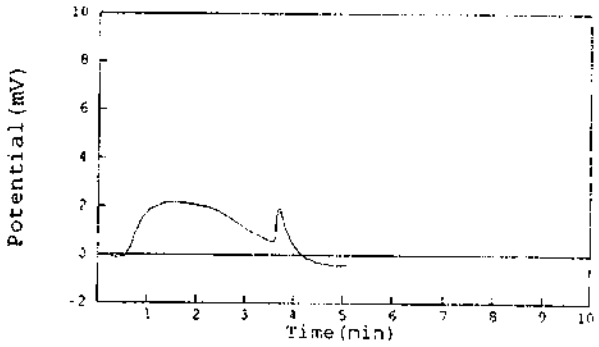
Reps. : 1-2 12/19/11 11:20
Sample ID : K11924-2
Counts(µg): 0.149



Reps. : 1-1 12/19/11 11:24
Sample ID : K11930-1
Counts(µg): 0.560



Reps. : 1-2 12/19/11 11:30
Sample ID : K11930-1
Counts(µg): 0.165



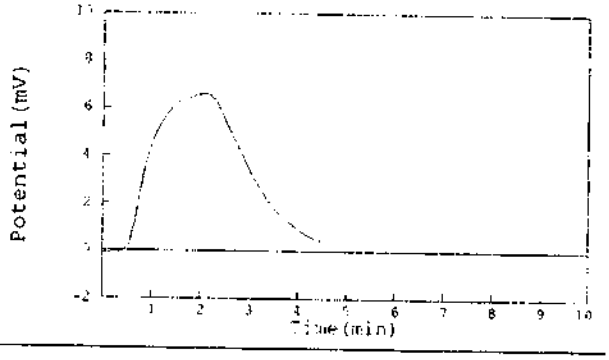
UA17:00223

Sample Report

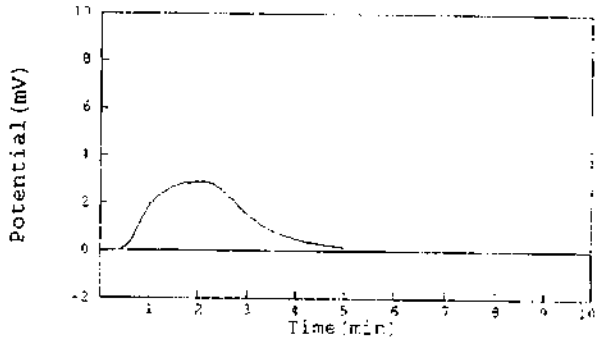
Sample Charts

Data ID : AOX212192011.002

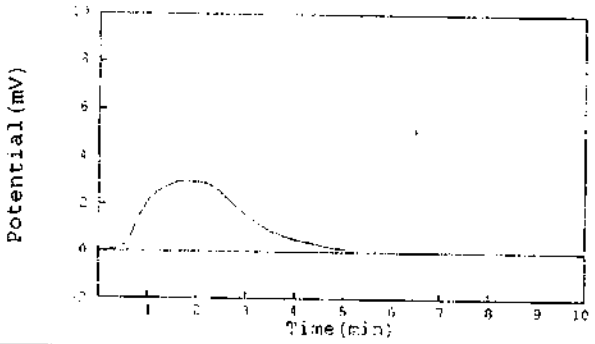
Reps. : 1-1 12/19/11 11:43
Sample ID : K11930-2
Counts(µg): 0.679



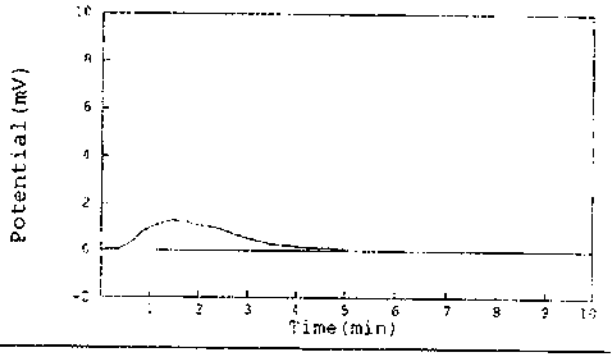
Reps. : 1-2 12/19/11 11:51
Sample ID : K11930-2
Counts(µg): 0.301



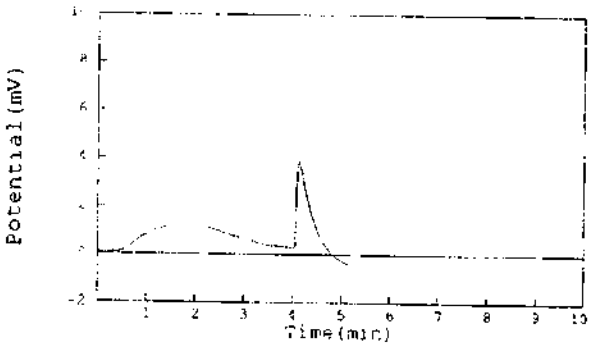
Reps. : 1-1 12/19/11 11:56
Sample ID : K11930-3
Counts(µg): 0.284



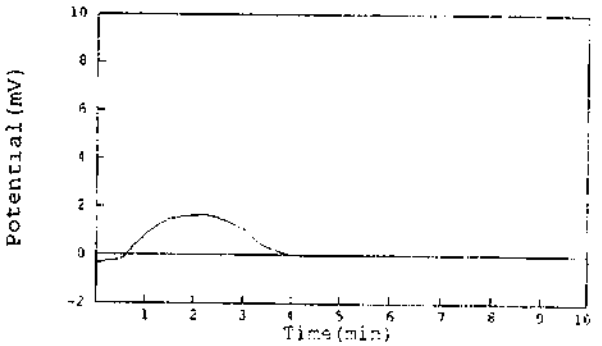
Reps. : 1-2 12/19/11 12:01
Sample ID : K11930-3
Counts(µg): 0.093



Reps. : 1-1 12/19/11 12:07
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.197



Reps. : 1-2 12/19/11 12:13
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.248



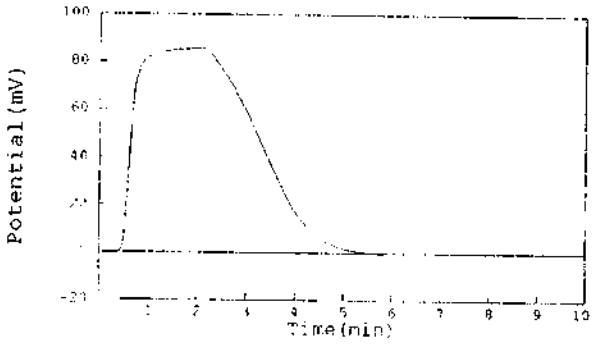
UA17:00224

Sample Report

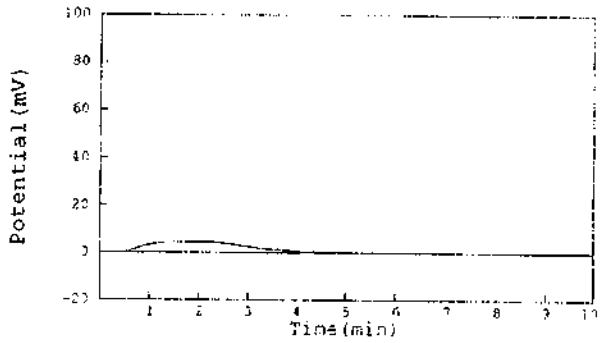
Sample Charts

Data ID : AOX212192011.002

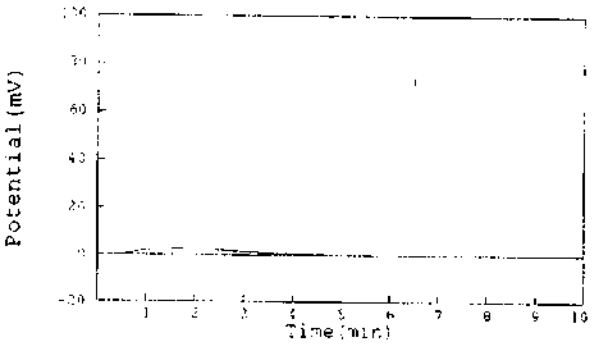
Reps. : 1-1 12/19/11 12:22
Sample ID : ICS
Counts(µg): 10.841



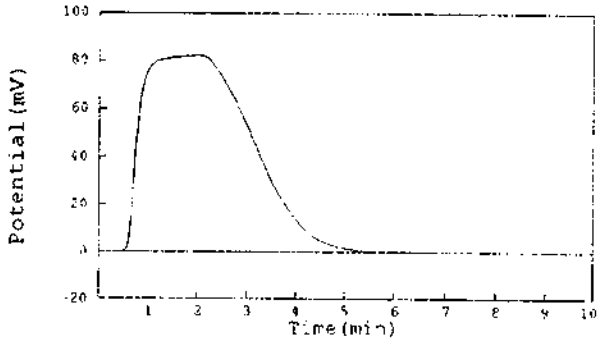
Reps. : 1-1 12/19/11 12:33
Sample ID : K11923-1D
Counts(µg): 0.476



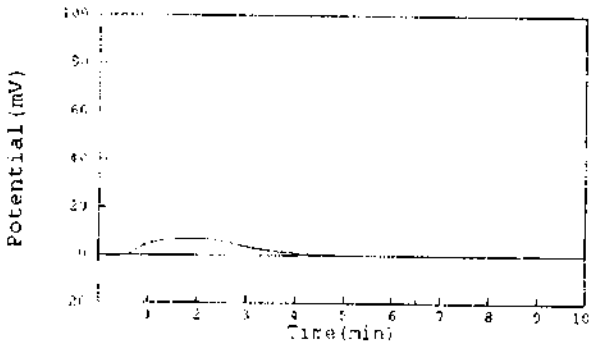
Reps. : 1-2 12/19/11 12:39
Sample ID : K11923-1D
Counts(µg): 0.259



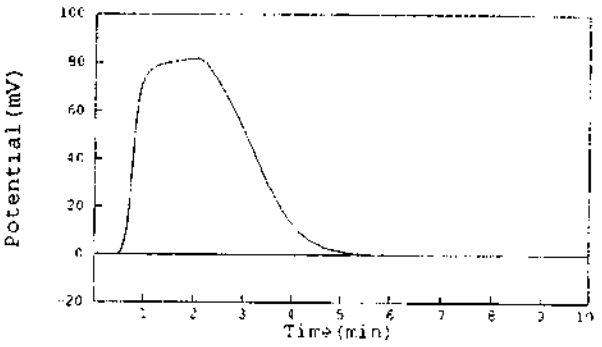
Reps. : 1-1 12/19/11 12:47
Sample ID : K11923-1MS
Counts(µg): 9.771



Reps. : 1-2 12/19/11 12:54
Sample ID : K11923-1MS
Counts(µg): 0.790



Reps. : 1-1 12/19/11 13:08
Sample ID : K11923-1MSD
Counts(µg): 9.719



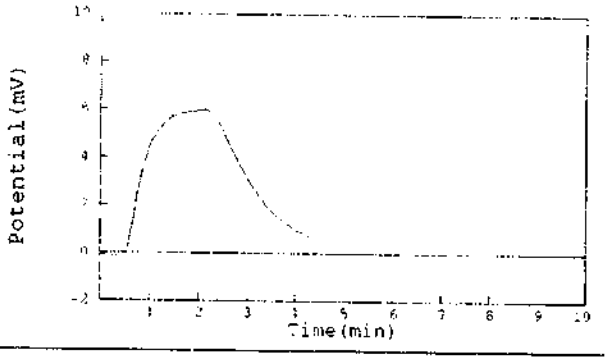
UA17:00225

Sample Report

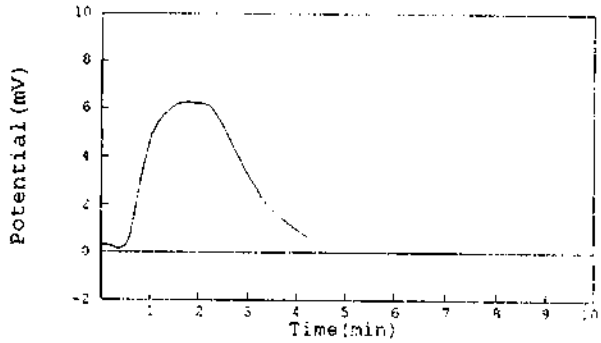
Sample Charts

Data ID : AOX212192011.002

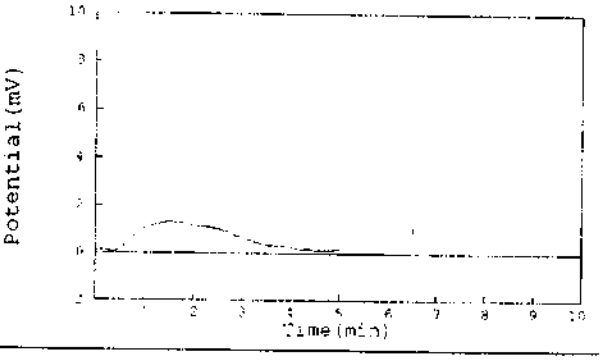
Reps. : 1-2 12/19/11 13:12
Sample ID : K11923-1MSD
Counts(µg): 0.610



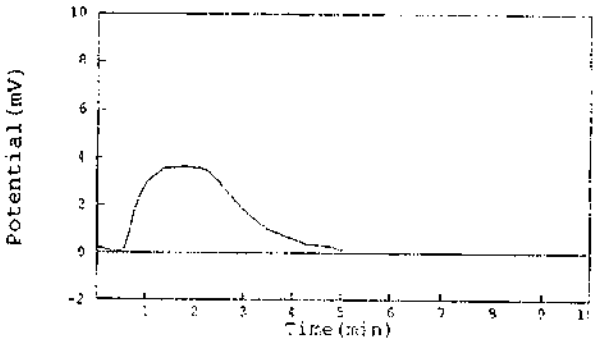
Reps. : 1-1 12/19/11 13:17
Sample ID : K11924-1D
Counts(µg): 0.548



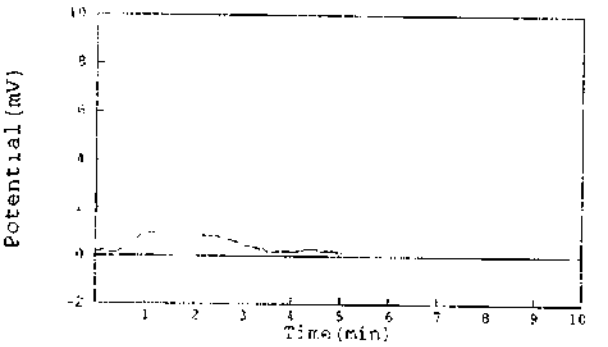
Reps. : 1-2 12/19/11 13:26
Sample ID : K11924-1D
Counts(µg): 0.132



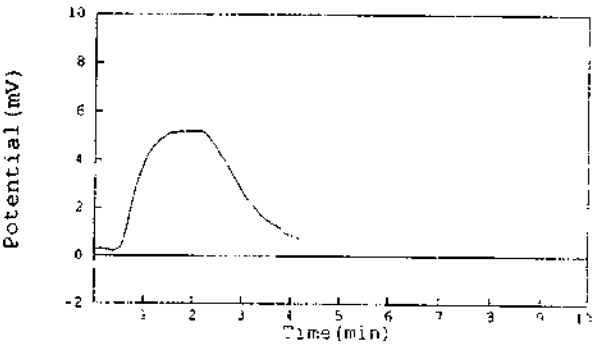
Reps. : 1-1 12/19/11 13:32
Sample ID : K11924-2D
Counts(µg): 0.327



Reps. : 1-2 12/19/11 13:40
Sample ID : K11924-2D
Counts(µg): 0.083



Reps. : 1-1 12/19/11 13:46
Sample ID : K11930-1D
Counts(µg): 0.495



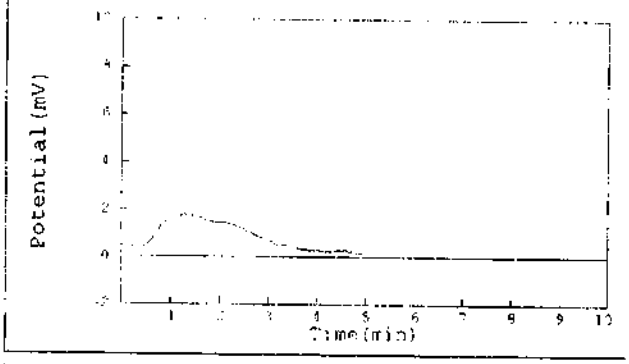
UA17:00226

Sample Report

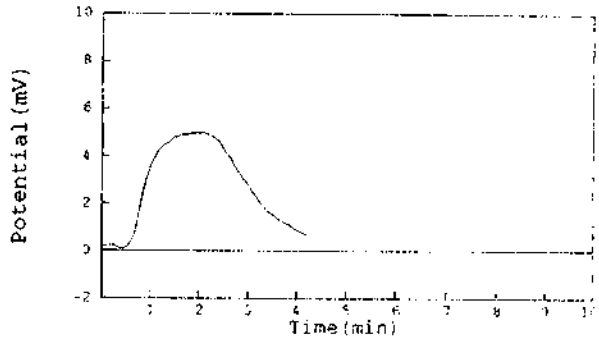
Sample Charts

Data ID : AOX212192011.002

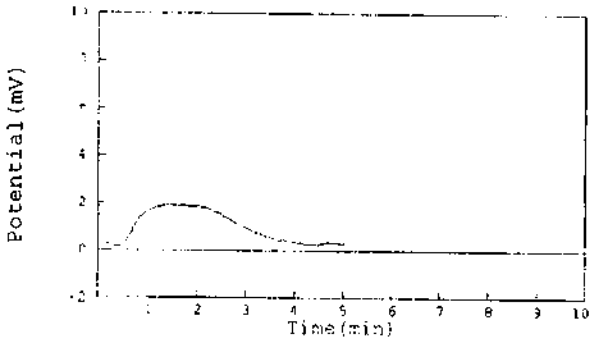
Reps. : 1-2 12/19/11 13:51
Sample ID : K11930-1D
Counts(µg): 0.049



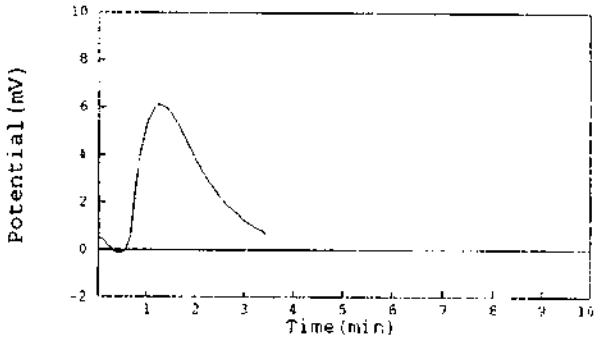
Reps. : 1-1 12/19/11 14:00
Sample ID : K11930-2D
Counts(µg): 0.475



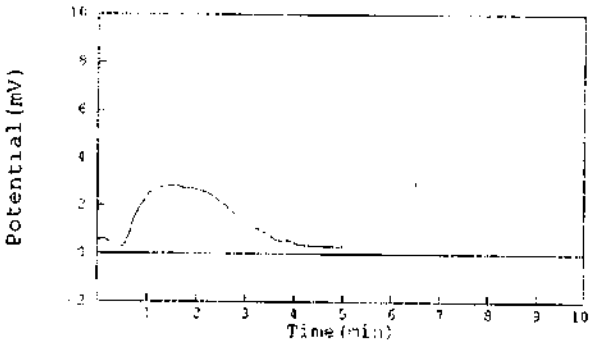
Reps. : 1-2 12/19/11 14:09
Sample ID : K11930-2D
Counts(µg): 0.162



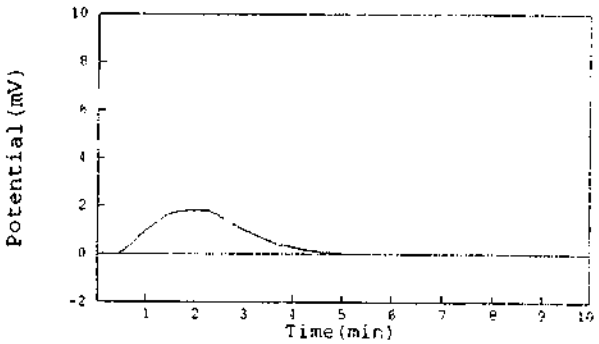
Reps. : 1-1 12/19/11 14:16
Sample ID : K11930-3D
Counts(µg): 0.752



Reps. : 1-2 12/19/11 14:23
Sample ID : K11930-3D
Counts(µg): 0.148



Reps. : 2-1 12/19/11 14:46
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.205



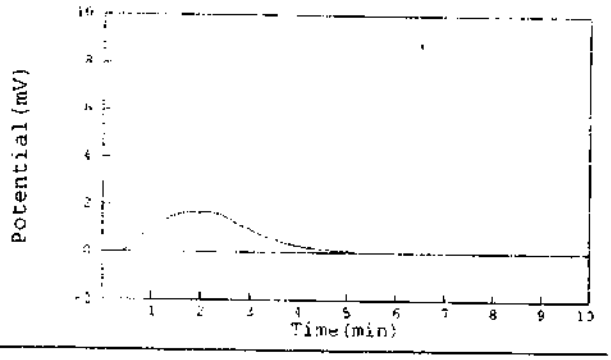
UA17:00227

Sample Report

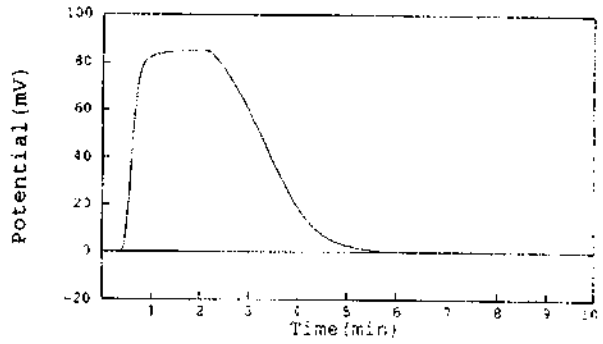
Sample Charts

Data ID : AOX212192011.002

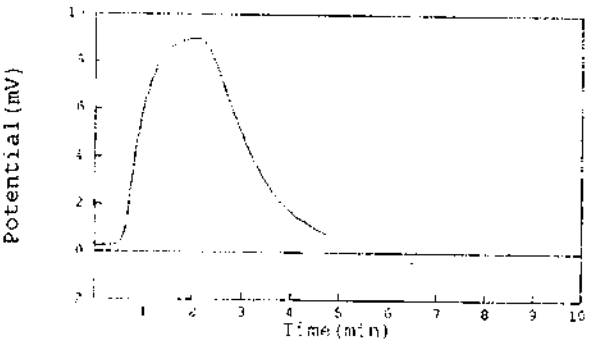
Reps. : 2-2 12/19/11 14:52
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.185



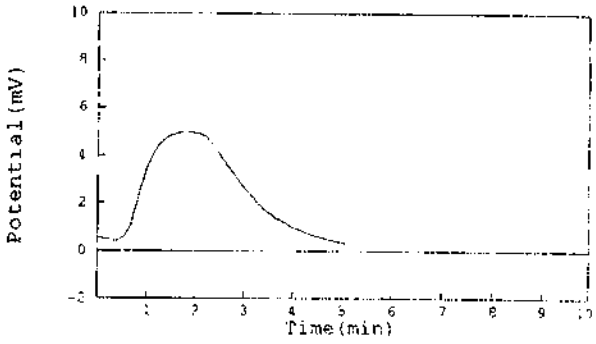
Reps. : 2-1 12/19/11 15:00
Sample ID : ICS
Counts(µg): 11.059



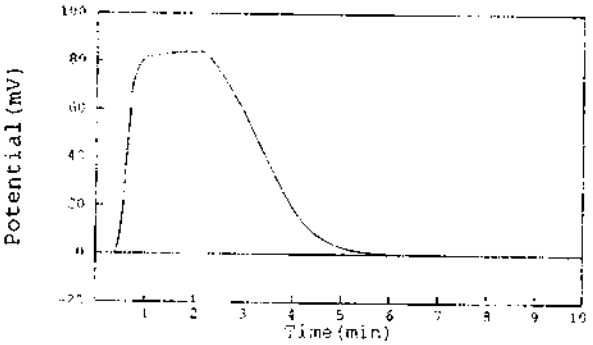
Reps. : 1-1 12/19/11 15:19
Sample ID : K11930-3T
Counts(µg): 0.892



Reps. : 1-2 12/19/11 15:25
Sample ID : K11930-3T
Counts(µg): 0.373



Reps. : 3-1 12/19/11 15:41
Sample ID : ICS
Counts(µg): 10.940



UA17:00228

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso WA 98626 360.577.7222 360.636.1068 Fax www.caslab.com

December 22, 2011 Analytical Report for Service Request No: K1111924

Sue Dunnihoo
Analytical Resources, Incorporated
4611 So. 134th Place
Suite 100
Tukwila, WA 98168

RE: UA20

Dear Sue

Enclosed are the results of the samples submitted to our laboratory on December 08, 2011. For your reference, these analyses have been assigned our service request number K1111924

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3363. You may also contact me via Email at LDomenighini@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Lisa Domenighini
Project Chemist

LD/ln

UA17:00229

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

UA17 : 00230

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

UA17:00231

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
DOD ELAP	L11-119
Florida DOH	E87412
Georgia DNR	881
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
ISO 17025	L11-118
Louisiana DEQ	3016
Louisiana DHH	LA080001
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon – DEQ (NELAP)	WA100010
South Carolina DHEC	61002
Texas CEQ	04704427-08-TX
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

UA17:00232

Case Narrative

UA17 : 00233

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Analytical Resources, Incorporated	**Service Request No.:**	K1111924
Project:	UA17	**Date Received:**	12/08/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 12/08/11. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Organic Halides by Method 9020B:
The as per the method the samples were analyzed in duplicate. The initial result of the sample was a J Flag hit and the replicate was Non-Detect. The initial value was reported. No further corrective action taken.

No other anomalies associated with the analysis of these samples were observed.

Approved by Lyn A Daneyko Date 12/23/11

UA17 : 00234

Chain of Custody

UA17:00235

K1111424

SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 12/07/11

ANALYTICAL RESOURCES INCORPORATED

ARI Project: UA20

Laboratory: Columbia Analytical Services Inc.
Lab Contact: Ed Wallace
Lab Address: 1317 South 13th Street
Kelso, WA 98626
Phone: 360-577-7222
Fax: 360-636-1068

ARI Client: ERM-West
Project ID: RG
ARI PM: Sue Dunnihoo
Phone: 206-695-6207
Fax: 206-695-6201
Email: subdata@arilabs.com

Analytical Protocol: In-house
Special Instructions:

Requested Turn Around: **12/21/11**
Email Results (Y/N): **email**

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases 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 Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
11-28025-UA20A	MW-34S-120611	12/06/11 07:07	Water	1	Total Organic Halides
Special Instructions: None					Method 9020
11-28026-UA20B	MW-35S-120611	12/06/11 08:33	Water	1	Total Organic Halides
Special Instructions: None					Method 9020

Carrier UPS		Airbill 1Z832695 03 5132 6496	Date 12/7/11
Relinquished by	Company ARI	Date 12/7/11	Time 1340
Received by	Company CAS	Date 12/8/11	Time 1030

Subcontractor Custody Form - **UA20**
Page 1 of 1

UA17:00236

PC NSA

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

Client / Project: Analytical Resources Inc. Service Request K11 11924

Received: 12/8/11 Opened: 12/8/11 By: SMW Unloaded: 12/8/11 By: SMW

1. Samples were received via? *Mail* *Fed Ex* (*UPS*) *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? one, front
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.9		299		1Z 832 695 03 5132 6490	

7. Packing material used. *Inserts* (*Baggies*) (*Bubble Wrap*) *Gel Packs* (*Wet Ice*) (*Sleeves*) *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
15. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

UA17 : 00237

General Chemistry Parameters

UA17 00238

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Analytical Resources, Incorporated	**Service Request:**	K1111924
Project:	UA20	**Date Collected:**	12/6/2011
Sample Matrix:	Water	**Date Received:**	12/8/2011

Halides, Total Organic (TOX)

Prep Method:	NONE	Units:	ug/L (ppb)
Analysis Method:	9020B	Basis:	NA
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
11-28025-UA20A / MW-34S-120611	K1111924-001	10	4	1	NA	12/19/2011	6	J
11-28026-UA20B / MW-35S-120611	K1111924-002	10	4	1	NA	12/19/2011	ND	
Method Blank	K1111924-MB	10	4	1	NA	12/19/2011	ND	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Analytical Resources, Incorporated	**Service Request:**	K1111924
Project:	UA20	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	12/19/2011

Matrix Spike/Duplicate Matrix Spike Summary
Halides, Total Organic (TOX)

Sample Name:	Batch QC		Units: ug/L (ppb)
Lab Code	K1111923-001MS	K1111923-001DMS	Basis: NA
Test Notes			

									Percent Recovery			
				Spike Level		Sample	Spike Result				CAS Acceptance	Relative Percent
Analyte	**Prep Method**	**Analysis Method**	**MRL**	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	Difference
Halides, Total Organic (TOX)	NONE	9020B	10	100	100	5.1	101	99	96	94	82-121	2

DMS-020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Analytical Resources, Incorporated
Project: UA20
Sample Matrix: Water

Service Request: K1111924
Date Collected: NA
Date Received: NA
Date Analyzed: 12/19/2011

Calibration and Method Blank Summary
Halides, Total Organic (TOX)
EPA Method 9020

	Halide Check Standard (µg)	Instrument Calibration Standard (µg)	Adsorption Standard (µg/L)	Method Blank (µg/L)
True Value	3.64	10.0	100	ND
Run A	3.72	10.7	97	ND
Percent Recovery	102	107	97	
Run B	3.63	10.6		
Percent Recovery	100	106		

2735580

Work Request # Original (K11923) K11924 K11930

Tier: IV IV

Date Analyzed: 12/19/11

Analyst: EM

Analysis: TOX 9020B KTOX03

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS:

K11923
K11924 > Due 12/18
K11930

See bench sheet for QC failure comment.

Final Approved by: [signature] Date: 12/20/11

DQREPORT

UA17:00242

AOX/TOX Benchsheet

Service Request # K1111923, K1111924, K1111930 Method # : TOX-9020B

Analysis For : Total Organic Halides Instrument: Crackers

Calibration Date: 7/5/2001 IPR Date: 5/9/2000

Instrument:	Volume	Concentration	Result	Reported Value	% Rec.
Halide Check	Run A = 10 µL	3.64	3.7240	3.7240	102
	Run B = 10 µL	3.64	3.6240	3.6240	100
NO_3 Wash Blank	2 mL	1) 0.2270	2) 0.1220	Average =	0.1745
Inst Cal. Std.	Run A = 10 µL	10.0	10.8360	10.6615	107
	Run B = 10 µL	10.0	10.7900	10.6155	106

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
MB	100	100	0.1480	0.1320	-1	< 10					
PAR STD	100	100	9.8940	0.1860	97	97	<1				97
K11923-1	100	100	0.4650	0.3530	5J		38.1		n	2	
K11924-1	100	100	0.7490	0.2260	6J		8.2		n	2	
K11924-2	100	100	0.4600	NA	3		<1		y	2	
K11930-1	100	100	0.5600	NA	3.9		<1		n	2	
K11930-2	100	100	0.6790	0.3010	6J		20.0		y	2	
K11930-3	10	100	0.2840	NA	11	NR	268.5		y	2	
NO_3 Wash Blank	2 mL		1) 0.1970		2) 0.2480		Average =			0.2225	
ICS	10 µl				10.841	10.6185					106

Comments NA signifies B column is equal to or less than the nitrate wash blank and should be disregarded as per method.
High break through is disregarded if sample concentration is less than or equal to the MRL.

sulfuric acid: EMD 51164 nitric acid: JTB41037

Halide Check = 3.64 µg/L **Inst. Cal Std. =** 10.0 µg/L

TOX-9020B (ppb) = $\frac{[(OBS.A - NO_3\ Blank) + (OBS.B - NO_3\ Blank)] \times (DF)}{Volume\ Analyzed\ (L)}$

AOX-506 (ppb)

AOX-1650C (ppb) = $\frac{((OBS.A + OBS.B) - (MB\ OBS.A + MB\ OBS.B))}{Initial\ Volume\ Analyzed\ (L)}$

% Breakthrough = $\frac{(OBS.B - MB\ OBS.B) \times 100}{(OBS.A - MB\ OBS.A) + (OBS.B - MB\ OBS.B)}$

Matrix Spike = $\frac{10\ µl \times 1\ µg \times 100\ ml}{1\ µl \times 100ml \times 0.1\ L}$ = 100 µg/L

NO_3 Wash ID #: TOX/3-27-I
Electrolyte ID #: TOX/3-60-N
Carbon Lot #: 1106134
0.0103 NaCl ID #: TOX/3-70-M
1000 ppm TCP (PAR) ID #: TOX/3-72-E
1000 ppm TCP (ICS) ID #: TOX/3-72-D

NO3 = < 1.0
ICS = 90%-110%
PAR = 87-113%
MS =82-121%

Analyzed By	DM	Date:	12/19/11 0925
Reviewed By:	[illegible]	Date:	12/20/11

UA17 : 00243

AOX/TOX Benchsheet

Service Request #: K1111923,'K1111924, K1111930 Method # : TOX-9020B

Analysis For Total Organic Halides Instrument Crackers

Lab Code	Initial Volume (mls)	Final Volume (mls)	OBS A µg	OBS B µg	Conc. (ppb)	Reported Value (ppb)	% Break-through	% RPD	Head-space	pH	% Recovery
K11923-1D	100	100	0.4760	0 2590	3	NC	12.6	NC			1+1d
K11923-1MS	100	100	9.7710	0 7900	101	101	5 6				96
K11923-1MSD	100	100	9.7190	0 6100	99	99	3.9	2			94
K11924-1D	100	100	0.5480	NA	3	NC	<1	NC			1+1d
K11924-2D	100	100	0.3270	NA	1	<4	188.6	-			2+2d
K11930-1D	100	100	0.4950	NA	3	<4	<1	-			1+1d
K11930-2D	100	100	0 4750	NA	3	NC	<1	NC			2+2d
K11930-3D	100	100	0.7520	NA	5		<1				
NO3 Wash Blank	2 mL		1)	0.2050	2)	0.1850	Average =				0.1950
ICS	10 µl				11.059	10.8640					109
K11930-3T	100	100	0.8920	0.3730	9	7J	20.3	57*			3d+3t
ICS	10 µl				10.940	10.7450					107

Comments: K11930-3d/3t high RPD due to sample concentration less than MRL.

Analyzed By: DM	Date: 12/19/11
Reviewed By:	Date: 12/20/11

Blank Report

Blank Results

Data ID : AOX212192011.001 liu / 12/20/11

Reps.	Mode	Counts(µg)	Total Counts	$\bar{X}$	SD	RSD(%)	ABC No.	Date
1-1	AOX-2	0.227					1	12/19/11 09:25
1-2	AOX-2	0.122	0.349	0.349	***.**	***.**	1	12/19/11 09:35

BM 12/19/11

UA17:00245

Sample Report

Sample All Data

Data ID : AOX212192011.001
Blank : 0.349 µg/2Column

Ltr 12/20/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	ICS	10.00 µl	1.0000	10.836			1
1-2	ICS	10.00 µl	1.0000	10.790	21.626	0.21 %	1
n = 1		$\bar{X}$ = 0.21 %		SD = ****.**		RSD(%) = ***.**	

EM 12/19/11

UA17:00246

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column

12/12/20/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	MB	100.00 ml	1.0000	0.148			1
1-2	MB	100.00 ml	1.0000	0.132	0.280	0.00 ppm	1
n = 1	$\bar{X}$ = 0.00 ppm		SD = ****.**		RSD(%) = ***.**		
1-1	PAR	100.00 ml	1.0000	9.894			1
1-2	PAR	100.00 ml	1.0000	0.186	10.080	97.31 ppb	1
n = 1	$\bar{X}$ = 97.31 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11923-1	100.00 ml	1.0000	0.465			1
1-2	K11923-1	100.00 ml	1.0000	0.353	0.818	4.69 ppb	1
n = 1	$\bar{X}$ = 4.69 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11924-1	100.00 ml	1.0000	0.749			1
1-2	K11924-1	100.00 ml	1.0000	0.226	0.975	6.26 ppb	1
n = 1	$\bar{X}$ = 6.26 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11924-2	100.00 ml	1.0000	0.460			1
1-2	K11924-2	100.00 ml	1.0000	0.149 NA	0.609	2.60 ppb	1
n = 1	$\bar{X}$ = 2.60 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-1	100.00 ml	1.0000	0.560			1
1-2	K11930-1	100.00 ml	1.0000	0.165 NA	0.725	3.76 ppb	1
n = 1	$\bar{X}$ = 3.76 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-2	100.00 ml	1.0000	0.679			1
1-2	K11930-2	100.00 ml	1.0000	0.301	0.980	6.31 ppb	1
n = 1	$\bar{X}$ = 6.31 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-3	100.00 ml	0.1000	0.284			1
1-2	K11930-3	100.00 ml	0.1000	0.093 NA	0.377	2.80 ppb	1
n = 1	$\bar{X}$ = 2.80 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.197			1
1-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.248	0.445	0.96 ppb	1
n = 1	$\bar{X}$ = 0.96 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	ICS	100.00 ml	1.0000	10.841	10.841	104.92 ppb	1
n = 1	$\bar{X}$ = 104.92 ppb		SD = ****.**		RSD(%) = ***.**		

DM 12/19/11

UA17:00247

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column 12/12/2011

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	K11923-1D	100.00 ml	1.0000	0.476			1
1-2	K11923-1D	100.00 ml	1.0000	0.259	0.735	3.86 ppb	1
n = 1	$\bar{X}$ = 3.86 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11923-1MS	100.00 ml	1.0000	9.771			1
1-2	K11923-1MS	100.00 ml	1.0000	0.790	10.561	102.12 ppb	1
n = 1	$\bar{X}$ = 102.12 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11923-1MSD	100.00 ml	1.0000	9.719			1
1-2	K11923-1MSD	100.00 ml	1.0000	0.610	10.329	99.80 ppb	1
n = 1	$\bar{X}$ = 99.80 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11924-1D	100.00 ml	1.0000	0.548			1
1-2	K11924-1D	100.00 ml	1.0000	0.132 NA	0.680	3.31 ppb	1
n = 1	$\bar{X}$ = 3.31 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11924-2D	100.00 ml	1.0000	0.327			1
1-2	K11924-2D	100.00 ml	1.0000	0.083 NA	0.410	0.61 ppb	1
n = 1	$\bar{X}$ = 0.61 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-1D	100.00 ml	1.0000	0.495			1
1-2	K11930-1D	100.00 ml	1.0000	0.049 NA	0.544	1.95 ppb	1
n = 1	$\bar{X}$ = 1.95 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-2D	100.00 ml	1.0000	0.475			1
1-2	K11930-2D	100.00 ml	1.0000	0.162 NA	0.637	2.88 ppb	1
n = 1	$\bar{X}$ = 2.88 ppb		SD = ****.**		RSD(%) = ***.**		
1-1	K11930-3D	100.00 ml	1.0000	0.752			1
1-2	K11930-3D	100.00 ml	1.0000	0.148 NA	0.900	5.51 ppb	1
n = 1	$\bar{X}$ = 5.51 ppb		SD = ****.**		RSD(%) = ***.**		
2-1	NITRATE WASH BLANK	100.00 ml	1.0000	0.205			1
2-2	NITRATE WASH BLANK	100.00 ml	1.0000	0.185	0.390	0.41 ppb	1
n = 1	$\bar{X}$ = 0.41 ppb		SD = ****.**		RSD(%) = ***.**		
2-1	ICS	100.00 ml	1.0000	11.059	11.059	107.10 ppb	1
n = 1	$\bar{X}$ = 107.10 ppb		SD = ****.**		RSD(%) = ***.**		

JM 12/19/11

UA17:00248

Sample Report

Sample All Data

Data ID : AOX212192011.002
Blank : 0.349 µg/2Column

LL/12/20/11

Reps.	Sample ID	Sample Size	Dilution Rate	Counts(µg)	Total Counts	Concentration	ABC No.
1-1	K11930-3T	100.00 ml	1.0000	0.892			1
1-2	K11930-3T	100.00 ml	1.0000	0.373	1.265	9.16 ppb	1
n = 1	$\bar{X}$ = 9.16 ppb			SD = ****.**		RSD(%) = ***.**	
3-1	ICS	100.00 ml	1.0000	10.940	10.940	105.91 ppb	1
n = 1	$\bar{X}$ = 105.91 ppb			SD = ****.**		RSD(%) = ***.**	

DM 12/19/11

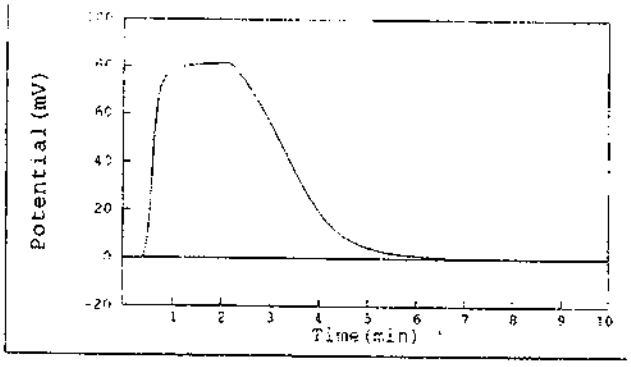
UA17:00249

Sample Report

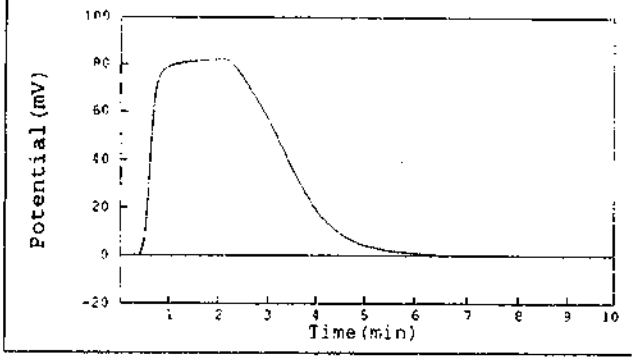
Sample Charts

Data ID : AOX212192011.001 12/12/20/11

Reps. : 1-1 12/19/11 09:42
Sample ID : ICS
Counts(µg): 10.836



Reps. : 1-2 12/19/11 09:49
Sample ID : ICS
Counts(µg): 10.790



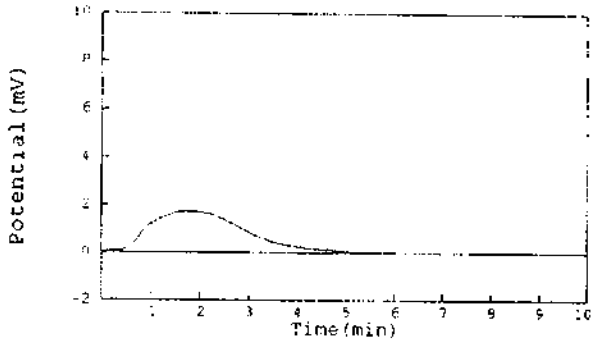
UA17:00250

Sample Report

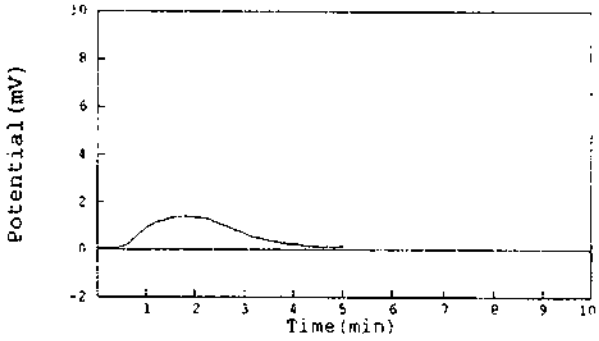
Sample Charts

Data ID : AOX212192011.002 12/12/2011

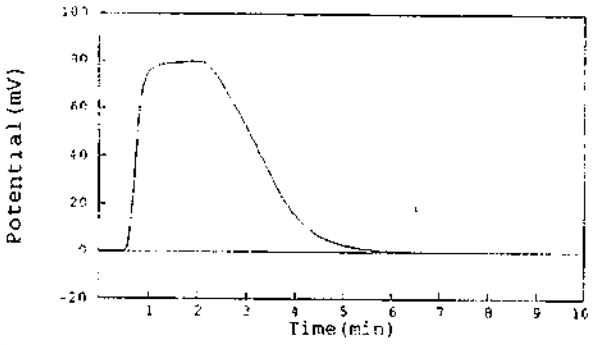
Reps. : 1-1 12/19/11 09:57
Sample ID : MB
Counts(µg): 0.148



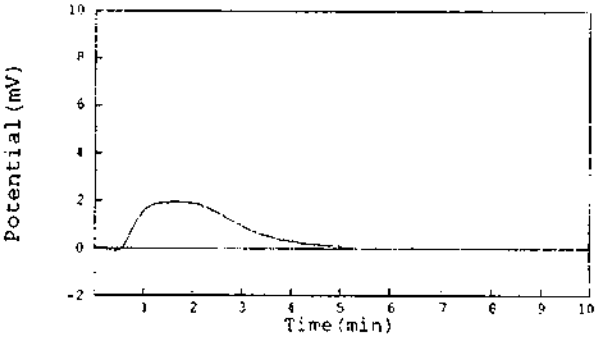
Reps. : 1-2 12/19/11 10:23
Sample ID : MB
Counts(µg): 0.132



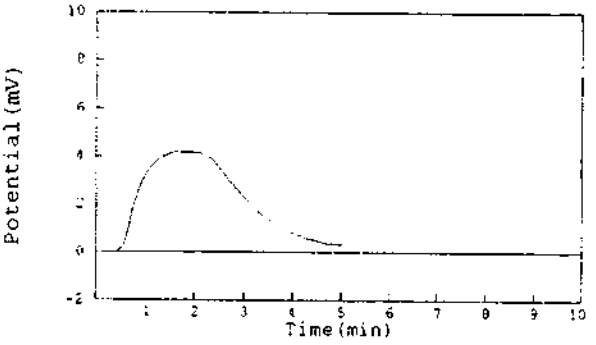
Reps. : 1-1 12/19/11 10:30
Sample ID : PAR
Counts(µg): 9.894



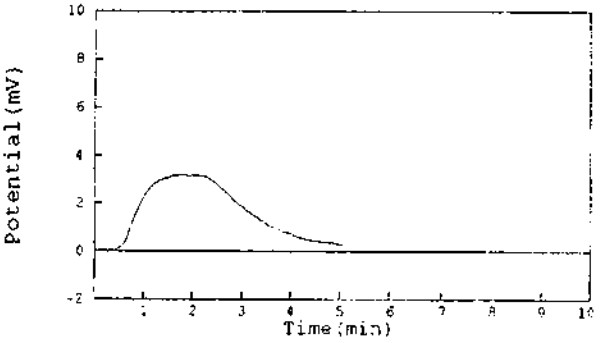
Reps. : 1-2 12/19/11 10:35
Sample ID : PAR
Counts(µg): 0.186



Reps. : 1-1 12/19/11 10:42
Sample ID : K11923-1
Counts(µg): 0.465



Reps. : 1-2 12/19/11 10:48
Sample ID : K11923-1
Counts(µg): 0.353



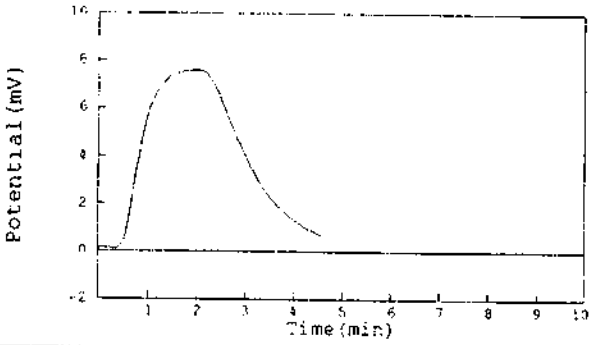
UA17:00251

Sample Report

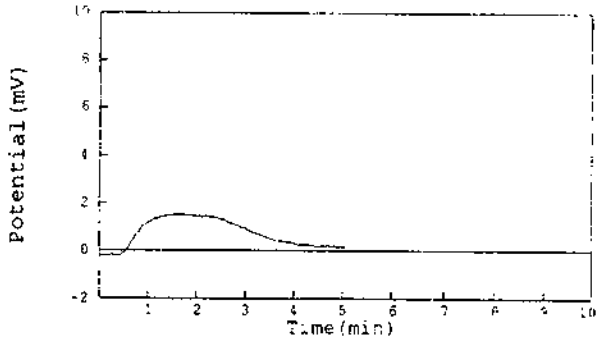
Sample Charts

Data ID : AOX212192011.002

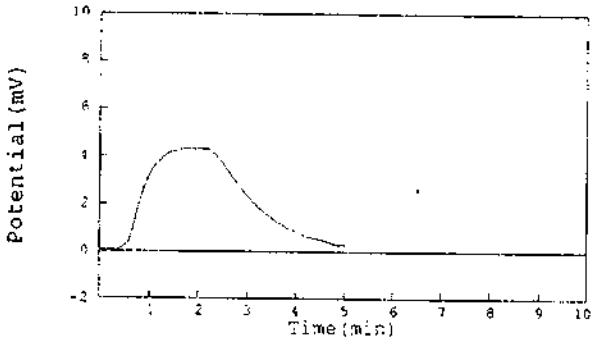
Reps. : 1-1 12/19/11 10:54
Sample ID : K11924-1
Counts(µg): 0.749



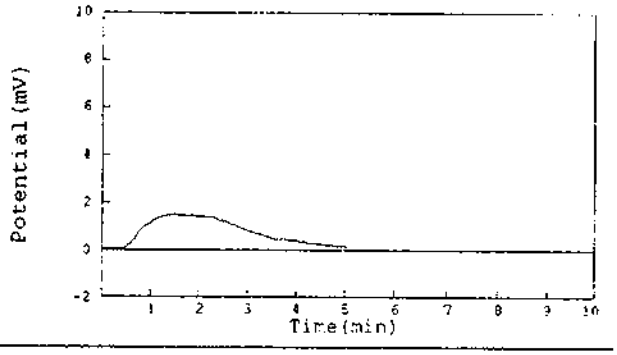
Reps. : 1-2 12/19/11 11:03
Sample ID : K11924-1
Counts(µg): 0.226



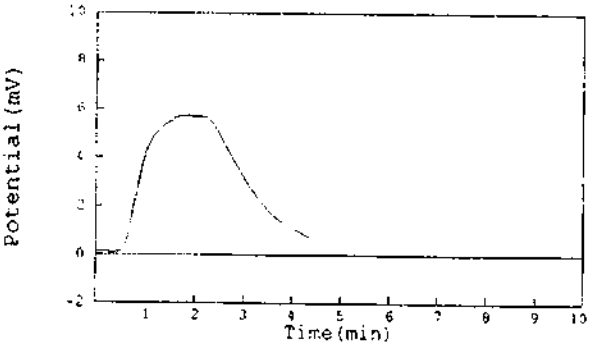
Reps. : 1-1 12/19/11 11:11
Sample ID : K11924-2
Counts(µg): 0.460



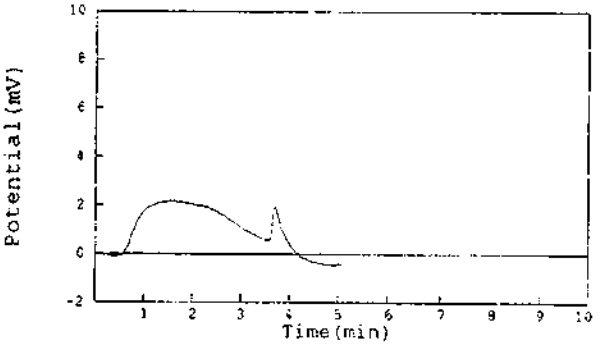
Reps. : 1-2 12/19/11 11:20
Sample ID : K11924-2
Counts(µg): 0.149



Reps. : 1-1 12/19/11 11:24
Sample ID : K11930-1
Counts(µg): 0.560



Reps. : 1-2 12/19/11 11:30
Sample ID : K11930-1
Counts(µg): 0.165



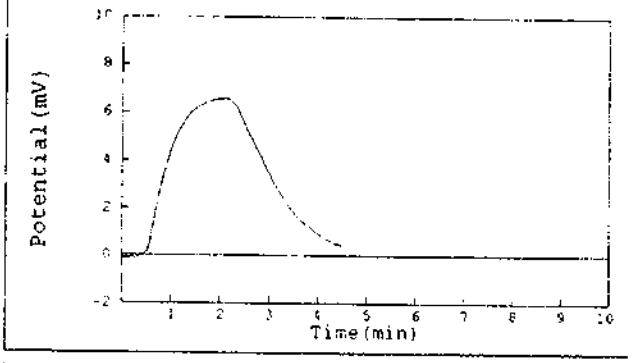
UA17:00252

Sample Report

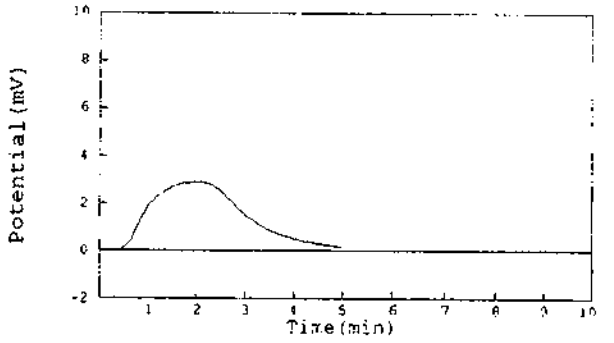
Sample Charts

Data ID : AOX212192011.002

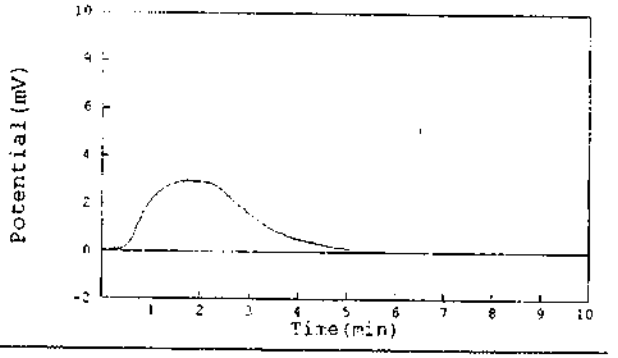
Reps. : 1-1 12/19/11 11:43
Sample ID : K11930-2
Counts(µg): 0.679



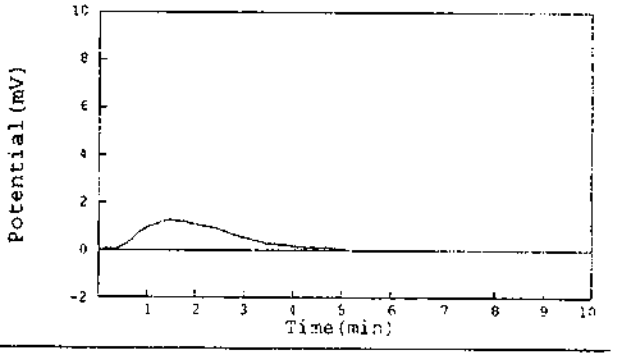
Reps. : 1-2 12/19/11 11:51
Sample ID : K11930-2
Counts(µg): 0.301



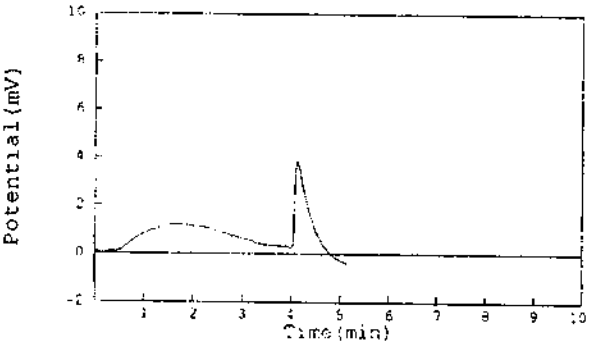
Reps. : 1-1 12/19/11 11:56
Sample ID : K11930-3
Counts(µg): 0.284



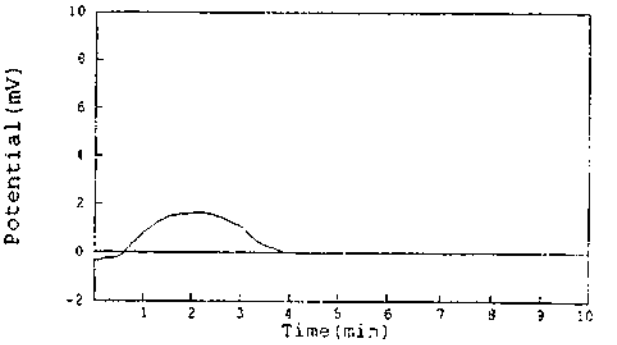
Reps. : 1-2 12/19/11 12:01
Sample ID : K11930-3
Counts(µg): 0.093



Reps. : 1-1 12/19/11 12:07
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.197



Reps. : 1-2 12/19/11 12:13
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.248



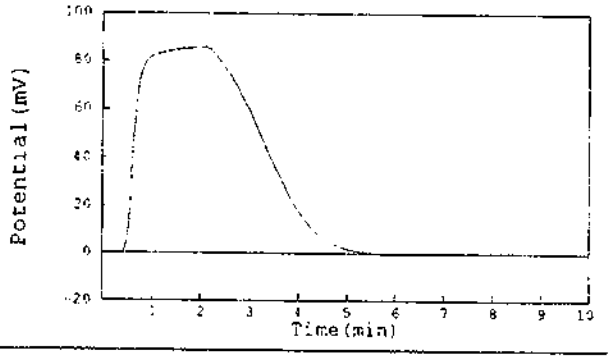
UA17:00253

Sample Report

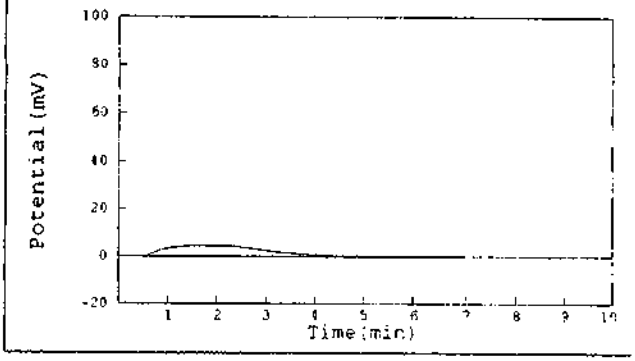
Sample Charts

Data ID : AOX212192011.002

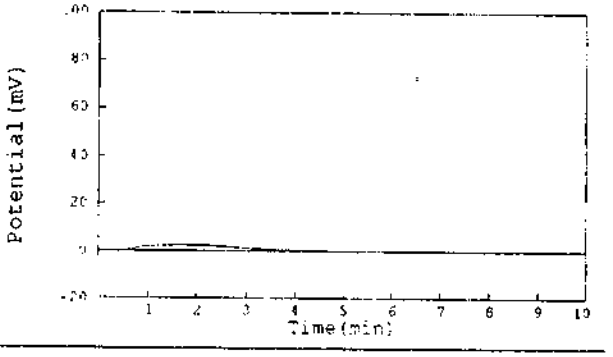
Reps. : 1-1 12/19/11 12:22
Sample ID : ICS
Counts(µg): 10.841



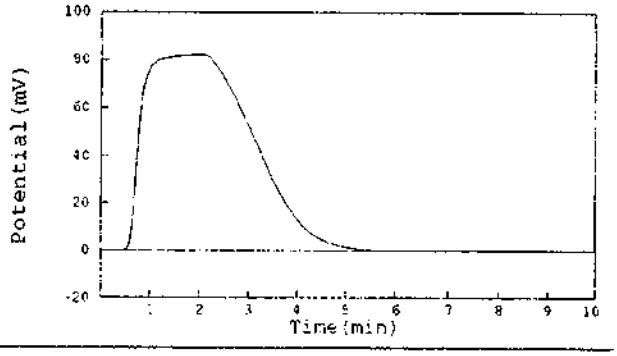
Reps. : 1-1 12/19/11 12:33
Sample ID : K11923-1D
Counts(µg): 0.476



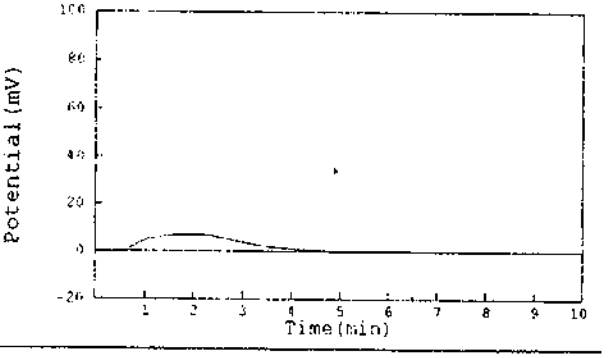
Reps. : 1-2 12/19/11 12:39
Sample ID : K11923-1D
Counts(µg): 0.259



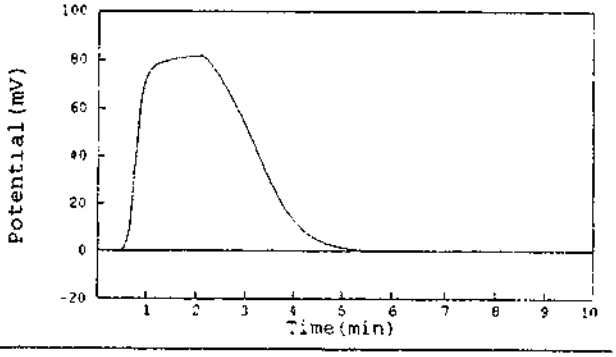
Reps. : 1-1 12/19/11 12:47
Sample ID : K11923-1MS
Counts(µg): 9.771



Reps. : 1-2 12/19/11 12:54
Sample ID : K11923-1MS
Counts(µg): 0.790



Reps. : 1-1 12/19/11 13:08
Sample ID : K11923-1MSD
Counts(µg): 9.719



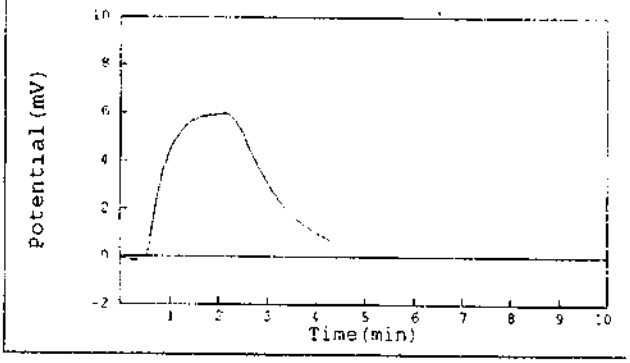
UA17:00254

Sample Report

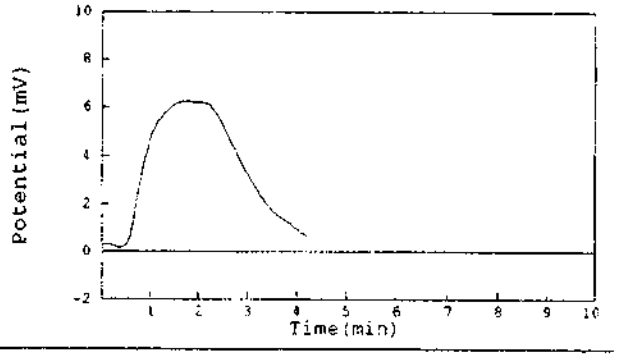
Sample Charts

Data ID : AOX212192011.002

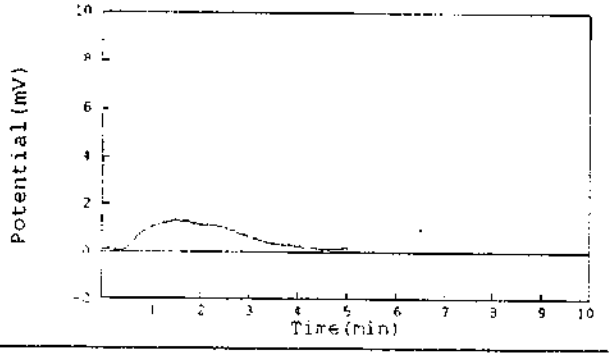
Reps. : 1-2 12/19/11 13:12
Sample ID : K11923-1MSD
Counts(µg): 0.610



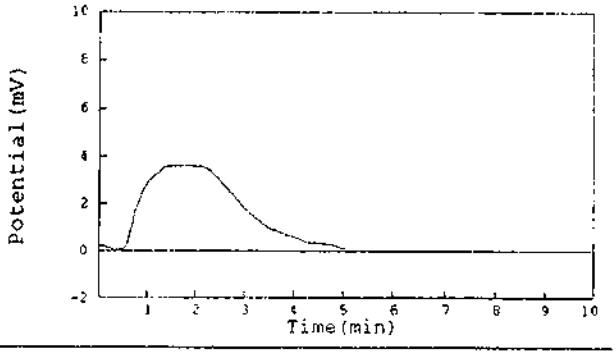
Reps. : 1-1 12/19/11 13:17
Sample ID : K11924-1D
Counts(µg): 0.548



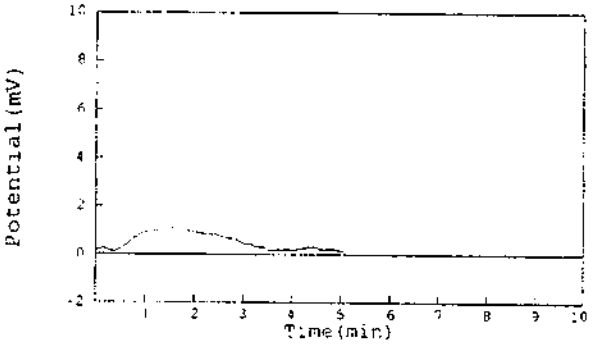
Reps. : 1-2 12/19/11 13:26
Sample ID : K11924-1D
Counts(µg): 0.132



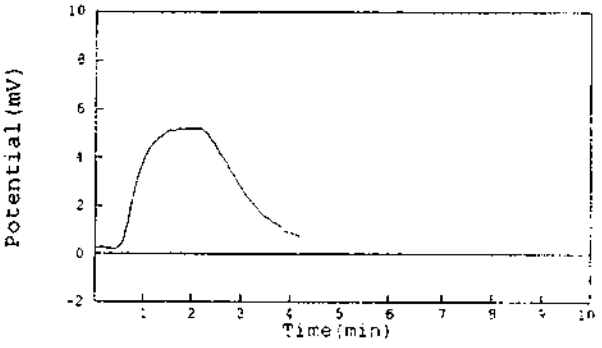
Reps. : 1-1 12/19/11 13:32
Sample ID : K11924-2D
Counts(µg): 0.327



Reps. : 1-2 12/19/11 13:40
Sample ID : K11924-2D
Counts(µg): 0.083



Reps. : 1-1 12/19/11 13:46
Sample ID : K11930-1D
Counts(µg): 0.495



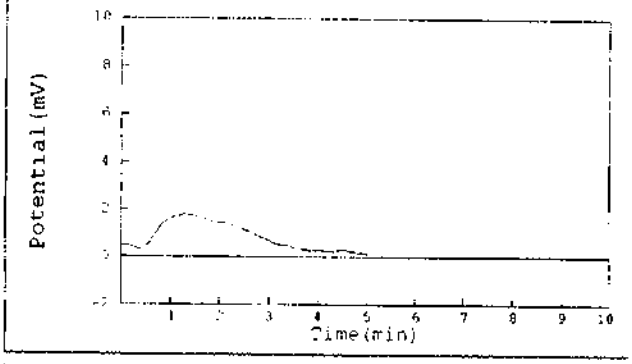
UA17:00255

Sample Report

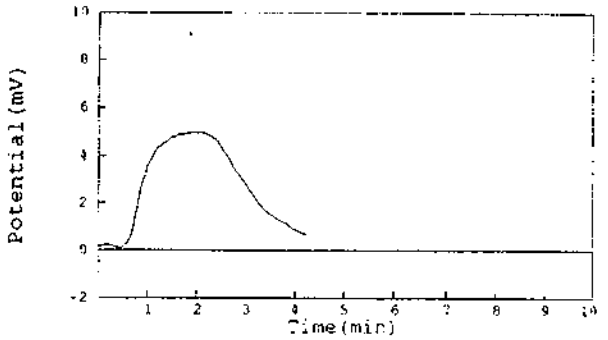
Sample Charts

Data ID : AOX212192011.002

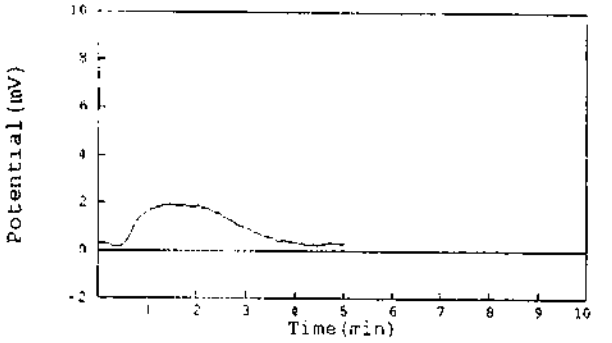
Reps. : 1-2 12/19/11 13:51
Sample ID : K11930-1D
Counts(µg): 0.049



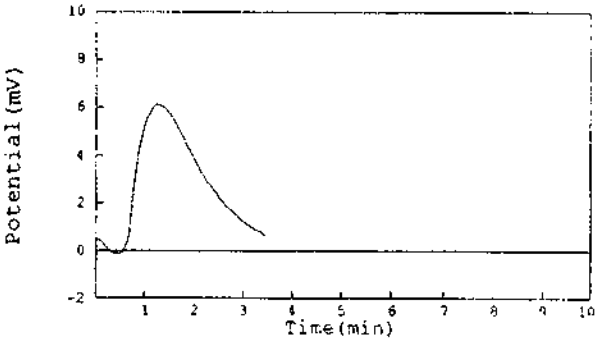
Reps. : 1-1 12/19/11 14:00
Sample ID : K11930-2D
Counts(µg): 0.475



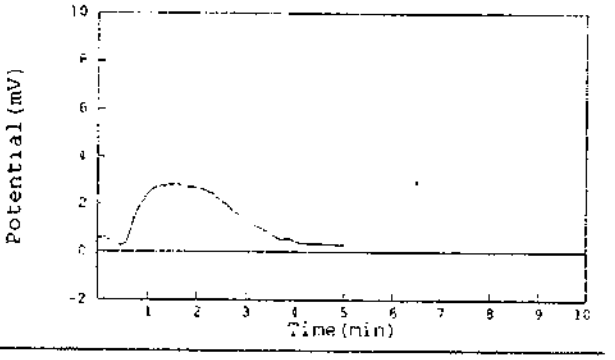
Reps. : 1-2 12/19/11 14:09
Sample ID : K11930-2D
Counts(µg): 0.162



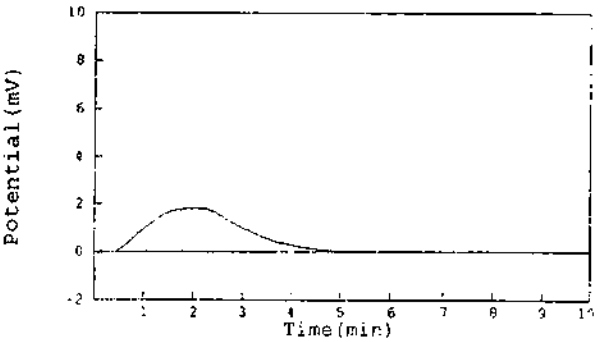
Reps. : 1-1 12/19/11 14:16
Sample ID : K11930-3D
Counts(µg): 0.752



Reps. : 1-2 12/19/11 14:23
Sample ID : K11930-3D
Counts(µg): 0.148



Reps. : 2-1 12/19/11 14:46
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.205



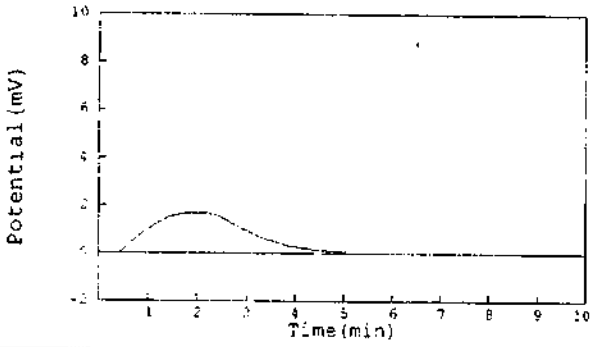
UA17 : 00256

Sample Report

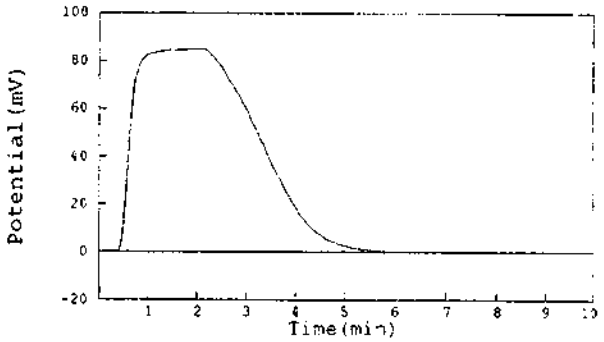
Sample Charts

Data ID : AOX212192011.002

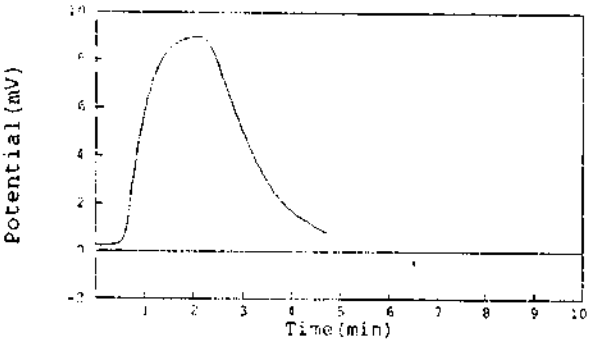
Reps. : 2-2 12/19/11 14:52
Sample ID : NITRATE WASH BLANK
Counts(µg): 0.185



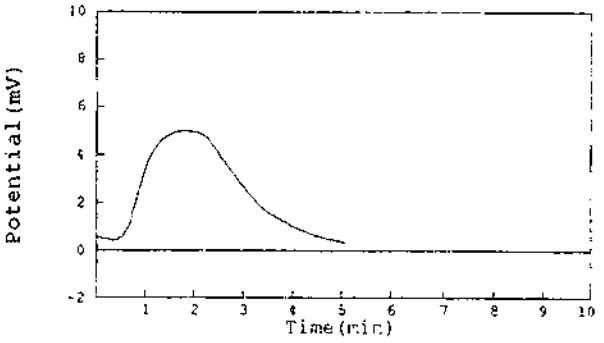
Reps. : 2-1 12/19/11 15:00
Sample ID : ICS
Counts(µg): 11.059



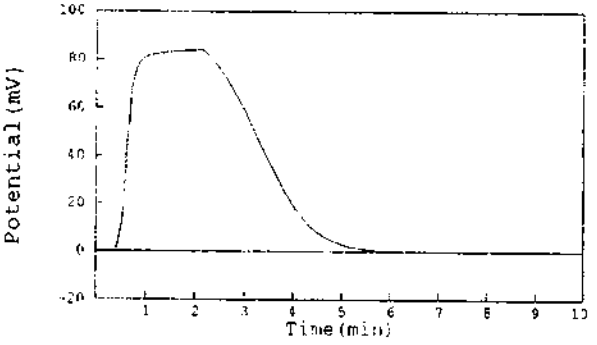
Reps. : 1-1 12/19/11 15:19
Sample ID : K11930-3T
Counts(µg): 0.892



Reps. : 1-2 12/19/11 15:25
Sample ID : K11930-3T
Counts(µg): 0.373



Reps. : 3-1 12/19/11 15:41
Sample ID : ICS
Counts(µg): 10.940



UA17:00257

General Chemistry Raw Data
Analyst Notes and Raw Data

ARI Job ID: UA17, UA20

TOC, Aqueous Data Summary (Apollo 9000) DATE: 12/8/2011

EPA 9060 A, SM 5310 B-00 ANALYST: UW

Analysis Mode: **NPOC** *Instrument:* ***Apollo 9000***

Detection Limits (mgC/L)

MRL = 1.5 **upper blank =** 1.5 **lower blank =** -1.5

Calibration Data

Stock ID: ARI 00121-6		factor (m):	1.442E+05	r^2:	0.99994
Curve Date: 11/28/2011		intercept (b_{cal}):	30905	sys blk (b_{sys})	21111
Curve ID: 112811X 0-50ppm					

LCS, Verification Standard and Inorganic Sparge Check

	Organic Carbon			Inorganic carbon		
Source:	**ERA 0523-11-05**			**ARI # 0104-9**		
Conc:	5,000	*mg/L*		1,000	*mg/L*	
dilution:	1.00	*mL to*	mg C/ L	5.00	*mL to*	mg C/ L
Volume:	250	*mL =*	**20.0**	250	*mL =*	**20**

Sample Data

SAMPLE ID	Dilution Factor	Carbon (mg C/L) *enter Form as TC, TIC, NPOC* Form	# reps	mean	stdev	Measured	Report as	Notes: *will flag if RSD >5%*
ICV	1	NPOC	3	20.5911	0.90	20.59	20.6	*103.00%*
ICB	1	NPOC	3	0.0657	0.04	0.07	<1.5	*OK !*
1.5 ppm	1	NPOC	3	1.3553	0.01	1.36	<1.5	90.35%
IC Sparge Check	1	NPOC	3	21.4426	0.24	21.44	21.4	*107.00%*
UA37 A3	1	NPOC	3	5.1211	0.06	5.12	5.12	
UA17 A1	1	NPOC	3	8.7891	0.67	8.79	8.79	RSD > 5% chk value
UA17 A1 dup	1	NPOC	3	9.0014	0.64	9.00	9	*RPD =2.4%*
UA17 A1 ms	1	NPOC	3	30.7756	0.26	30.78	30.8	*109.93%*
Spike at	0.200	*mL of*	2,000	*ppm Std to*	20.00	*mL =*	20.0	*mg/L*
UA20 A3	1	NPOC	3	2.3429	0.14	2.34	2.34	RSD > 5% chk value
UA20 B2	1	NPOC	3	2.6808	0.17	2.68	2.68	RSD > 5% chk value
CCV	1	NPOC	3	20.7627	0.14	20.76	20.8	*104.00%*
CCB	1	NPOC	3	0.1290	0.10	0.13	<1.5	*OK !*

UA17 : 00259

TOC, Aqueous Data Summary (Apollo 9000) DATE: 12/8/2011

EPA 9060 A, SM 5310 B-00 ANALYST: UW

Analysis Mode: **NPOC** *Instrument:* ***Apollo 9000***

Detection Limits (mgC/L)

MRL = 1.5 **upper blank =** 1.5 **lower blank =** -1.5

Calibration Data

Stock ID:	ARI 00121-6	factor (m):	1.442E+05	r^2:	0.99994
Curve Date:	11/28/2011	intercept (b_{cal}):	30905	sys blk (b_{sys})	21111

Curve ID: 112811X 0-50ppm

LCS, Verification Standard and Inorganic Sparge Check

	Organic Carbon			Inorganic carbon		
Source:	**ERA 0523-11-05**			**ARI # 0104-9**		
Conc:	5,000	*mg/L*		1,000	*mg/L*	
dilution:	1.00	*mL to*	mg C/ L	5.00	*mL to*	mg C/ L
Volume:	250	*mL =*	**20.0**	250	*mL =*	**20**

Sample Data

SAMPLE ID	Dilution Factor	Carbon (mg C/L) *enter Form as TC, TIC, NPOC* Form	# reps	mean	stdev	Measured	Report as	Notes: *will flag if RSD >5%*
ICV	1	NPOC	3	20.5911	0.90	20.59	20.6	*103.00%*
ICB	1	NPOC	3	0.0657	0.04	0.07	<1.5	*OK !*
1.5 ppm	1	NPOC	3	1.3553	0.01	1.36	<1.5	90.35%
IC Sparge Check	1	NPOC	3	21.4426	0.24	21.44	21.4	*107.00%*
UA37 A3	1	NPOC	3	5.1211	0.06	5.12	5.12	
UA17 A1	1	NPOC	3	8.7891	0.67	8.79	8.79	RSD > 5% chk value
UA17 A1 dup	1	NPOC	3	9.0014	0.64	9.00	9	*RPD =2.4%*
UA17 A1 ms	1	NPOC	3	30.7756	0.26	30.78	30.8	*109.93%*
Spike at	0.200	*mL of*	2,000	*ppm Std to*	20.00	*mL =*	20.0	*mg/L*
UA20 A3	1	NPOC	3	2.3429	0.14	2.34	2.34	RSD > 5% chk value
UA20 B2	1	NPOC	3	2.6808	0.17	2.68	2.68	RSD > 5% chk value
CCV	1	NPOC	3	20.7627	0.14	20.76	20.8	*104.00%*
CCB	1	NPOC	3	0.1290	0.10	0.13	<1.5	*OK !*

W

12-8-11

Detailed Analysis Report Print Date/Time: 2011/12/08 14:37:38

Sample ID: ICV/CCV
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 10:18
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	21.3313	10.6656	1568645	14.645	15.643	201
2	19.5853	9.7926	1442777	14.624	15.622	183
3	20.8567	10.4284	1534433	14.543	15.543	190

<<<Statistics>>> Mean: 20.5911 Std Dev: 0.9028 RSD: 4.38

Sample ID: ICB / CCB
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 10:39
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.0627	0.0314	35426	13.418	14.414	107
2	0.0275	0.0137	32884	13.253	13.422	120
3	0.1068	0.0534	38607	13.083	13.270	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 0.0657 Std Dev: 0.0397 RSD: 60.51

Sample ID: 1.5 ppm
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 11:01
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	1.3638	0.6819	129216	12.501	13.500	122
2	1.3518	0.6759	128357	12.445	13.443	122
3	1.3503	0.6752	128249	12.356	13.355	121

<<<Statistics>>> Mean: 1.3553 Std Dev: 0.0074 RSD: 0.55

Sample ID: CHECK
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 11:26
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	21.7204	10.8602	1596694	11.916	12.916	187
2	21.2656	10.6328	1563909	11.970	12.970	180
3	21.3417	10.6709	1569396	11.778	12.777	186

<<<Statistics>>> Mean: 21.4426 Std Dev: 0.2436 RSD: 1.14

Sample ID: UA37 A3
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 11:50
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	5.1855	2.5927	373812	11.278	12.277	144
2	5.1164	2.5582	368835	11.279	12.274	144
3	5.0613	2.5307	364864	11.201	12.199	143

<<<Statistics>>> Mean: 5.1211 Std Dev: 0.0622 RSD: 1.22

UA17:00261

Sample ID: UA17 A1
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW

Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 12:13
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	9.4898	4.7449	684103	10.911	11.908	161
2	8.1545	4.0773	587846	10.941	11.938	153
3	8.7230	4.3615	628824	10.896	11.892	158

<<<Statistics>>> Mean: 8.7891 Std Dev: 0.6701 RSD: 7.62

Sample ID: UA17 A1 DUP
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW

Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 12:37
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	9.6302	4.8151	694226	10.550	11.549	163
2	8.3480	4.1740	601791	10.589	11.583	155
3	9.0260	4.5130	650670	10.513	11.508	160

<<<Statistics>>> Mean: 9.0014 Std Dev: 0.6415 RSD: 7.13

Sample ID: UA17 A1 MS
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW

Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 13:03
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	31.0710	15.5355	2239862	10.352	11.350	200
2	30.6526	15.3263	2209700	10.440	11.437	198
3	30.6032	15.3016	2206139	10.404	11.398	198

<<<Statistics>>> Mean: 30.7756 Std Dev: 0.2570 RSD: 0.84

Sample ID: UA20 A3
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW

Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 13:26
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	2.4871	1.2436	179292	10.056	11.053	132
2	2.3318	1.1659	168093	10.044	11.040	131
3	2.2097	1.1049	159294	10.039	11.039	132

<<<Statistics>>> Mean: 2.3429 Std Dev: 0.1390 RSD: 5.93

Sample ID: UA20 B2
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW

Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 13:48
Sample Type: Sample

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	2.8657	1.4329	206585	9.903	10.898	132
2	2.6389	1.3194	190233	9.879	10.871	130
3	2.5377	1.2689	182942	9.890	10.886	131

<<<Statistics>>> Mean: 2.6808 Std Dev: 0.1680 RSD: 6.27

Sample ID: ICV/CCV
Method: TOC 0 to 50 ppm

Mode: TOC
Filename: 12080953

Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Timestamp: 2011/12/08 14:14
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	20.9168	10.4584	1538763	9.835	10.835	198
2	20.7148	10.3574	1524200	9.954	10.949	197
3	20.6566	10.3283	1520007	9.915	10.915	197

<<<Statistics>>> Mean: 20.7627 Std Dev: 0.1366 RSD: 0.66

Sample ID: ICB / CCB
Method: TOC 0 to 50 ppm
Cal. Curve: 112811X 0-50ppm
Operator ID: UW
Mode: TOC
Filename: 12080953
Timestamp: 2011/12/08 14:35
Sample Type: Cal. Verification

Rep #	ppm C	ug C	Raw Data	Beginning Baseline	Ending Baseline	Integration Time
1	0.2126	0.1063	46231	9.535	10.535	107
2	0.1605	0.0803	42476	9.516	9.770	120
3	0.0138	0.0069	31901	9.612	9.821	120

Last Message: Low Sample Detected
<<<Statistics>>> Mean: 0.1290 Std Dev: 0.1031 RSD: 79.93

UA17:00263

Calibration Report Print Date/Time: 2011/11/28 12:48:57

Cal. Curve ID: 112811X 0-50ppm
Created: 2011/11/28 12:48
Calibration Factor (m): 1.442e+05
Y Intercept (b): 30905
r-squared: 0.99994

Standard ID	Y Raw Data	X Expected ug C	Measured ug C	Message	Date & Time
BLK	41742	0.000	0.075	Low Sample De	2011/11/28 10:44
1.5	129933	0.750	0.687		2011/11/28 11:06
5.0	376619	2.500	2.398		2011/11/28 11:29
10.0	760027	5.000	5.057		2011/11/28 11:53
25.0	1842433	12.500	12.565		2011/11/28 12:19
50.0	3630767	25.000	24.968		2011/11/28 12:45

UA17:00264

12-8-11

TOTAL SUSPENDED SOLIDS / VOLATILE SUSPENDED SOLIDS (TSS / TVSS)
Methods : SM 2540 D-97, 2540 E-97

DATE: 12/8/11 944
ANALYST: SM

Instrumentation ***Drying Ovens:*** 12 ***Analytical Balance:*** 1123230597
Muffle Furnace:

make no entries to shaded cells
they are calculated !!

TSS (mg/l) calculated as:
Final dry wt (mg) = (minimum Dry Wt - Tare Wt)*1000
TSS = [(Final Dry Wt)/ ml Sample] * 1000
if dy wt < 1mg, TSS = <1mg / mL sample * 1000
with "<" flag

Loss on ignition (LOI) = TVSS (mg/L) calculated as:
LOI (mg) = Dry wt(mg) -((min ash wt - tare wt) * 1000)
TVSS (mg/L) = LOI / mL sample * 1000
if LOI <1mg, TVSS = <1mg / mL sample * 1000
with "<" flag

LCS source: *Cellulose, MP Biomedicals Lot# 8399J* 0.05 grams to 1000 mL = **50** ***mg/L TSS***

SAMPLE ID	DISH #	filtered (mL)	TARE WT (grams)	DRY WT 104C (grams) 1	2	3	4	DryWT (mg)	TSS (mg/L)	ASH WT 550C (grams) 1	2	3	4	LOI (mg)	TVSS (mg/l)
Cal Weight ID			CV-02	CV-02	CV-02	CV-02	CV-02			CV-02	CV-02	CV-02	CV-02		
Date & Time				12/8/11 1203	12/8/11 1424										
Cal Wt (g) 10.0000				10.0000	10.0000										
record weights to 4 places				*Cal OK!*	*Cal OK!*										
BLANK		1000	0.1135	0.1134	0.1135	STOP		-0.1	< 1						
LCS # 586-8		1000	0.1189	0.1667	0.1669	STOP		47.8	**47.8**	95.6%	% Recovery				
UA31 A6		950	0.1179	0.1183	0.1183	STOP		0.4	< 1.1						
UA31 B6		960	0.1201	0.1207	0.1207	STOP		0.6	< 1						
UA31 C6		850	0.1150	0.1216	0.1215	STOP		6.5	**7.6**						
UA31 D6		970	0.1159	0.1168	0.1169	STOP		0.9	< 1						
UA20 A7		945	0.1181	0.1200	0.1199	STOP		1.8	**1.8**						
UA20 B6		930	0.1219	0.1240	0.1240	STOP		2.1	**2.3**						
UA17 A5		930	0.1151	0.1450	0.1447	STOP		29.6	**31.8**						
UA09 B6		940	0.1185	0.1222	0.1222	STOP		3.7	**3.9**						
UA40 A8		920	0.1175	0.1174	0.1174	STOP		-0.1	< 1.1						

UA17 : 00295

Analytical Resources, Incorporated
Analytical Chemists and Consultants

TOTAL SUSPENDED (TSS) / TOTAL VOLATILE SUSPENDED SOLID(TVSS) BENCHSHEET

Analyst:	JM	Date/Time:	12-8-11 944	Oven #:	12	Muffle Furnance:		Balance:	1123230597

Dry at 104 °C (12-24 hrs) then combust at 550 °C for 30 min. Record Weights to 4 places

TSS (mg/L) calculated as:
Final Dry Weight (mg) = (Min Dry Weight – Tare Weight) * 1000
TSS = (Final Dry Weight) / (mL Sample) * 1000
If dry wt < 1 mg / mL sample * 1000 use "<" flag

Loss on Ignition (LOI) = TVSS (mg / L) is calculated as:
LOI (mg / L) = Dry Weight (mg) – [(Minimum Ash Weight – Tare Weight) * 1000]
TVSS (mg / L) = LOI / mL sample * 1,000
If LOI < 1 mg, TVSS = < 1 mg / mL sample * 1000 use "<" flag

LCS (Cellulose from MP Biochemicals) Lott #		6398J	0.0500 Gram to 1000 mL = 50 mg / L TSS								
Cal Weight ID	CV-02	CV-02	CV-02	CV-02	CV-02			CV-02	CV-02		
Date & Time:			12-8-11 1203	12-8-11 1424							
Cal Weight (10.0000g):			10.0000	10.0000							

Sample ID	Dish #	Filtered mL	Tare	Dry Weight 104°C (grams) 1	2	3	Dry Wt mg	TSS	Ash Weight 550°C 1	2	LOI - mg	TVSS mg/L
BLANK		1000	0.1135	0.1134	0.1135							
LCS 5868		1000	0.1189	0.1667	0.1669							
UA31 A6	1	950	0.1179	0.1183	0.1183							
B6	2	960	0.1201	0.1207	0.1207							
C6	3	850	0.1150	0.1216	0.1215							
D6	4	970	0.1159	0.1168	0.1169							
UA20 A7	5	945	0.1181	0.1200	0.1199							
B6	6	930	0.1219	0.1240	0.1240							
UA17 A5	7	930	0.1151	0.1450	0.1447							
UA09 B6	8	940	0.1185	0.1222	0.1222							
UA40 98	9	920	0.1175	0.1174	0.1174							

UA17 : 00250

ALKALINITY BENCHSHEET methods: **SM 2320 B-97**

Date/Time: 12/12/11 18:02

pH meter verification **pH meter ID: ACCUMET AR60** **Buret ID: 01G30627**

Analyst: KE

Buffer pH **7.00** **pH Probe ID : AR60**

Measured pH 7.01 *Calibration OK* **HIGH CURVE**

Standardization of acid titrant ***(titration to pH 4.5)***

ARI ID: ***00122 - 1***

grams Na2CO3 =	**0.6250**	*to*	**250**	*ml DI*
Normality Na2CO3 =	0.0472			
Assumed Acid Normality =	**0.1**			
Standardized Acid Normality=	0.1004	***OK!***		

BLANK		STANDARD TITRATION		
BLANK	ml ACID	ml Na2CO3	ml ACID	N H2SO4
1	0.03	**5**	2.40	0.100
2	0.03	**5**	2.36	0.101
3	0.03	**5**	2.38	0.100
AVERAGE	0.03			0.100

Partitioning Calculations T=Total, P=Phenolphthalein			
Obs	*HCO3*	*CO3*	*OH*
P =0	T	0	0
P< 0.5T	T - 2P	2P	0
P= 0.5T	0	2P	0
P> 0.5T	0	2(T - P)	2P - T
P =T	0	0	T

Calibration Verification Standard (second source sodium carbonate solution)

ARI ID: ***00133 - 2***

grams Na2CO3 =	**0.6260**	*grams in*	**250**	*mL =*	*mg/L CaCO3* 2363	
dilution:	**5.0**	*mL to*	**100**	*CVS =*	**118.1**	
DQL Std (2ppm)	*dilute*	**0.085**	*mL stock to 100 mL DI =*		**2.0**	

Laboratory Control Standard (LCS)

Source: ***P194 - 506*** *mg/L CaCO3* **49.20**

SAMPLE DATA

Alk (mg/L CaCO3 = [(mL acid X Nacid) X 50,000] / mL sample *(shaded cells are calculated, make no entries)*

low level = ((((2 X mL4.5)-mL4.2] X Nacid) X 50,000) / mL sample

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4 pH=8.3	ml H2SO4 pH =4.5	ml H2SO4 pH=4.2	ALK (mg CaCO3/l) Phenolph	ALK (mg CaCO3/l) TOT HIGH	ALK (mg CaCO3/l) TOT LOW	Partitioning (mg/l CaCO3) HCO3	Partitioning (mg/l CaCO3) CO3	Partitioning (mg/l CaCO3) OH	(mg/l) FREE CO2
ICV		10.46	100	20.1	1.13	2.38	0.00	56.7	117.9		*99.8%*	*OK!*		
ICB		5.41	100	21.3	0.00	0.03	0.06	0.0		0.0	0.0	0.0	0.0	0.0
LCS		8.90	50	21.0	0.28	0.51	0.54	28.1	51.2		*104.0%*	*OK!*		
TZ83 A4		6.74	100	21.2	0.00	8.61	0.00	0.0	432.1		432.1	0.0	0.0	157.3
TZ84 A8		6.52	100	20.8	0.00	5.04	0.00	0.0	253.0		253.0	0.0	0.0	152.8
TZ84 A8 dup		6.55	100	20.8	0.00	5.07	0.00	0.0	254.5		254.5	0.0	0.0	143.4
RPD =									*0.6%*		*0.6%*			*6.3%*
TZ97 A3		6.74	100	21.0	0.00	4.34	0.00	0.0	217.8		217.8	0.0	0.0	79.3
UA17 A3		6.50	100	21.0	0.00	5.79	0.00	0.0	290.6		290.6	0.0	0.0	183.8
UA31 A4		7.22	100	20.9	0.00	9.39	0.00	0.0	471.3		471.3	0.0	0.0	56.8
UA31 A4 dup		7.20	100	20.8	0.00	9.32	0.00	0.0	467.8		467.8	0.0	0.0	59.0
RPD =									*0.7%*		*0.7%*			*3.9%*
UA31 B4		7.36	100	20.8	0.00	6.26	0.00	0.0	314.2		314.2	0.0	0.0	27.4
UA43 A5		7.12	100	20.8	0.00	5.61	0.00	0.0	281.6		281.6	0.0	0.0	42.7
UA43 B5		7.28	100	20.8	0.00	5.50	0.00	0.0	276.0		276.0	0.0	0.0	29.0
CCV		10.46	100	20.2	1.15	2.41	0.00	57.7	119.4		*101.1%*	*OK!*		0.0
UA43 E5		6.92	100	20.7	0.00	10.51	0.00	0.0	527.5		527.5	0.0	0.0	126.8
UA43 F5		7.04	100	20.6	0.00	10.58	0.00	0.0	531.0		531.0	0.0	0.0	96.9
UA67 A3		7.46	100	20.6	0.00	6.03	0.00	0.0	302.6		302.6	0.0	0.0	21.0
UA67 C3		7.24	100	20.5	0.00	7.93	0.00	0.0	398.0		398.0	0.0	0.0	45.8
UA74 A5		6.72	100	20.4	0.00	6.47	0.00	0.0	324.7		324.7	0.0	0.0	123.7
UA74 B5		7.28	100	20.5	0.00	4.40	0.00	0.0	220.8		220.8	0.0	0.0	23.2
UA42 C3		6.74	100	20.9	0.00	12.56	0.00	0.0	630.4		630.4	0.0	0.0	229.4
CCV		10.44	100	20.0	1.15	2.39	0.00	57.7	118.4		*100.3%*	*OK!*		0.0

UA17 : 09267

ALKALINITY BENCHSHEET

methods: **SM 2320 B-97**

Date/Time: 12-12-11

pH meter verification — **pH meter ID:** ACCUMET AR60 — **Buret ID:** 01G30627 — Analyst: KE 1802

Buffer pH: 7.00 — **pH Probe ID :** AR60

Measured pH: 7.01 *must agree within 0.1 pH unit* — HIGH CURVE

Standardization of acid titrant *(titration to pH 4.5)*

ARI ID: 00122 - 1

grams Na2CO3 =	0.6250	*to*	250	*ml DI*
Normality Na2CO3 =	0.0472			
Assumed Acid Normality =	0.1			
Standardized Acid Normality=				

BLANK		STANDARD TITRATION		
BLANK	ml ACID	ml Na2CO3	ml ACID	N H2SO4
1	0.03	5	2.40	
2	0.03	5	2.36	
3	0.03	5	2.38	
AVERAGE				

Partitioning Calculations T=Total, P=Phenolphthalein			
Obs	*HCO3*	*CO3*	*OH*
P =0	T	0	0
P< 0.5T	T - 2P	2P	0
P= 0.5T	0	2P	0
P> 0.5T	0	2(T - P)	2P - T
P =T	0	0	T

Calibration Verification Standard (second source sodium carbonate solution)

ARI ID: 00133 - 2 — *mg/L CaCO3*

grams Na2CO3 = 0.6260 — *grams in* 250 — *mL =* 2363

dilution: 5.0 — *mL to* 100 — *CVS =* 118.1

DQL Std (2ppm) — *dilute* 0.085 — *mL stock to 100 mL DI =* 2.0

Laboratory Control Standard (LCS)

Source: P194 - 506 — *mg/L CaCO3* 49.20

SAMPLE DATA

Alk (mg/L CaCO3 = [(mL acid X Nacid) X 50,000] / mL sample — *(shaded cells are calculated, make no entries)*

low level = {[(2 X mL4.5)-mL4.2] X Nacid) X 50,000} / mL sample

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4 pH=8.3	ml H2SO4 pH =4.5	ml H2SO4 pH=4.2	ALK (mg CaCO3/l) Phenolph	ALK (mg CaCO3/l) TOT HIGH	ALK (mg CaCO3/l) TOT LOW	Partitioning (mg/l CaCO3) HCO3	Partitioning (mg/l CaCO3) CO3	Partitioning (mg/l CaCO3) OH	(mg/l) FREE CO2
ICV		10.46	100	20.1	1.13	2.38	0.00							
ICB		5.41	100	21.3	0.00	0.03	0.00							
~~DQL Std (2ppm)~~								12-12-11						
LCS		8.90	50	21.0	0.28	0.58	0.54							
T283 A4		6.74	100	21.2	0.00	8.61	0.00							
T284 B3		6.52	100	20.8	0.00	5.04	0.00							
" DUP B3		6.55	100	20.8	0.00	5.07	0.00							
T287 C1		6.71	100	21.0	0.00	4.34	0.00							
AU17 A3		6.50	100	21.0	0.00	5.79	0.00							
U931 A4		7.22	100	20.9	0.00	9.39	0.00							
" DUP A4		7.20	100	20.8	0.00	9.32	0.00							
B1		7.36	100	20.8	0.00	6.36	0.00							
UA43 A5		7.12	100	20.8	0.00	5.61	0.00							
" B5		7.28	100	20.8	0.00	5.50	0.00							
CCV		10.46	100	20.2	1.15	2.41	0.00							
UAU3 E3		7.92	100	20.7	0.00	10.51	0.00							
" F5		7.04	100	20.6	0.00	10.58	0.00							
UA67 A3		7.46	100	20.6	6.00	6.03	0.00							
" C3		7.34	100	20.5	0.00	7.93	0.00							
UA74 A5		6.72	100	20.4	2.00	6.47	0.00							
" B5		7.23	100	20.5	0.00	6.90	0.00							
UA42 C3		6.74	100	20.9	0.00	12.56	0.00							
CCV		10.49	100	20.0	1.15	2.39	0.00							
						12-17-11 (D)								
CCV														

(2) 0.51 12-12-11 (W)

UA17.00298

12-13-11

analyst:	RR
date:	12/7/2011
Instrument ID:	S/N97010739
start time:	17:54
loop:	100µl

Analytical Resources Inc.
4611 134th Place S., Suite 100
Tukwila, WA 98168
206-695-6227

		dilution	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate
DL (ppm)		1	0.100	0.100	0.100	0.100	0.100	0.100	0.100
HISTD		1	5.000	5.000	5.000	5.000	5.000	5.000	5.000
ICV,CCV (ppm)		1	3.000	3.000	3.000	3.000	3.000	3.000	3.000
ERA LOT#		1	161110	411010	401010	210610	230511	200610	160111
		dilution	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate
ICV		1	3.003	2.895	2.942	3.009	2.894	2.947	2.960
		%recovery	100%	97%	98%	100%	96%	98%	99%
ICB		1	<0.1	0.058	<0.1	<0.1	<0.1	<0.1	<0.1
UA17 A4		1	NR	NR	NR	NR	0.094	NR	0.661
UA17 A4 dup		1	NR	NR	NR	NR	0.094	NR	0.642
UA17 A4 ms		1	NR	NR	NR	NR	1.883	NR	2.598
Matrix Spike		*0.05 mL 200ppm intstock to*				*5.0*		*mLsample=*	*2.00*
							89%		97%
UA27 A8		1	NR	NR	NR	NR	0.094	NR	1.836
UA27 B8		1	NR	NR	NR	NR	0.096	NR	0.054
UA27 C8		1	NR	NR	NR	NR	<0.1	NR	0.065
UA27 D8		1	NR	NR	NR	NR	0.099	NR	NR
UA27 E8		1	NR	NR	NR	NR	0.131	NR	NR
UA27 F8		1	NR	NR	NR	NR	0.095	NR	0.128
UA27 G8		1	NR	NR	NR	NR	0.100	NR	NR
CCV		1	3.020	2.943	2.957	3.015	2.918	2.975	2.975
		%recovery	101%	98%	99%	101%	97%	99%	99%
CCB		1	<0.1	0.075	<0.1	<0.1	<0.1	<0.1	<0.1
UA31 A1		1	0.262	NR	NR	NR	0.376	<0.1	NR
UA31 A1 dup		1	0.263	NR	NR	NR	0.379	<0.1	NR
UA31 A1 ms		1	1.910	NR	NR	NR	2.242	1.668	NR
Matrix Spike		*0.05 mL 200ppm intstock to*				*5.0*		*mLsample=*	*2.00*
			82%				93%	83%	
UA31 B1		1	0.328	NR	NR	NR	0.114	<0.1	NR
UA31 C1		1	0.140	NR	NR	NR	0.112	<0.1	NR
UA31 D1		1	0.205	NR	NR	NR	0.168	0.067	NR
ARI 00121-11		2500	NR	9797.025	NR	NR	NR	NR	NR
UA42 A1		1	0.061	NR	0.095	NR	NR	NR	NR
UA42 B1		1	0.067	NR	<0.1	NR	0.177	NR	NR
UA42 C1		1	0.054	NR	<0.1	NR	0.218	NR	NR
CCV		1	3.013	2.964	2.960	3.030	2.926	2.960	2.978
		%recovery	100%	99%	99%	101%	98%	99%	99%
CCB		1	<0.1	0.100	<0.1	<0.1	<0.1	<0.1	<0.1

Sample Name : ICV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 5:20:45 PM

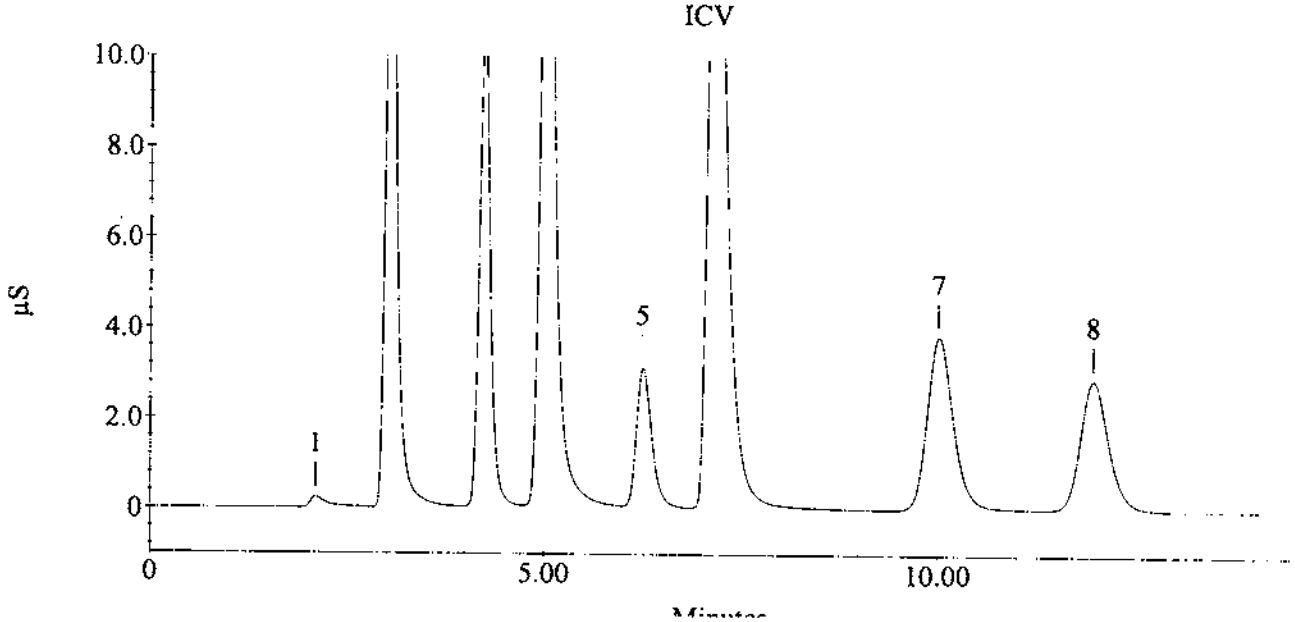
Injection Number : 1
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_001.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2311	35504	2	
2	3.03	FLUORIDE	3.003	159565	1550943	2	1.11
3	4.23	CHLORIDE	2.895	107872	1043816	2	0.79
4	5.02	NITRITE-N	2.942	183541	2269817	2	0.94
5	6.25	BROMIDE	3.009	30681	421488	2	1.13
6	7.15	NITRATE-N	2.894	163124	2680400	1	1.71
7	10.00	PHOSPHATE-P	2.947	38034	871139	1	0.00
8	11.97	SULFATE	2.960	28599	703524	1	-0.28
		---total(s)---	20.650	713727	9576632		



UA17-00270

Sample Name : ICB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 5:37:35 PM

Injection Number : 2
Dilution Factor : 1.00
column :

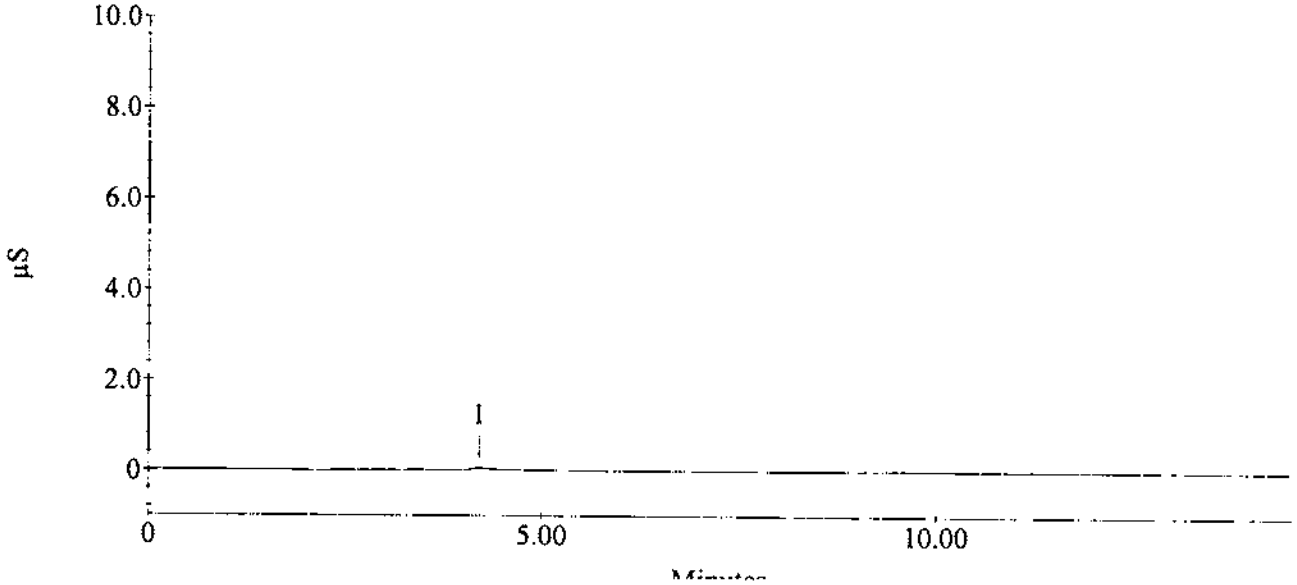
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_002.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	4.20	CHLORIDE	0.058	454	6428	I	0.00
		---total(s)---	0.058	454	6428		

ICB



UA17-00271

Sample Name : UA17 A4
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 5:54:21 PM

Injection Number : 3
Dilution Factor : 1.00
column :

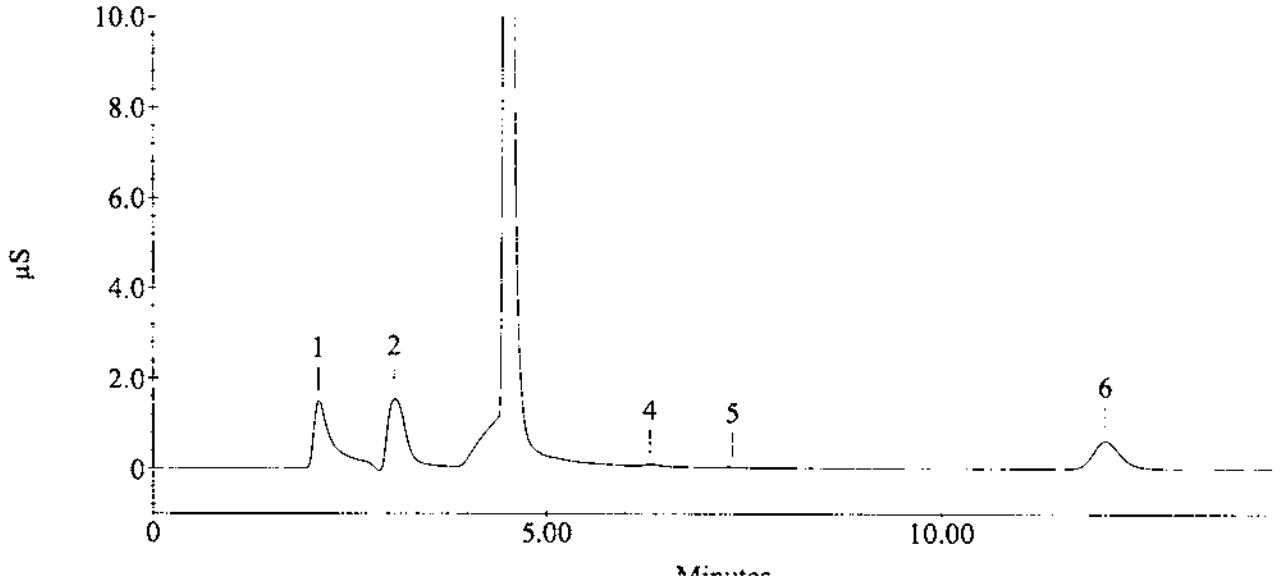
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_003.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	14902	261394	1	
2	3.07	FLUORIDE	0.586	15790	283080	2	2.22
3	4.50	Unknown 2	0.000	483737	3420994	3	
4	6.32	BROMIDE	0.096	550	7607	4	2.21
5	7.37	NITRATE-N	0.094	164	2350	1	4.79
6	12.07	SULFATE	0.661	6122	150458	1	0.56
		---total(s)---	1.437	521265	4125883		

UA17 A4



UA17 00272

Sample Name : UA17 A4 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 6:11:07 PM

Injection Number : 4
Dilution Factor : 1.00
column :

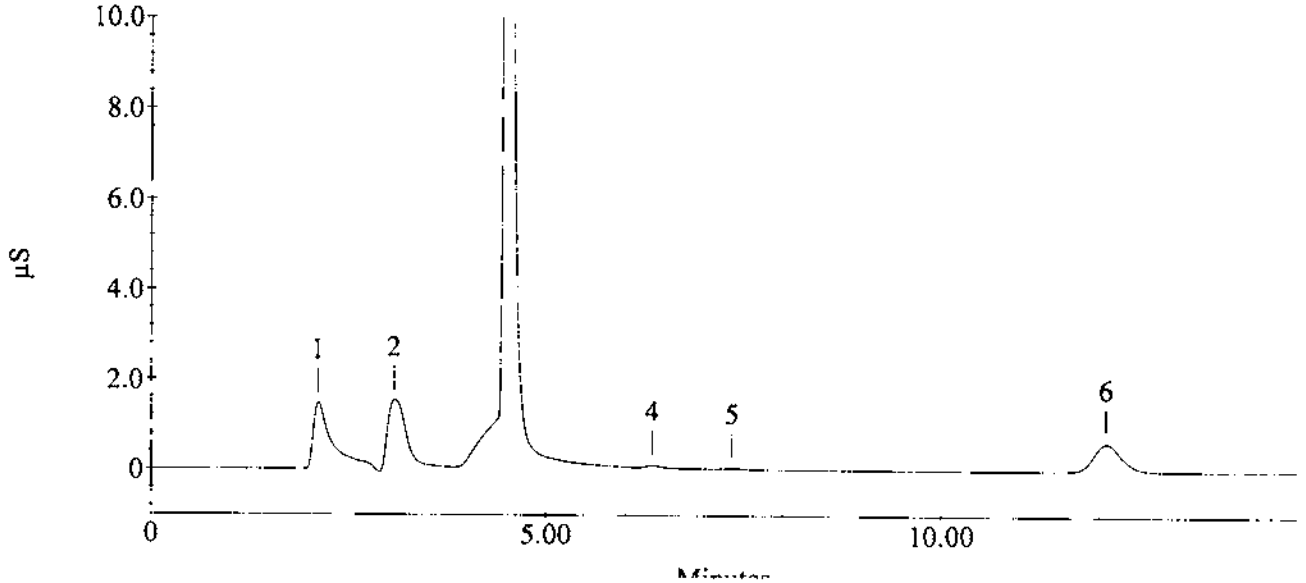
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_004.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	14727	260742	1	
2	3.07	FLUORIDE	0.575	15618	277026	2	2.22
3	4.50	Unknown 2	0.000	483915	3419140	3	
4	6.33	BROMIDE	0.107	603	9129	4	2.48
5	7.35	NITRATE-N	0.094	190	2494	1	4.55
6	12.08	SULFATE	0.642	6073	145993	1	0.69
		---total(s)---	1.417	521127	4114523		

UA17 A4 DUP



UA17 00273

Sample Name : UA17 A4 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 6:27:55 PM

Injection Number : 5
Dilution Factor : 1.00
column :

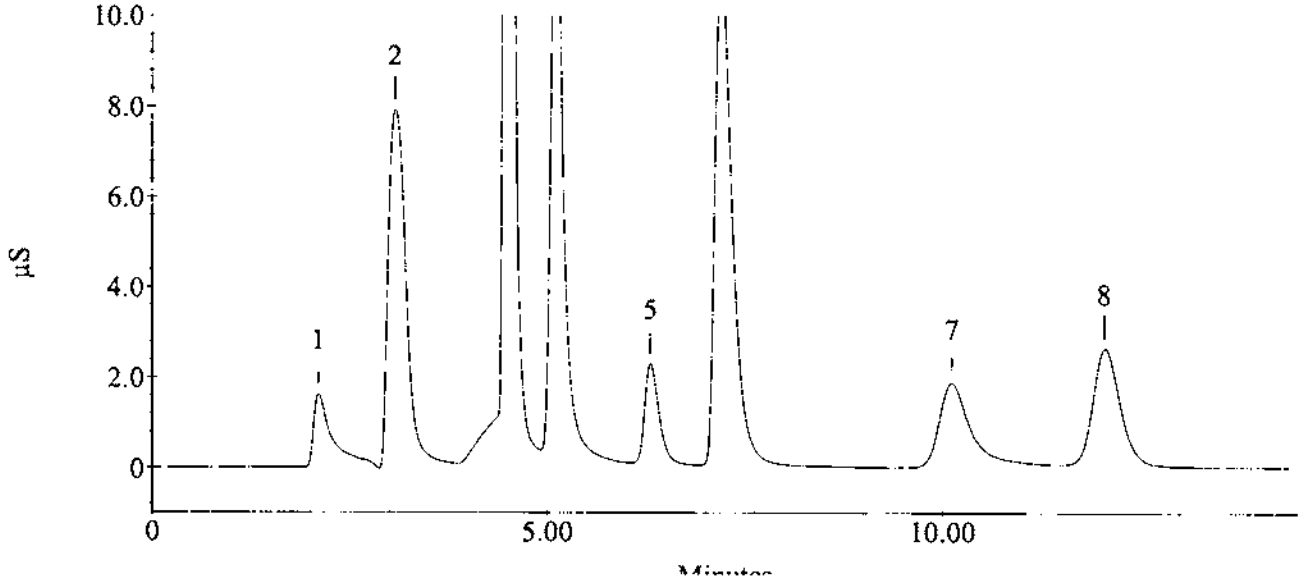
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_005.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	16236	273880	1	
2	3.07	FLUORIDE	2.458	79262	1264846	2	2.22
3	4.50	Unknown 2	0.000	618131	4238238	2	
4	5.10	NITRITE-N	2.048	140224	1566813	2	2.62
5	6.30	BROMIDE	2.107	22553	293320	2	1.94
6	7.20	NITRATE-N	1.883	111004	1713090	1	2.42
7	10.12	PHOSPHATE-P	1.736	18445	506011	1	1.17
8	12.05	SULFATE	2.598	25727	616348	1	0.42
		---total(s)---	12.829	1031582	10472547		

UA17 A4 MS



UA17 00274

Sample Name : UA27 A8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 6:44:41 PM

Injection Number : 6
Dilution Factor : 1.00
column :

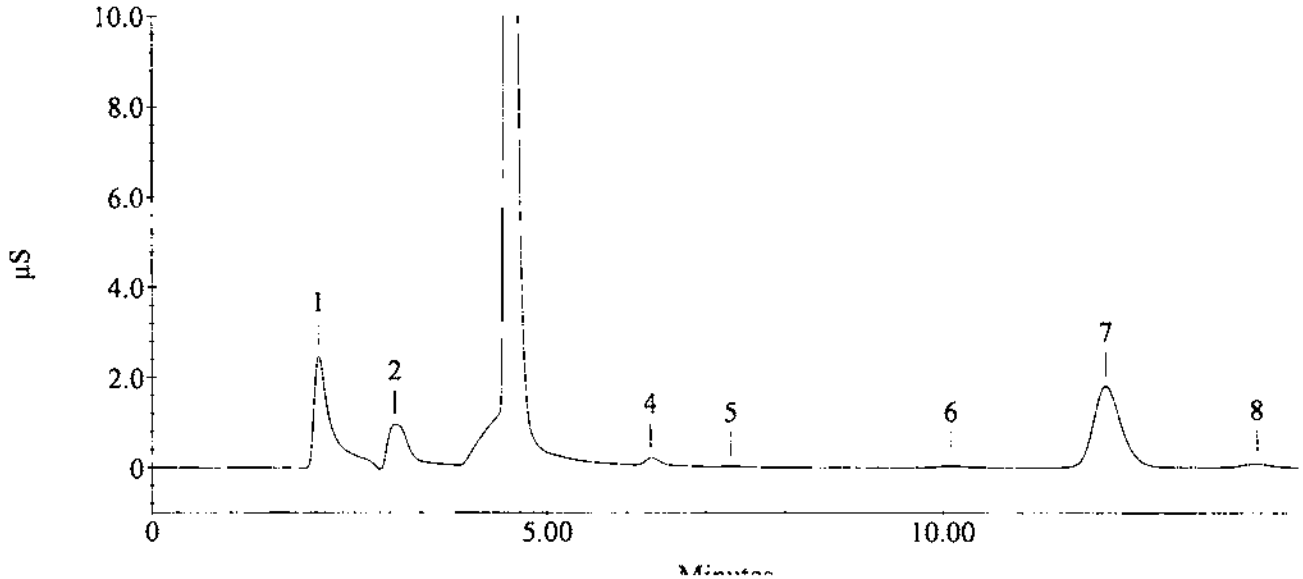
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_006.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	24833	383804	1	
2	3.07	FLUORIDE	0.440	9895	206144	2	2.22
3	4.53	Unknown 2	0.000	827551	5813337	2	
4	6.30	BROMIDE	0.287	2021	34753	2	1.94
5	7.32	NITRATE-N	0.094	182	2500	1	4.08
6	10.10	PHOSPHATE-P	0.083	399	7832	1	1.00
7	12.05	SULFATE	1.836	18082	433171	1	0.42
8	13.95	Unknown 3	0.000	761	18230	1	
		---total(s)---	2.740	883723	6899773		

UA27 A8



UA17 00279

Sample Name : UA27 B8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 7:01:31 PM

Injection Number : 7
Dilution Factor : 1.00
column :

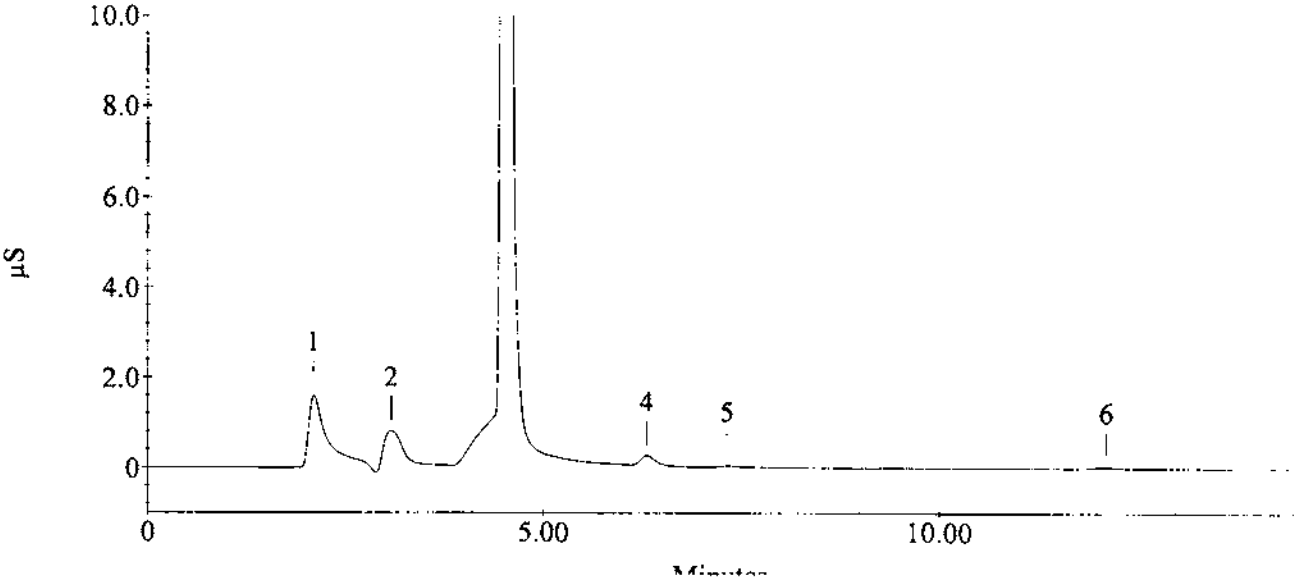
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_007.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	16145	288746	1	
2	3.08	FLUORIDE	0.417	9073	194534	2	2.78
3	4.52	Unknown 2	0.000	631689	4506712	2	
4	6.32	BROMIDE	0.333	2644	41316	2	2.21
5	7.33	NITRATE-N	0.096	267	4321	1	4.31
6	12.12	SULFATE	0.054	239	4620	1	0.97
		---total(s)---	0.901	660058	5040249		

UA27 B8



Sample Name : UA27 C8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 7:18:17 PM

Injection Number : 8
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_008.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

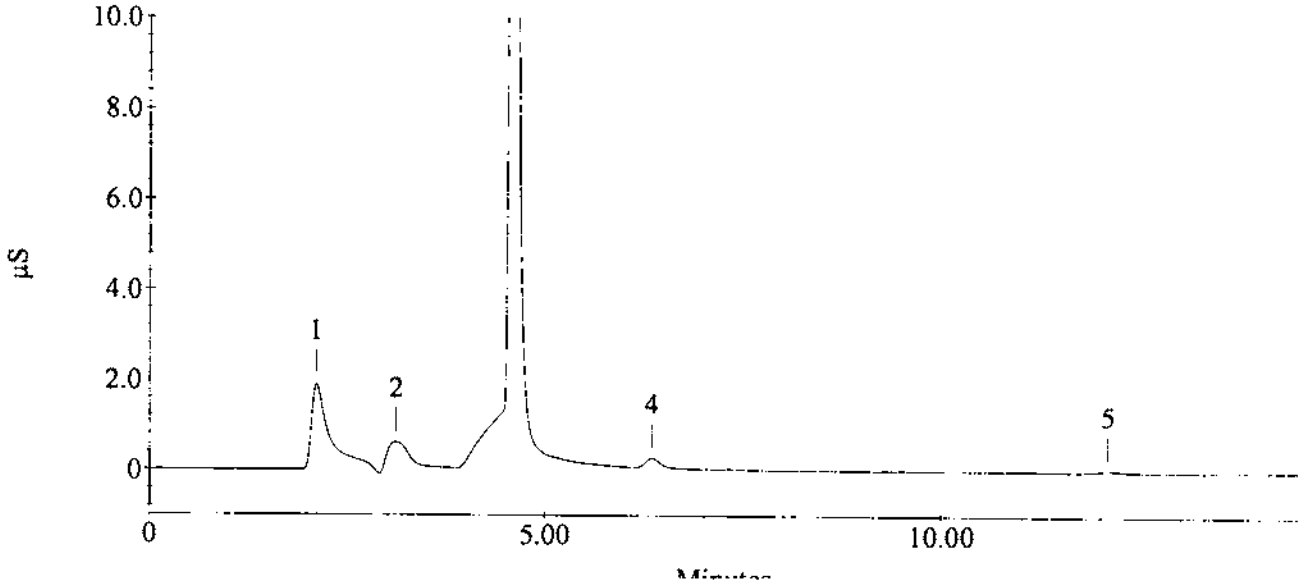
Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	19016	326709	1	
2	3.10	FLUORIDE	0.354	6813	161065	2	3.33
3	4.57	Unknown 2	0.000	477595	3349283	2	
4	6.33	BROMIDE	0.326	2519	40329	2	2.48
5	12.08	SULFATE	0.065	347	7248	1	0.69

$NO_3 < 0.1$ ppm

---total(s)---			
0.745	506288	3884634	

UA27 C8



Sample Name : UA27 D8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 7:35:03 PM

Injection Number : 9
Dilution Factor : 1.00
column :

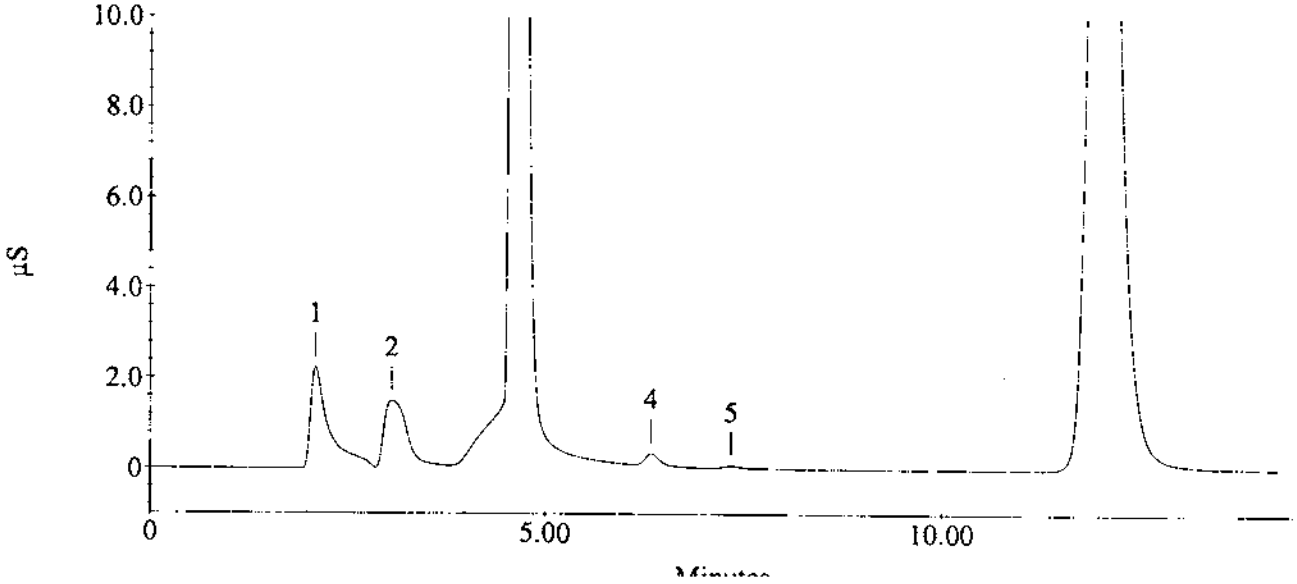
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_009.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	22361	365215	2	
2	3.07	FLUORIDE	0.631	14885	306296	2	2.22
3	4.65	Unknown 2	0.000	1621208	13337681	2	
4	6.33	BROMIDE	0.413	3161	52697	2	2.48
5	7.35	NITRATE-N	0.099	492	7133	1	4.55
6	12.00	SULFATE	25.823	266418	6202880	1	0.00
		---total(s)---	26.966	1928525	20271901		

UA27 D8



Sample Name : UA27 E8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 7:51:51 PM

Injection Number : 10
Dilution Factor : 1.00
column :

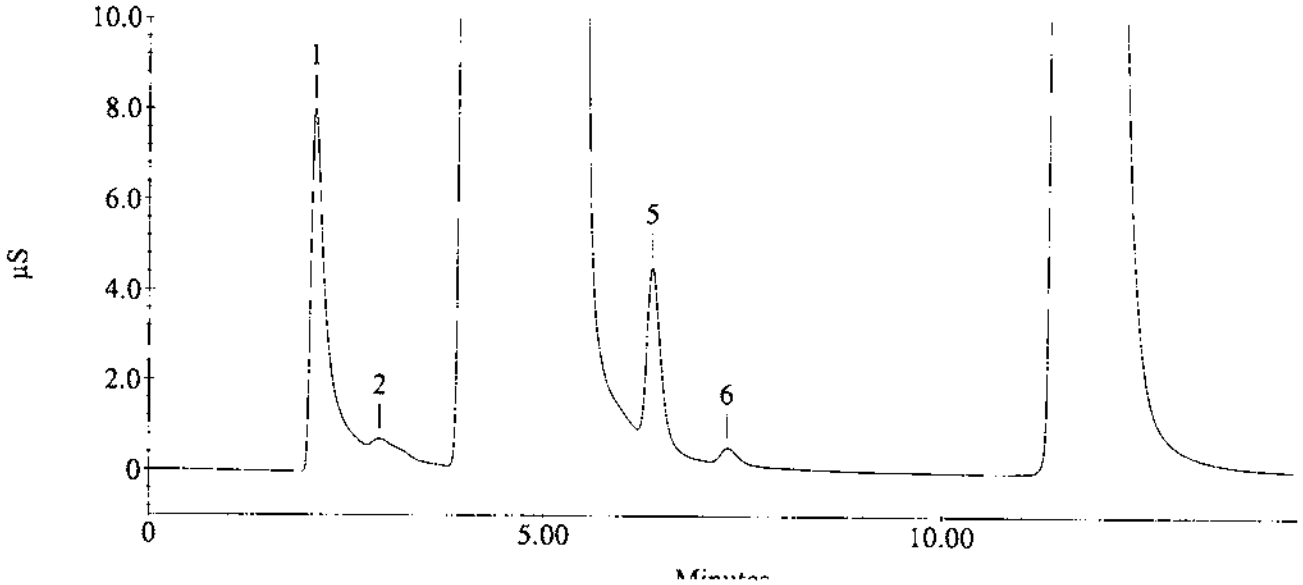
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_010.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	80056	1240461	3	
2	2.92	FLUORIDE	0.327	4585	147249	4	-2.78
3	4.60	Unknown 2	0.000	8159915	276743737	2	
4	5.30	Unknown 3	0.000	7540360	234200741	2	
5	6.35	BROMIDE	4.256	43203	598833	2	2.75
6	7.30	NITRATE-N	0.131	3249	38062	1	3.84
7	11.58	SULFATE	231.730	1774568	55730610	1	-3.47
		---total(s)---	236.444	17605935	568699694		

UA27 E8



Sample Name : UA27 F8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 8:08:37 PM

Injection Number : 11
Dilution Factor : 1.00
column :

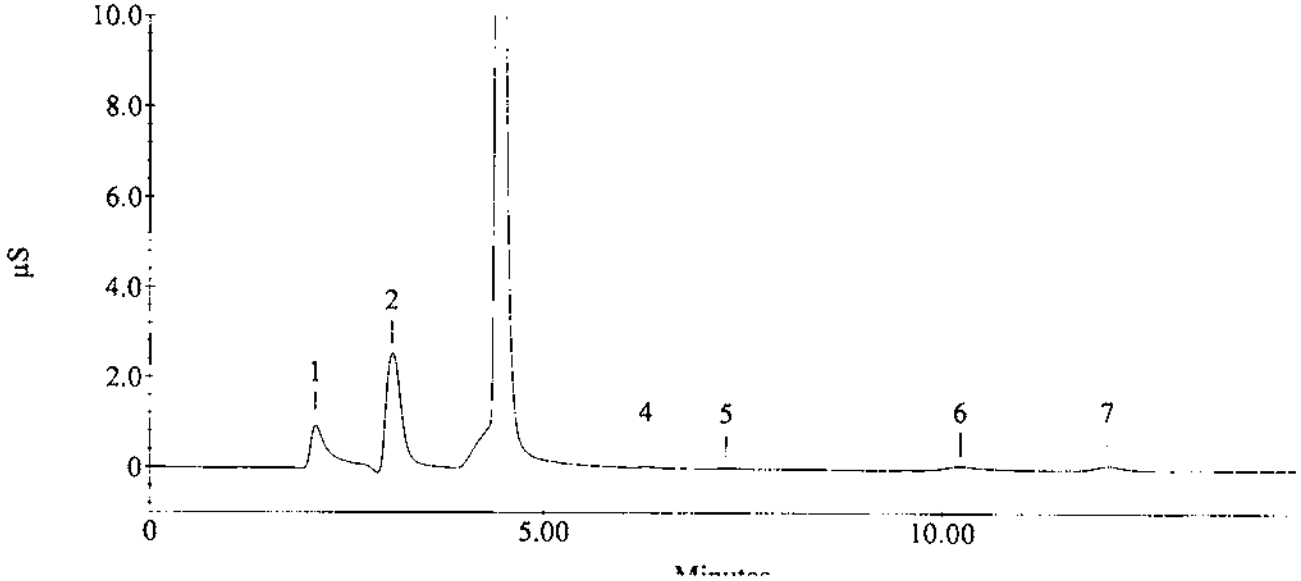
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_011.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	9480	176483	1	
2	3.07	FLUORIDE	0.788	26101	388912	2	2.22
3	4.43	Unknown 2	0.000	450826	3277475	3	
4	6.28	BROMIDE	0.080	350	5262	4	1.67
5	7.30	NITRATE-N	0.095	212	3714	1	3.84
6	10.23	PHOSPHATE-P	0.133	784	22851	1	2.33
7	12.08	SULFATE	0.128	949	22341	1	0.69
		---total(s)---	1.224	488703	3897037		

UA27 F8



Sample Name : UA27 G8
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 8:25:23 PM

Injection Number : 12
Dilution Factor : 1.00
column :

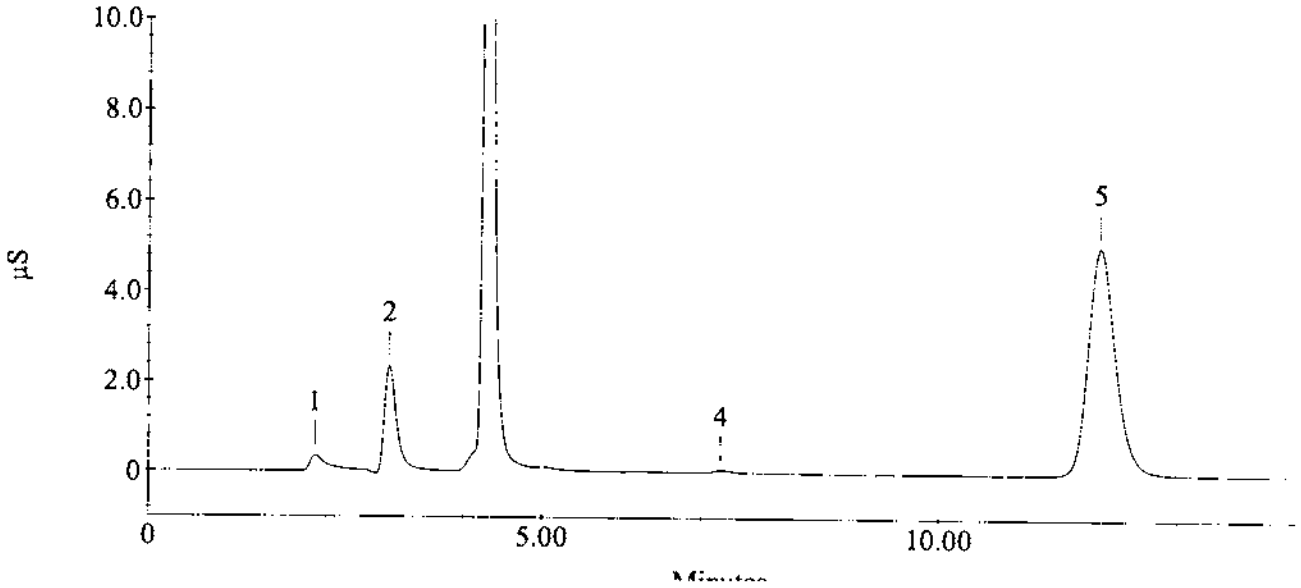
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_012.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	3456	66421	1	
2	3.05	FLUORIDE	0.548	23660	263096	1	1.67
3	4.30	CHLORIDE	6.026	287958	2189202	1	2.38
4	7.25	NITRATE-N	0.100	546	8454	1	3.13
5	12.02	SULFATE	5.049	50310	1205980	1	0.14
		---total(s)---	11.723	365930	3733153		

UA27 G8



Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 8:42:09 PM

Injection Number : 13
Dilution Factor : 1.00
column :

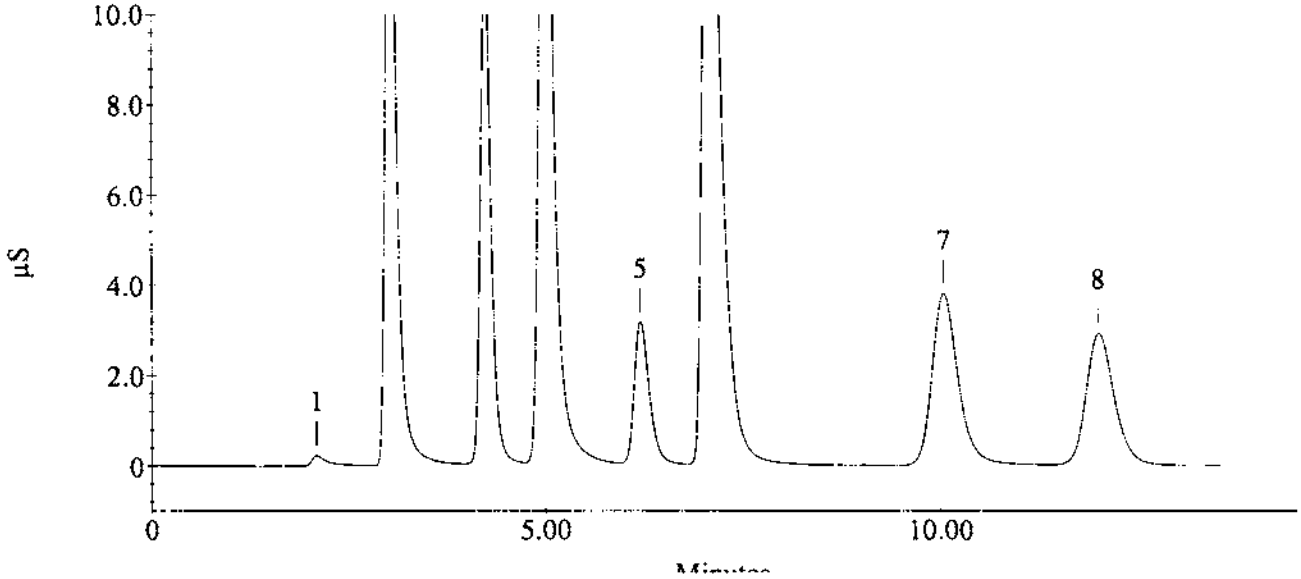
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_013.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2242	32319	2	
2	3.03	FLUORIDE	3.020	158458	1559416	2	1.11
3	4.23	CHLORIDE	2.943	113893	1061442	2	0.79
4	5.00	NITRITE-N	2.957	187084	2281151	2	0.60
5	6.20	BROMIDE	3.015	31377	422341	2	0.32
6	7.08	NITRATE-N	2.918	168094	2702738	1	0.76
7	10.03	PHOSPHATE-P	2.975	37857	879551	1	0.33
8	12.00	SULFATE	2.975	28982	707099	1	0.00
		---total(s)---	20.801	727987	9646056		

CCV



Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 8:58:59 PM

Injection Number : 14
Dilution Factor : 1.00
column :

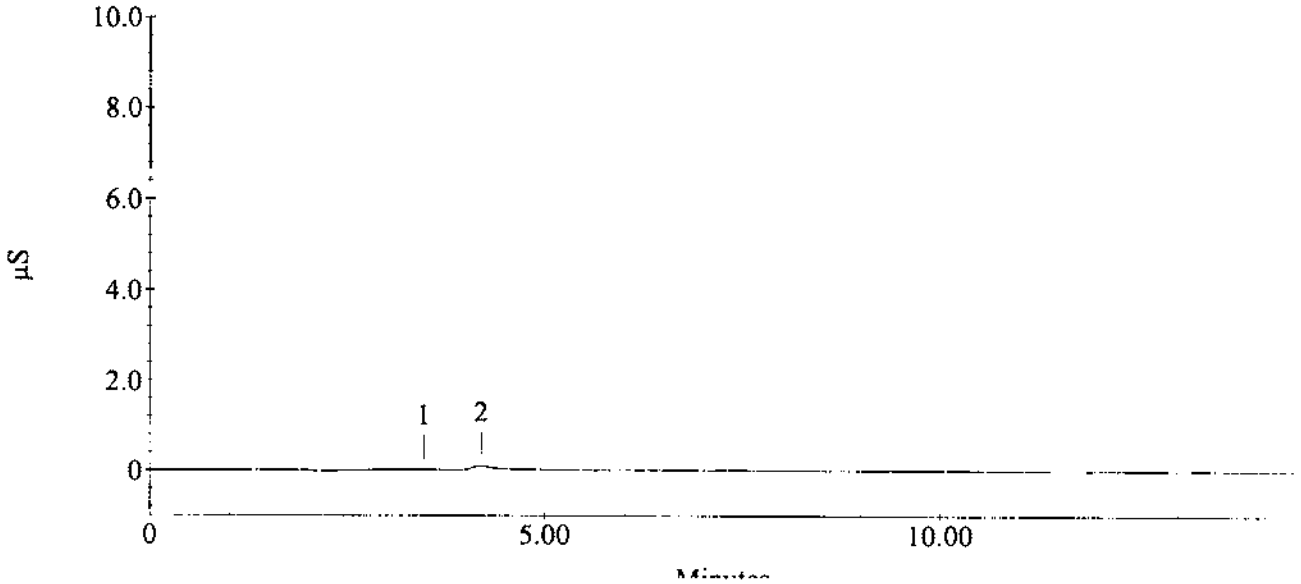
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_014.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	3.47	Unknown 1	0.000	153	10999	1	
2	4.20	CHLORIDE	0.075	758	12331	1	0.00
		---total(s)---	0.075	912	23330		

CCB



Sample Name : UA31 A1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 9:15:45 PM

Injection Number : 15
Dilution Factor : 1.00
column :

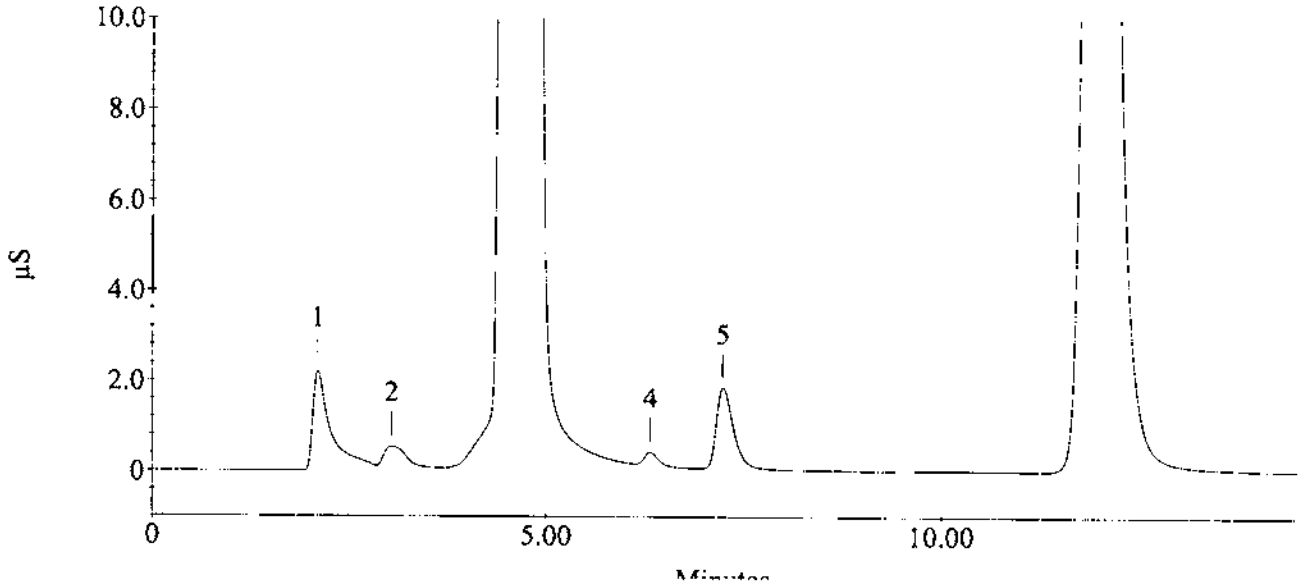
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_015.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	21826	362877	2	
2	3.05	FLUORIDE	0.262	5158	112821	2	1.67
3	4.75	Unknown 2	0.000	3505221	64378632	2	
4	6.32	BROMIDE	0.440	3624	56458	2	2.21
5	7.25	NITRATE-N	0.376	17800	272247	1	3.13
6	11.95	SULFATE	39.653	402060	9529362	1	-0.42
		PO_4 <0.1 ✓					
		---total(s)---	40.730	3955689	74712397		

UA31 A1



Sample Name : UA31 A1 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 9:32:31 PM

Injection Number : 16
Dilution Factor : 1.00
column :

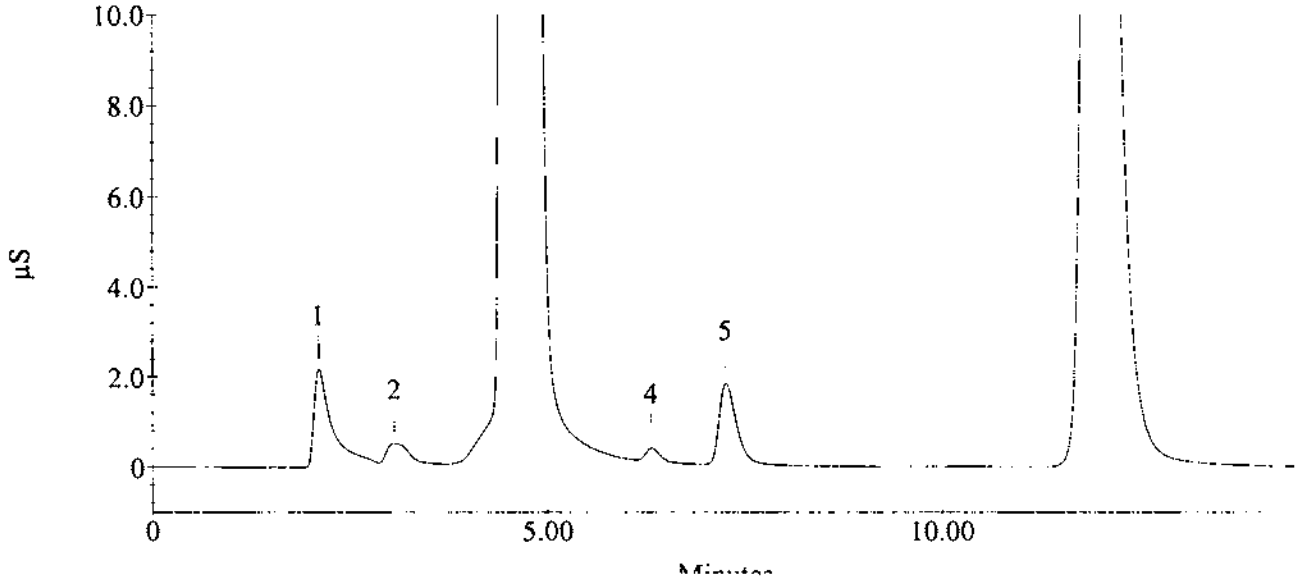
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_016.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	21740	357915	2	
2	3.05	FLUORIDE	0.263	5077	113279	2	1.67
3	4.75	Unknown 2	0.000	3520109	64411219	2	
4	6.32	BROMIDE	0.427	3602	54577	2	2.21
5	7.25	NITRATE-N	0.379	17830	274928	1	3.13
6	11.97	SULFATE	39.833	406025	9572868	1	-0.28
		PO_4 0.1 ✓					
		---total(s)---	40.901	3974383	74784786		

UA31 A1 DUP



Sample Name : UA31 A1 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 9:49:17 PM

Injection Number : 17
Dilution Factor : 1.00
column :

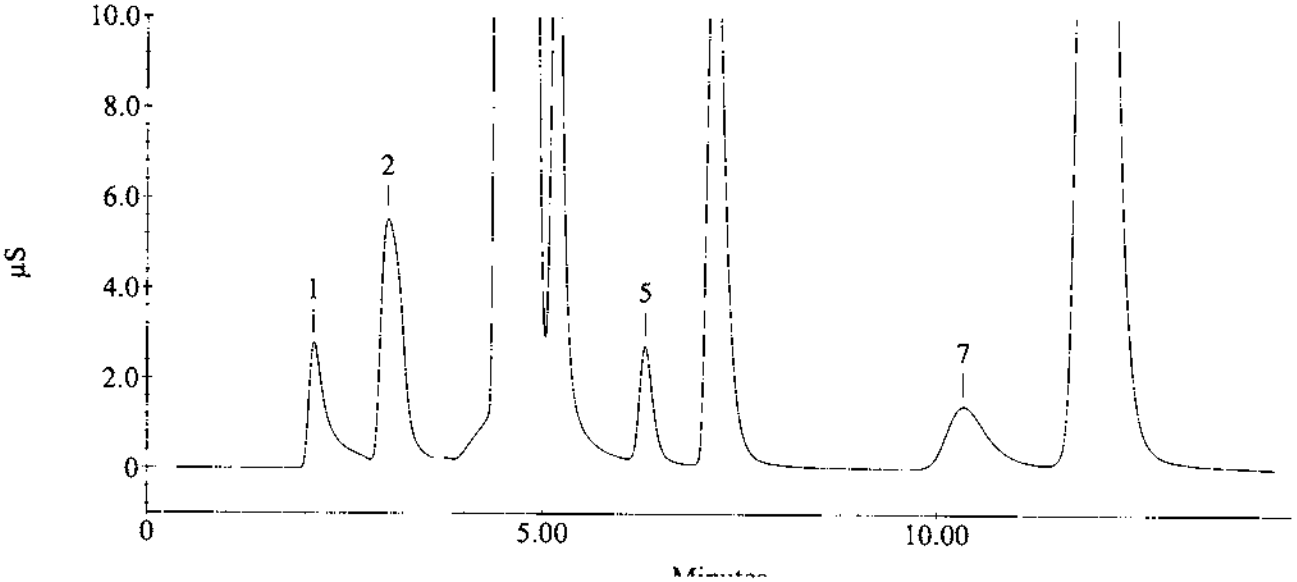
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_017.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	27415	443959	2	
2	3.03	FLUORIDE	1.910	53424	977191	2	1.11
3	4.75	Unknown 2	0.000	3592181	64473923	2	
4	5.15	NITRITE-N	2.322	154334	1782152	2	3.62
5	6.30	BROMIDE	2.344	25917	327066	2	1.94
6	7.17	NITRATE-N	2.242	136301	2056420	1	1.94
7	10.33	PHOSPHATE-P	1.668	13577	485381	1	3.33
8	11.95	SULFATE	42.288	428057	10163191	1	-0.42
		---total(s)---	52.773	4431205	80709284		

UA31 A1 MS



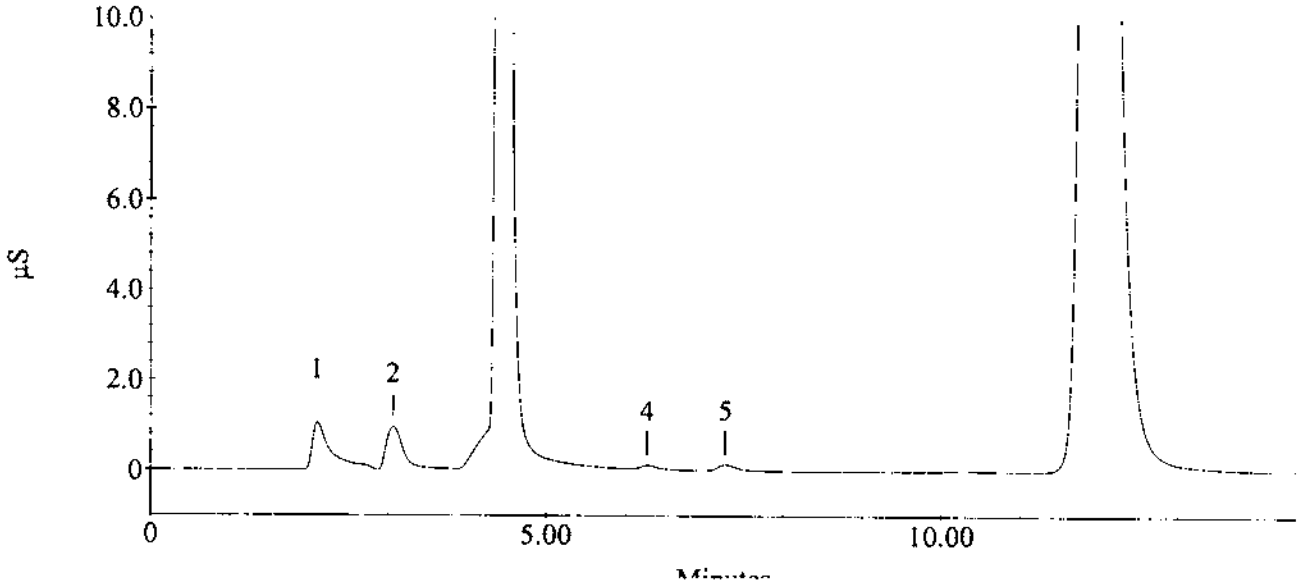
Sample Name : UA31 B1 | Current Date : 12/7/11
Method File Name : c:\peaknet\method\std6_new.met | Date Time Collected : 12/7/11 10:06:04 PM

Injection Number : 18 | Calibration Date : 12/7/11 10:16:04 AM | Module ID : 34 07 2a
Dilution Factor : 1.00 | Data File Name : ...\DEC0711RR_018.DXD | Schedule File Name : ...\dec0711rr.sch
column : | Injection Volume : 1.00

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	10368	176036	1	
2	3.07	FLUORIDE	0.328	9478	147504	2	2.22
3	4.45	Unknown 2	0.000	1007844	8109234	3	
4	6.27	BROMIDE	0.171	1041	18225	4	1.40
5	7.27	NITRATE-N	0.114	1315	22054	1	3.37
6	11.92	SULFATE	46.910	467635	11275020	1	-0.69
		PO4 <0.1 ✓					
		---total(s)---	47.523	1497681	19748073		

UA31 B1



Sample Name : UA31 C1
Current Date : 12/7/11
Method File Name : c:\peaknet\method\std6_new.met
Date Time Collected : 12/7/11 10:22:50 PM

Injection Number : 19
Calibration Date : 12/7/11 10:16:04 AM
Module ID : 34 07 2a
Dilution Factor : 1.00
Data File Name : ...\DEC0711RR_019.DXD
Schedule File Name : ...\dec0711rr.sch
column :
Injection Volume : 1.00

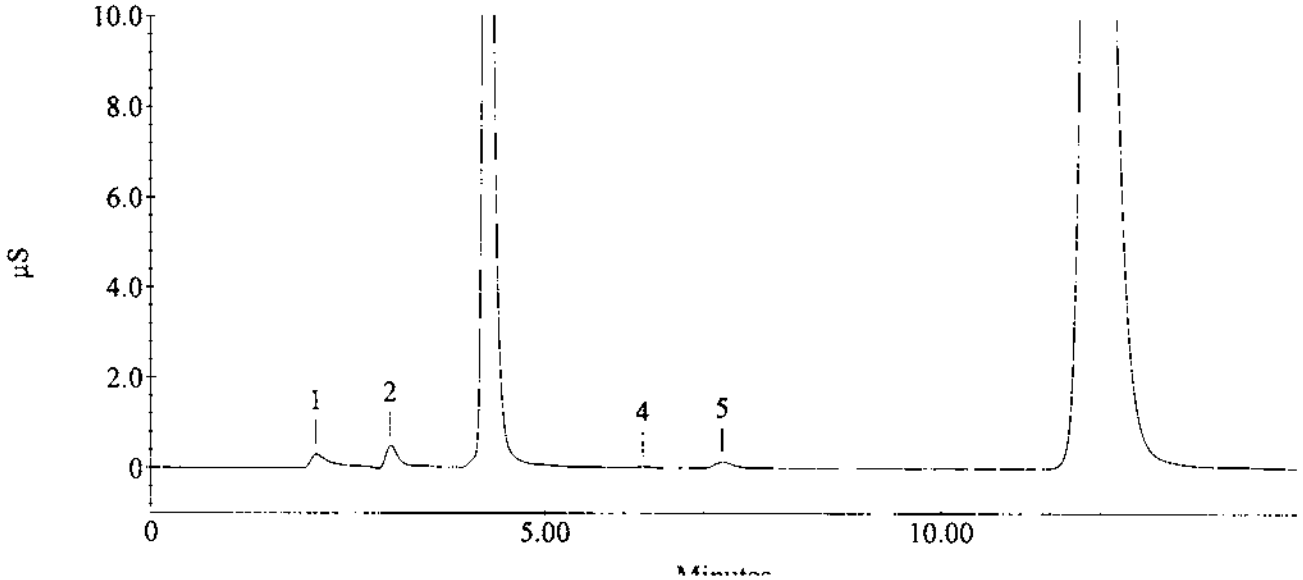
Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2973	54999	1	
2	3.03	FLUORIDE	0.140	4725	48894	1	1.11
3	4.27	CHLORIDE	6.692	289546	2432891	1	1.59
4	6.23	BROMIDE	0.064	248	3047	1	0.86
5	7.23	NITRATE-N	0.112	1301	20266	1	2.89
6	11.93	SULFATE	29.958	301875	7197459	1	-0.56

PO4 <0.1 ↙

	---total(s)---		
	36.966	600668	9757556

UA31 C1

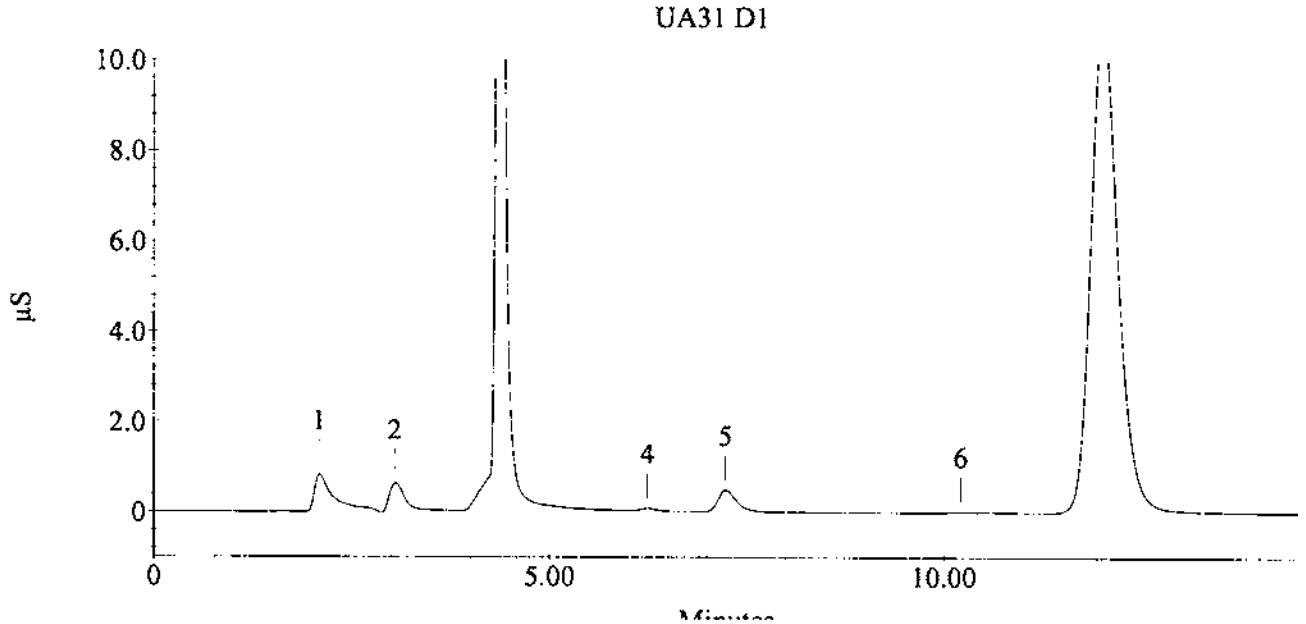


Sample Name : UA31 D1
Current Date : 12/7/11
Method File Name : c:\peaknet\method\std6_new.met
Date Time Collected : 12/7/11 10:39:36 PM

Injection Number : 20
Dilution Factor : 1.00
column :
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_020.DXD
Injection Volume : 1.00
Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	8245	144365	1	
2	3.05	FLUORIDE	0.205	6181	82906	1	1.67
3	4.37	CHLORIDE	5.878	298084	2135144	2	3.97
4	6.25	BROMIDE	0.105	652	8914	2	1.13
5	7.23	NITRATE-N	0.169	4702	74642	1	2.89
6	10.22	PHOSPHATE-P	0.067	156	2991	1	2.17
7	12.00	SULFATE	10.669	107971	2557765	1	0.00
		---total(s)---	17.094	425992	5006726		



Sample Name : ARI 00121-11 2500X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 10:56:23 PM

Injection Number : 21
Dilution Factor : 2500.00
column :

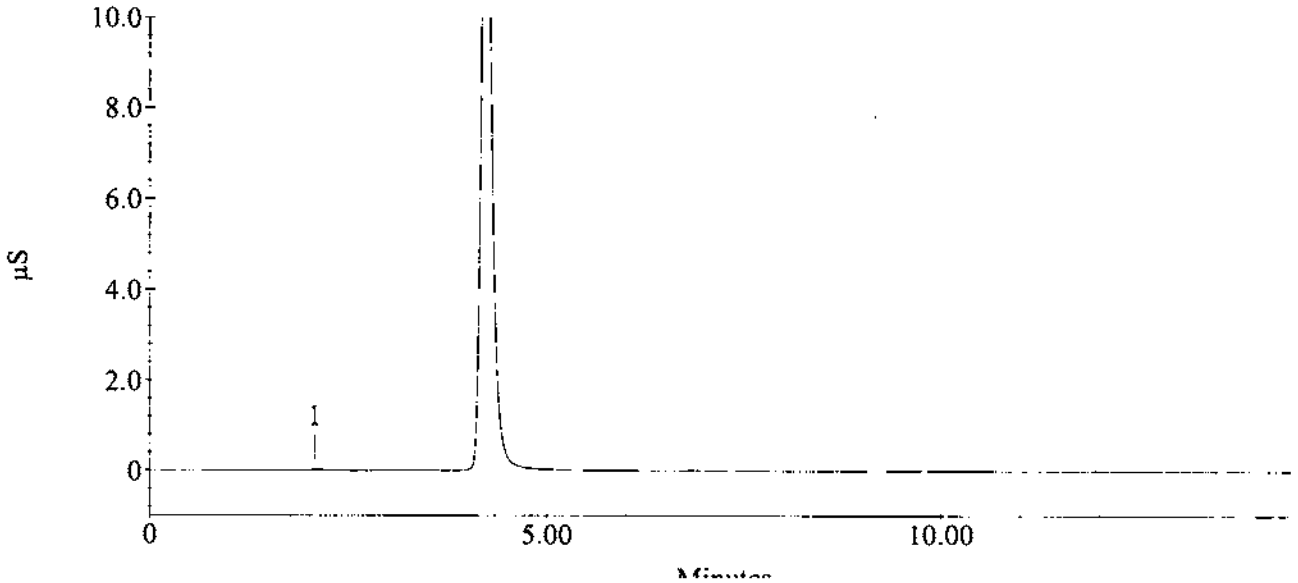
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_021.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.07	Unknown 1	0.000	237	1962	1	
2	4.23	CHLORIDE	9797.025	153573	1418438	1	0.79
		---total(s)---					
			9797.025	153810	1420400		

ARI 00121-11 2500X



Sample Name : UA42 A1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 11:13:15 PM

Injection Number : 22
Dilution Factor : 1.00
column :

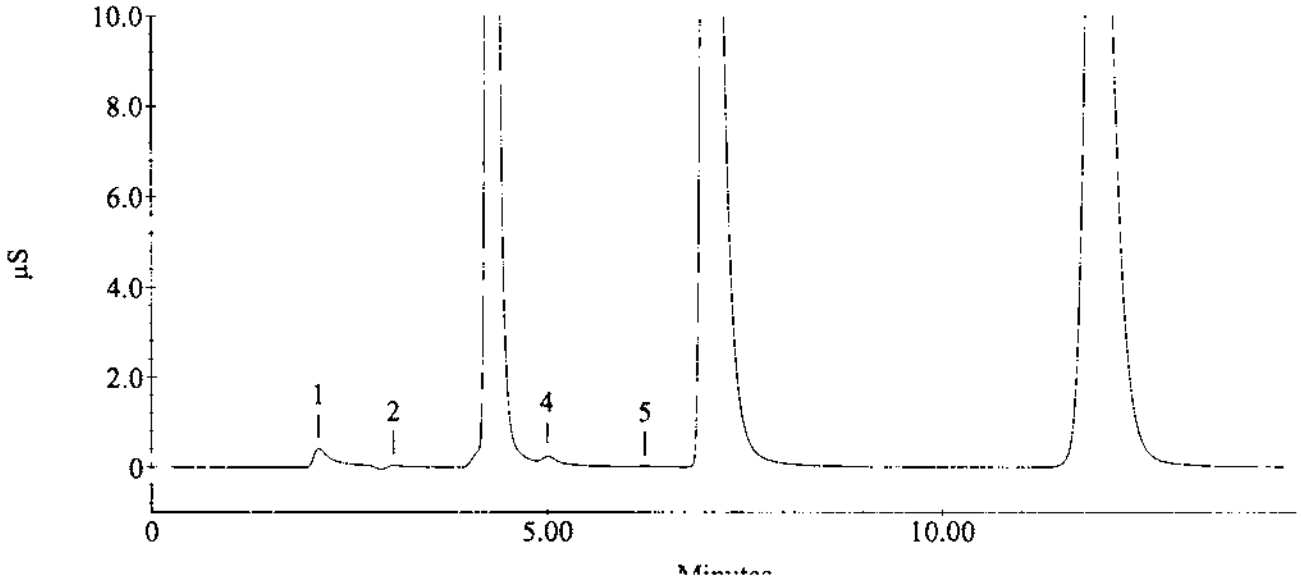
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_022.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4263	84096	1	
2	3.05	FLUORIDE	0.061	710	7356	1	1.67
3	4.30	CHLORIDE	11.096	500512	4043510	3	2.38
4	5.00	NITRITE-N	0.095	2004	30663	4	0.60
5	6.23	BROMIDE	0.056	165	1885	1	0.86
6	7.05	~~NITRATE-N~~	5.075	298354	4765456	1	0.28
7	11.97	SULFATE	18.901	192207	4537790	1	-0.28
		---total(s)---	35.283	998215	13470755		

UA42 A1



Sample Name : UA42 B1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/7/11
Date Time Collected : 12/7/11 11:30:01 PM

Injection Number : 23
Dilution Factor : 1.00
column :

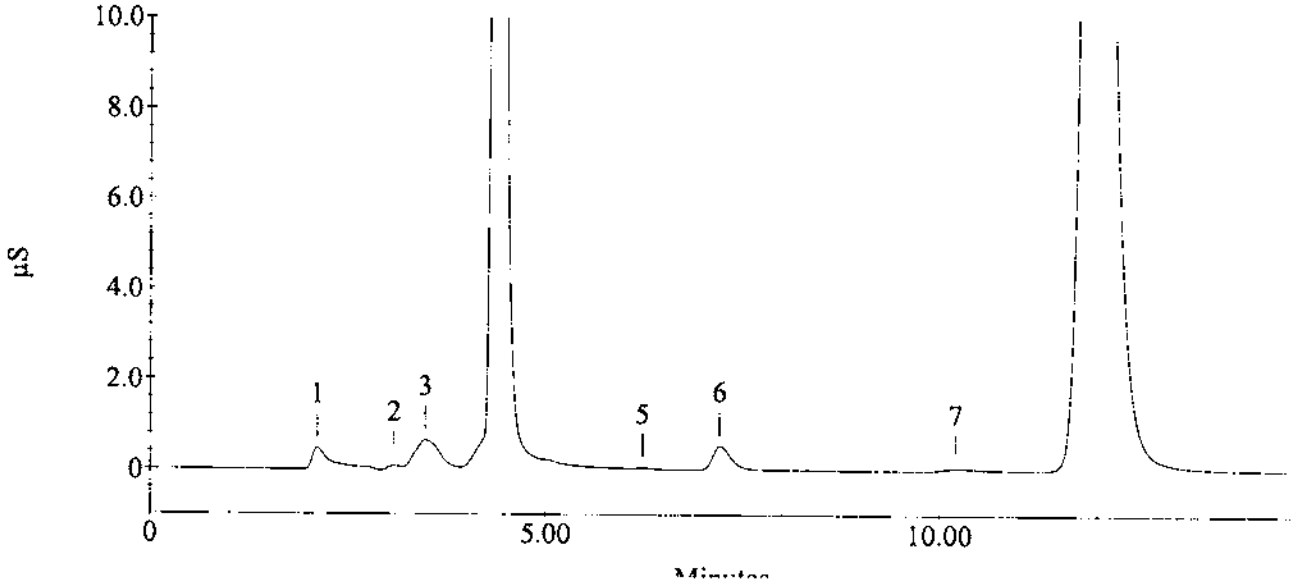
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_023.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4750	84182	1	
2	3.07	FLUORIDE	0.067	1004	10622	2	2.22
3	3.47	Unknown 2	0.000	6705	150043	2	
4	4.38	CHLORIDE	17.261	777538	6298400	3	4.37
5	6.23	BROMIDE	0.083	342	5761	4	0.86
6	7.22	NITRATE-N	0.177	5217	82068	1	2.66
7	10.20	PHOSPHATE-P	0.105	536	14345	1	2.00
8	11.95	SULFATE SO_4 < 0.1	30.157	308215	7245231	1	-0.42
		---total(s)---	47.849	1104307	13890653		

UA42 B1



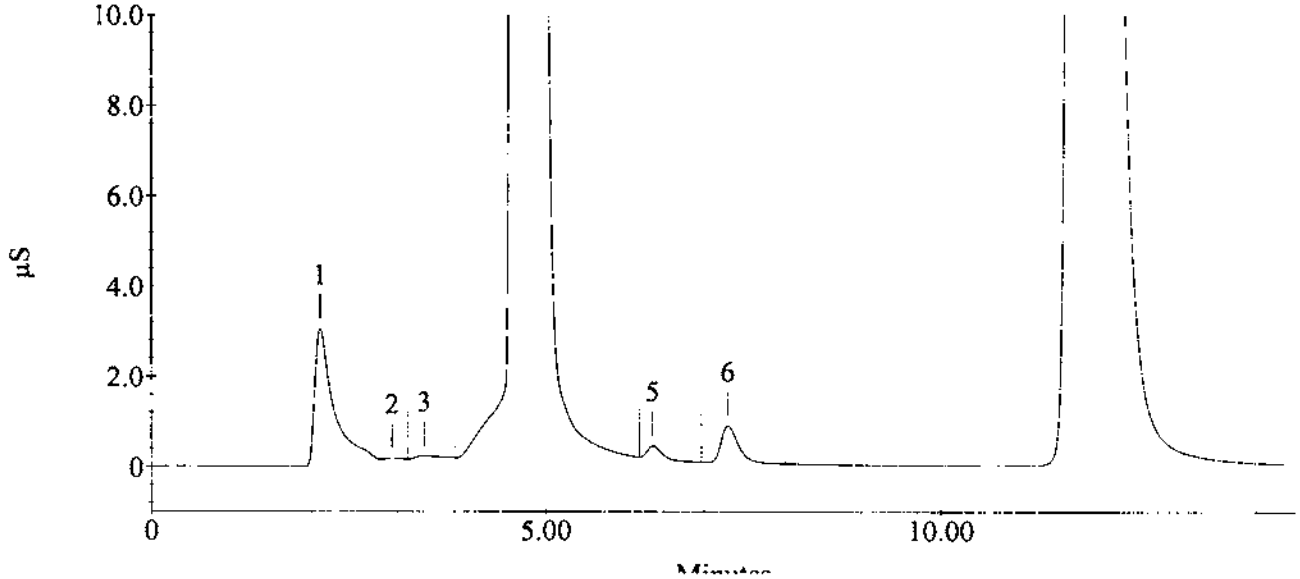
Sample Name : UA42 C1 | Current Date : 12/9/11
Method File Name : c:\peaknet\method\std6_new.met | Date Time Collected : 12/7/11 11:46:48 PM

Injection Number : 24 | Calibration Date : 12/7/11 10:16:04 AM | Module ID : 34 07 2a
Dilution Factor : 1.00 | Data File Name : ...\DEC0711RR_024.DXD | Schedule File Name : ...\dec0711rr.sch
column : | Injection Volume : 1.00

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	30174	498057	1	
2	3.03	FLUORIDE	0.054	283	3734	2	1.11
3	3.45	Unknown 2	0.000	824	22163	2	
4	4.85	CHLORIDE	157.322	3623137	57528035	2	1.46
5	6.35	BROMIDE	0.413	3540	52655	2	2.75
6	7.30	NITRATE-N	0.218	8101	121337	1	3.84
7	11.78	SULFATE	123.674	1104363	29739540	1	-1.81
		$NO_2 < 0.1$					
		---total(s)---	281.681	4770423	87965521		

UA42 C1



UA17 00253

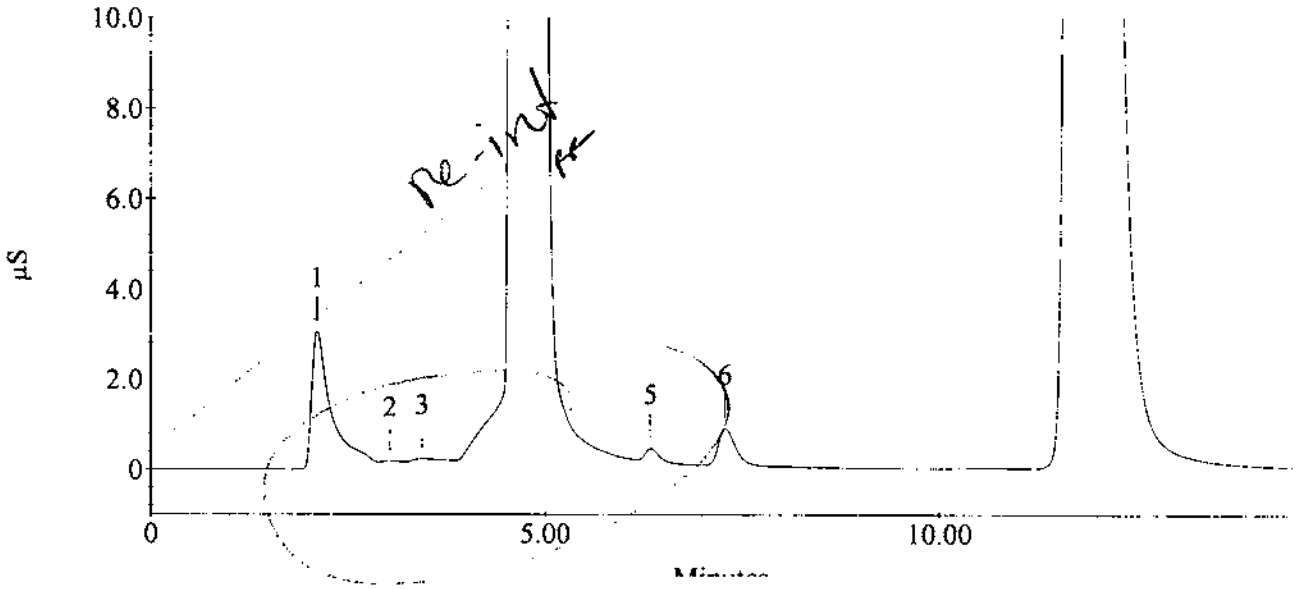
Sample Name : UA42 C1 | Current Date : 12/8/11
Method File Name : c:\peaknet\method\std6_new.met | Date Time Collected : 12/7/11 11:46:48 PM

Injection Number : 24 | Calibration Date : 12/7/11 10:16:04 AM | Module ID : 34 07 2a
Dilution Factor : 1.00 | Data File Name : ...\DEC0711RR_024.DXD | Schedule File Name : ...\dec0711rr.sch
column : | Injection Volume : 1.00

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	30464	561633	3	
2	3.03	FLUORIDE	0.070	662	12358	4	1.11
3	3.45	Unknown 2	0.000	1792	57610	4	
4	4.85	NITRITE-N	73.323	3623843	57625191	3	-2.41
5	6.35	BROMIDE	0.405	3476	51456	4	2.75
6	7.30	NITRATE-N	0.218	8101	121337	1	3.84
7	11.78	SULFATE	123.674	1104363	29739540	1	-1.81
		---total(s)---	197.690	4772701	88169125		

UA42 C1



UA17-00294

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 12:03:36 AM

Injection Number : 25
Dilution Factor : 1.00
column :

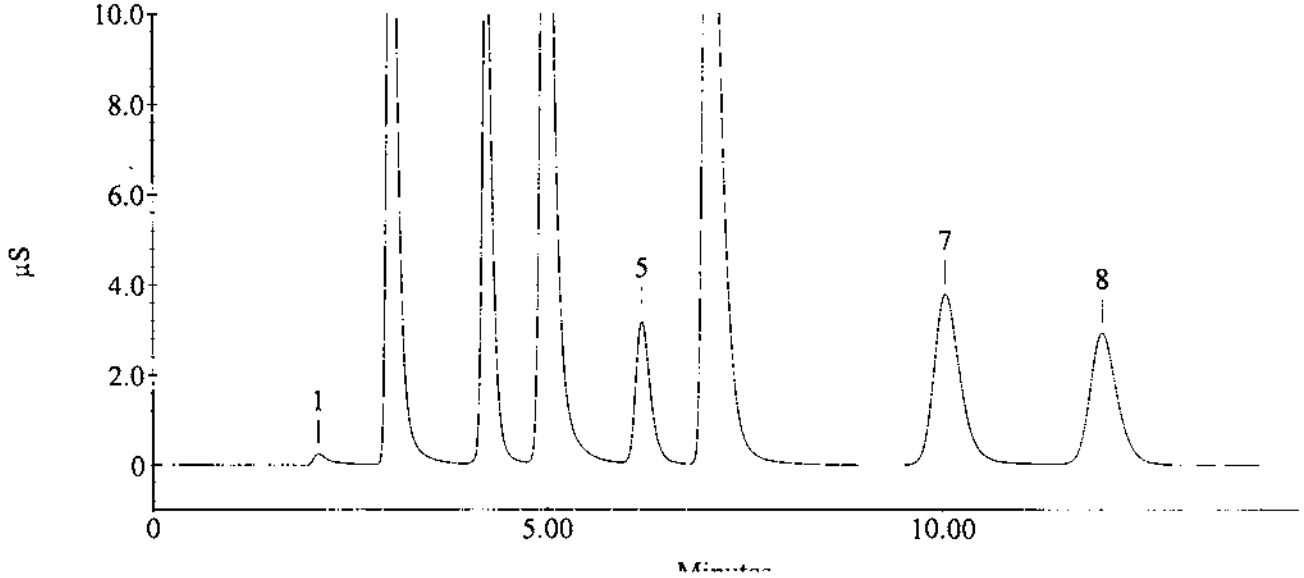
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_025.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2426	35702	2	
2	3.03	FLUORIDE	3.013	156316	1556001	2	1.11
3	4.23	CHLORIDE	2.964	116571	1069363	2	0.79
4	5.00	NITRITE-N	2.960	187872	2283923	2	0.60
5	6.20	BROMIDE	3.030	31631	424496	2	0.32
6	7.07	NITRATE-N	2.926	167841	2711190	1	0.52
7	10.03	PHOSPHATE-P	2.960	37795	874890	1	0.33
8	12.02	SULFATE	2.978	29107	707831	1	0.14
		---total(s)---	20.831	729559	9663397		

CCV



UA17 00295

Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 12:20:23 AM

Injection Number : 26
Dilution Factor : 1.00
column :

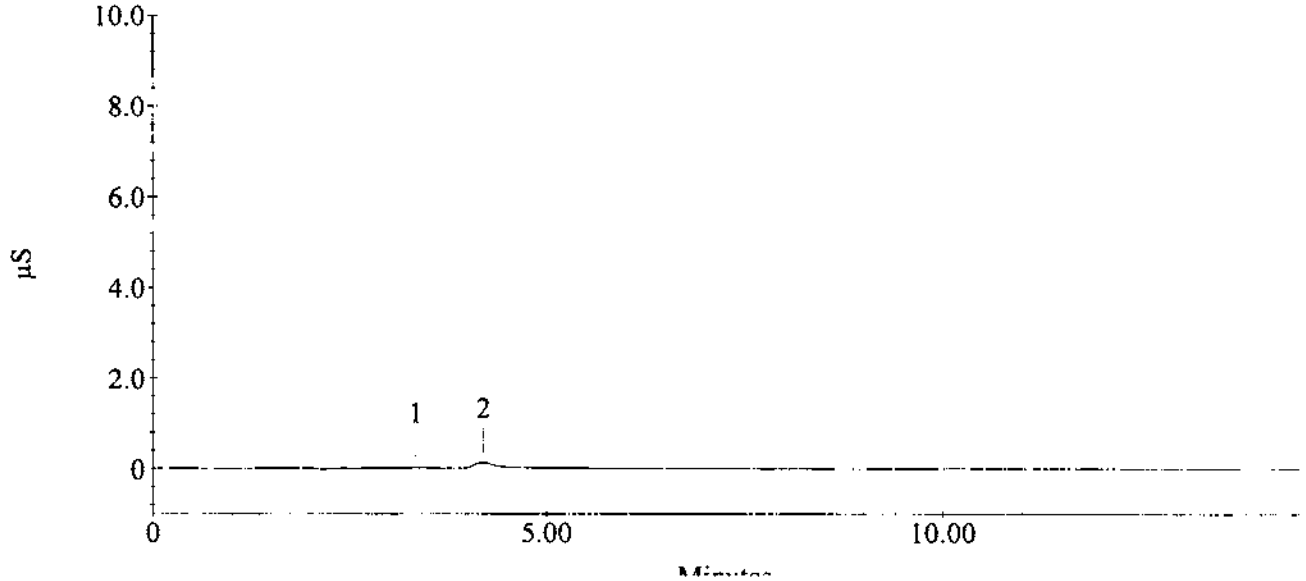
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0711RR_026.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0711rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	3.33	Unknown 1	0.000	202	10644	1	
2	4.20	CHLORIDE	0.100	1182	21805	1	0.00
		---total(s)---	0.100	1384	32448		

CCB



UA17-002956

analyst:	RR
date:	12/8/2011
instrument ID:	S/N97010739
start time:	16:35
loop:	100µl

Analytical Resources Inc.
4611 134th Place S., Suite 100
Tukwila, WA 98168
206-695-6227

		dilution	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate
DL (ppm)		1	0.100	0.100	0.100	0.100	0.100	0.100	0.100
HISTD		1	5.000	5.000	5.000	5.000	5.000	5.000	5.000
ICV,CCV (ppm)		1	3.000	3.000	3.000	3.000	3.000	3.000	3.000
ERA LOT#		1	161110	411010	401010	210610	230511	200610	180111
		dilution	fluoride	chloride	nitrite	bromide	nitrate	phosphate	sulfate
ICV		1	2.993	2.913	2.936	3.001	2.908	2.930	2.970
		%recovery	100%	97%	98%	100%	97%	98%	99%
ICB		1	<0.1	0.070	<0.1	<0.1	<0.1	<0.1	<0.1
UA42 A1		2	NR	NR	NR	NR	4.683	NR	NR
UA43 A1		1	0.171	NR	NR	NR	0.292	<0.1	NR
UA43 B1		1	0.271	NR	NR	NR	0.313	0.075	NR
UA43 C1		1	0.163	NR	NR	NR	0.174	<0.1	NR
UA43 D1		1	0.247	NR	NR	NR	0.966	0.108	NR
UA43 E1		1	0.275	NR	NR	NR	0.714	<0.1	NR
UA43 F1		1	0.279	NR	NR	NR	0.705	<0.1	NR
UA44 A1		1	NR	NR	NR	NR	0.124	NR	NR
UA44 B1		1	NR	NR	NR	NR	<0.1	NR	0.051
UA44 B1 dup		1	NR	NR	NR	NR	0.095	NR	0.055
CCV		1	3.002	2.950	2.955	3.027	2.922	2.929	2.973
		%recovery	100%	98%	99%	101%	97%	98%	99%
CCB		1	<0.1	0.099	<0.1	<0.1	<0.1	<0.1	<0.1
UA44 B1 ms		1					1.885		1.979
Matrix Spike		*0.05 mL 200ppm intstock to*				*5.0*		*mL sample=*	*2.00*
							94%		98%
UA44 C1		1	NR	NR	NR	NR	0.103	NR	NR
UA44 D1		1	NR	NR	NR	NR	NR	NR	NR
UA44 E1		1	NR	NR	NR	NR	NR	NR	NR
UA44 F1		1	NR	NR	NR	NR	0.105	NR	NR
UA44 G1		1	NR	NR	NR	NR	0.146	NR	NR
TY45 A7		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 dup		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 ms		1	NR	NR	NR	NR	NR	NR	NR
CCV		1	3.011	2.972	2.959	3.022	2.928	2.981	2.968
		%recovery	100%	99%	99%	101%	98%	99%	99%
CCB		1	<0.1	0.090	<0.1	<0.1	<0.1	<0.1	<0.1
TY45 C7		1	NR	NR	NR	NR	NR	NR	NR
TY45 D7		1	NR	NR	NR	NR	NR	NR	NR
TY45 E7		1	NR	NR	NR	NR	NR	NR	NR
TY75 A7		10	NR	NR	NR	NR	NR	NR	NR
TY75 B7		1	NR	NR	NR	NR	NR	NR	NR
TY75 C7		1	NR	NR	NR	NR	NR	NR	NR
TY75 D7		1	NR	NR	NR	NR	NR	NR	NR
TY75 F17		1	NR	NR	NR	NR	NR	NR	NR
TY75 F17 dup		1	NR	NR	NR	NR	NR	NR	NR
TY75 F17 ms		1	NR	NR	NR	NR	NR	NR	NR
CCV		1	3.011	3.002	2.959	3.017	2.923	2.981	3.000
		%recovery	100%	100%	99%	101%	97%	99%	100%
CCB		1	<0.1	0.104	<0.1	<0.1	<0.1	<0.1	<0.1
TY75 G7		1	NR	NR	NR	NR	NR	NR	NR
UA17 A4		5	NR	7.789	NR	NR	NR	NR	NR

UA17 A4 dup		5	NR	7.803	NR	NR	NR	NR	NR
UA17 A4 ms		5	NR	17.940	NR	NR	NR	NR	NR
Matrix Spike		*0.25 mL 200ppm Intstock to*				*5.0*		*mLsample=*	*10.00*
				102%					
UA27 D8		5	NR	NR	NR	NR	NR	NR	22.081
UA27 E8		50	NR	NR	NR	NR	NR	NR	154.995
UA27 G8		2	NR	NR	NR	NR	NR	NR	4.927
UA31 A1		10	NR	NR	NR	NR	NR	NR	NR
UA31 A1 dup		10	NR	NR	NR	NR	NR	NR	NR
UA31 A1 ms		10	NR	NR	NR	NR	NR	NR	NR
CCV		1	3.016	3.022	2.960	3.026	2.916	2.940	2.970
		%recovery	101%	101%	99%	101%	97%	98%	99%
CCB		1	<0.1	0.143	<0.1	<0.1	<0.1	<0.1	<0.1
UA31 A1		50	NR	125.416	NR	NR	NR	NR	NR
UA31 A1 dup		50	NR	123.462	NR	NR	NR	NR	NR
UA31 A1 ms		50	NR	231.619	NR	NR	NR	NR	NR
Matrix Spike		*0.05 mL 10000ppm Intstock to*				*5.0*		*mLsample=*	*100.00*
				106%					
UA31 B1		10	NR	18.143	NR	NR	NR	NR	37.202
UA31 C1		2	NR	6.214	NR	NR	NR	NR	NR
UA31 C1		10	NR	NR	NR	NR	NR	NR	24.805
UA31 D1		2	NR	NR	NR	NR	NR	NR	NR
UA31 D1		5	NR	5.619	NR	NR	NR	NR	9.863
UA42 A1		5	NR	9.925	NR	NR	NR	NR	16.676
UA42 B1		5	NR	14.431	NR	NR	NR	NR	NR
CCV		1	3.009	3.028	2.967	3.034	2.926	2.965	2.971
		%recovery	100%	101%	99%	101%	98%	99%	99%
CCB		1	<0.1	0.144	<0.1	<0.1	<0.1	<0.1	<0.1
UA42 B1		10	NR	NR	NR	NR	NR	NR	24.823
UA42 C1		2	NR	NR	NR	NR	NR	NR	NR
UA42 C1		50	NR	111.857	NR	NR	NR	NR	85.922
CCV		1	3.012	3.065	2.967	3.025	2.924	2.955	3.004
		%recovery	100%	102%	99%	101%	97%	99%	100%
CCB		1	<0.1	0.178	<0.1	<0.1	<0.1	<0.1	<0.1
UA44 D1		10	NR	NR	NR	NR	<1.0	NR	NR
UA44 E1		5	NR	NR	NR	NR	<0.5	NR	NR
TY45 B17		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 dup		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 ms		1	NR	NR	NR	NR	NR	NR	NR
TY75 F17		5	NR	NR	NR	NR	NR	NR	NR
TY75 F17 dup		5	NR	NR	NR	NR	NR	NR	NR
TY75 F17 ms		5	NR	NR	NR	NR	NR	NR	NR
UA31 A1		10	NR	NR	NR	NR	NR	NR	32.046
UA31 A1 dup		10	NR	NR	NR	NR	NR	NR	32.047
CCV		1	3.013	2.996	2.952	3.003	2.927	2.991	2.974
		%recovery	100%	100%	98%	100%	98%	100%	99%
CCB		1	<0.1	0.128	<0.1	<0.1	<0.1	<0.1	<0.1
UA31 A1 ms		10	NR	NR	NR	NR	NR	NR	49.205
Matrix Spike		*0.50 mL 200ppm Intstock to*				*5.0*		*mLsample=*	*20.00*
									86%
TY45 B17		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 dup		1	NR	NR	NR	NR	NR	NR	NR
TY45 B17 ms		1	NR	NR	NR	NR	NR	NR	NR
CCV		1	3.030	3.020	2.960	3.022	2.935	2.964	3.012
		%recovery	101%	101%	99%	101%	98%	99%	100%
CCB		1	<0.1	0.137	<0.1	<0.1	<0.1	<0.1	<0.1

Sample Name : ICV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 4:35:54 PM

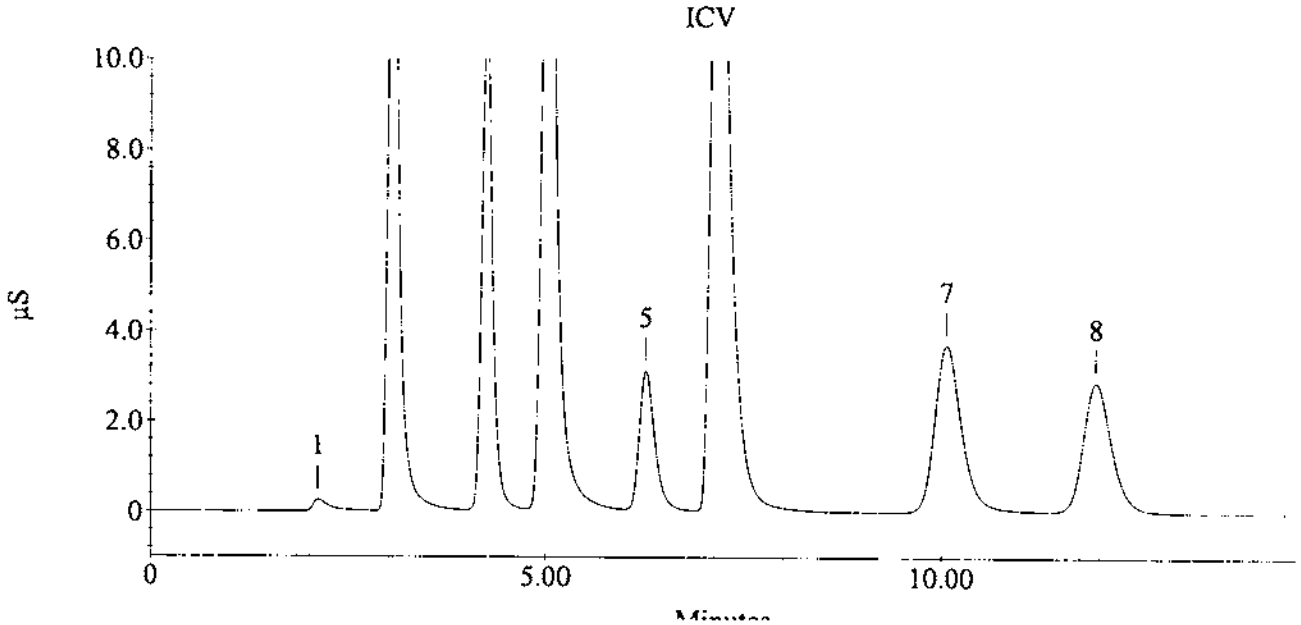
Injection Number : 1
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_001.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2452	33158	1	
2	3.03	FLUORIDE	2.993	156045	1545683	2	1.11
3	4.25	CHLORIDE	2.913	110556	1050664	2	1.19
4	5.02	NITRITE-N	2.936	180152	2265141	2	0.94
5	6.27	BROMIDE	3.001	30679	420469	2	1.40
6	7.17	NITRATE-N	2.908	163479	2693763	1	1.94
7	10.07	PHOSPHATE-P	2.930	36776	866045	1	0.67
8	11.95	SULFATE	2.970	28535	705969	1	-0.42
		---total(s)---	20.653	708673	9580892		



UA1 P 00250

Sample Name : ICB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 4:52:42 PM

Injection Number : 2
Dilution Factor : 1.00
column :

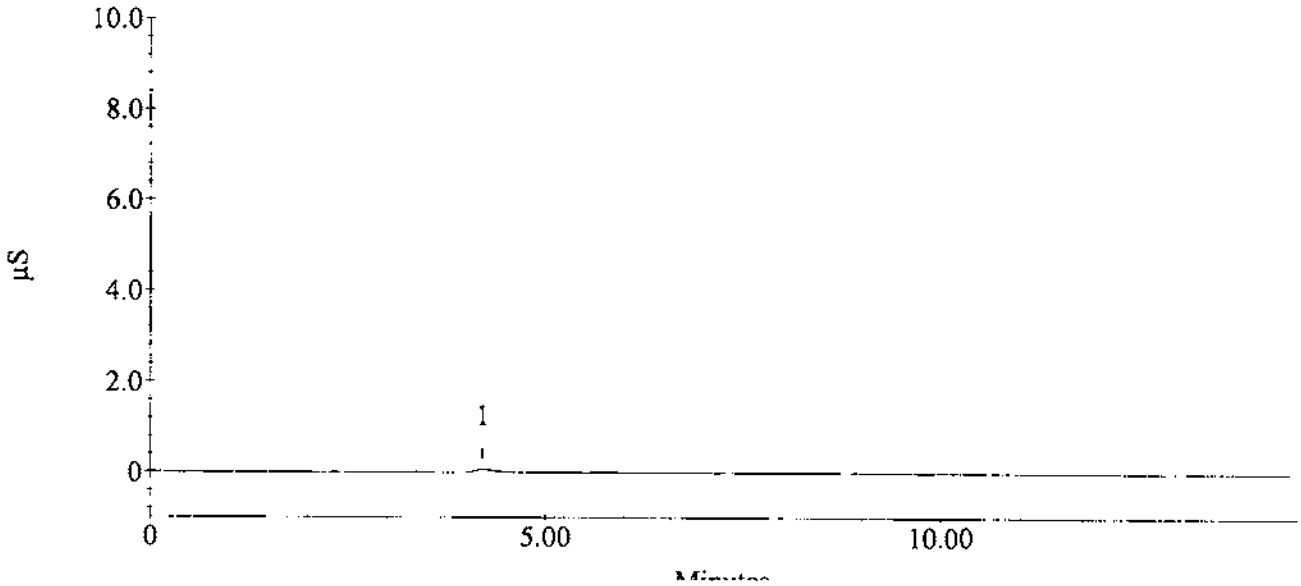
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_002.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	4.20	CHLORIDE	0.070	662	10808	1	0.00
		---total(s)---	0.070	662	10808		

ICB



UA17-00306

Sample Name : UA42 A1 2X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 5:09:26 PM

Injection Number : 3
Dilution Factor : 2.00
column :

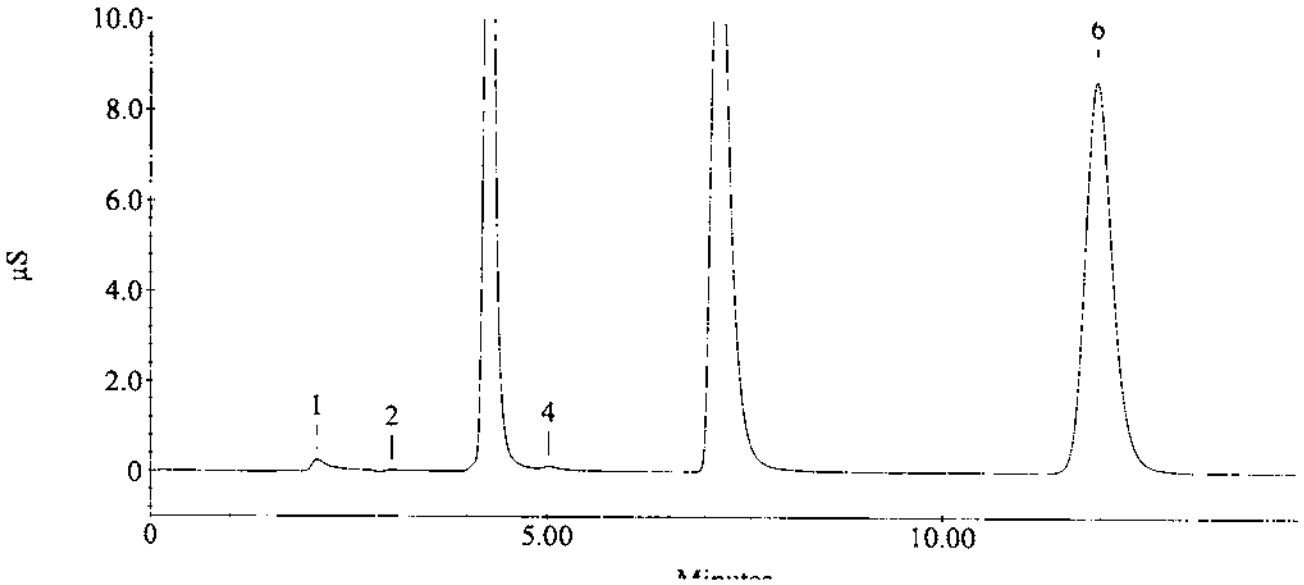
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_003.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2618	53039	1	
2	3.05	FLUORIDE	0.105	324	3066	1	1.67
3	4.27	CHLORIDE	10.037	213171	1820750	3	1.59
4	5.02	NITRITE-N	0.146	887	13199	4	0.94
5	7.15	NITRATE-N	4.683	130762	2151718	1	1.71
6	11.95	SULFATE	17.441	86428	2089075	1	-0.42
		---total(s)---	32.412	434189	6130847		

UA42 A1 2X



UA1700501

Sample Name : UA43 A1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 5:26:11 PM

Injection Number : 4
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_004.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

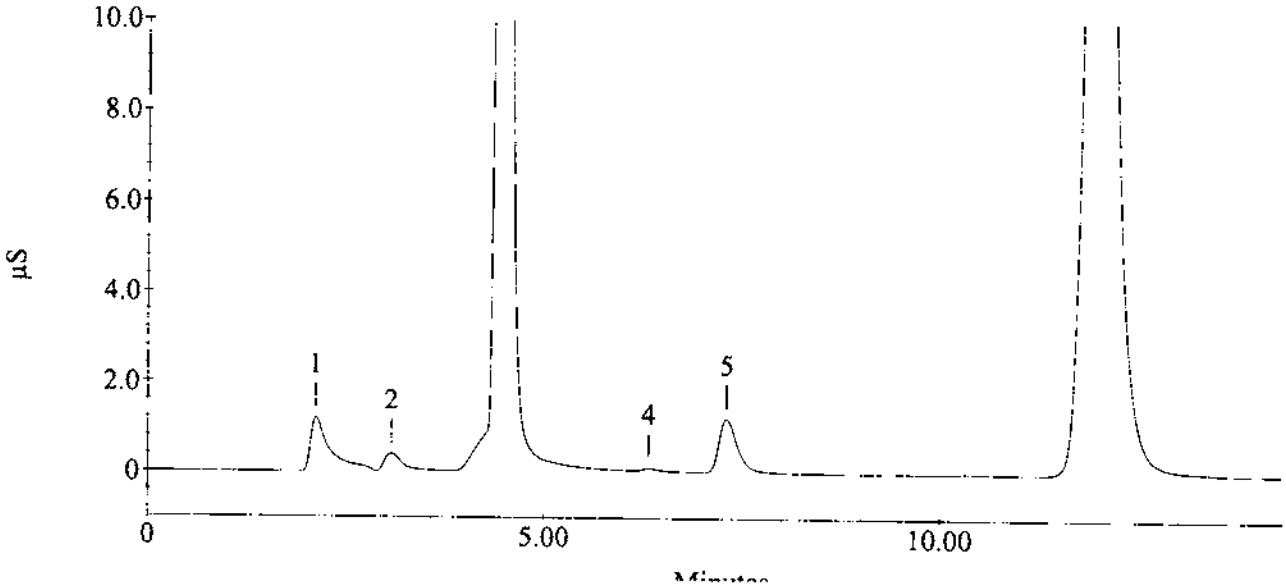
Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	11881	205541	2	
2	3.08	FLUORIDE	0.171	3875	65250	2	2.78
3	4.47	Unknown 2	0.000	1043427	8433797	2	
4	6.32	BROMIDE	0.119	731	10888	2	2.21
5	7.30	NITRATE-N	0.292	11865	191838	1	3.84
6	11.95	SULFATE	25.124	255249	6034828	1	-0.42

PO_4 <0.1 ppm

---total(s)---		
25.706	1327029	14942142

UA43 A1



Sample Name : UA43 B1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 5:42:56 PM

Injection Number : 5
Dilution Factor : 1.00
column :

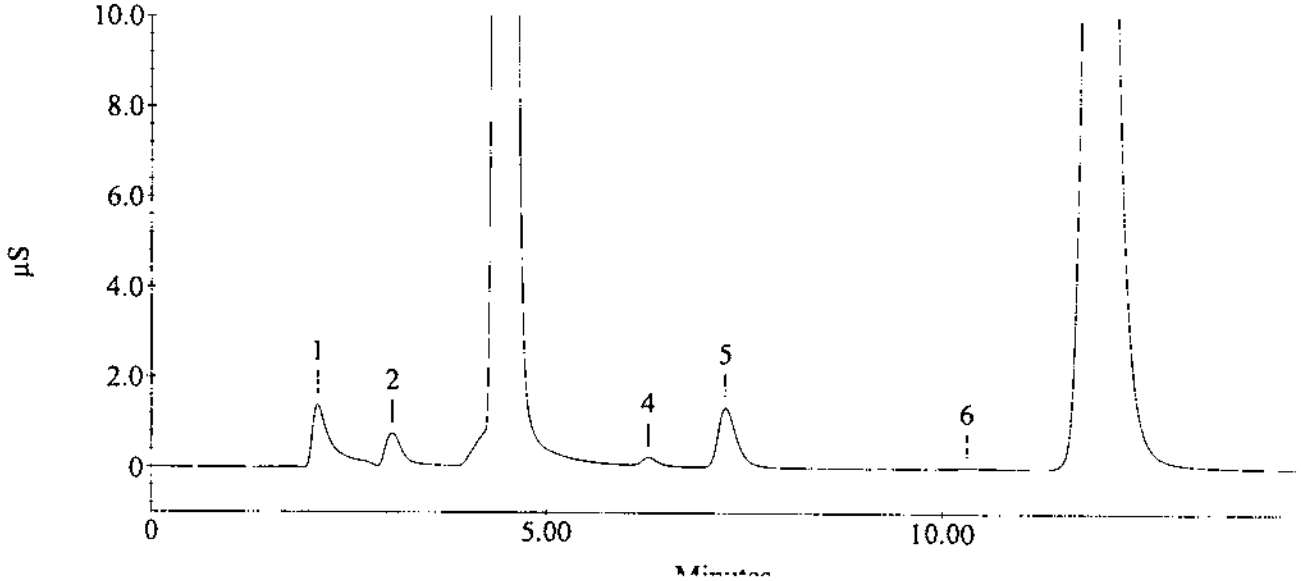
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_005.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	13825	230239	2	
2	3.07	FLUORIDE	0.271	7323	117856	2	2.22
3	4.48	Unknown 2	0.000	1692264	18239414	2	
4	6.30	BROMIDE	0.277	2128	33370	2	1.94
5	7.27	NITRATE-N	0.313	13108	211892	1	3.37
6	10.32	PHOSPHATE-P	0.075	209	5385	1	3.17
7	11.93	SULFATE	30.267	305221	7271752	1	-0.56
		---total(s)---	31.203	2034077	26109908		

UA43 B1



UA17-00503

Sample Name : UA43 C1 | Current Date : 12/8/11
Method File Name : c:\peaknet\method\std6_new.met | Date Time Collected : 12/8/11 5:59:41 PM

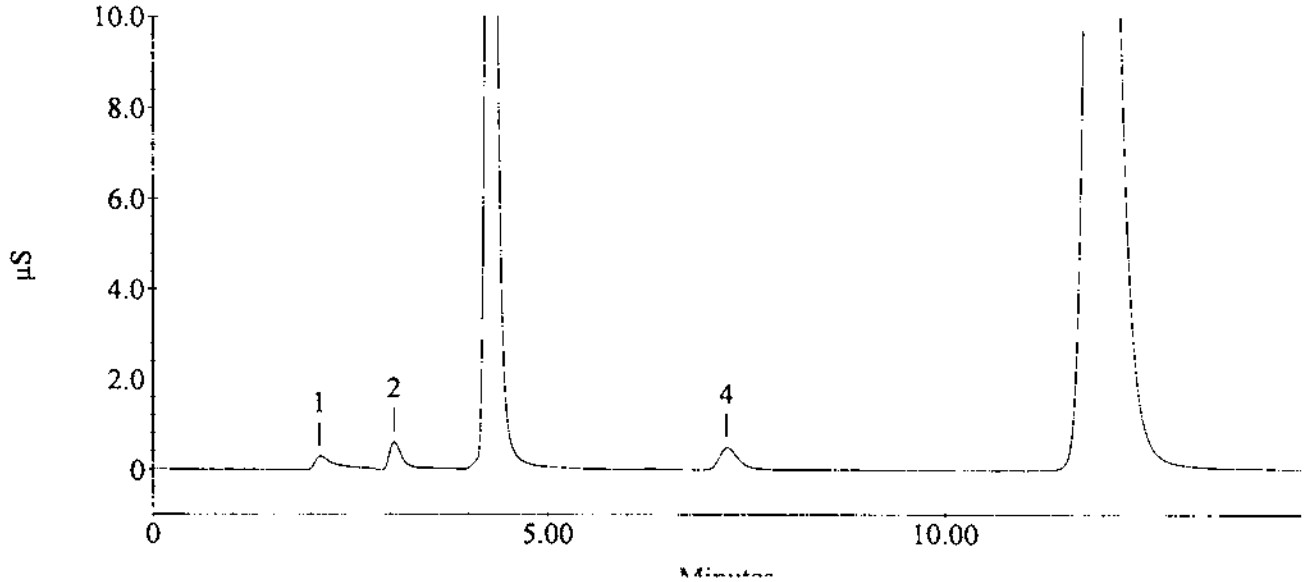
Injection Number : 6 | Calibration Date : 12/7/11 10:16:04 AM | Module ID : 34 07 2a
Dilution Factor : 1.00 | Data File Name : ...\DEC0811RR_006.DXD | Schedule File Name : ...\dec0811rr.sch
column : | Injection Volume : 1.00

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2872	56362	1	
2	3.05	FLUORIDE	0.163	5914	60836	1	1.67
3	4.28	CHLORIDE	7.876	340262	2865825	1	1.98
4	7.25	NITRATE-N	0.174	4778	79119	1	3.13
5	11.93	SULFATE	30.935	310917	7432529	1	-0.56
			---total(s)---				
			39.148	664743	10494671		

PO_4 co.i ←

UA43 C1



UA17 00304

Sample Name : UA43 D1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 6:16:27 PM

Injection Number : 7
Dilution Factor : 1.00
column :

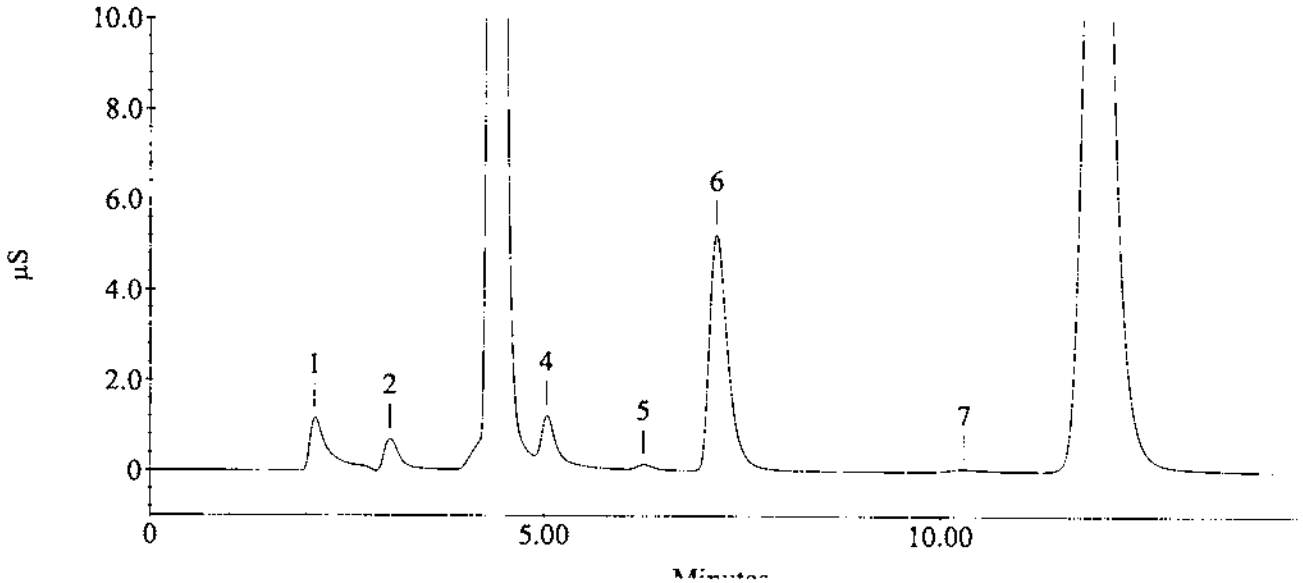
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_007.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	11609	192336	1	
2	3.05	FLUORIDE	0.247	7050	104928	2	1.67
3	4.40	Unknown 2	0.000	1109109	9711462	2	
4	5.03	NITRITE-N	0.301	12140	192250	2	1.27
5	6.27	BROMIDE	0.182	1292	19817	2	1.40
6	7.18	NITRATE-N	0.966	52061	836143	1	2.18
7	10.30	PHOSPHATE-P	0.109	523	15586	1	3.00
8	11.95	SULFATE	20.451	206710	4910664	1	-0.42
		---total(s)---	22.255	1400494	15983185		

UA43 D1



UA17-00585

Sample Name : UA43 E1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 6:33:13 PM

Injection Number : 8
Dilution Factor : 1.00
column :

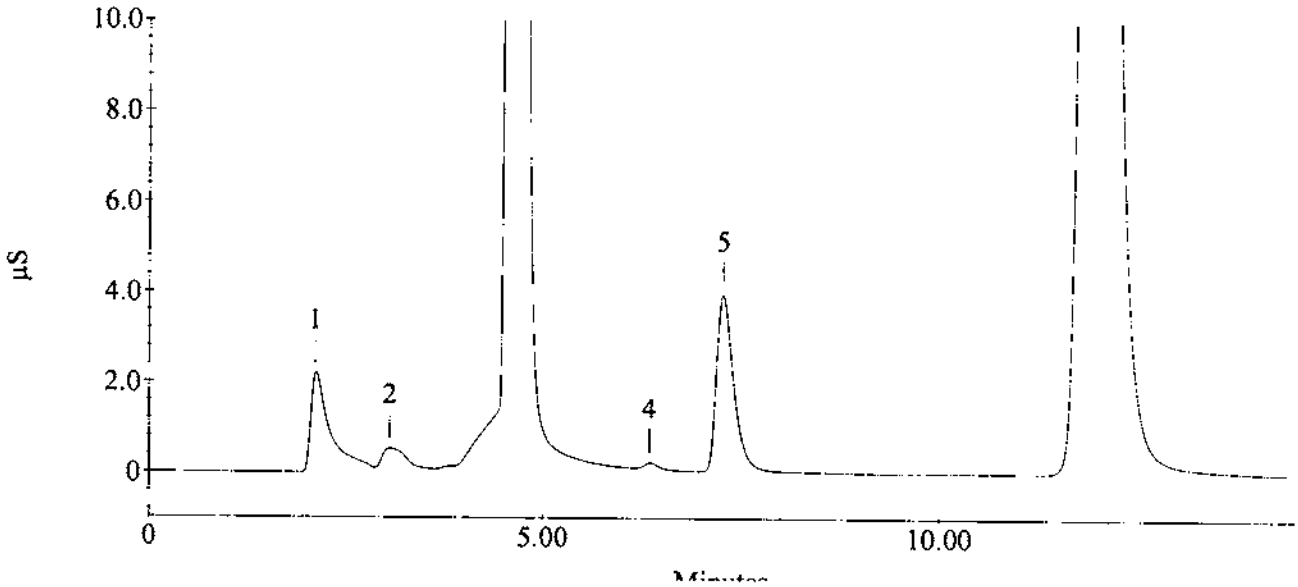
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_008.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	21847	380428	2	
2	3.05	FLUORIDE	0.275	5131	119672	2	1.67
3	4.67	Unknown 2	0.000	2051190	20051768	3	
4	6.33	BROMIDE	0.230	1695	26680	4	2.48
5	7.27	NITRATE-N	0.714	38991	595673	1	3.37
6	11.93	SULFATE	49.839	497308	11979536	1	-0.56
		80, <0.1 ~					
		---total(s)---	51.058	2616163	33153756		

UA43 E1



UA17 Current Date: 12/8/11

Sample Name : UA43 F1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 6:50:00 PM

Injection Number : 9
Dilution Factor : 1.00
column :

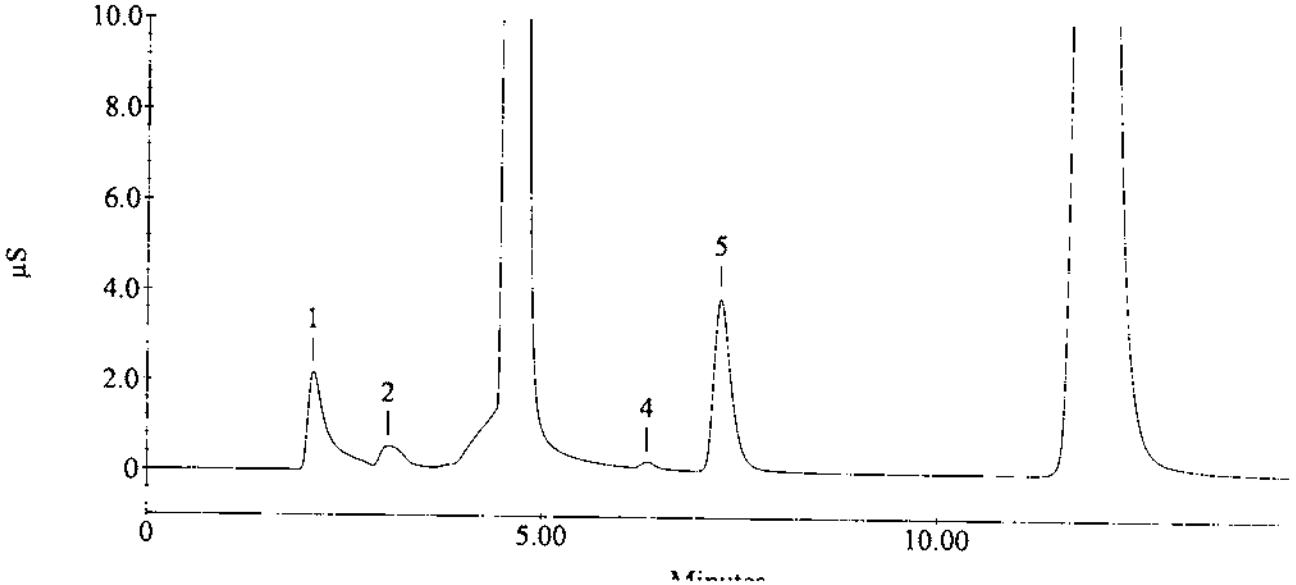
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_009.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	21626	375140	2	
2	3.05	FLUORIDE	0.279	5239	121833	2	1.67
3	4.65	Unknown 2	0.000	2069634	21306179	3	
4	6.33	BROMIDE	0.257	1847	30490	4	2.48
5	7.25	NITRATE-N	0.705	38067	586575	1	3.13
6	11.90	SULFATE	55.533	549705	13349226	1	-0.83
		PO4 < 0.1 ppm					
		---total(s)---	56.774	2686119	35769442		

UA43 F1



Sample Name : UA44 A1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 7:06:51 PM

Injection Number : 10
Dilution Factor : 1.00
column :

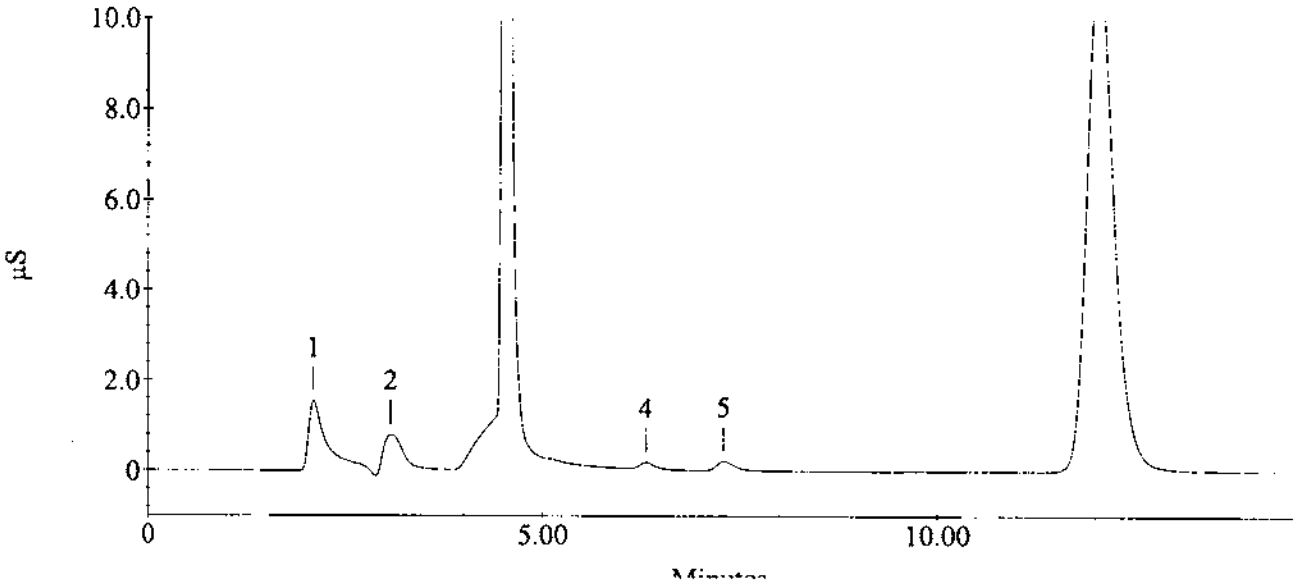
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_010.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	15512	279932	1	
2	3.08	FLUORIDE	0.410	8969	190773	2	2.78
3	4.52	Unknown 2	0.000	458270	3287607	3	
4	6.32	BROMIDE	0.215	1655	24469	4	2.21
5	7.30	NITRATE-N	0.124	2030	31940	1	3.84
6	12.03	SULFATE	11.016	112966	2641183	1	0.28
		---total(s)---	11.765	599402	6455903		

UA44 A1



UA1 7 68968

Sample Name : UA44 B1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 7:23:38 PM

Injection Number : 11
Dilution Factor : 1.00
column :

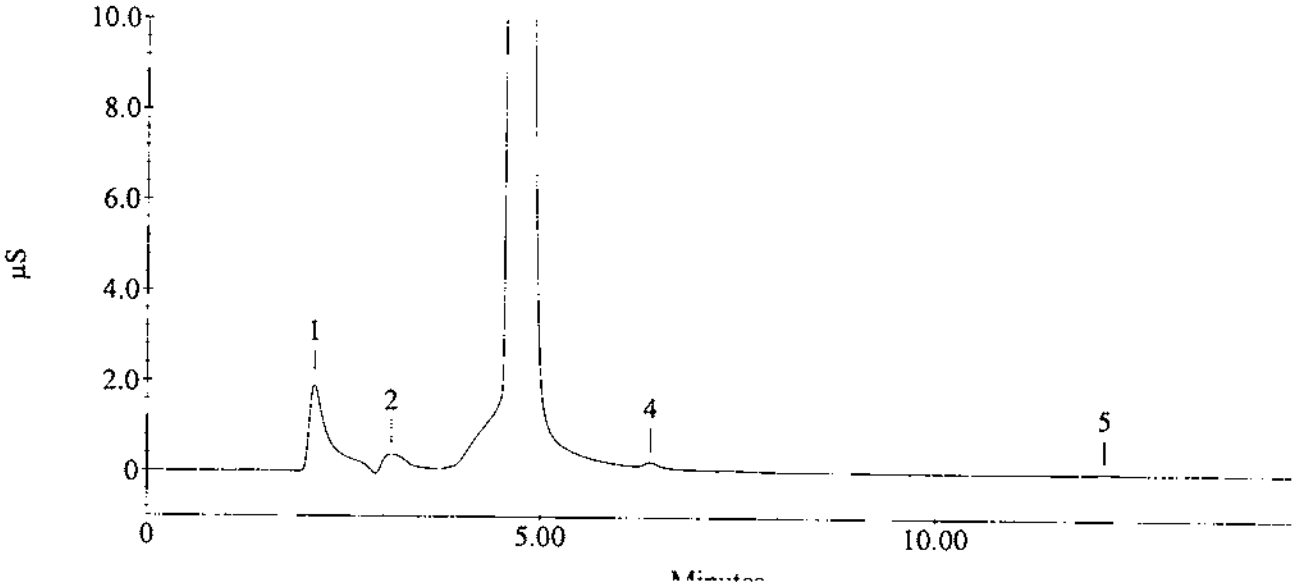
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_011.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	19077	338648	1	
2	3.10	FLUORIDE	0.242	4105	102503	2	3.33
3	4.73	Unknown 2	0.000	2340913	25982553	3	
4	6.38	Unknown 3	0.000	1644	30935	4	
5	12.13	SULFATE	0.051	202	3785	1	1.11
		NO_3 <0.1 ea					
		---total(s)---					
			0.293	2365941	26458424		

UA44 B1



Sample Name : UA44 B1 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 7:40:24 PM

Injection Number : 12
Dilution Factor : 1.00
column :

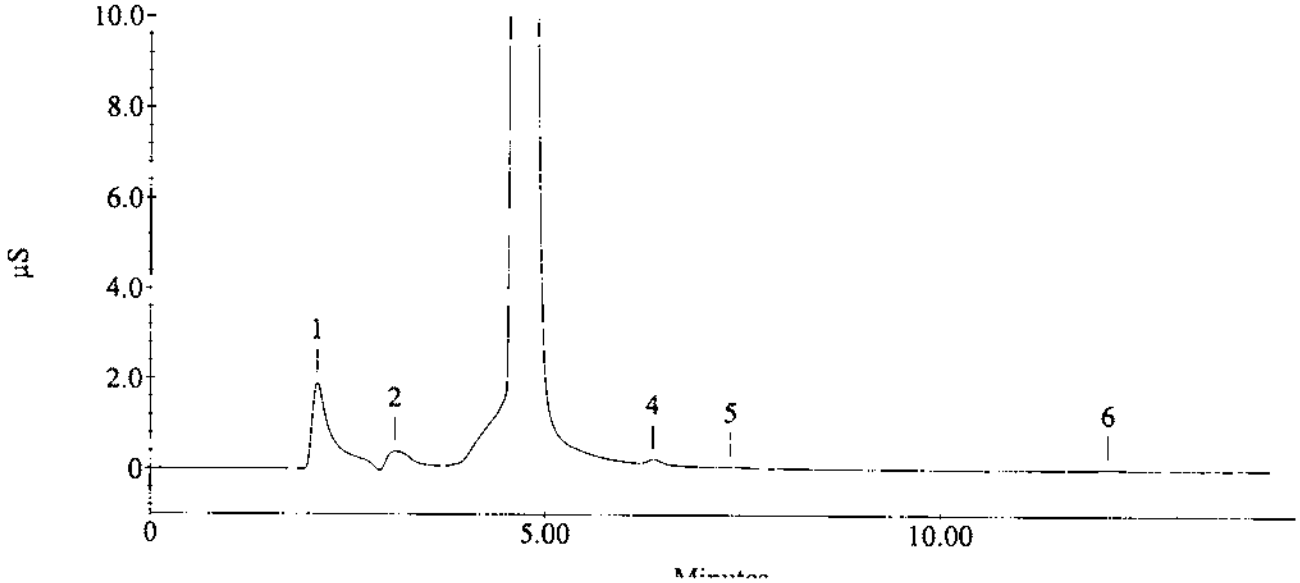
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_012.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	18915	334843	1	
2	3.10	FLUORIDE	0.240	4090	101342	2	3.33
3	4.73	Unknown 2	0.000	2342428	25947555	3	
4	6.37	BROMIDE	0.232	1544	26958	4	3.02
5	7.37	NITRATE-N	0.095	201	3432	1	4.79
6	12.13	SULFATE	0.055	222	4787	1	1.11
		---total(s)---	0.622	2367400	26418916		

UA44 B1 DUP



Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 7:57:10 PM

Injection Number : 13
Dilution Factor : 1.00
column :

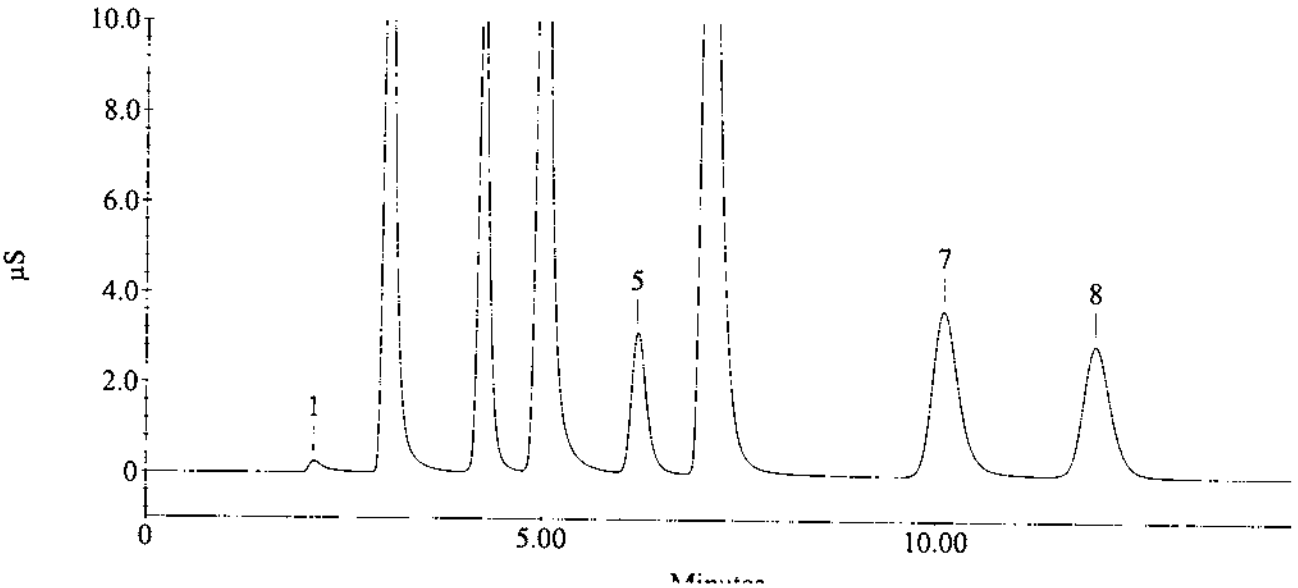
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_013.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2436	32630	1	
2	3.03	FLUORIDE	3.002	155086	1550171	2	1.11
3	4.23	CHLORIDE	2.950	113483	1064187	2	0.79
4	5.00	NITRITE-N	2.955	185716	2279739	2	0.60
5	6.20	BROMIDE	3.027	30848	424135	2	0.32
6	7.10	NITRATE-N	2.922	167574	2707160	1	1.00
7	10.10	PHOSPHATE-P	2.929	36499	865670	1	1.00
8	12.00	SULFATE	2.973	28862	706580	1	0.00
		---total(s)---	20.758	720504	9630274		

CCV



Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 8:13:57 PM

Injection Number : 14
Dilution Factor : 1.00
column :

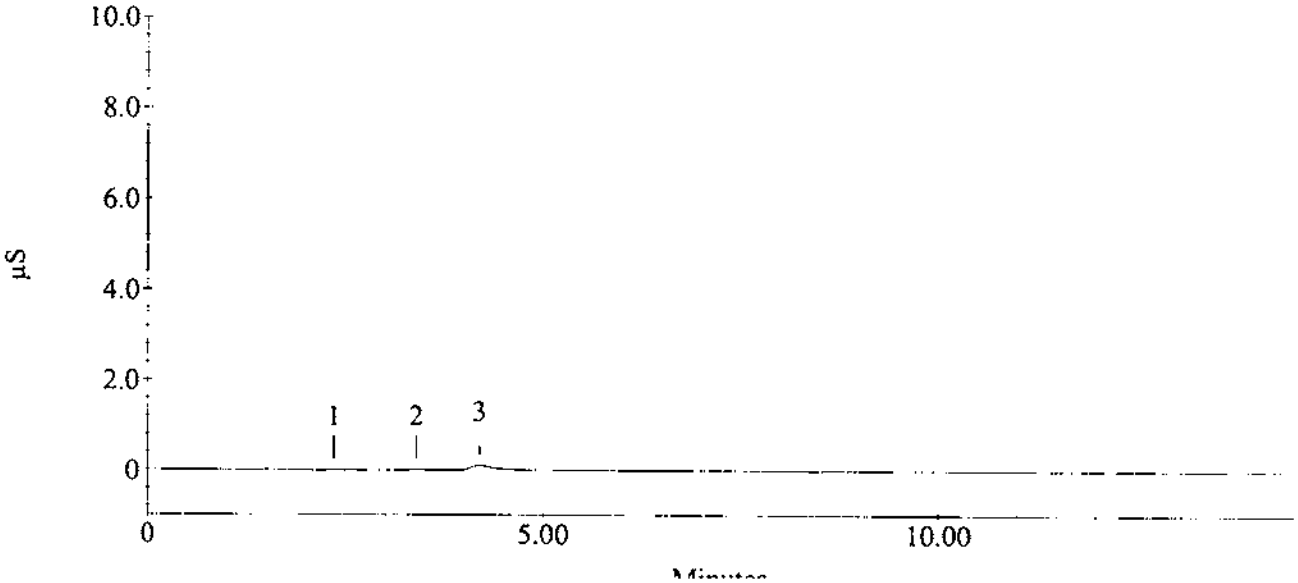
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_014.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.35	Unknown 1	0.000	111	1757	1	
2	3.40	Unknown 2	0.000	129	1942	1	
3	4.20	CHLORIDE	0.099	1046	21183	1	0.00
		---total(s)---					
			0.099	1286	24883		

CCB



UA17-00312

Sample Name : UA44 B1 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 8:30:45 PM

Injection Number : 15
Dilution Factor : 1.00
column :

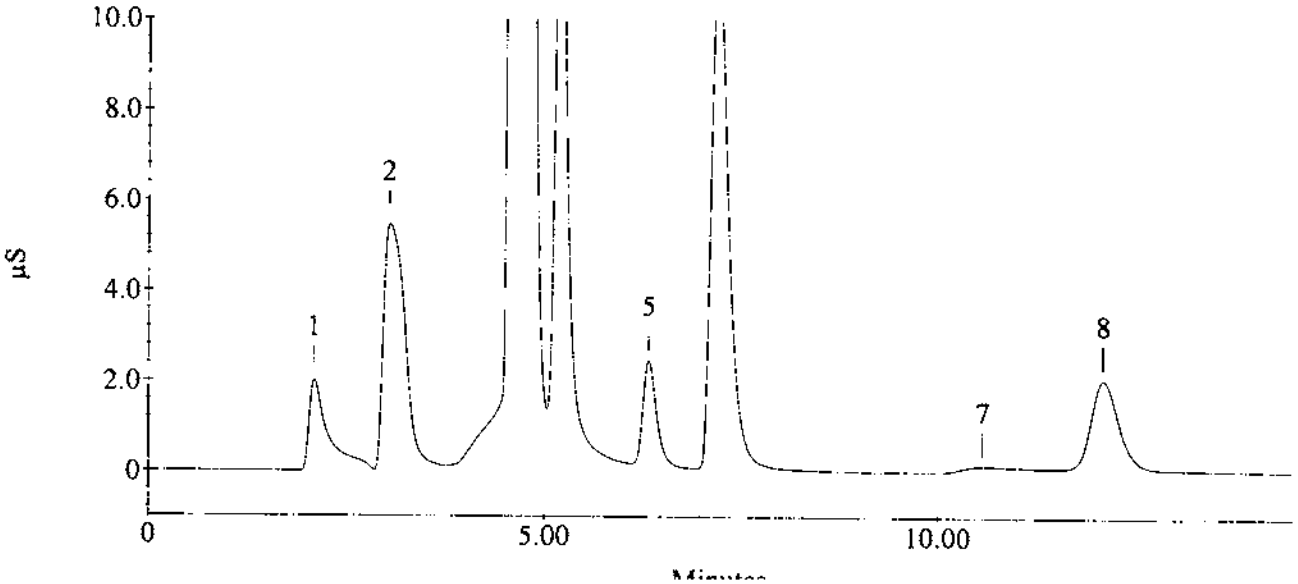
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_015.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	19909	341246	2	
2	3.05	FLUORIDE	2.010	54097	1030062	2	1.67
3	4.72	Unknown 2	0.000	2407268	26471564	2	
4	5.18	Unknown 3	0.000	148795	1695263	2	
5	6.33	BROMIDE	2.224	23943	310016	2	2.48
6	7.20	NITRATE-N	1.885	112878	1715237	1	2.42
7	10.57	Unknown 4	0.000	986	38733	1	
8	12.10	SULFATE	1.979	19642	467524	1	0.83
		---total(s)---	8.098	2787518	32069646		

UA44 B1 MS



UA1 P 00819

Sample Name : UA44 C1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 8:47:31 PM

Injection Number : 16
Dilution Factor : 1.00
column :

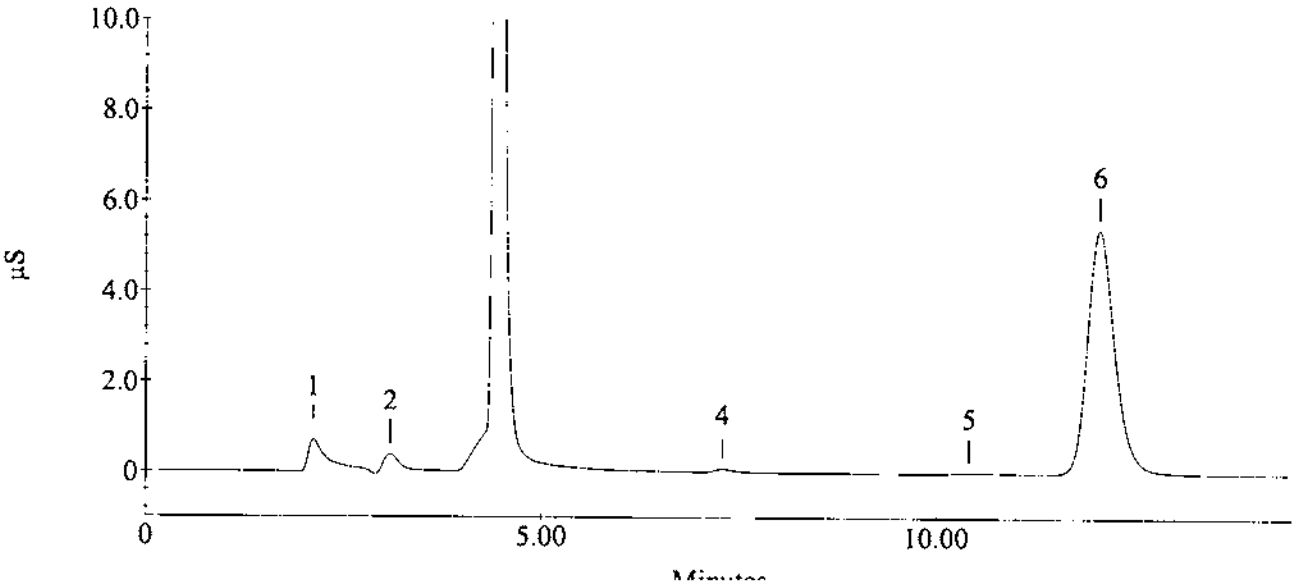
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_016.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	7133	135189	1	
2	3.08	FLUORIDE	0.168	4171	63650	1	2.78
3	4.43	Unknown 2	0.000	561069	4026309	1	
4	7.28	NITRATE-N	0.103	699	11345	1	3.60
5	10.42	PHOSPHATE-P	0.068	145	3057	1	4.17
6	12.05	SULFATE	5.377	53902	1284916	1	0.42
		---total(s)---	5.716	627119	5524466		

UA44 C1



Sample Name : UA44 D1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 9:04:19 PM

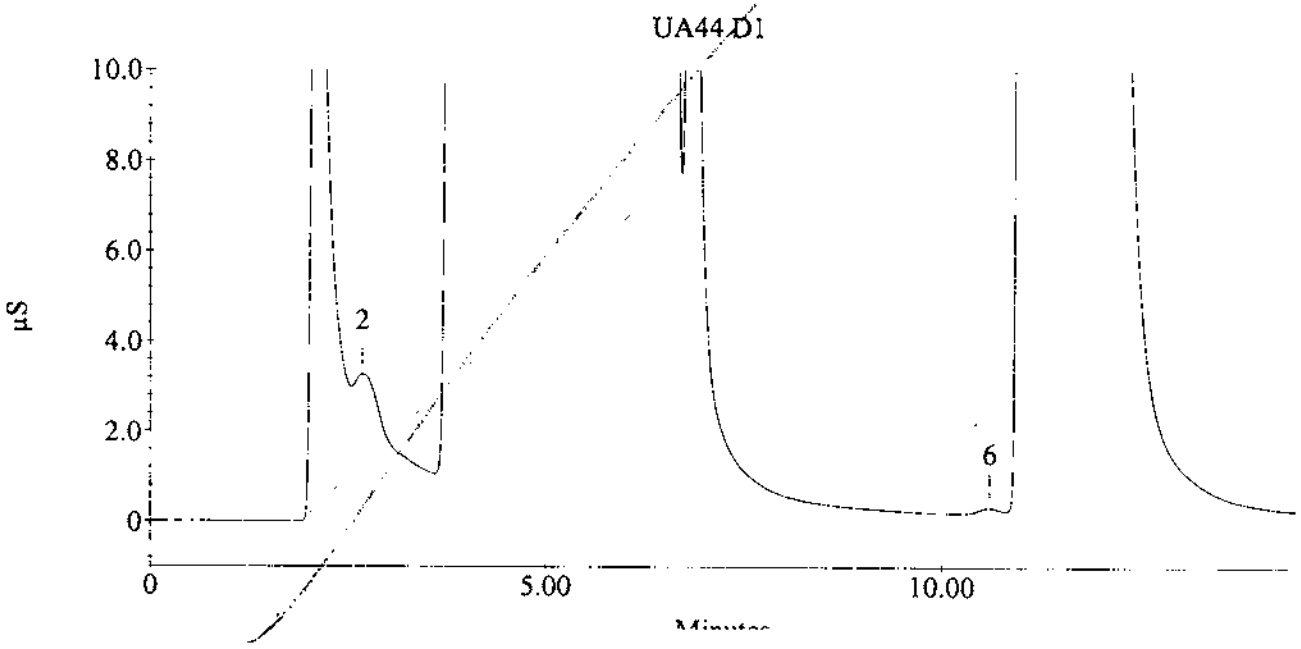
Injection Number : 17
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_017.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	198042	2697606	2	
2	2.68	Unknown 2	0.000	19783	30932	2	
3	5.50	Unknown 3	0.000	16379976	1547180744	2	
4	6.20	BROMIDE	1679.913	11604344	238723276	2	0.32
5	6.83	NITRATE-N	1.618	159807	1460501	1	-2.80
6	10.60	Unknown 4	0.000	979	14307	1	
7	11.17	Unknown 5	0.000	3599868	158265942	1	
---total(s)---			1681.531	31962799	1948373309		



Sample Name : UA44 E1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 9:21:04 PM

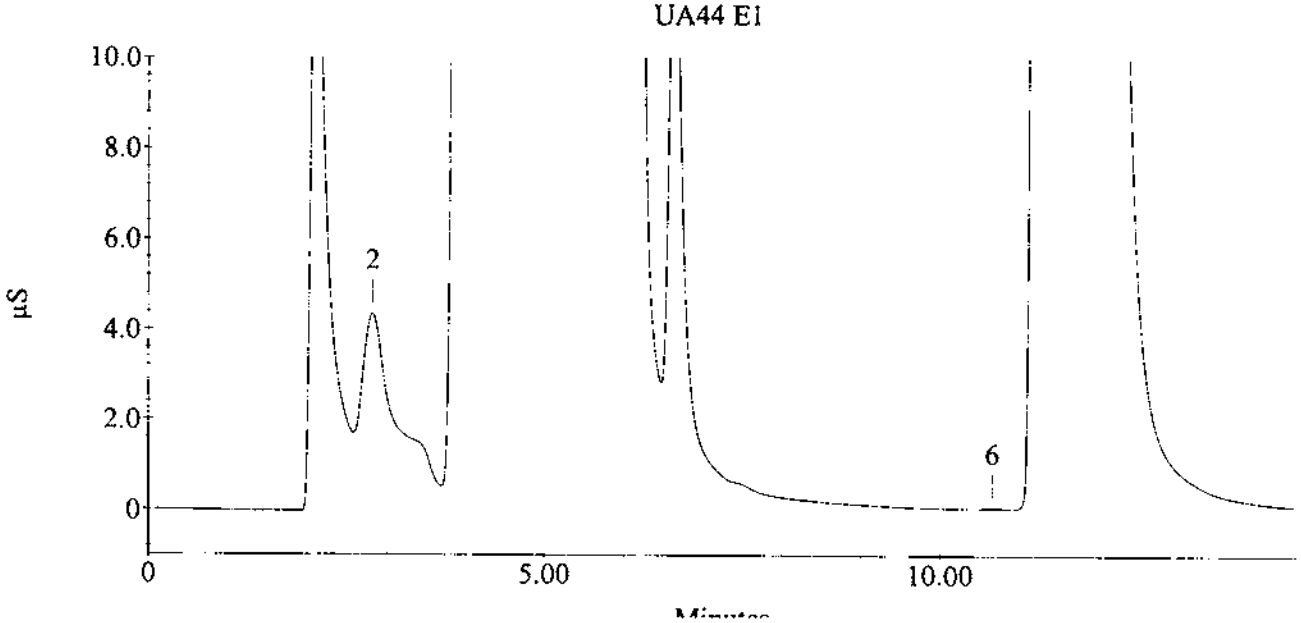
Injection Number : 18
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_018.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	151163	2087367	2	
2	2.82	FLUORIDE	2.295	40826	1179151	2	-6.11
3	5.17	NITRITE-N	1288.422	13833644	1013313869	2	3.96
4	5.78	Unknown 2	0.000	10188816	207835265	2	
5	6.62	NITRATE-N	1.319	108585	1173871	1	-5.88
6	10.65	Unknown 3	0.000	149	2137	1	
7	11.35	Unknown 4	0.000	2882348	111347067	1	
		---total(s)---	1292.035	27205530	1336938726		



Sample Name : UA44 F1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 9:37:52 PM

Injection Number : 19
Dilution Factor : 1.00
column :

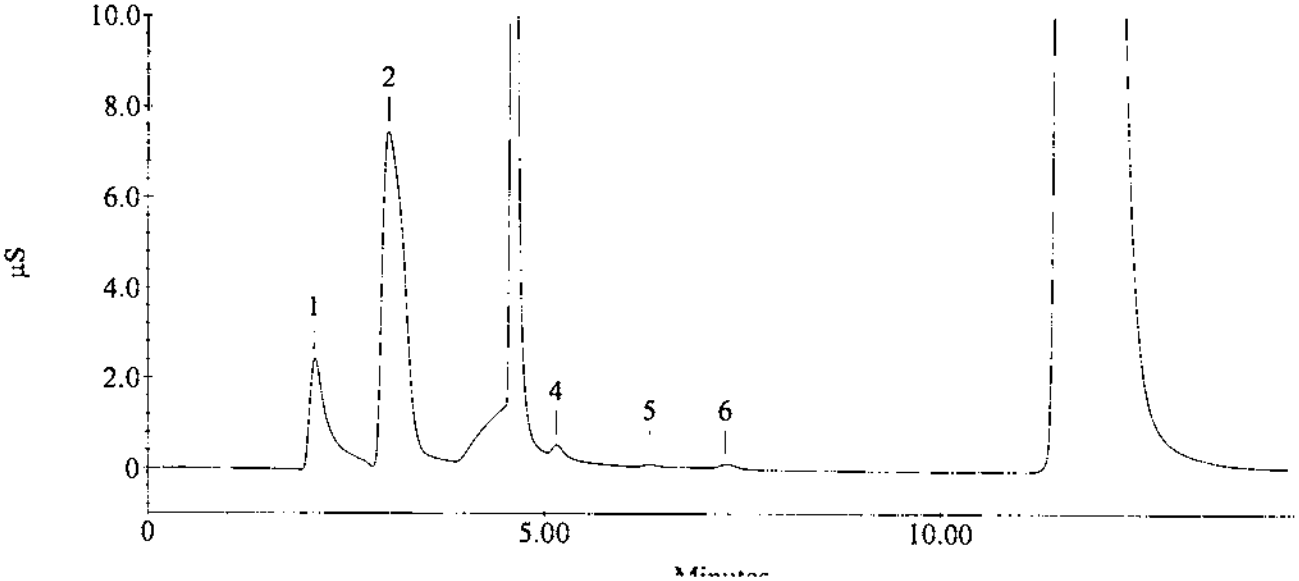
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_019.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	24090	412616	2	
2	3.05	FLUORIDE	2.812	74580	1450576	2	1.67
3	4.60	Unknown 2	0.000	253388	1882748	3	
4	5.15	NITRITE-N	0.175	4422	93278	4	3.62
5	6.33	BROMIDE	0.102	646	8516	2	2.48
6	7.30	NITRATE-N	0.105	921	13322	1	3.84
7	11.67	SULFATE	195.377	1570063	46986415	1	-2.78
		---total(s)---	198.571	1928109	50847471		

UA44 F1



Sample Name : UA44 G1
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 9:54:39 PM

Injection Number : 20
Dilution Factor : 1.00
column :

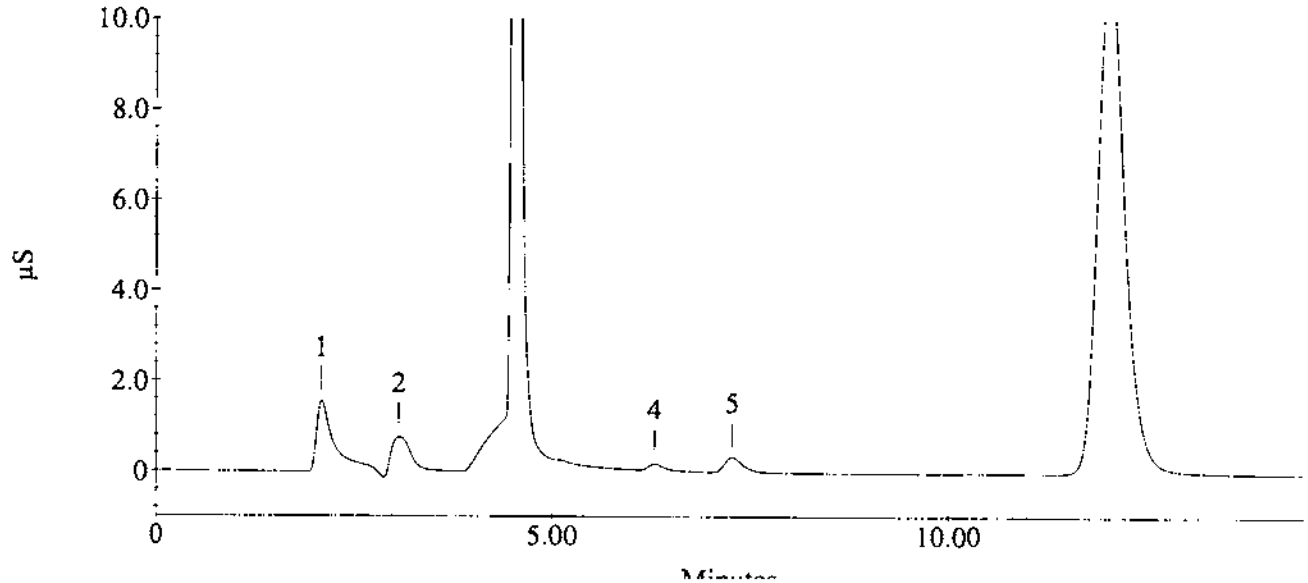
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_020.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	15848	278792	1	
2	3.08	FLUORIDE	0.338	8589	152997	1	2.78
3	4.52	Unknown 2	0.000	436518	3223779	2	
4	6.30	BROMIDE	0.245	1737	28743	2	1.94
5	7.28	NITRATE-N	0.146	3366	52755	1	3.60
6	12.03	SULFATE	10.984	112655	2633574	1	0.28
		---total(s)---	11.713	578713	6370639		

UA44 G1



UA17-00518

Sample Name : TY45 A7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 10:11:24 PM

Injection Number : 21
Dilution Factor : 1.00
column :

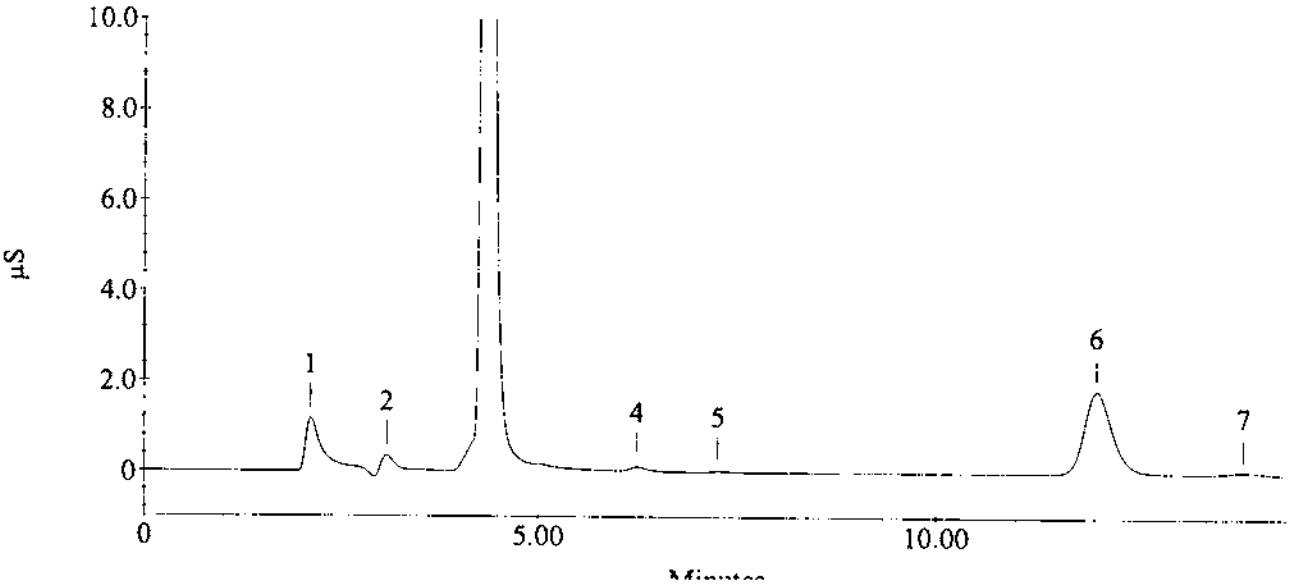
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_021.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	11884	209582	1	
2	3.07	FLUORIDE	0.137	4134	47376	1	2.22
3	4.35	CHLORIDE	13.817	657669	5038702	1	3.57
4	6.23	BROMIDE	0.127	870	12065	1	0.86
5	7.25	NITRATE-N	0.094	244	3188	1	3.13
6	12.02	SULFATE	1.897	18193	447844	1	0.14
7	13.87	Unknown 2	0.000	551	15186	1	
		----total(s)---	16.072	693545	5773944		

TY45 A7



Sample Name : TY45 B17
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 10:28:10 PM

Injection Number : 22
Dilution Factor : 1.00
column :

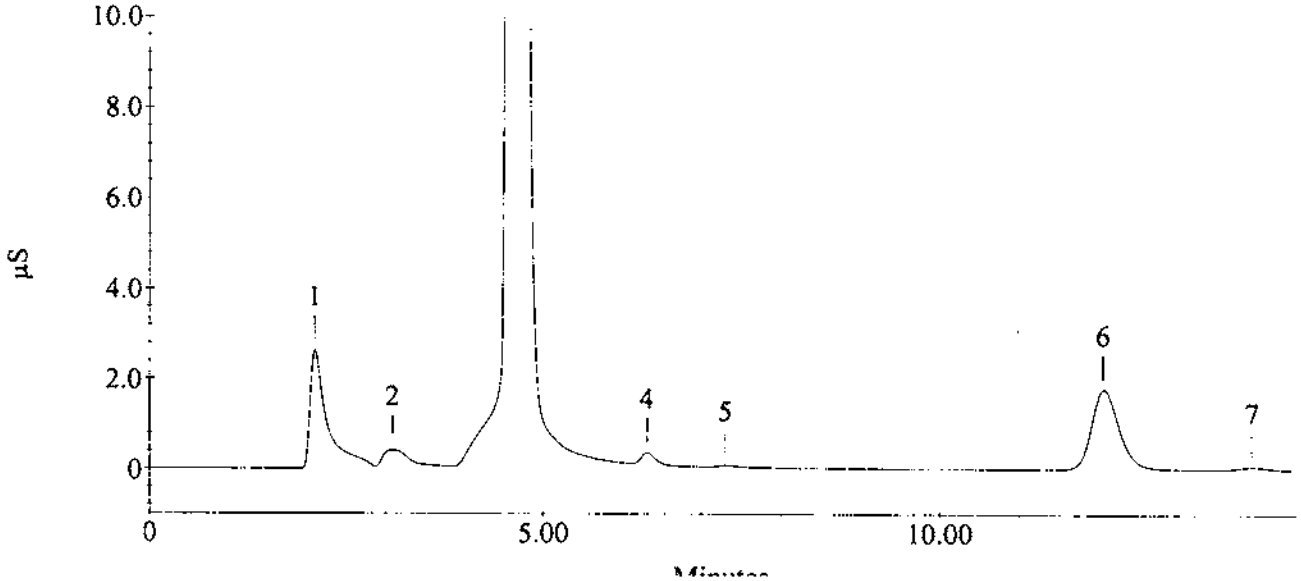
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_022.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	26197	398939	2	
2	3.08	FLUORIDE	0.232	3964	97013	2	2.78
3	4.67	Unknown 2	0.000	2053759	20379059	2	
4	6.32	BROMIDE	0.385	3166	48609	2	2.21
5	7.30	NITRATE-N	0.097	357	5732	1	3.84
6	12.05	SULFATE	1.809	17648	426601	1	0.42
7	13.93	Unknown 3	0.000	544	13412	1	
		----total(s)---	2.522	2105636	21369365		

TY45 B17



Sample Name : TY45 B17 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 10:44:57 PM

Injection Number : 23
Dilution Factor : 1.00
column :

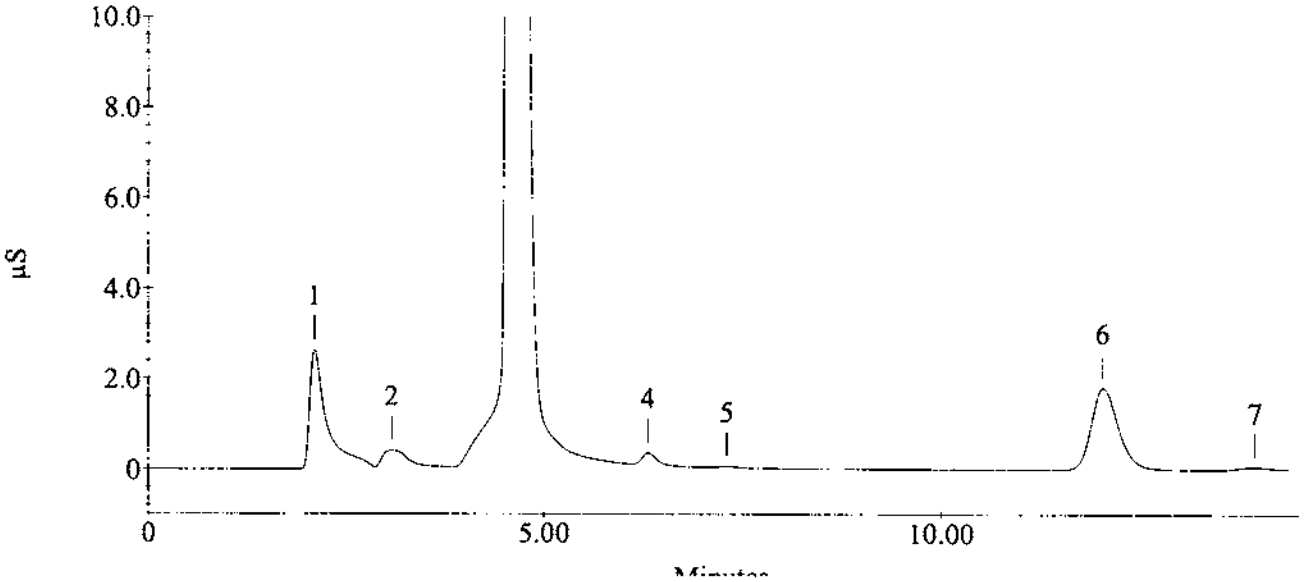
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_023.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	26289	402658	2	
2	3.08	FLUORIDE	0.229	3991	95682	2	2.78
3	4.67	Unknown 2	0.000	2061160	20361203	2	
4	6.32	BROMIDE	0.391	3171	49478	2	2.21
5	7.32	NITRATE-N	0.095	294	4157	1	4.08
6	12.05	SULFATE	1.832	18029	432170	1	0.42
7	13.95	Unknown 3	0.000	535	13644	1	
		---total(s)---	2.547	2113471	21358994		

TY45 B17 DUP



Sample Name : TY45 B17 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 11:01:47 PM

Injection Number : 24
Dilution Factor : 1.00
column :

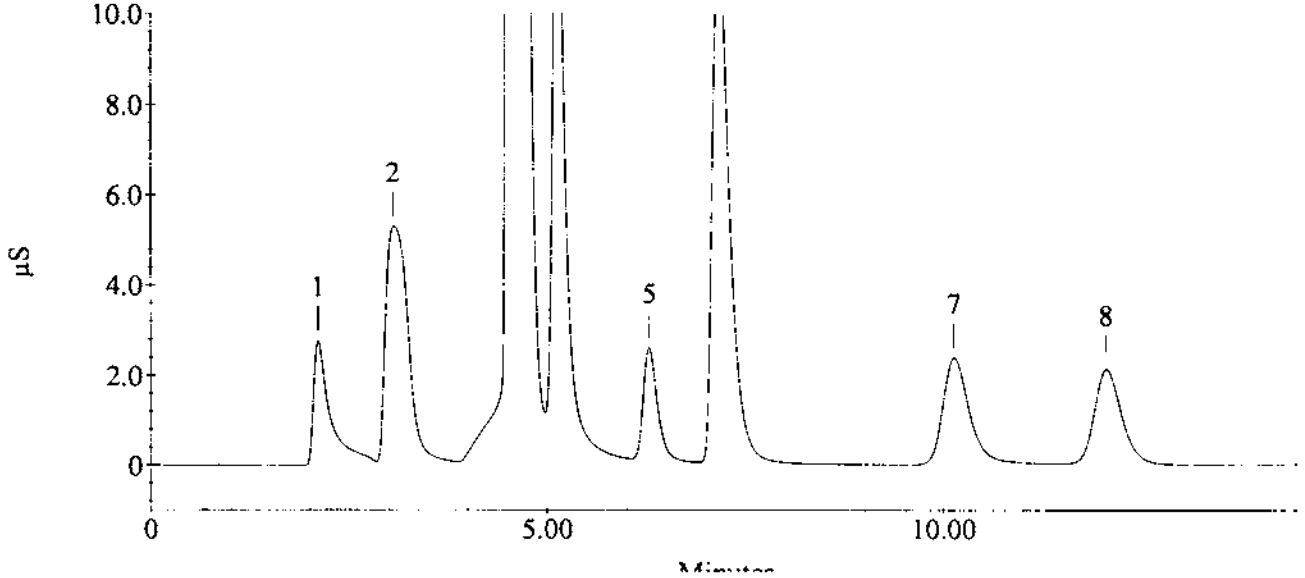
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_024.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	27567	415908	2	
2	3.05	FLUORIDE	2.046	52717	1048588	2	1.67
3	4.65	Unknown 2	0.000	2121022	21199978	2	
4	5.13	NITRITE-N	2.191	148235	1679249	2	3.29
5	6.28	BROMIDE	2.349	25479	327813	2	1.67
6	7.15	NITRATE-N	1.884	113590	1714854	1	1.71
7	10.13	PHOSPHATE-P	1.893	23650	553195	1	1.33
8	12.03	SULFATE	2.128	20979	503343	1	0.28
		---total(s)---	12.491	2533239	27442929		

TY45 B17 MS



UA1 P 00522

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 11:18:34 PM

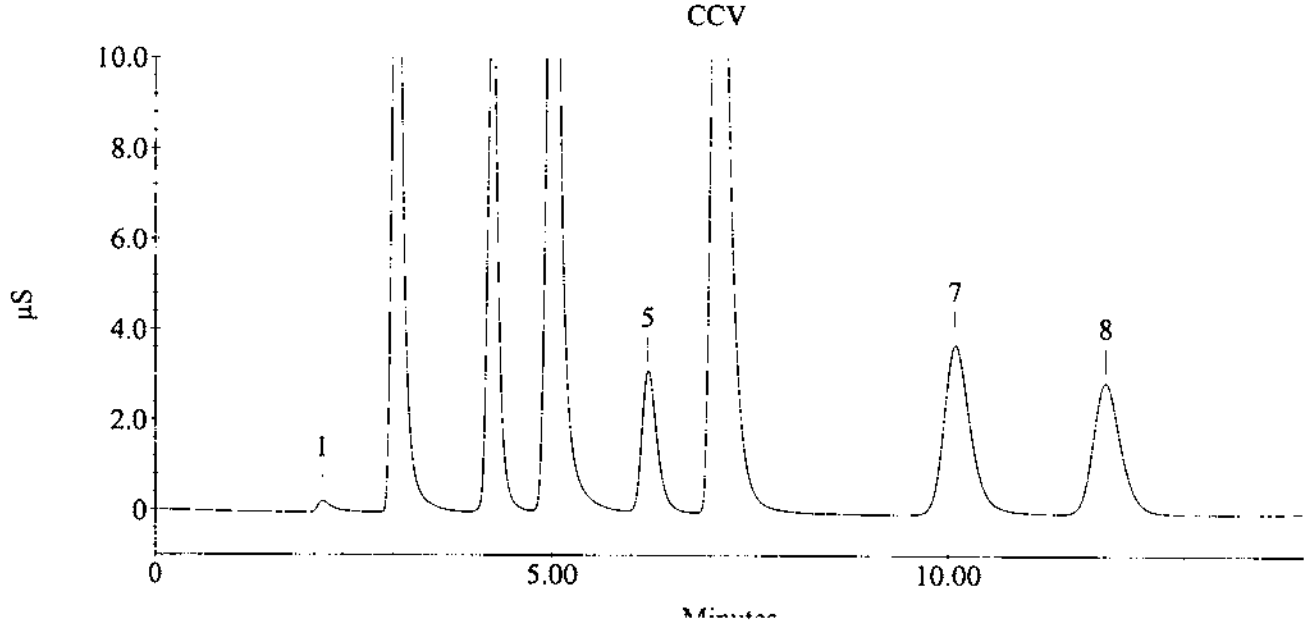
Injection Number : 25
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_025.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2514	33216	1	
2	3.03	FLUORIDE	3.011	152486	1554841	2	1.11
3	4.25	CHLORIDE	2.972	119403	1072160	2	1.19
4	5.00	NITRITE-N	2.959	186768	2283146	2	0.60
5	6.20	BROMIDE	3.022	31203	423444	2	0.32
6	7.08	NITRATE-N	2.928	168271	2712359	1	0.76
7	10.08	PHOSPHATE-P	2.961	37293	875191	1	0.83
8	12.00	SULFATE	2.968	29010	705488	1	0.00
		---total(s)---	20.821	726949	9659845		



UA17 Cur[illegible]8/11

Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/8/11
Date Time Collected : 12/8/11 11:35:21 PM

Injection Number : 26
Dilution Factor : 1.00
column :

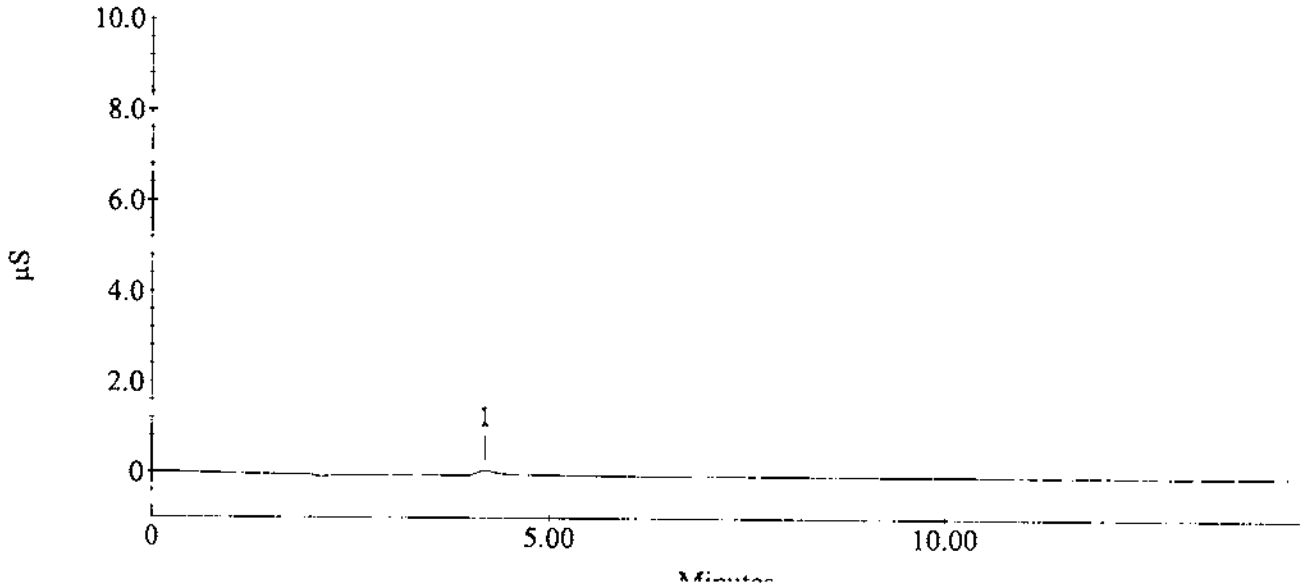
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_026.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	4.20	CHLORIDE	0.090	1024	17853	1	0.00
		---total(s)---	0.090	1024	17853		

CCB



UA1 Current Date: 12/8/11

Sample Name : TY45 C7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/8/11 11:52:07 PM

Injection Number : 27
Dilution Factor : 1.00
column :

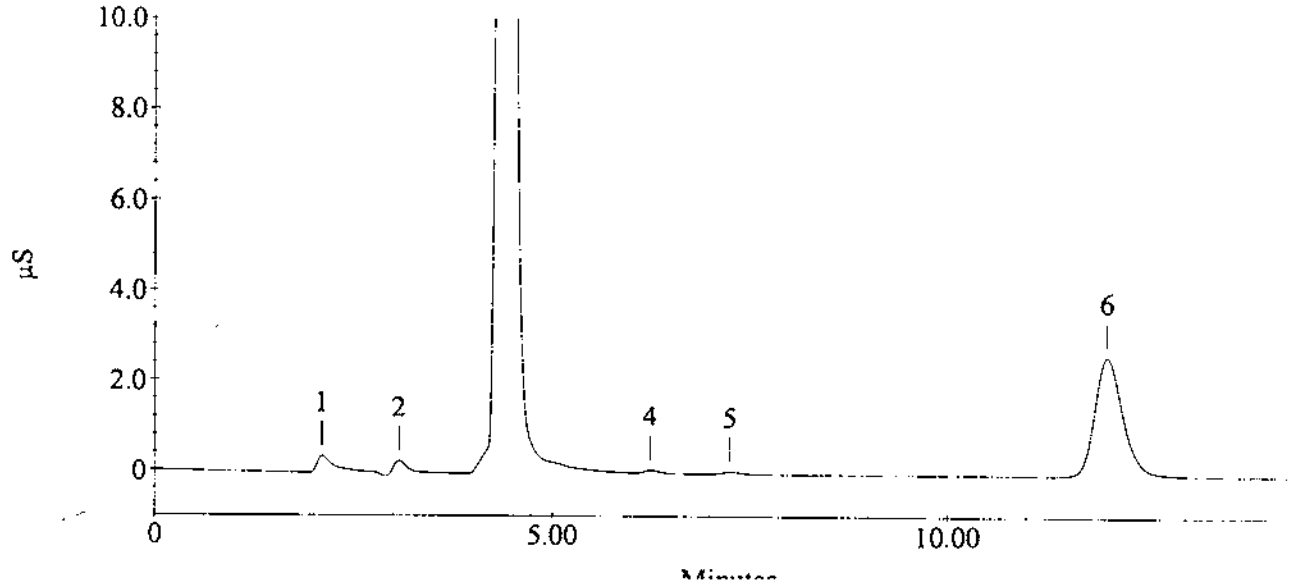
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_027.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	3830	75596	1	
2	3.07	FLUORIDE	0.132	3207	44626	1	2.22
3	4.42	Unknown 2	0.000	1163831	10625960	2	
4	6.25	BROMIDE	0.122	774	11238	2	1.13
5	7.25	NITRATE-N	0.099	535	8022	1	3.13
6	12.02	SULFATE	2.696	26435	639968	1	0.14
		---total(s)---	3.049	1198612	11405411		

TY45 C7



Sample Name : TY45 D7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:08:55 AM

Injection Number : 28
Dilution Factor : 1.00
column :

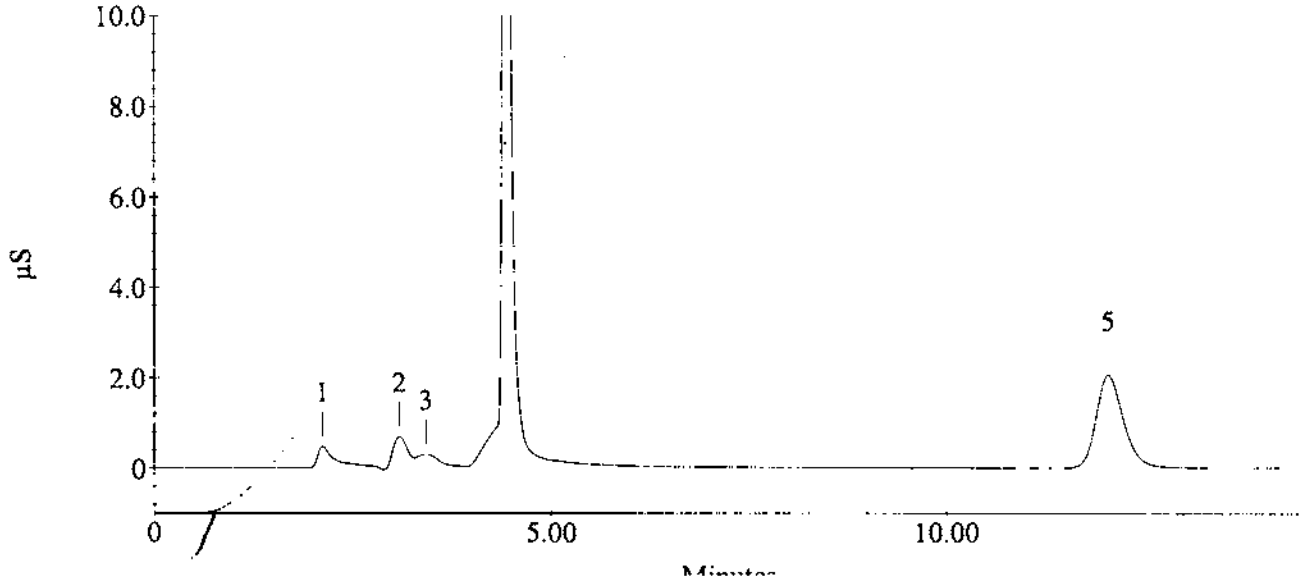
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_028.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4802	86199	1	
2	3.08	FLUORIDE	0.223	7121	92613	2	2.78
3	3.42	Unknown 2	0.000	3183	66670	2	
4	4.42	Unknown 3	0.000	236373	1834873	2	
5	12.03	SULFATE	2.097	20504	495857	1	0.28
		---total(s)---	2.320	271983	2576212		

TY45 D7



Sample Name : TY45 E7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:25:41 AM

Injection Number : 29
Dilution Factor : 1.00
column :

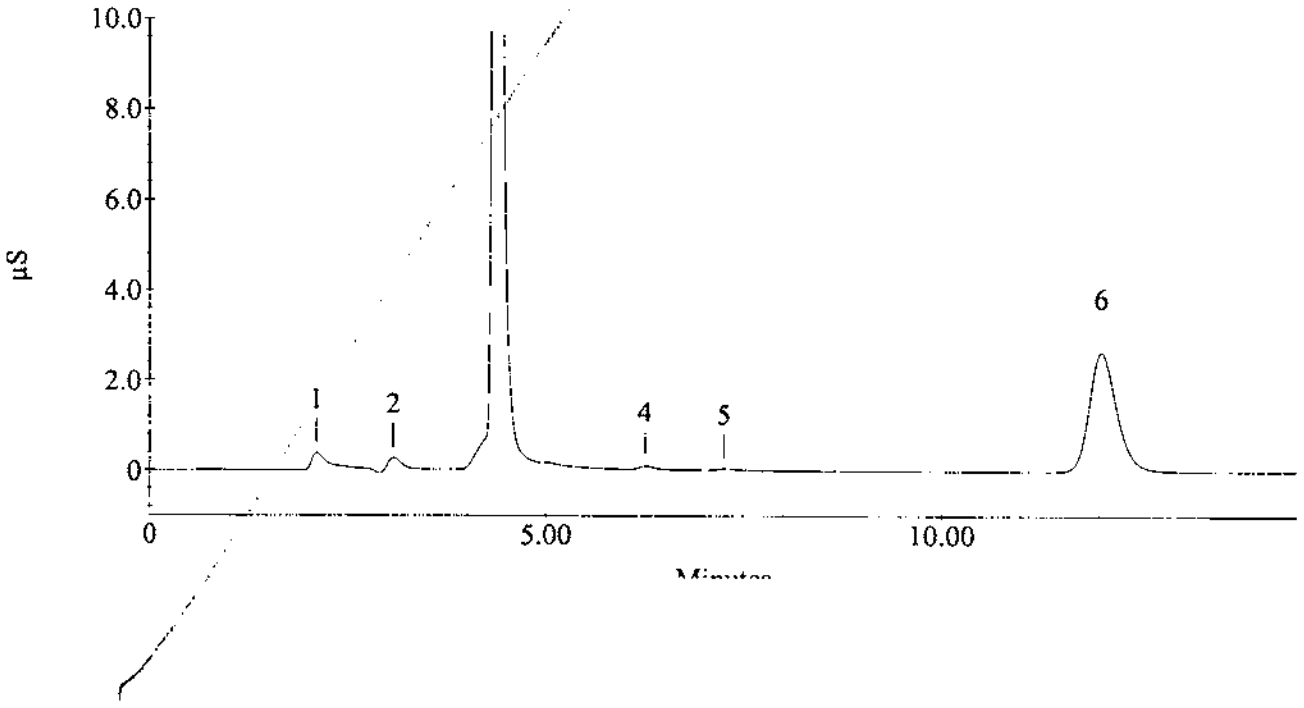
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_029.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	3958	79140	1	
2	3.07	FLUORIDE	0.124	3089	40536	1	2.22
3	4.37	CHLORIDE	7.839	380968	2852324	1	3.97
4	6.25	BROMIDE	0.109	717	9421	1	1.13
5	7.25	NITRATE-N	0.096	309	4894	1	3.13
6	12.02	SULFATE	2.681	26418	636368	1	0.14
		---total(s)---	10.849	415459	3622682		

TY45 E7



Sample Name : TY75 A7 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:42:25 AM

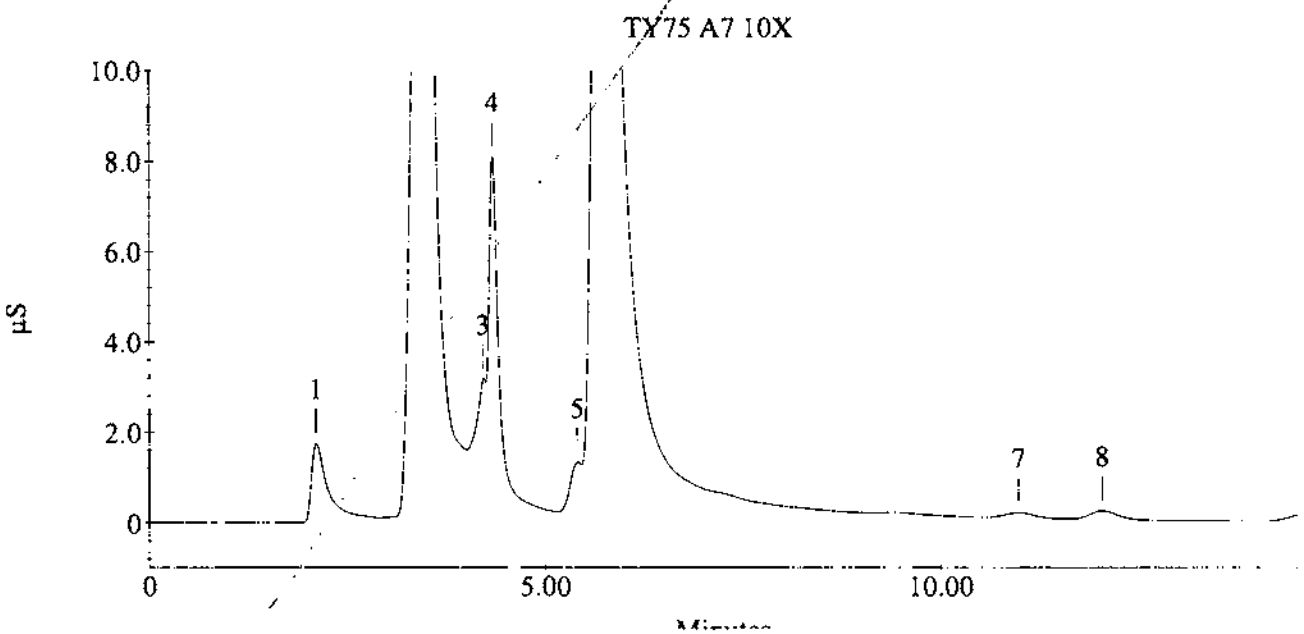
Injection Number : 30
Dilution Factor : 10.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_030.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	17214	252687	2	
2	3.48	Unknown 2	0.000	226869	4294887	3	
3	4.22	CHLORIDE	7.675	29467	265795	4	0.40
4	4.33	Unknown 3	0.000	78966	727926	2	
5	5.40	Unknown 4	0.000	2605	20846	1	
6	5.73	Unknown 5	0.000	224165	5008059	1	
7	10.98	Unknown 6	0.000	1128	26963	1	
8	12.05	SULFATE	2.190	1908	44200	1	0.42
		---total(s)---					
			9.865	582321	10641363		



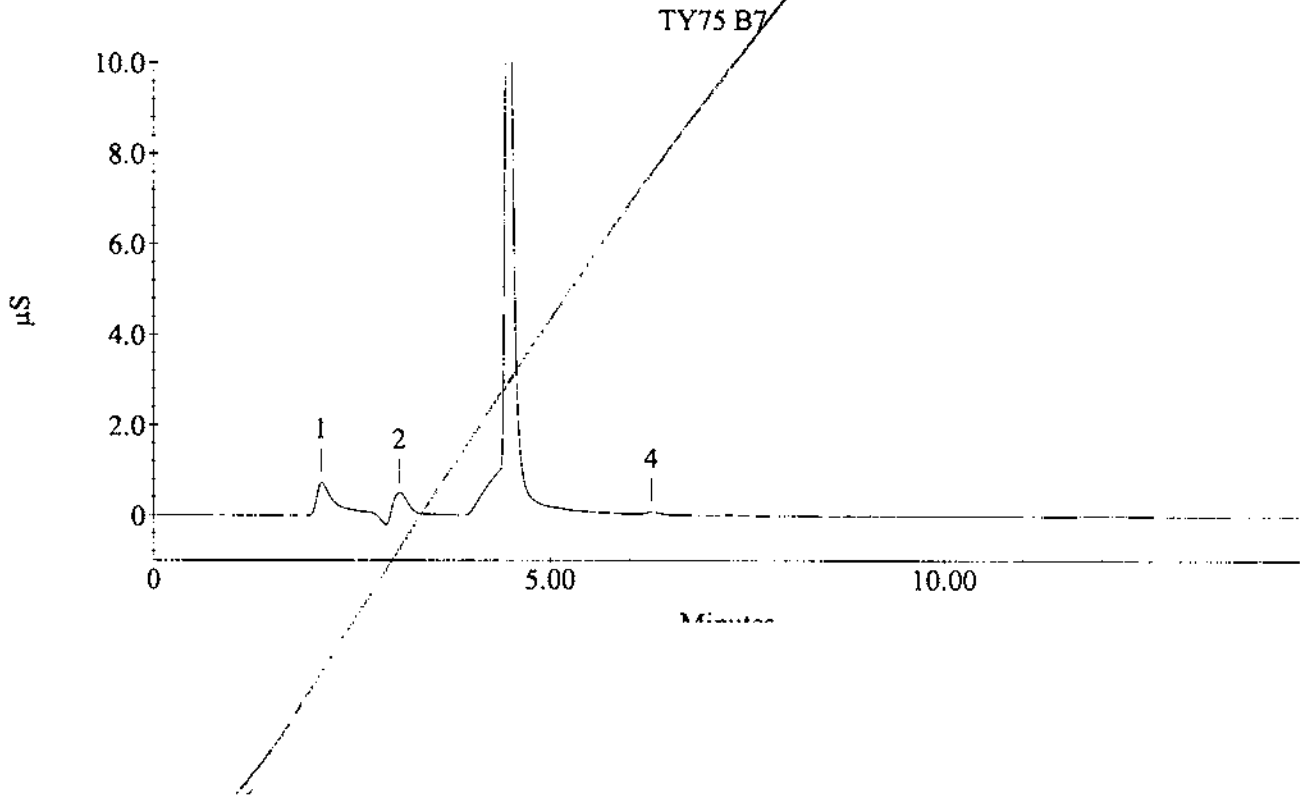
UA17 00928

Sample Name : TY75 B7 | Current Date : 12/9/11
Method File Name : c:\peaknet\method\std6_new.met | Date Time Collected : 12/9/11 12:59:10 AM

Injection Number : 31 | Calibration Date : 12/7/11 10:16:04 AM | Module ID : 34 07 2a
Dilution Factor : 1.00 | Data File Name : ...\DEC0811RR_031.DXD | Schedule File Name : ...\dec0811rr.sch
column : | Injection Volume : 1.00

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	7610	171630	1	
2	3.10	FLUORIDE	0.243	6469	102947	1	3.33
3	4.47	Unknown 2	0.000	180568	1386126	3	
4	6.28	BROMIDE	0.106	638	9053	4	1.67
		---total(s)---	0.349	195285	1669756		



Sample Name : TY75 C7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:15:57 AM

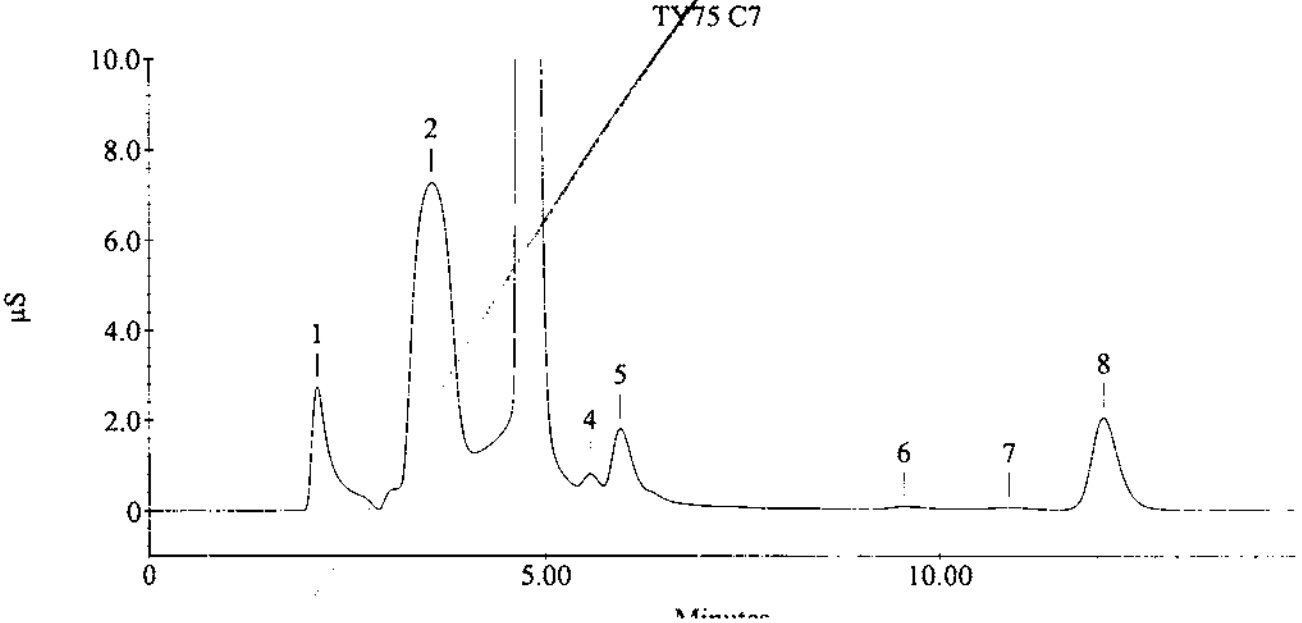
Injection Number : 32
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_032.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.12	Unknown 1	0.000	27082	461347	1	
2	3.57	Unknown 2	0.000	71090	2444251	2	
3	4.78	NITRITE-N	28.575	2311672	22430393	2	-3.76
4	5.57	Unknown 3	0.000	2966	32852	2	
5	5.95	Unknown 4	0.000	13223	217909	1	
6	9.55	PHOSPHATE-P	0.106	545	14593	1	-4.50
7	10.88	Unknown 5	0.000	384	10861	1	
8	12.08	SULFATE	2.061	20333	487243	1	0.69
		---total(s)---	30.742	2447395	26099449		



Sample Name : TY75 D7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:32:45 AM

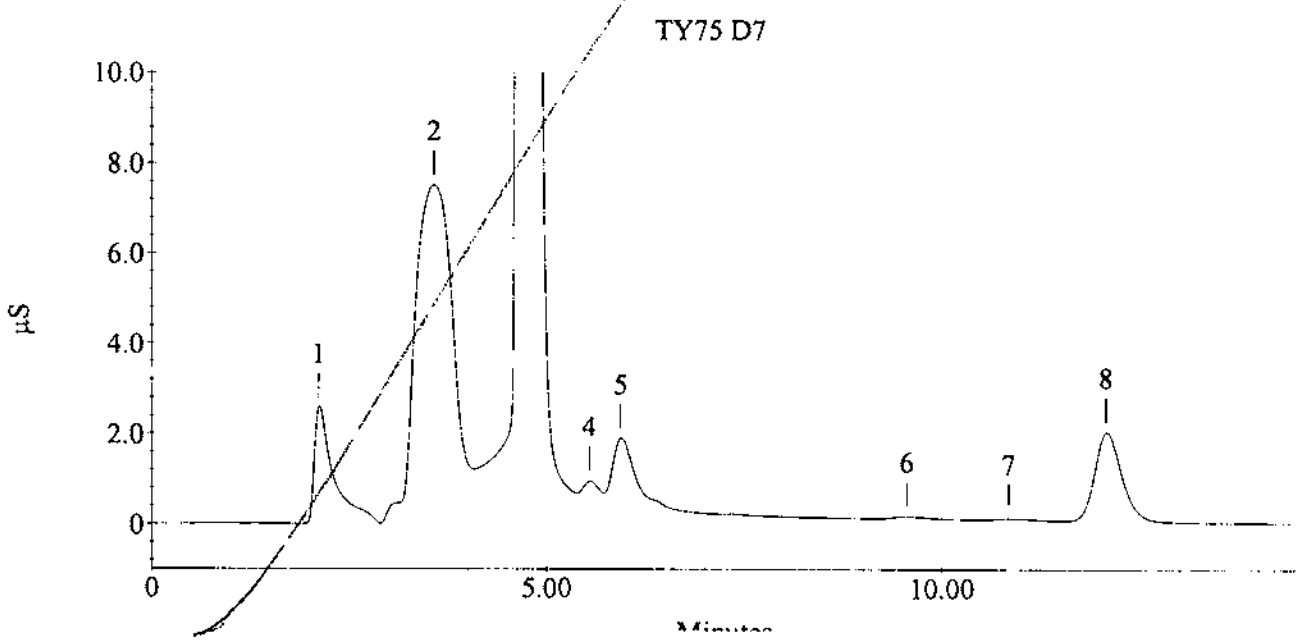
Injection Number : 33
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_033.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	25585	440302	1	
2	3.57	Unknown 2	0.000	73361	2404062	2	
3	4.77	Unknown 3	0.000	2447149	26800330	2	
4	5.55	Unknown 4	0.000	3072	34840	2	
5	5.93	Unknown 5	0.000	12964	226459	1	
6	9.55	PHOSPHATE-P	0.110	561	15930	1	-4.50
7	10.85	Unknown 6	0.000	335	10003	1	
8	12.07	SULFATE	1.996	19690	471635	1	0.56
		---total(s)---	2.106	2582717	30403561		



Sample Name : TY75 F17
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:49:31 AM

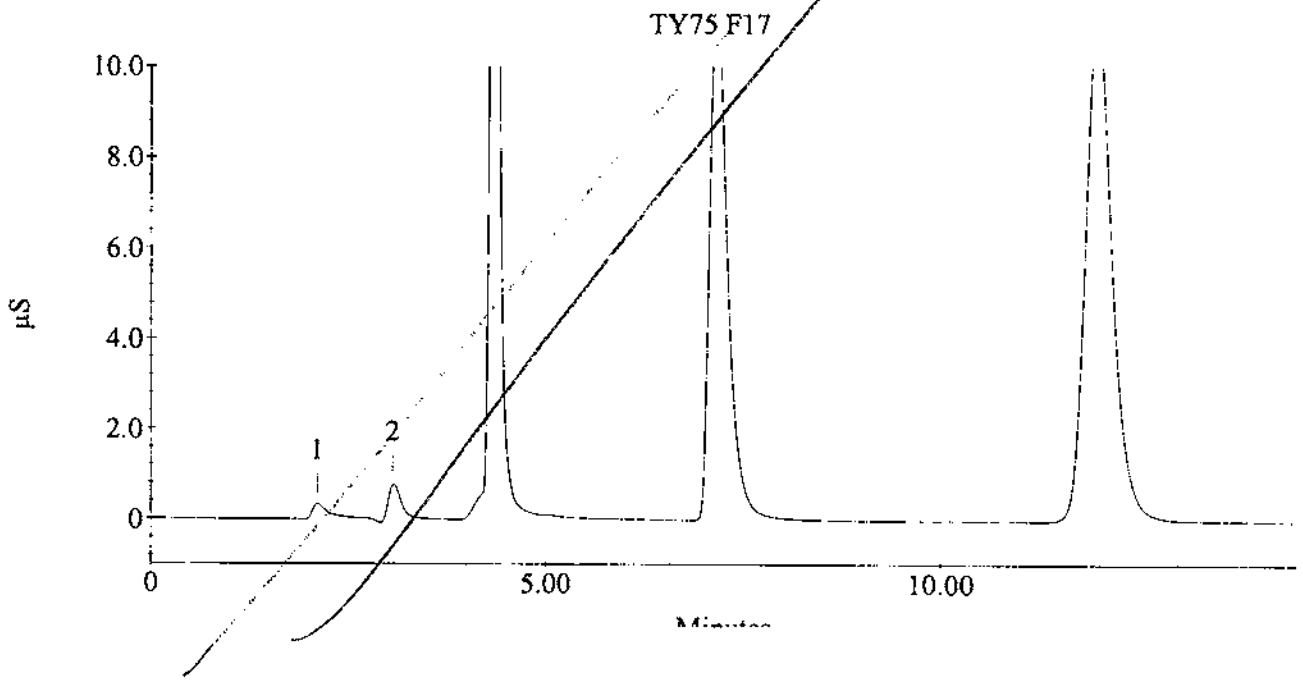
Injection Number : 34
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_034.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	3518	69265	1	
2	3.05	FLUORIDE	0.240	8076	101321	1	1.67
3	4.33	CHLORIDE	6.058	298061	2200970	1	3.17
4	7.13	NITRATE-N	2.005	114947	1830022	1	1.47
5	11.95	SULFATE	10.870	109867	2606043	1	-0.42
		---total(s)---	19.173	534470	6807720		



Sample Name : TY75 F17 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:06:19 AM

Injection Number : 35
Dilution Factor : 1.00
column :

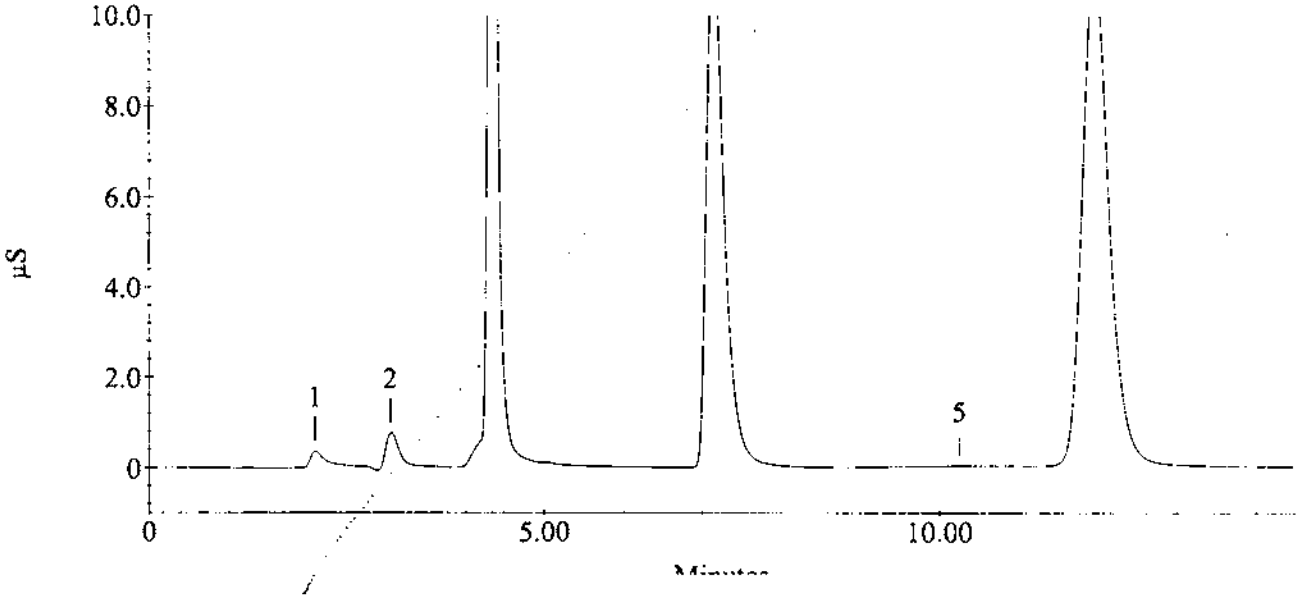
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_035.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	3710	71303	1	
2	3.05	FLUORIDE	0.252	8124	107626	1	1.67
3	4.33	CHLORIDE	6.064	299714	2202913	1	3.17
4	7.13	NITRATE-N	2.004	114965	1828698	1	1.47
5	10.25	PHOSPHATE-P	0.063	88	1691	1	2.50
6	11.95	SULFATE	10.866	110227	2605103	1	-0.42
		---total(s)---	19.248	536829	6817334		

TY75 F17 DUP



Sample Name : TY75 F17 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:23:04 AM

Injection Number : 36
Dilution Factor : 1.00
column :

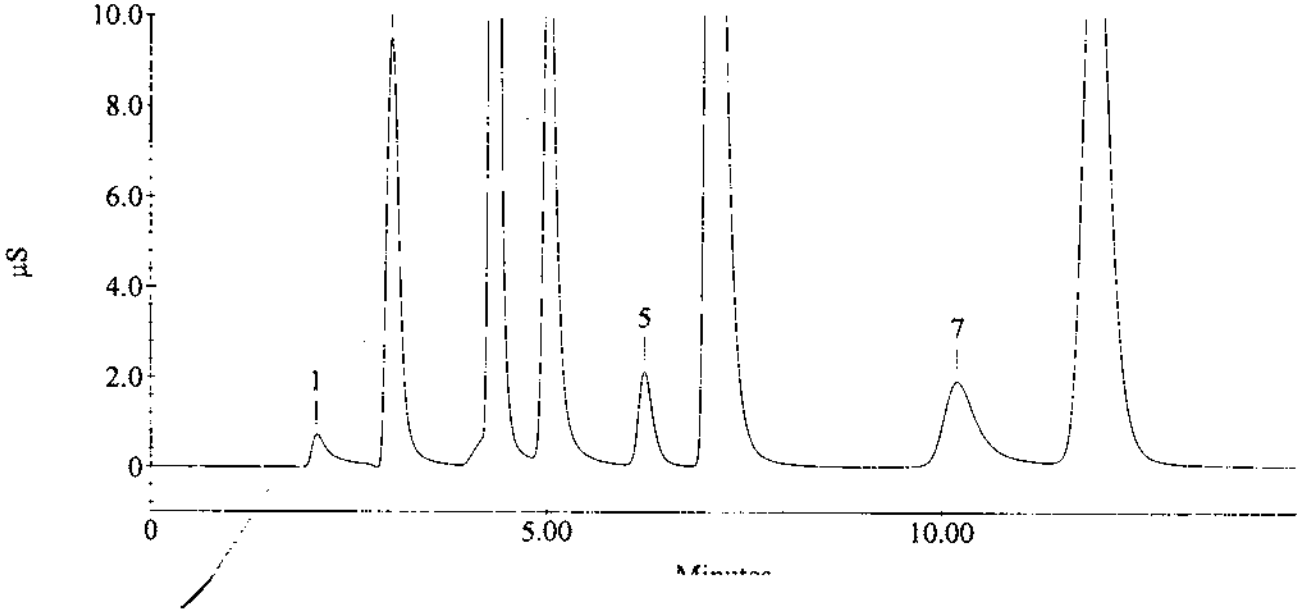
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_036.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	7109	125727	1	
2	3.05	FLUORIDE	2.156	94708	1106584	2	1.67
3	4.33	CHLORIDE	8.602	410980	3131461	2	3.17
4	5.03	NITRITE-N	1.988	129175	1519349	2	1.27
5	6.25	BROMIDE	2.012	21004	279883	2	1.13
6	7.10	NITRATE-N	4.131	240915	3863064	1	1.00
7	10.20	PHOSPHATE-P	1.916	18552	560187	1	2.00
8	11.93	SULFATE	13.113	132890	3145636	1	-0.56
		---total(s)---	33.918	1055332	13731892		

TY75 F17 MS



Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:39:51 AM

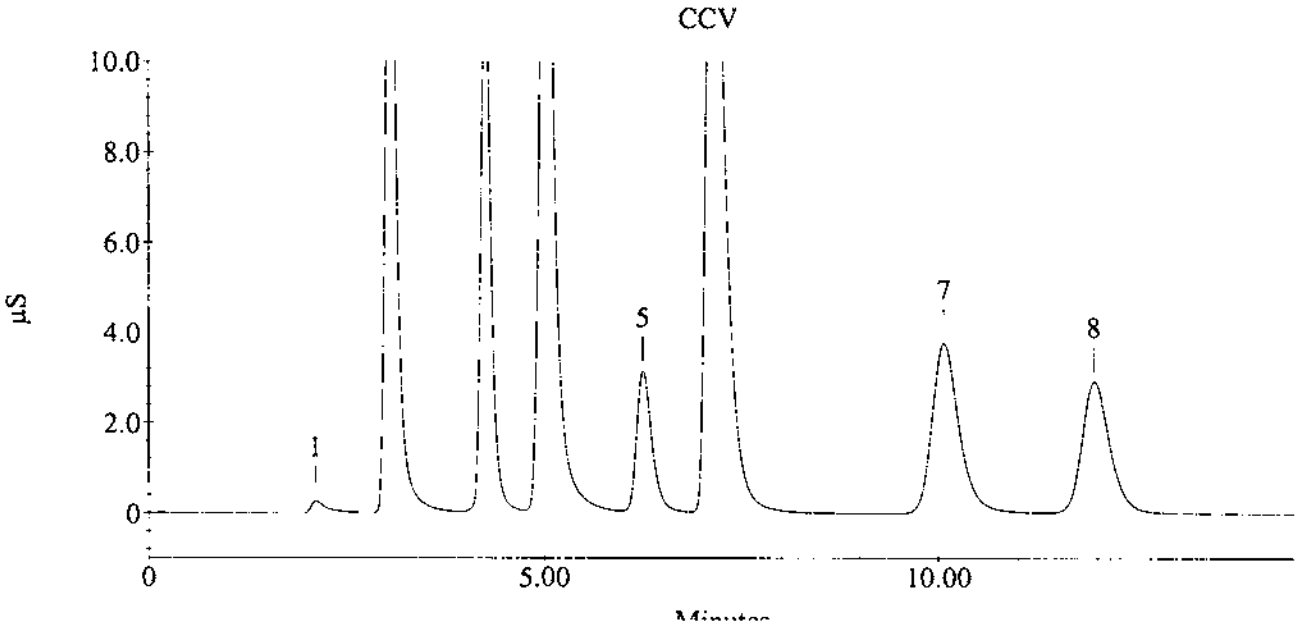
Injection Number : 37
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_037.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2621	35460	1	
2	3.03	FLUORIDE	3.011	154198	1554917	2	1.11
3	4.25	CHLORIDE	3.002	120731	1082944	2	1.19
4	5.02	NITRITE-N	2.959	186553	2283049	2	0.94
5	6.23	BROMIDE	3.017	31049	422634	2	0.86
6	7.12	NITRATE-N	2.923	165676	2707659	1	1.23
7	10.07	PHOSPHATE-P	2.981	37488	881286	1	0.67
8	11.95	SULFATE	3.000	28986	713247	1	-0.42
		---total(s)---					
			20.892	727303	9681197		



Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:56:38 AM

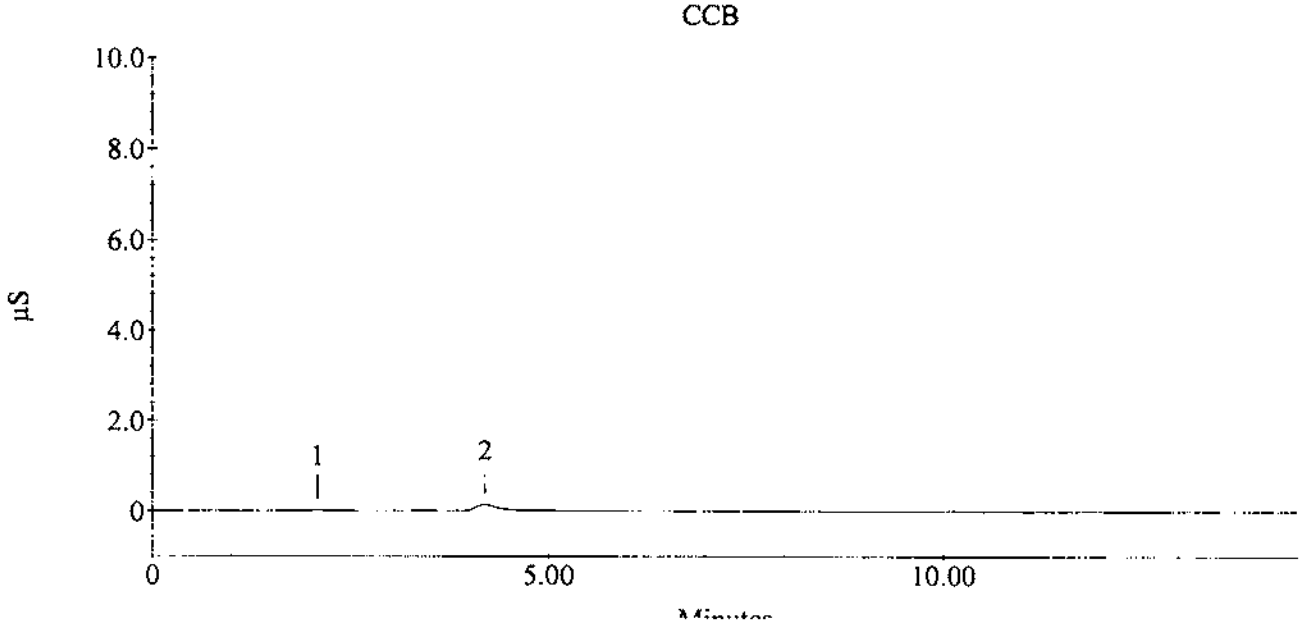
Injection Number : 38
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_038.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	180	1557	1	
2	4.20	CHLORIDE	0.104	1311	23231	1	0.00
		---total(s)---	0.104	1491	24788		



UA17-00938

Sample Name : TY75 G7
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:13:25 AM

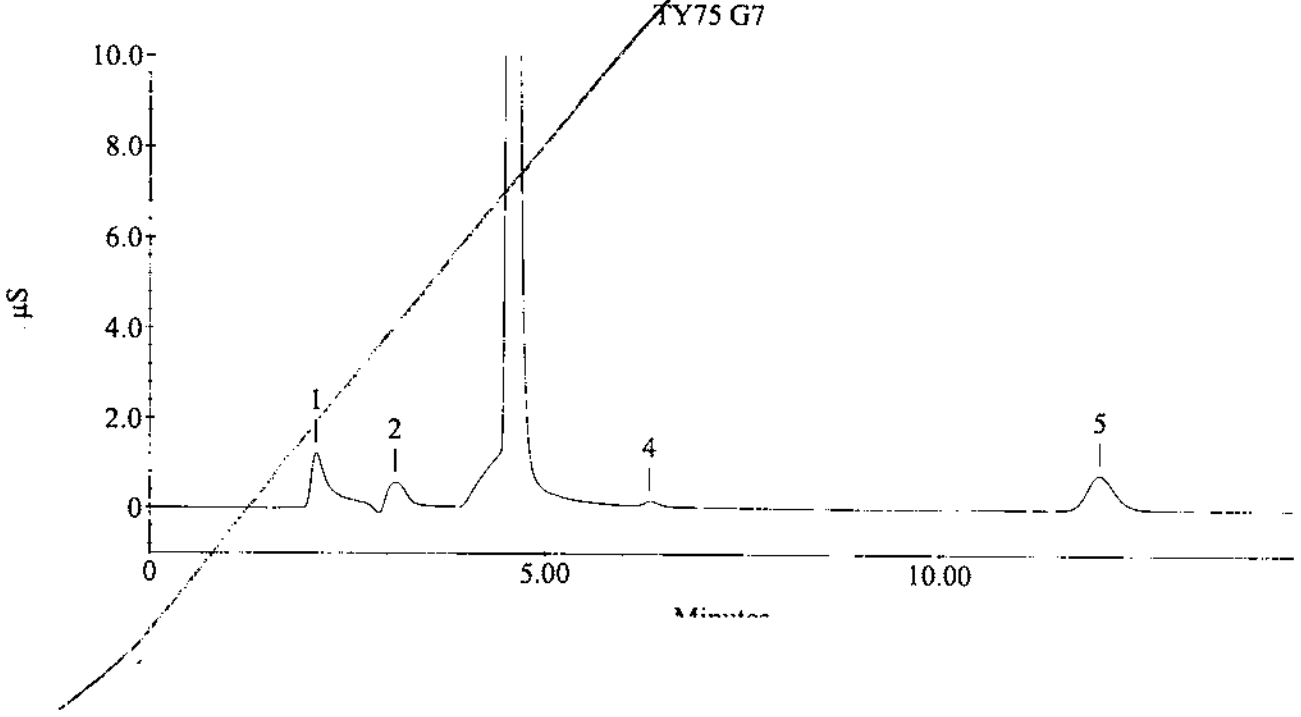
Injection Number : 39
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_039.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	12178	224483	1	
2	3.10	FLUORIDE	0.270	6381	117225	1	3.33
3	4.57	Unknown 2	0.000	847448	5961530	2	
4	6.33	BROMIDE	0.185	1343	20265	2	2.48
5	12.03	SULFATE	0.795	7666	182834	1	0.28
		---total(s)---	1.251	875016	6506337		



Sample Name : UA17 A4 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:30:12 AM

Injection Number : 40
Dilution Factor : 5.00
column :

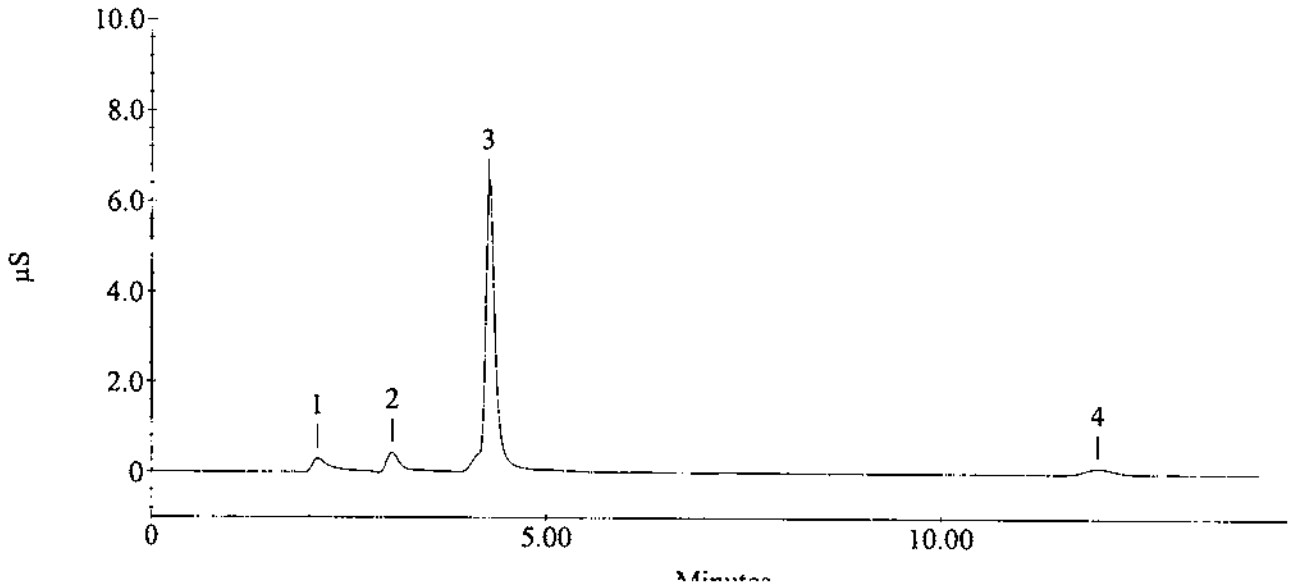
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_040.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2955	51004	1	
2	3.05	FLUORIDE	0.744	4260	53640	1	1.67
3	4.27	CHLORIDE	7.789	61356	554829	1	1.59
4	11.98	SULFATE	0.820	1278	30971	1	-0.14
		---total(s)---	9.353	69849	690445		

UA17 A4 5X



Sample Name : UA17 A4 DUP 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:46:59 AM

Injection Number : 41
Dilution Factor : 5.00
column :

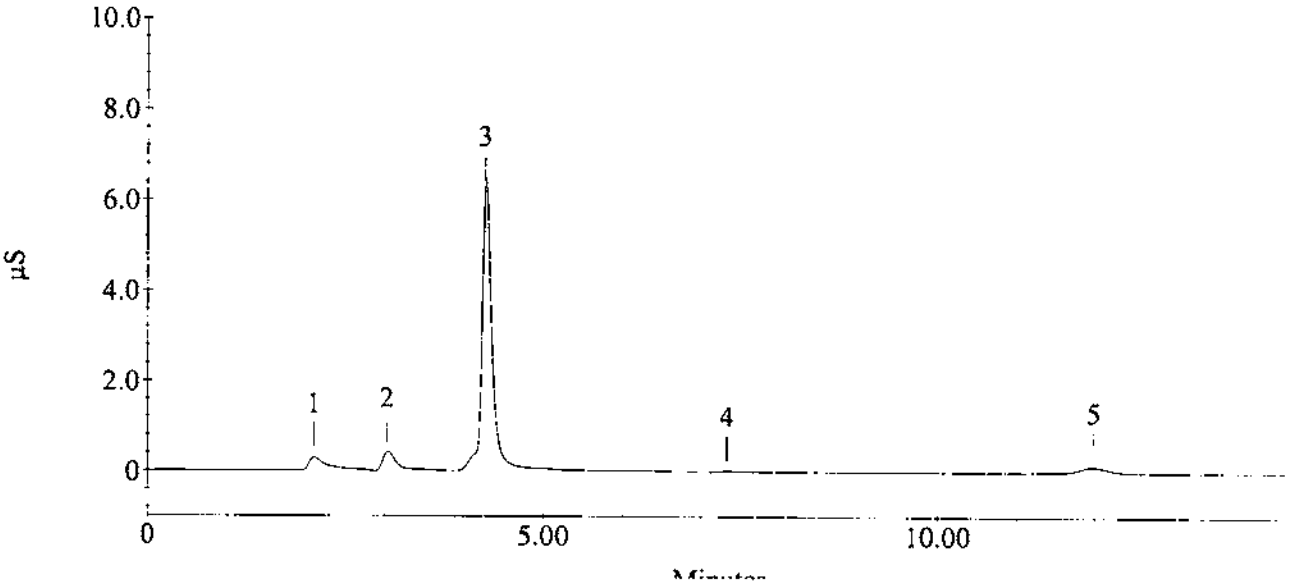
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_041.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2927	52175	1	
2	3.03	FLUORIDE	0.753	4191	54585	1	1.11
3	4.27	CHLORIDE	7.803	61598	555860	1	1.59
4	7.33	NITRATE-N	0.473	184	3344	1	4.31
5	11.98	SULFATE	0.770	1213	28580	1	-0.14
		---total(s)---					
			9.799	70113	694543		

UA17 A4 DUP 5X



Sample Name : UA17 A4 MS 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 4:03:46 AM

Injection Number : 42
Dilution Factor : 5.00
column :

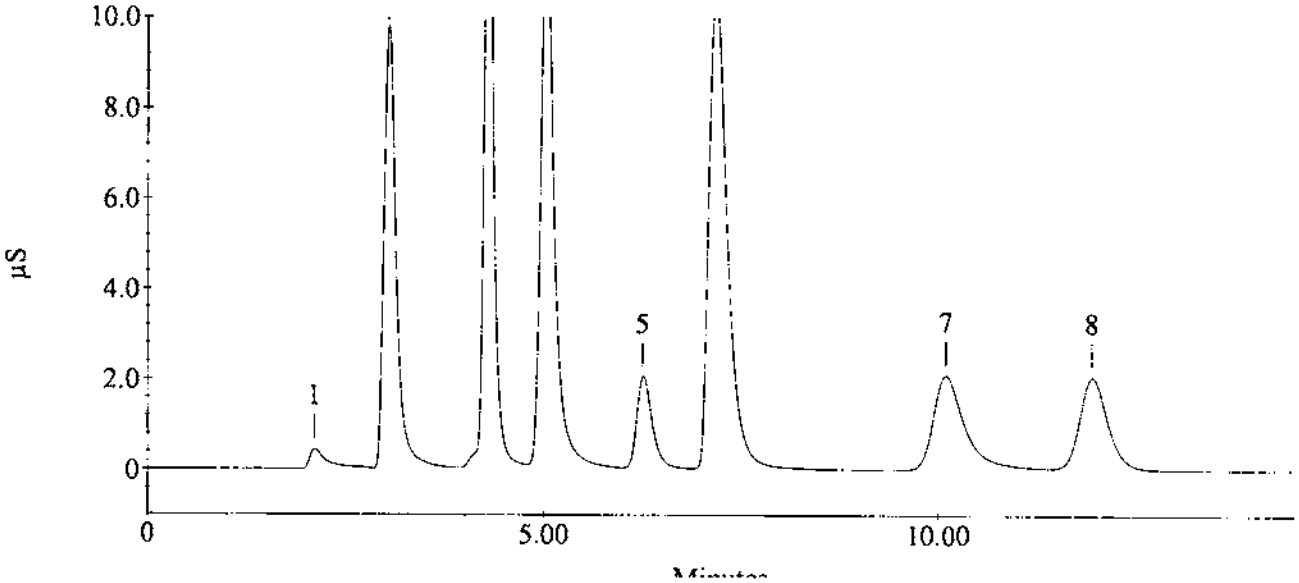
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_042.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4339	71539	2	
2	3.03	FLUORIDE	10.163	96681	1041731	2	1.11
3	4.28	CHLORIDE	17.940	159201	1297420	2	1.98
4	5.02	NITRITE-N	9.696	121469	1481056	2	0.94
5	6.25	BROMIDE	9.949	20068	276728	2	1.13
6	7.17	NITRATE-N	9.409	104522	1712381	1	1.94
7	10.10	PHOSPHATE-P	9.798	20675	573412	1	1.00
8	11.93	SULFATE	10.355	20069	489697	1	-0.56
		---total(s)---	77.311	547024	6943963		

UA17 A4 MS 5X



Sample Name : UA27 D8 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 4:20:33 AM

Injection Number : 43
Dilution Factor : 5.00
column :

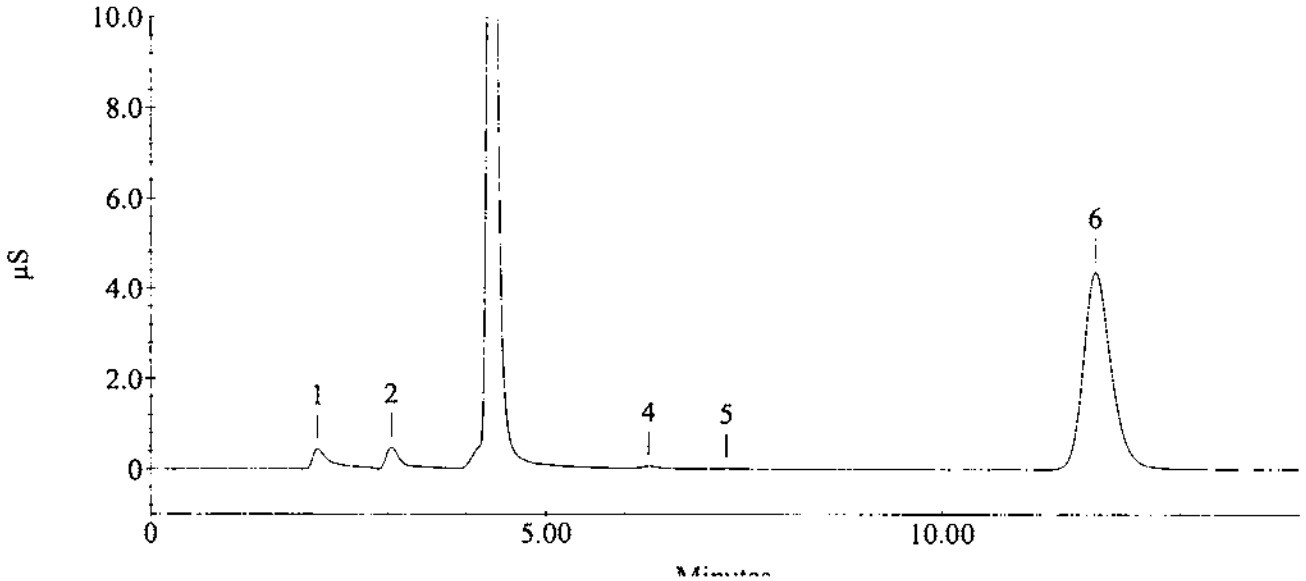
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_043.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4295	70350	1	
2	3.05	FLUORIDE	0.863	4711	66096	2	1.67
3	4.32	CHLORIDE	30.301	283264	2201702	2	2.78
4	6.30	BROMIDE	0.497	532	8088	2	1.94
5	7.28	NITRATE-N	0.467	152	2241	1	3.60
6	11.93	SULFATE	22.081	43504	1053775	1	-0.56
		---total(s)---	54.210	336458	3402251		

UA27 D8 5X



UA1 Current Date : 12/9/11

Sample Name : UA27 E8 50X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 4:37:20 AM

Injection Number : 44
Dilution Factor : 50.00
column :

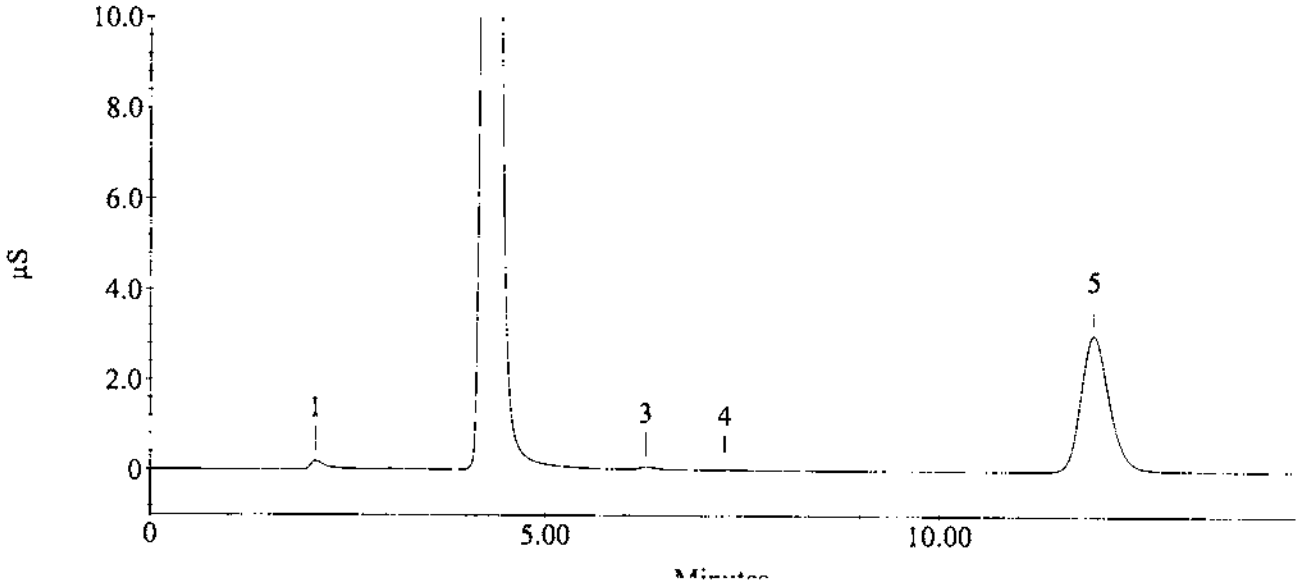
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_044.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1867	23534	1	
2	4.32	CHLORIDE	1174.475	869779	8576736	1	2.78
3	6.28	BROMIDE	4.880	588	7825	1	1.67
4	7.28	NITRATE-N	4.675	130	2337	1	3.60
5	11.93	SULFATE	154.995	30118	737165	1	-0.56
			---total(s)---				
			1339.025	902482	9347597		

UA27 E8 50X



UA17-000542

Sample Name : UA27 G8 2X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 4:54:07 AM

Injection Number : 45
Dilution Factor : 2.00
column :

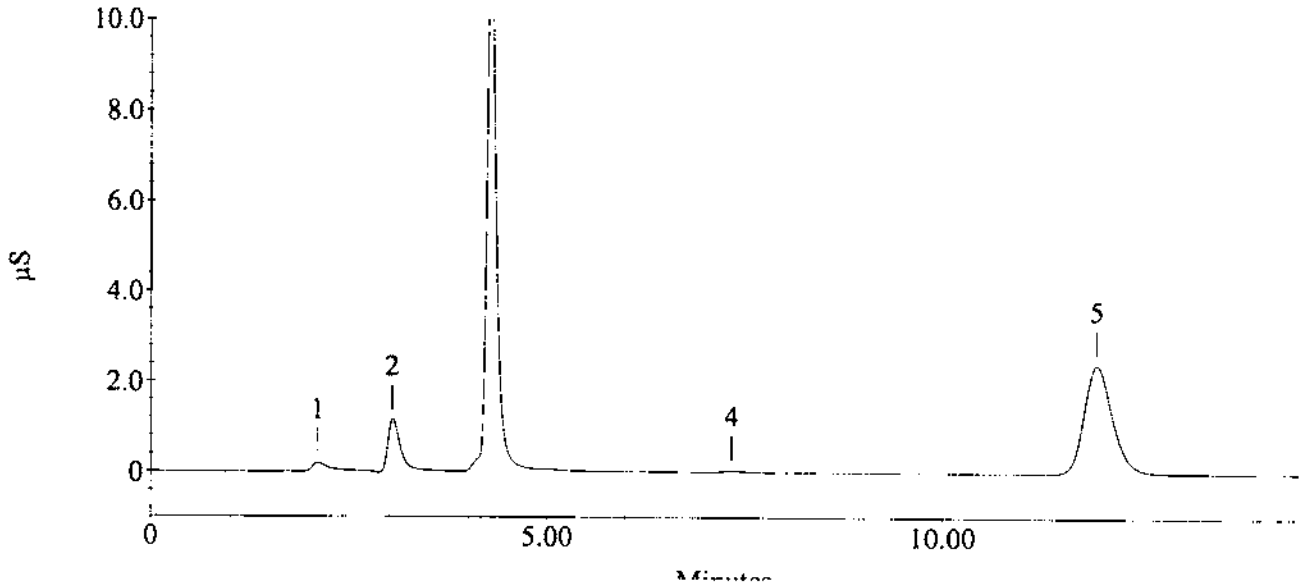
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_045.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1789	23485	1	
2	3.03	FLUORIDE	0.593	11533	131004	1	1.11
3	4.27	CHLORIDE	5.661	119463	1020349	1	1.59
4	7.33	NITRATE-N	0.194	341	5870	1	4.31
5	11.93	SULFATE	4.927	23903	584121	1	-0.56
		---total(s)---	11.375	157030	1764829		

UA27 G8 2X



Sample Name : UA31 A1 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 5:10:52 AM

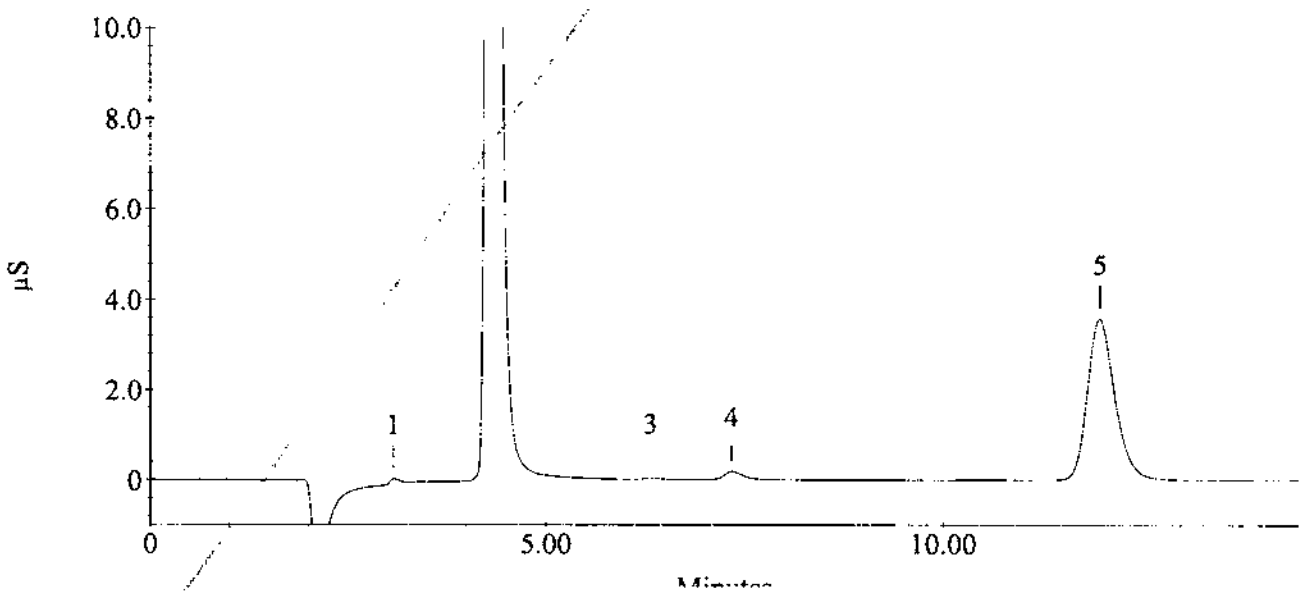
Injection Number : 46
Dilution Factor : 10.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_046.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	3.07	FLUORIDE	21.384	18345	1097207	2	2.22
2	4.35	CHLORIDE	209.464	675634	7646547	2	3.57
3	6.32	BROMIDE	3.321	1897	41145	2	2.21
4	7.33	NITRATE-N	1.198	1785	27485	1	4.31
5	11.98	SULFATE	35.752	35660	851481	1	-0.14
		---total(s)---	271.118	733321	9663864		



UA17-003044

Sample Name : UA31 A1 DUP 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 5:27:36 AM

Injection Number : 47
Dilution Factor : 10.00
column :

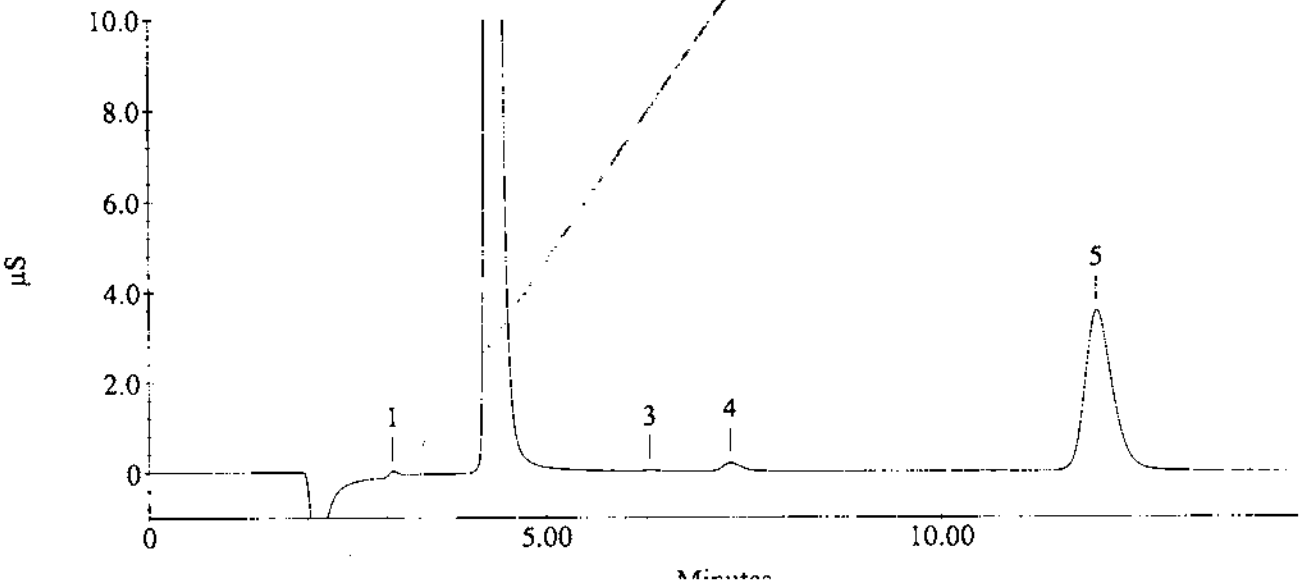
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_047.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	3.07	FLUORIDE	21.330	18250	1094425	2	2.22
2	4.35	CHLORIDE	207.622	679016	7579190	2	3.57
3	6.32	BROMIDE	3.090	1776	37874	2	2.21
4	7.33	NITRATE-N	1.203	1821	27945	1	4.31
5	11.97	SULFATE	35.538	35425	846340	1	-0.28
		---total(s)---	268.784	736287	9585774		

UA31 A1 DUP 10X



UA17-00345

Sample Name : UA31 A1 MS 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 5:44:19 AM

Injection Number : 48
Dilution Factor : 10.00
column :

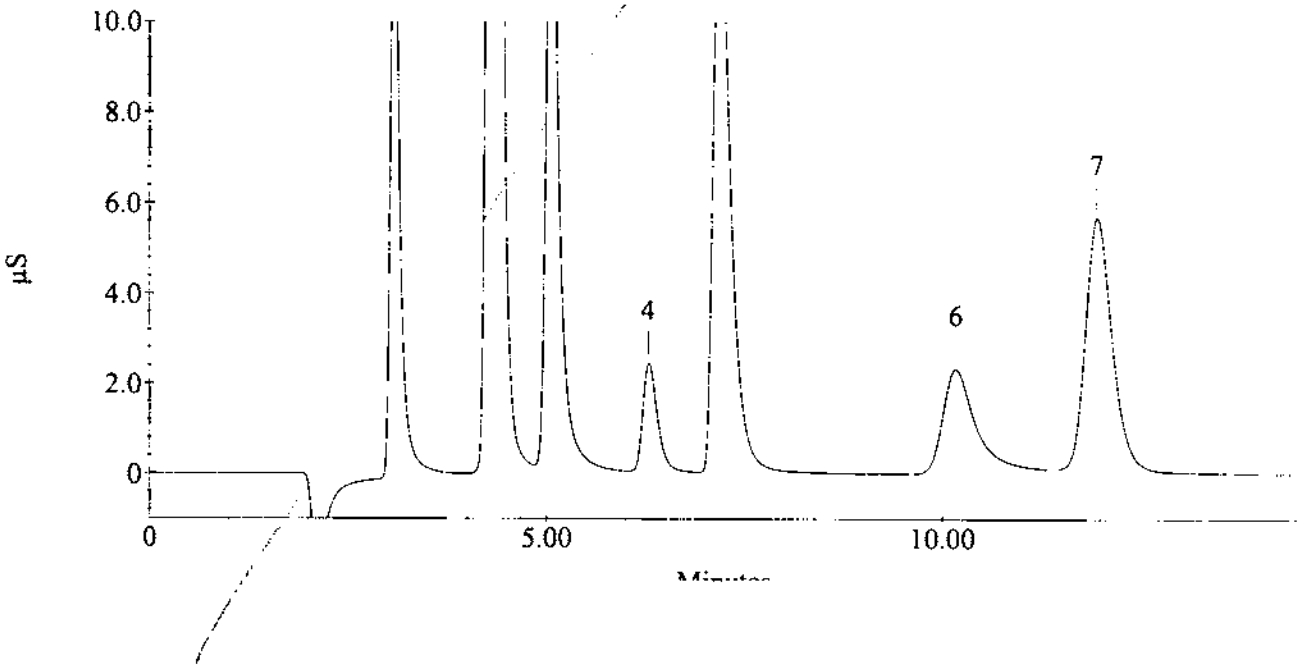
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_048.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	3.07	FLUORIDE	52.110	154122	2708947	2	2.22
2	4.35	CHLORIDE	189.486	720083	6915839	2	3.57
3	5.05	NITRITE-N	27.839	154300	2145410	2	1.61
4	6.28	BROMIDE	29.437	26680	412282	2	1.67
5	7.18	NITRATE-N	21.572	126179	1975614	1	2.18
6	10.17	PHOSPHATE-P	22.219	22841	652482	1	1.67
7	11.95	SULFATE	54.933	55692	1312861	1	-0.42
		---total(s)---	397.596	1259897	16123435		

UA31 A1 MS 10X



UA17 00546

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 6:01:05 AM

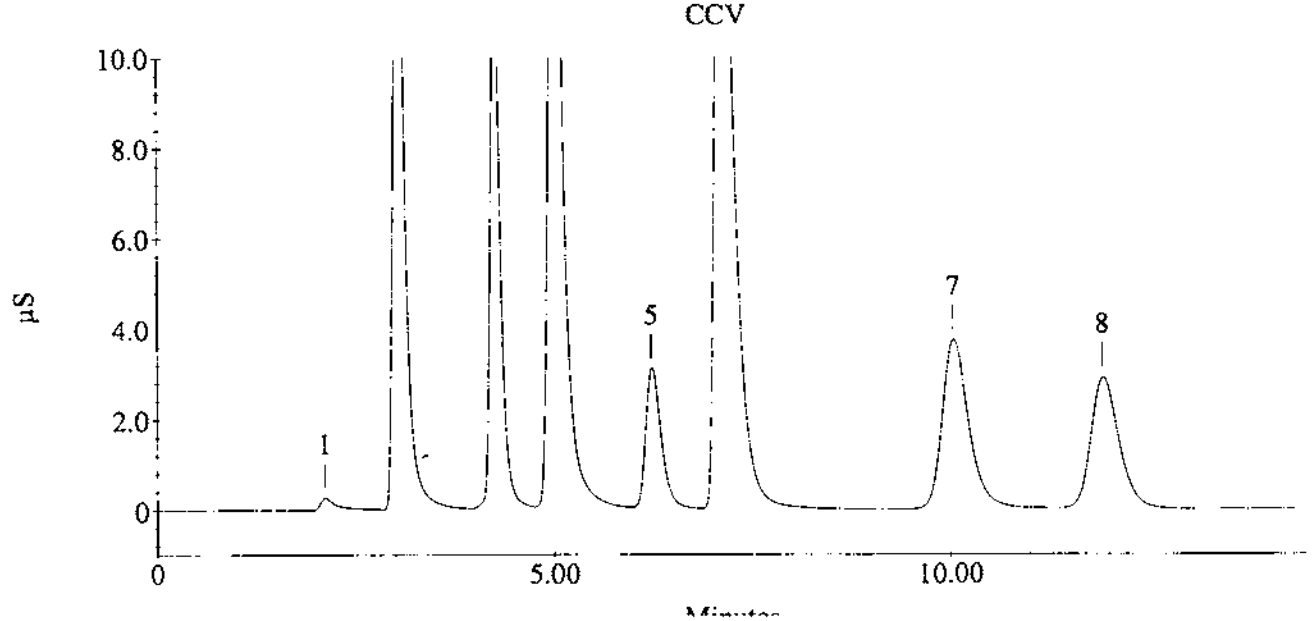
Injection Number : 49
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_049.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2692	42188	2	
2	3.03	FLUORIDE	3.016	153984	1557744	2	1.11
3	4.25	CHLORIDE	3.022	122787	1090385	2	1.19
4	5.02	NITRITE-N	2.960	186837	2284222	2	0.94
5	6.23	BROMIDE	3.026	30891	423958	2	0.86
6	7.13	NITRATE-N	2.916	165914	2700867	1	1.47
7	10.03	PHOSPHATE-P	2.940	37235	868941	1	0.33
8	11.92	SULFATE	2.970	28831	705963	1	-0.69
		---total(s)---	20.850	729171	9674269		



UA17-0834

Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 6:17:52 AM

Injection Number : 50
Dilution Factor : 1.00
column :

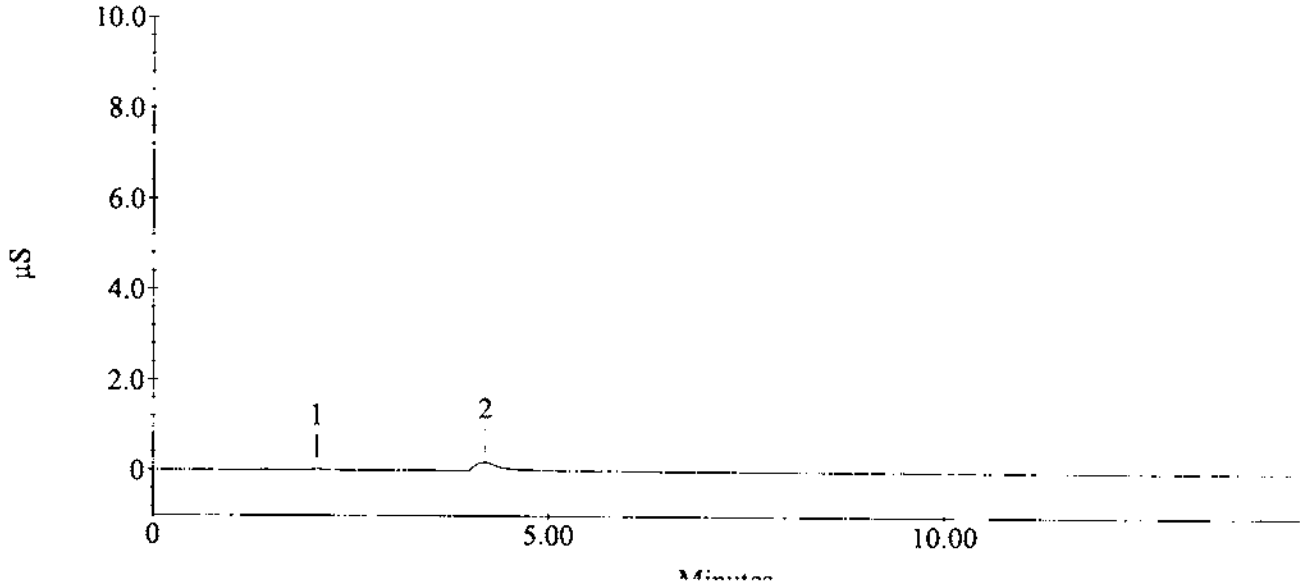
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_050.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.07	Unknown 1	0.000	290	2429	1	
2	4.20	CHLORIDE	0.143	1807	37330	1	0.00
		---total(s)---	0.143	2097	39759		

CCB



UA1 : 08548

Sample Name : UA31 A1 50X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 6:34:38 AM

Injection Number : 51
Dilution Factor : 50.00
column :

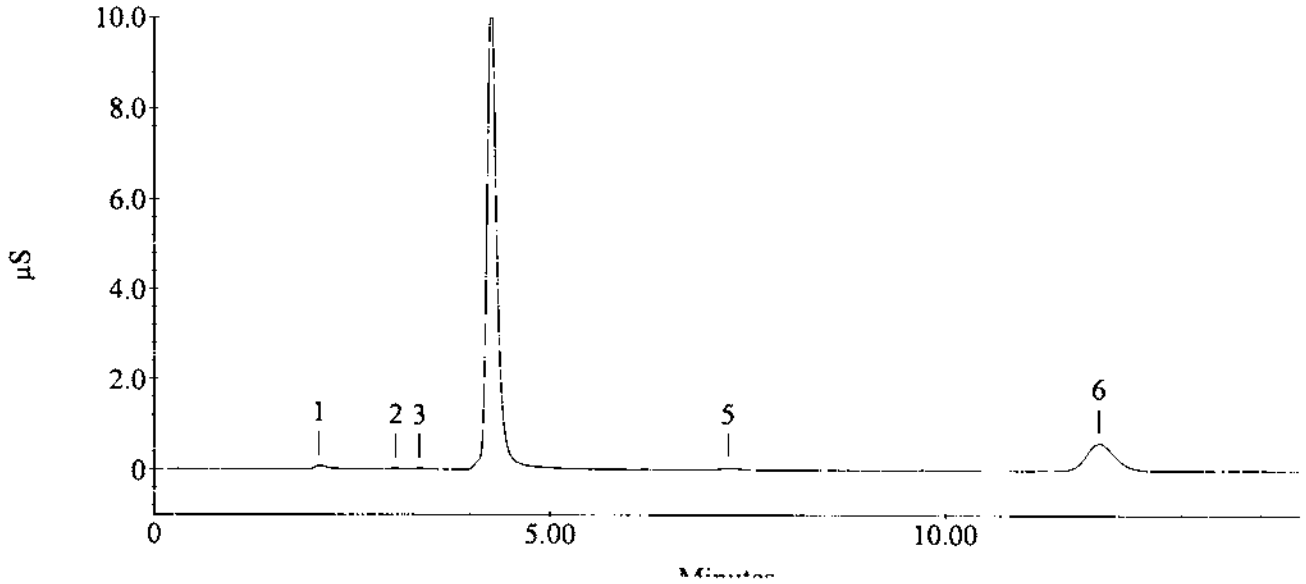
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_051.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	753	9062	1	
2	3.05	FLUORIDE	2.520	182	1974	2	1.67
3	3.35	Unknown 2	0.000	194	2791	2	
4	4.25	CHLORIDE	125.416	102467	902528	1	1.19
5	7.27	NITRATE-N	4.850	360	5693	1	3.37
6	11.97	SULFATE	32.504	5984	147899	1	-0.28
		---total(s)---	165.290	109941	1069947		

UA31 A1 50X



Sample Name : UA31 A1 DUP 50X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 6:51:24 AM

Injection Number : 52
Dilution Factor : 50.00
column :

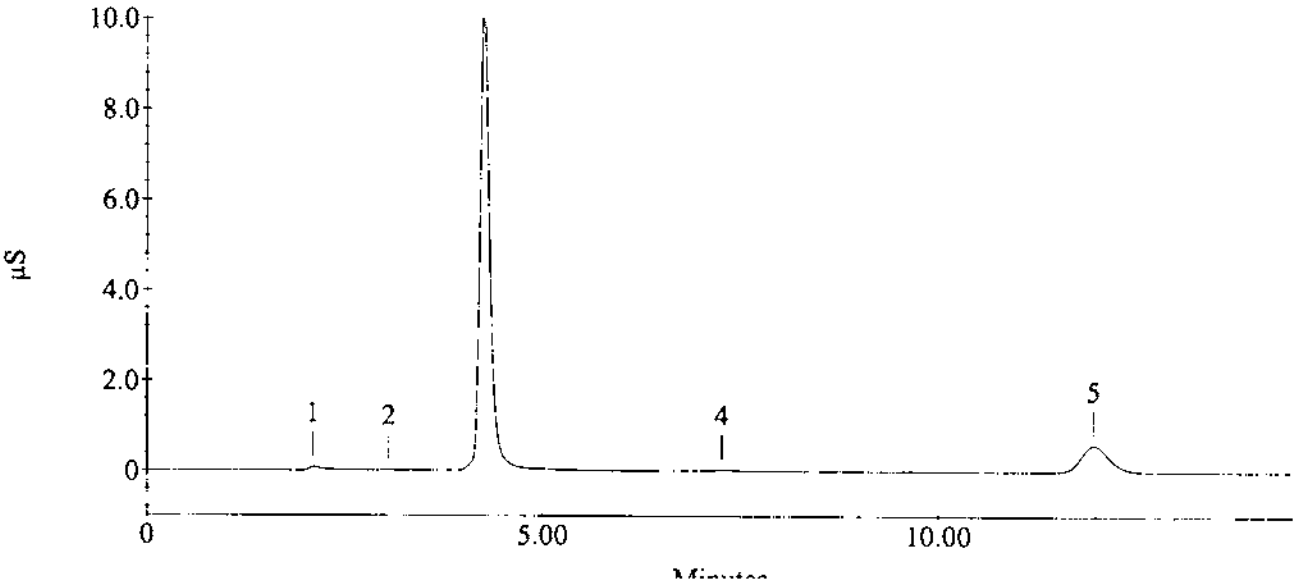
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_052.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	739	9212	1	
2	3.05	FLUORIDE	2.454	152	1290	1	1.67
3	4.25	CHLORIDE	123.462	101741	888235	1	1.19
4	7.27	NITRATE-N	4.783	286	4398	1	3.37
5	11.97	SULFATE	31.445	5831	142804	1	-0.28
		---total(s)---	162.145	108748	1045940		

UA31 A1 DUP 50X



Sample Name : UA31 A1 MS 50X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 7:08:15 AM

Injection Number : 53
Dilution Factor : 50.00
column :

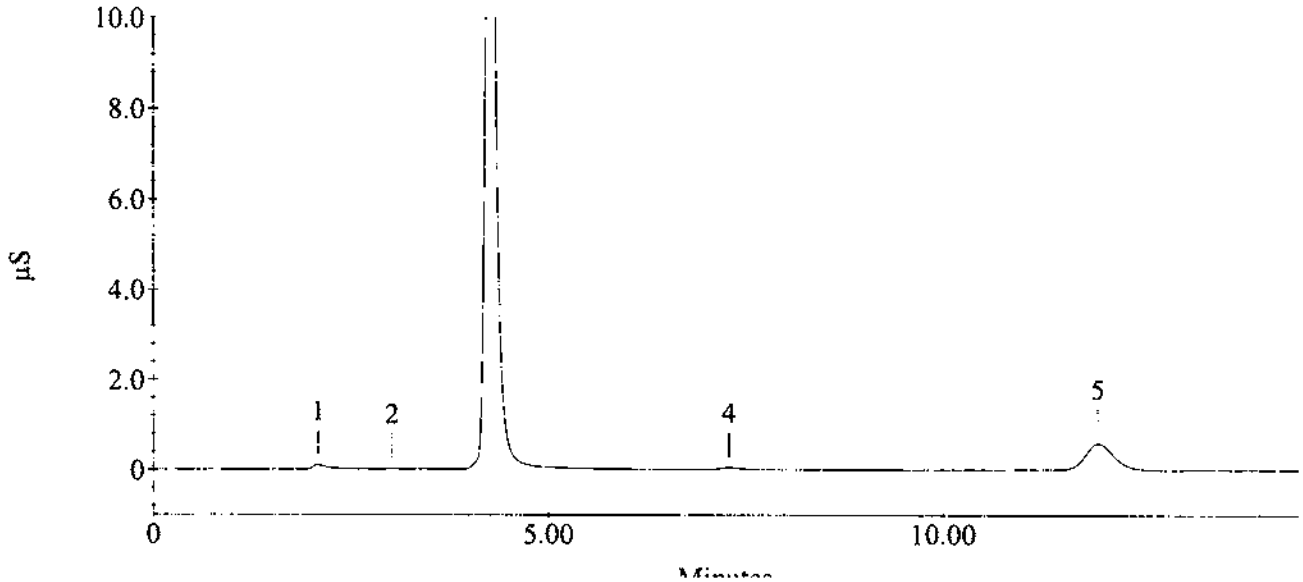
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_053.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	890	10812	1	
2	3.03	FLUORIDE	2.489	164	1656	1	1.11
3	4.27	CHLORIDE	231.619	197372	1679435	1	1.59
4	7.30	NITRATE-N	4.939	459	7387	1	3.84
5	11.97	SULFATE	31.340	5773	142296	1	-0.28
		---total(s)---	270.387	204658	1841587		

UA31 A1 MS 50X



Sample Name : UA31 B1 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 7:25:01 AM

Injection Number : 54
Dilution Factor : 10.00
column :

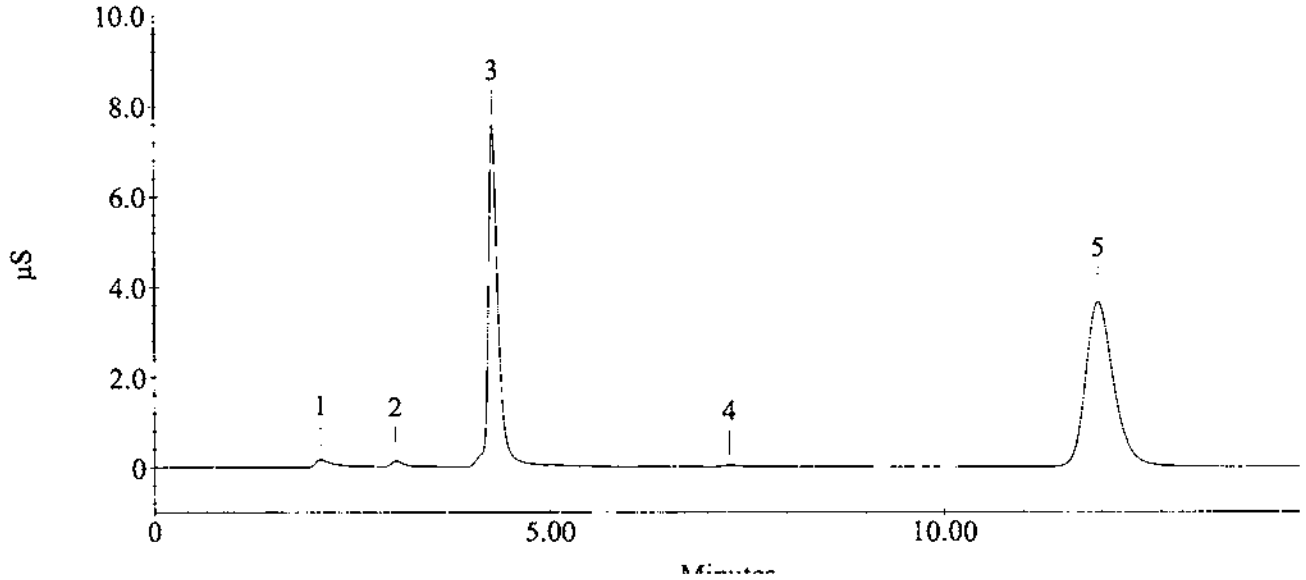
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_054.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1591	21104	1	
2	3.03	FLUORIDE	0.676	1143	11026	1	1.11
3	4.27	CHLORIDE	18.143	75607	648679	1	1.59
4	7.28	NITRATE-N	0.968	351	5485	1	3.60
5	11.95	SULFATE	37.202	36405	886361	1	-0.42
		---total(s)---	56.989	115097	1572655		

UA31 B1 10X



UA1 P 00532

Sample Name : UA31 C1 2X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 7:41:47 AM

Injection Number : 55
Dilution Factor : 2.00
column :

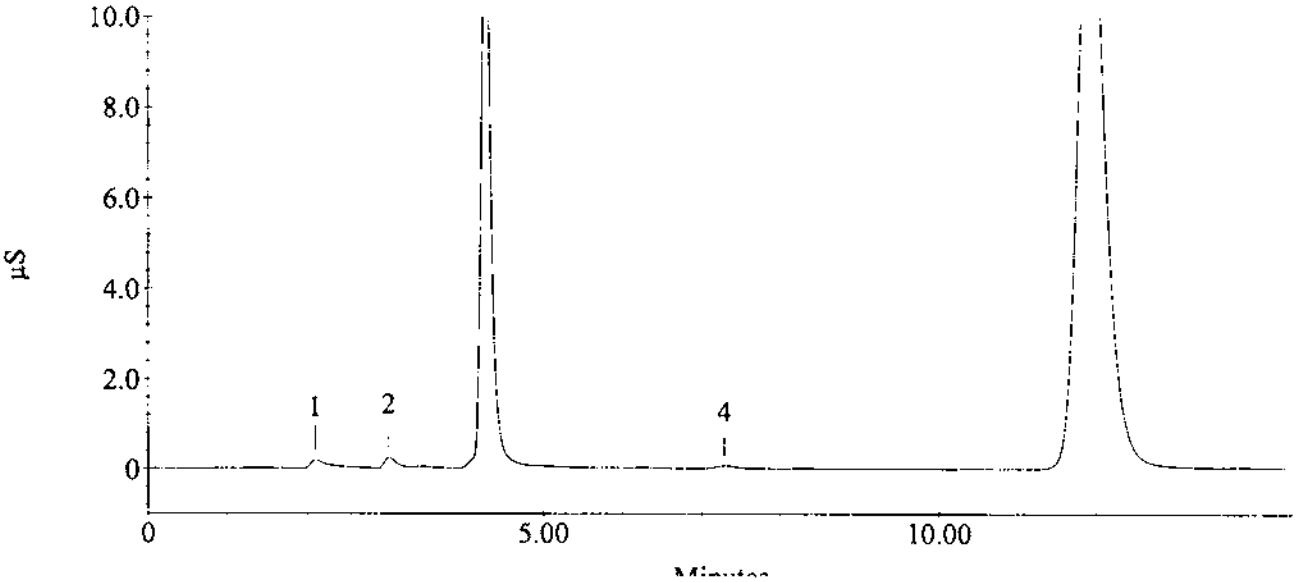
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_055.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1781	32692	1	
2	3.03	FLUORIDE	0.180	2238	22641	1	1.11
3	4.27	CHLORIDE	6.214	132598	1121472	1	1.59
4	7.28	NITRATE-N	0.204	604	10348	1	3.60
5	11.90	SULFATE	27.367	136879	3282857	1	-0.83
		---total(s)---	33.964	274100	4470010		

UA31 C1 2X



UA17 00353

Sample Name : UA31 Cl 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 7:58:33 AM

Injection Number : 56
Dilution Factor : 10.00
column :

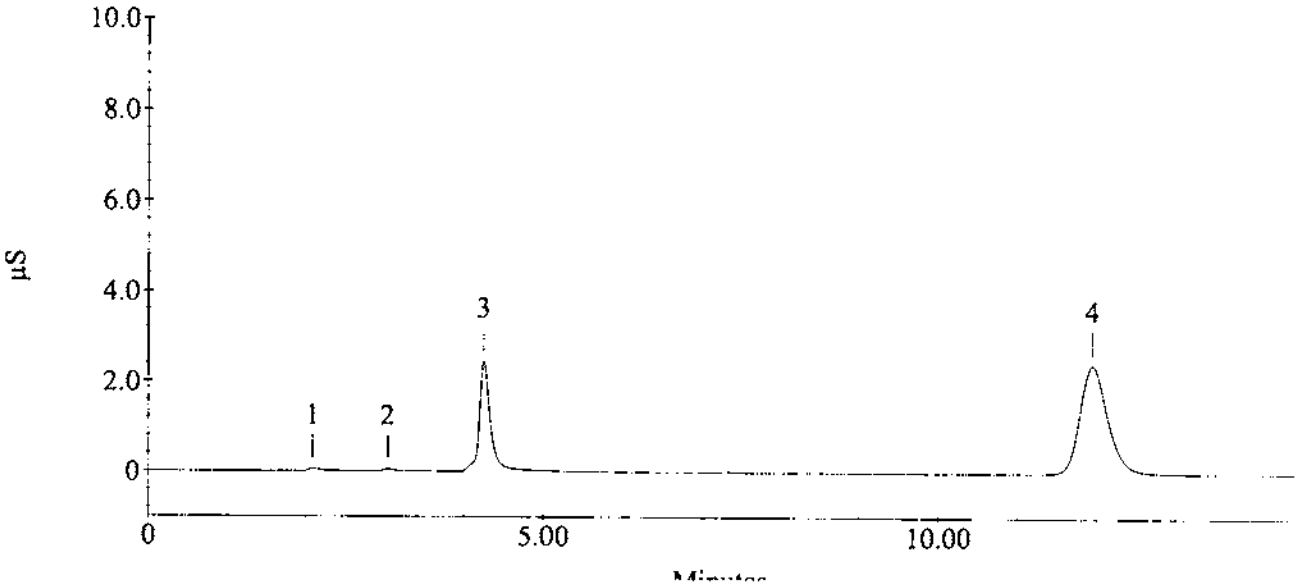
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_056.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	510	4422	1	
2	3.03	FLUORIDE	0.546	446	4202	1	1.11
3	4.25	CHLORIDE	6.885	24225	236906	1	1.19
4	11.95	SULFATE	24.805	23901	588177	1	-0.42
		---total(s)---	32.237	49081	833707		

UA31 Cl 10X



Sample Name : UA31 D1 2X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 8:15:19 AM

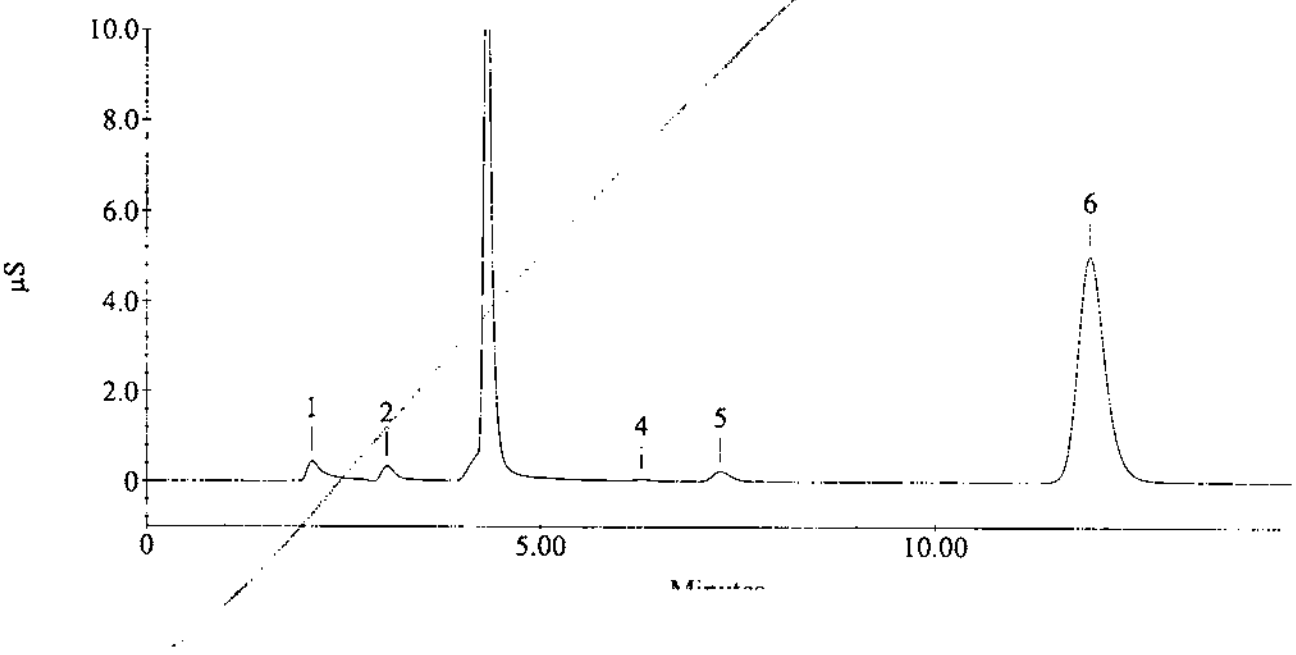
Injection Number : 57
Dilution Factor : 2.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_057.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4401	73612	1	
2	3.05	FLUORIDE	0.258	3326	43310	1	1.67
3	4.32	CHLORIDE	5.592	126367	1007831	1	2.78
4	6.28	BROMIDE	0.152	326	4737	1	1.67
5	7.28	NITRATE-N	0.254	2206	34201	1	3.60
6	11.95	SULFATE	10.161	50168	1213585	1	-0.42
		---total(s)---		186794	2377277		



UA17-00959

Sample Name : UA31 D1 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 8:32:06 AM

Injection Number : 58
Dilution Factor : 5.00
column :

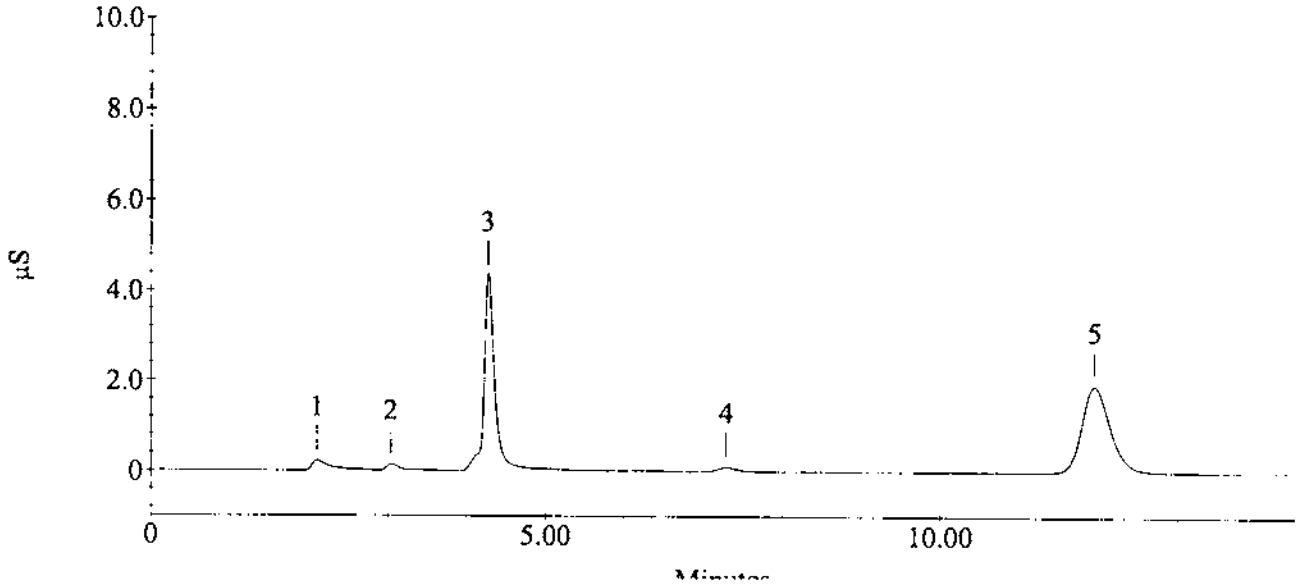
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_058.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2230	37788	1	
2	3.03	FLUORIDE	0.359	1311	13199	1	1.11
3	4.27	CHLORIDE	5.619	43110	396124	1	1.59
4	7.28	NITRATE-N	0.532	925	14644	1	3.60
5	11.95	SULFATE	9.863	19015	465993	1	-0.42
		---total(s)---	16.373	66590	927747		

UA31 D1 5X



Sample Name : UA42 A1 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 8:48:52 AM

Injection Number : 59
Dilution Factor : 5.00
column :

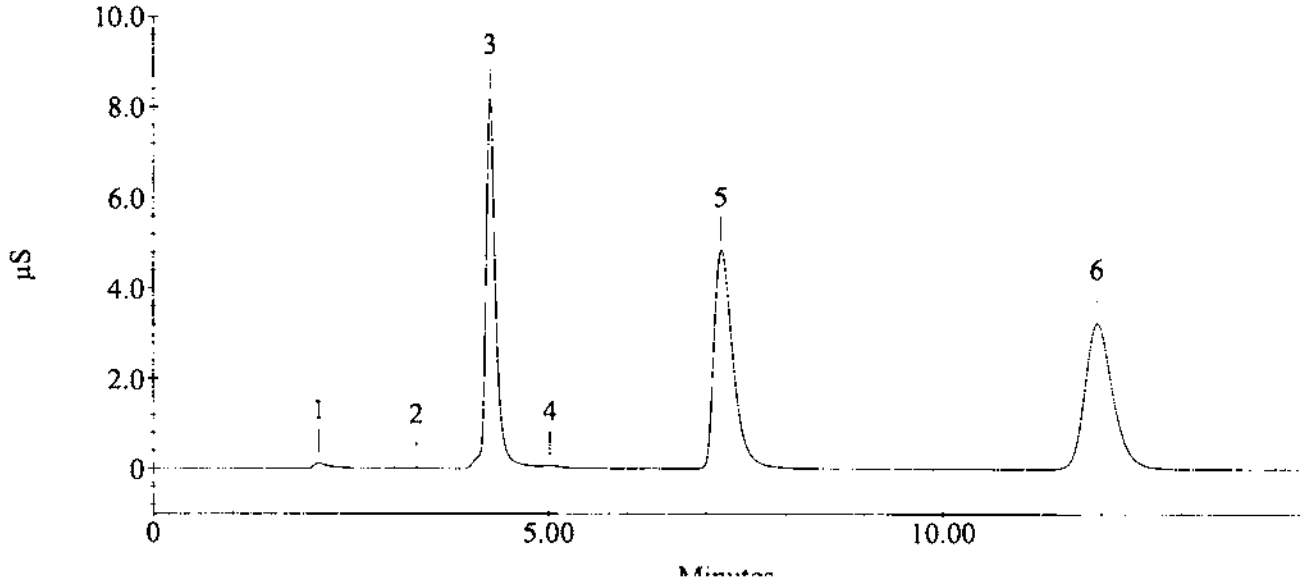
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_059.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1171	15276	1	
2	3.33	Unknown 2	0.000	174	4846	1	
3	4.27	CHLORIDE	9.925	81754	711114	3	1.59
4	5.02	NITRITE-N	0.330	525	7712	4	0.94
5	7.18	NITRATE-N	4.598	48192	792275	1	2.18
6	11.93	SULFATE	16.676	32366	793752	1	-0.56
		---total(s)---	31.529	164181	2324976		

UA42 A1 5X



Sample Name : UA42 B1 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 9:05:44 AM

Injection Number : 60
Dilution Factor : 5.00
column :

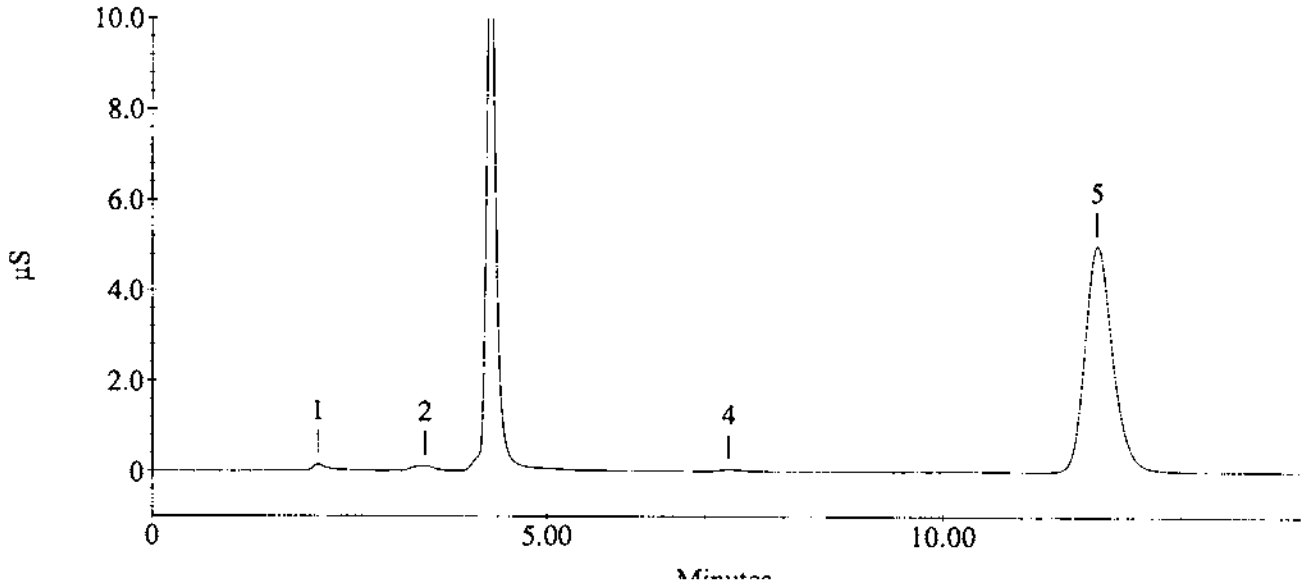
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_060.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1310	15374	1	
2	3.47	Unknown 2	0.000	1081	22595	1	
3	4.27	CHLORIDE	14.431	119501	1040722	1	1.59
4	7.30	NITRATE-N	0.494	394	7315	1	3.84
5	11.93	~~SULFATE~~	~~25.376~~	49864	1212311	1	-0.56
		---total(s)---	40.301	172150	2298316		

UA42 B1 5X



UA1 ? 00598

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 9:22:30 AM

Injection Number : 61
Dilution Factor : 1.00
column :

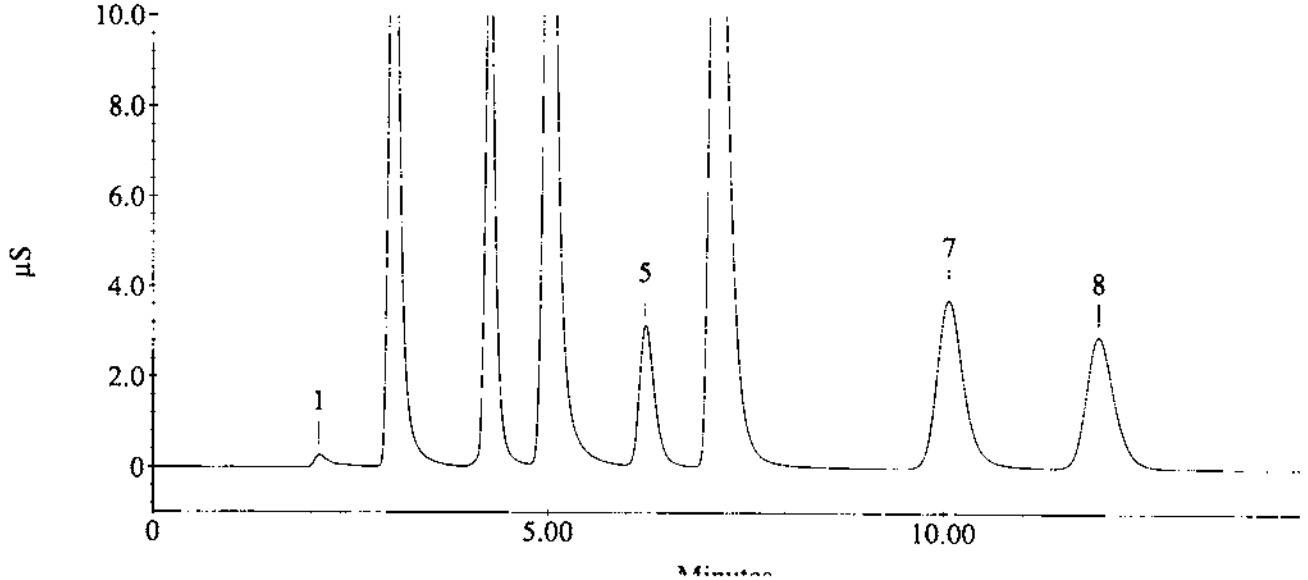
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_061.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2672	39999	2	
2	3.03	FLUORIDE	3.009	151555	1553842	2	1.11
3	4.25	CHLORIDE	3.028	121705	1092461	2	1.19
4	5.02	NITRITE-N	2.967	187204	2289325	2	0.94
5	6.23	BROMIDE	3.034	31068	425143	2	0.86
6	7.13	NITRATE-N	2.926	166505	2711214	1	1.47
7	10.07	PHOSPHATE-P	2.965	37043	876502	1	0.67
8	11.95	SULFATE	2.971	28924	706255	1	-0.42
		---total(s)---	20.901	726676	9694741		

CCV



Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 9:39:17 AM

Injection Number : 62
Dilution Factor : 1.00
column :

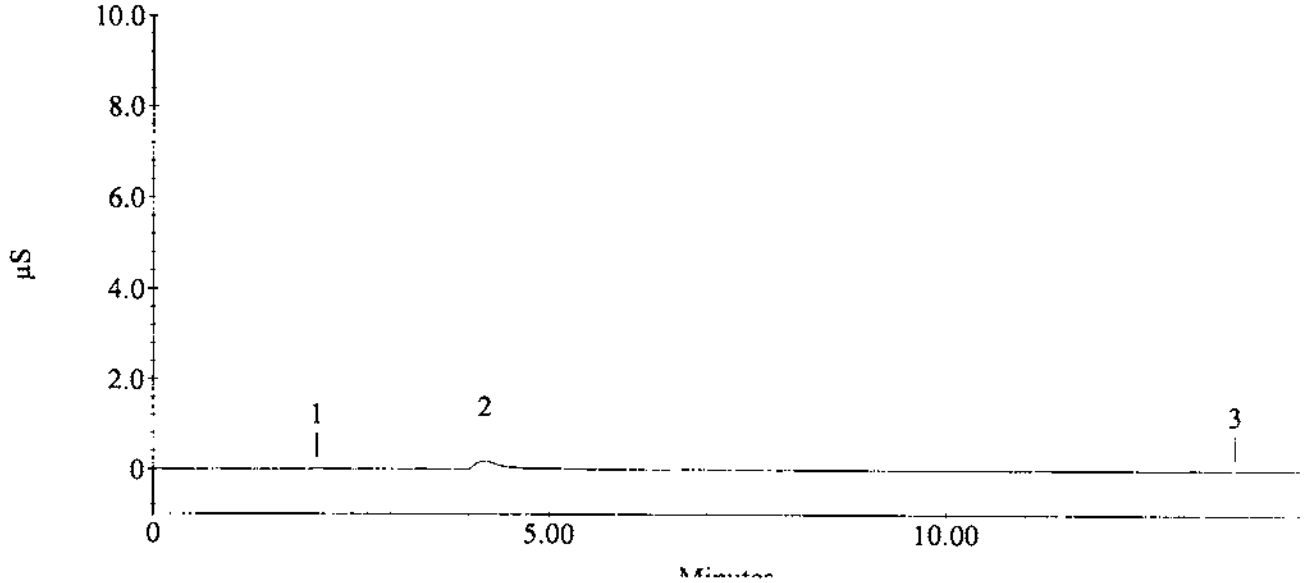
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_062.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.07	Unknown 1	0.000	255	2076	1	
2	4.20	CHLORIDE	0.144	1800	37714	1	0.00
3	13.65	Unknown 2	0.000	101	1587	1	
		---total(s)---	0.144	2157	41377		

CCB



Sample Name : UA42 B1 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 9:56:03 AM

Injection Number : 63
Dilution Factor : 10.00
column :

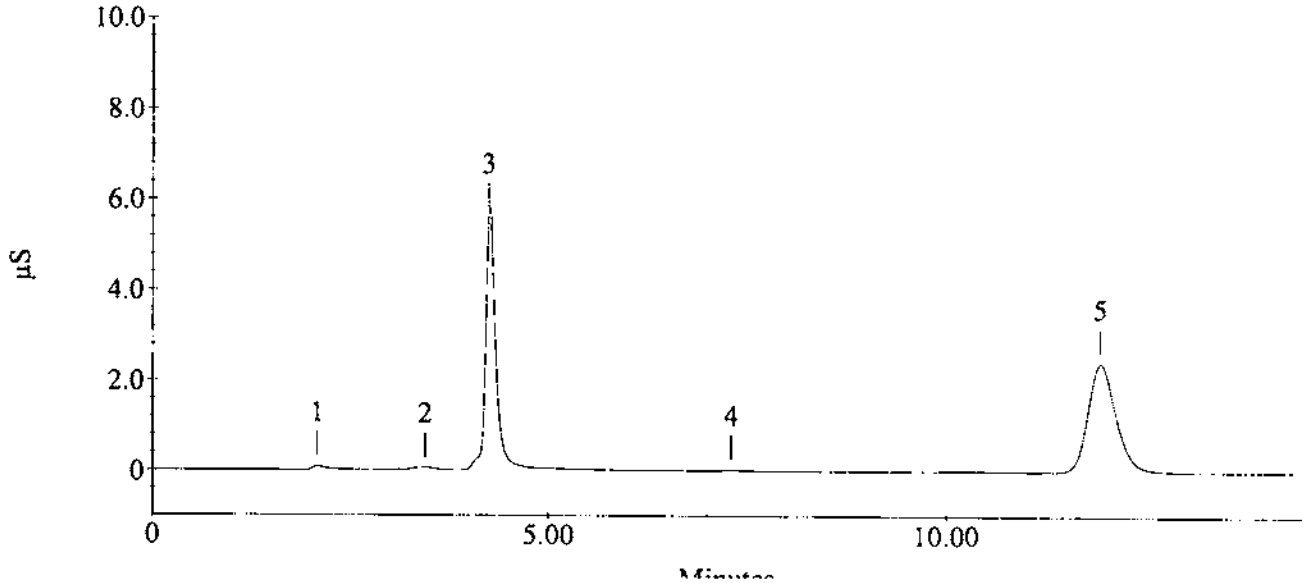
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_063.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	832	11119	1	
2	3.45	Unknown 2	0.000	570	12028	1	
3	4.25	CHLORIDE	14.298	55547	508042	1	1.19
4	7.30	NITRATE-N	0.949	221	3680	1	3.84
5	11.95	SULFATE	24.823	24019	588601	1	-0.42
		---total(s)---	40.070	81188	1123469		

UA42 B1 10X



UA1 P 00581

Sample Name : UA42 C1 2X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 10:12:49 AM

Injection Number : 64
Dilution Factor : 2.00
column :

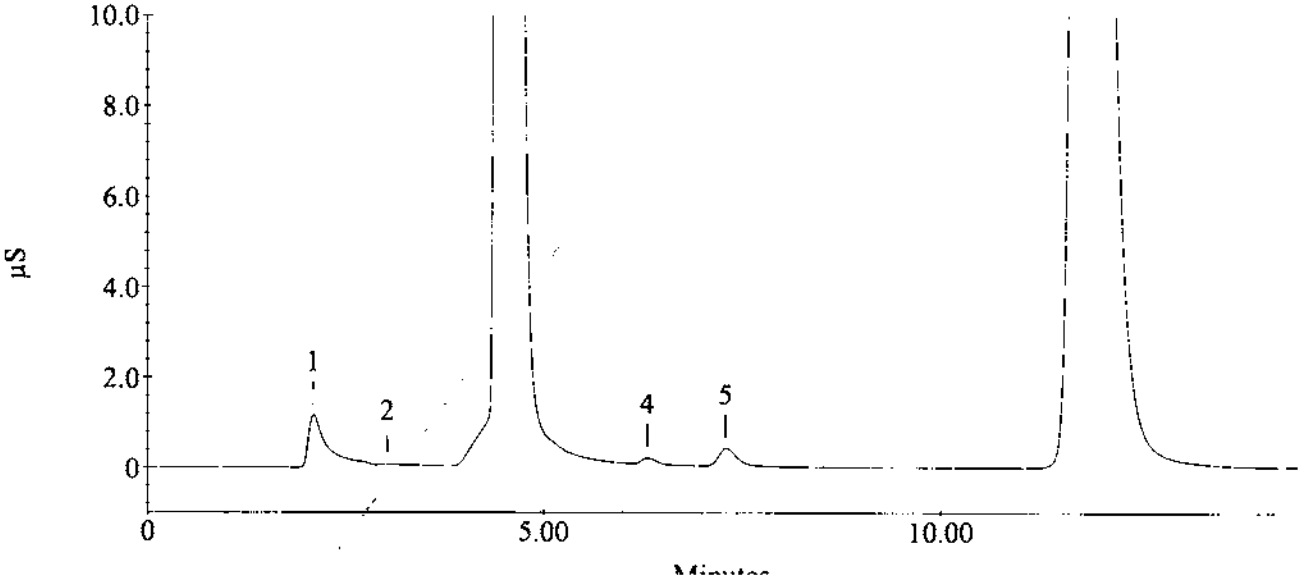
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_064.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	11475	196632	3	
2	3.03	FLUORIDE	0.098	71	1352	4	1.11
3	4.60	Unknown 2	0.000	2287079	27890761	2	
4	6.32	BROMIDE	0.426	1632	24252	2	2.21
5	7.30	NITRATE-N	0.311	3876	61444	1	3.84
6	11.83	SULFATE	115.303	566031	13858758	1	-1.39
		---total(s)---	116.139	2870165	42033198		

UA42 C1 2X



UA17 00832

Sample Name : UA42 C1 50X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 10:29:37 AM

Injection Number : 65
Dilution Factor : 50.00
column :

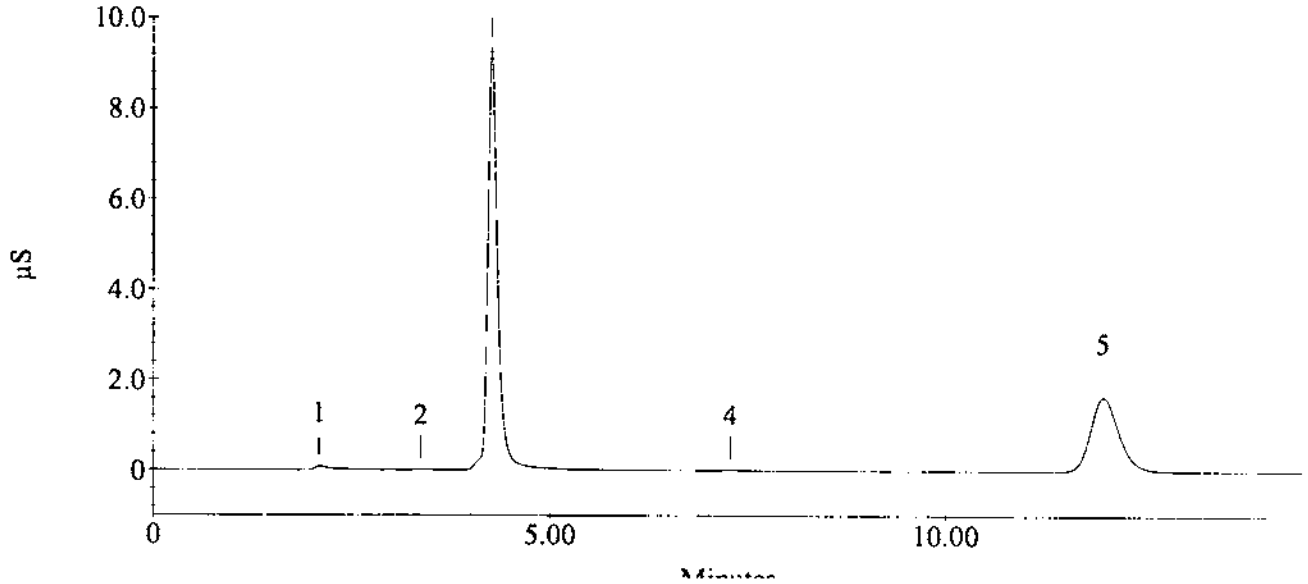
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_065.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	755	8999	1	
2	3.37	Unknown 2	0.000	127	1943	1	
3	4.27	CHLORIDE	111.857	93119	803341	1	1.59
4	7.27	NITRATE-N	4.683	196	2488	1	3.37
5	11.97	SULFATE	85.922	16353	404873	1	-0.28
		---total(s)---	202.462	110551	1221644		

UA42 C1 50X



Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 10:46:22 AM

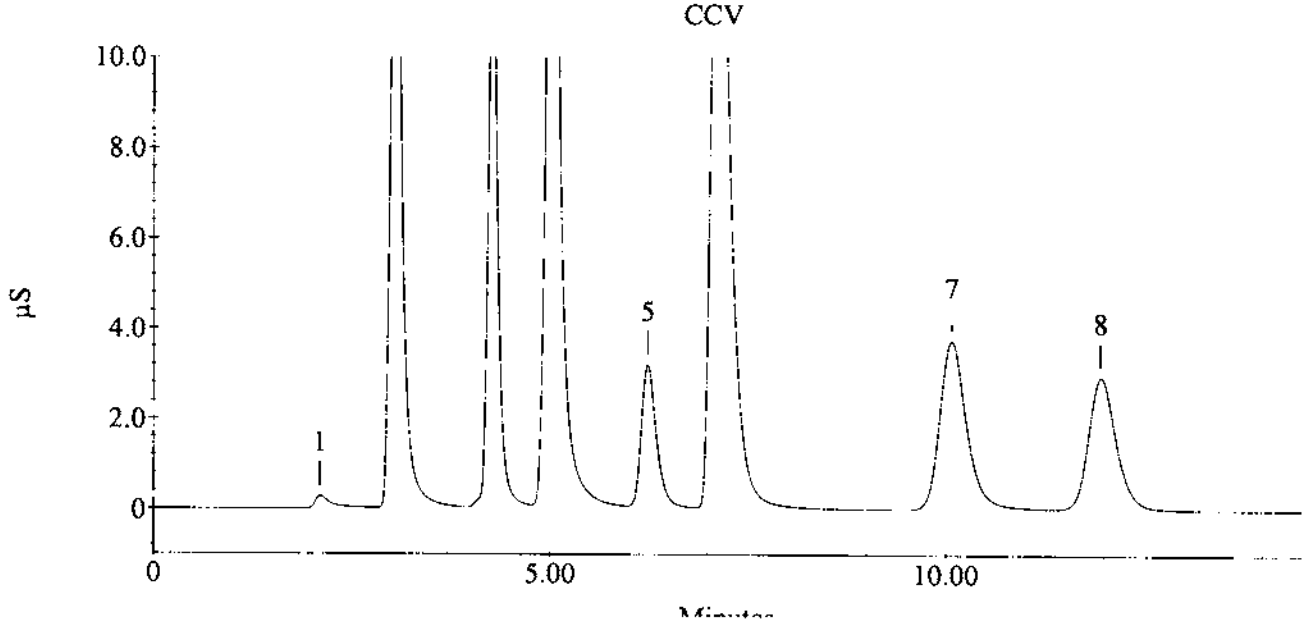
Injection Number : 66
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_066.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2719	40822	2	
2	3.03	FLUORIDE	3.012	149967	1555587	2	1.11
3	4.27	CHLORIDE	3.065	129157	1106192	2	1.59
4	5.02	NITRITE-N	2.967	189398	2289764	2	0.94
5	6.23	BROMIDE	3.025	31454	423822	2	0.86
6	7.12	NITRATE-N	2.924	167505	2708969	1	1.23
7	10.07	PHOSPHATE-P	2.955	37044	873447	1	0.67
8	11.95	SULFATE	3.004	29012	714124	1	-0.42
		---total(s)---					
			20.953	736255	9712728		



Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 11:03:13 AM

Injection Number : 67
Dilution Factor : 1.00
column :

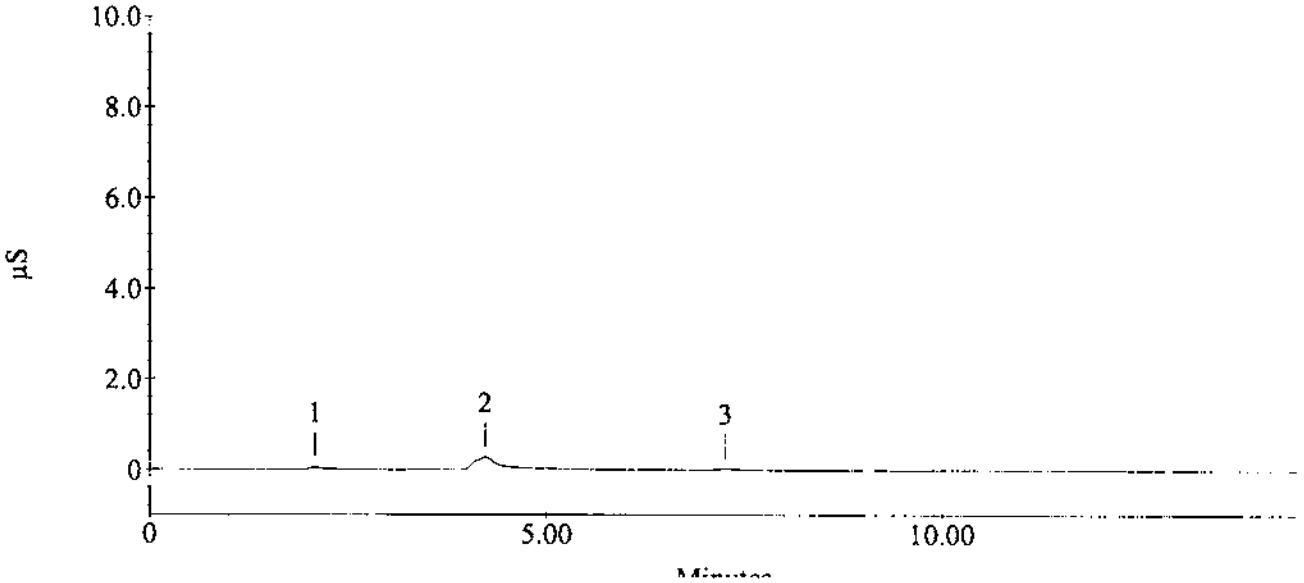
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_067.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	430	3795	I	
2	4.23	CHLORIDE	0.178	2633	50168	I	0.79
3	7.27	NITRATE-N	0.095	247	3739	I	3.37
		---total(s)---	0.273	3310	57702		

CCB



Sample Name : UA44 D1 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 11:19:59 AM

Injection Number : 68
Dilution Factor : 10.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_068.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

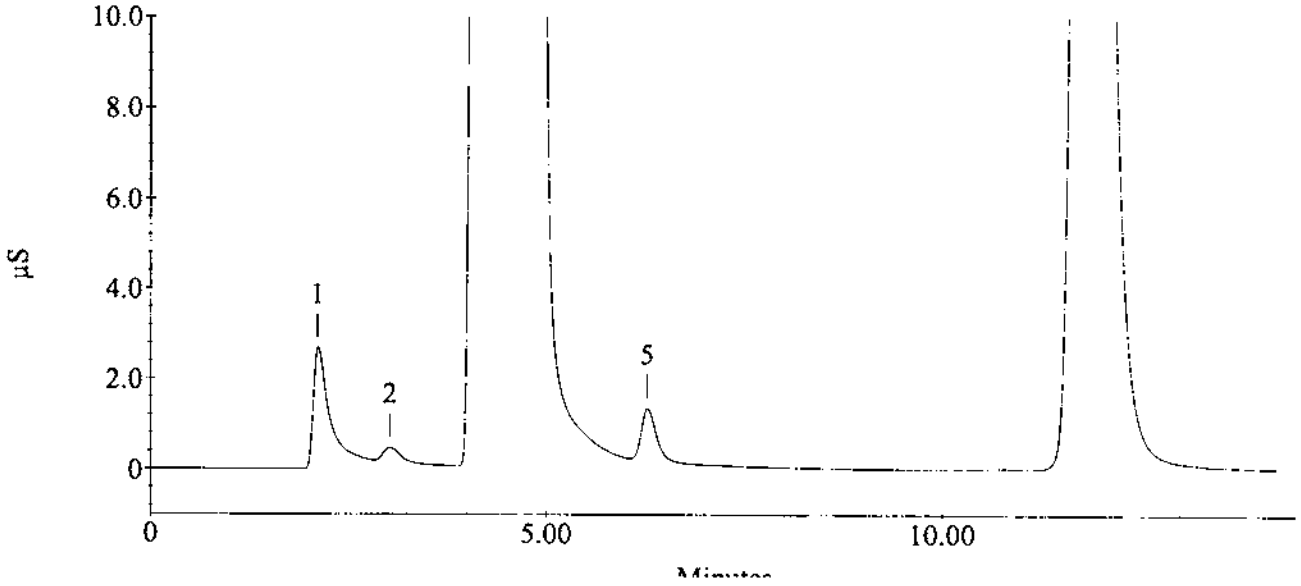
Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	26636	436702	3	
2	3.02	FLUORIDE	1.729	3584	66254	4	0.56
3	4.38	CHLORIDE	2181.073	4526903	79761359	2	4.37
4	4.78	NITRITE-N	1189.612	4841728	93520145	2	-3.76
5	6.27	BROMIDE	9.723	11238	132123	1	1.40
6	11.80	SULFATE	561.939	545419	13508128	1	-1.67

NO_3 < 1.0 ok

---total(s)---		
3944.077	9955508	187424711

UA44 D1 10X



Sample Name : UA44 E1 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 11:36:46 AM

Injection Number : 69
Dilution Factor : 5.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_069.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

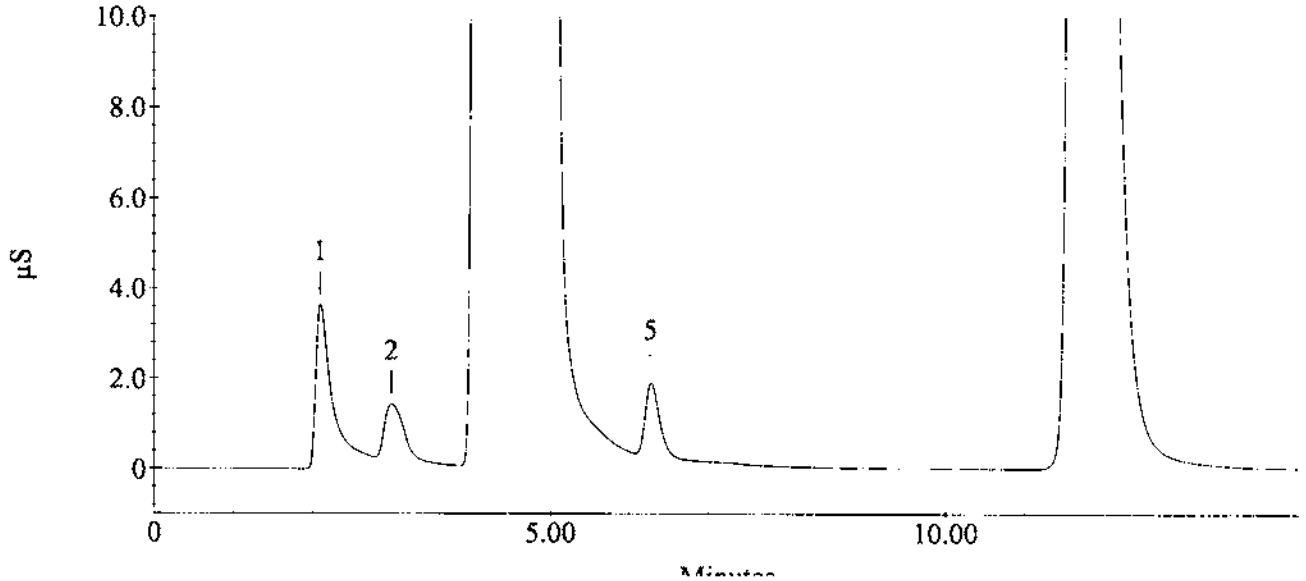
Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	36159	549796	2	
2	3.00	FLUORIDE	2.771	13845	266281	2	0.00
3	4.45	Unknown 2	0.000	5681939	120965078	2	
4	4.88	NITRITE-N	750.982	5547605	118086922	2	-1.74
5	6.27	BROMIDE	6.715	15639	184814	1	1.40
6	11.75	SULFATE	416.593	774014	20032532	1	-2.08

0.5 ppm

---total(s)---			
1177.061	12069200	260085424	

UA44 E1 5X



Sample Name : TY45 B17
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 11:53:35 AM

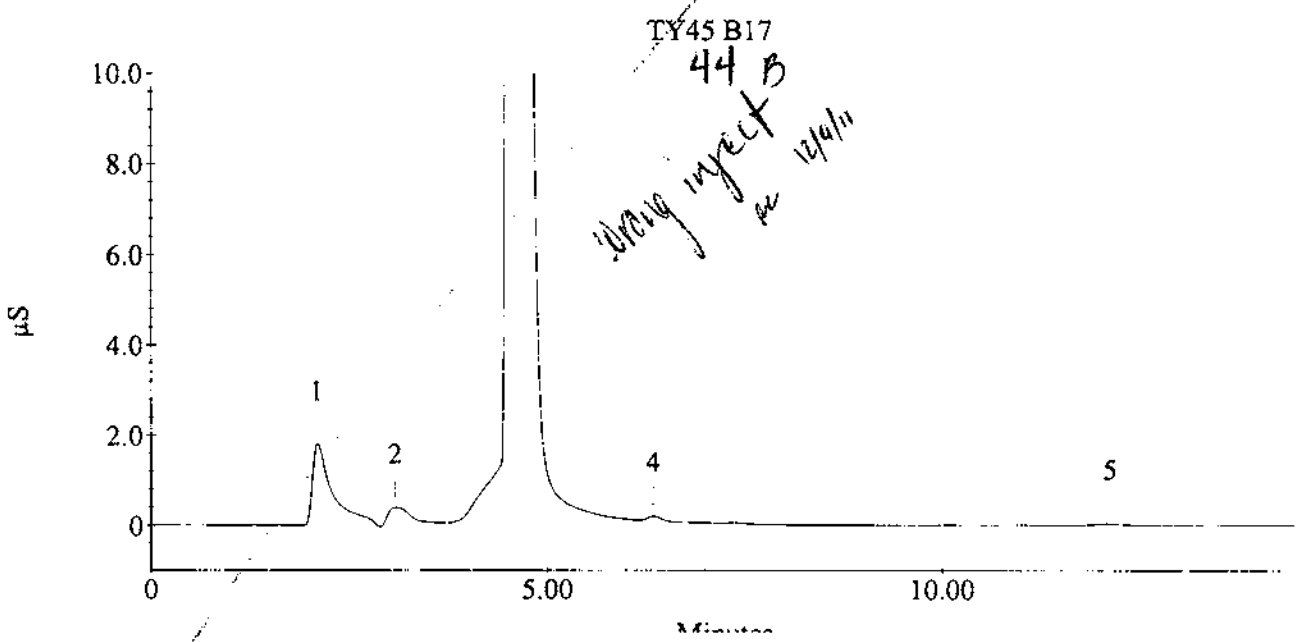
Injection Number : 70
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_070.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	17860	320928	1	
2	3.08	FLUORIDE	0.235	4248	99028	2	2.78
3	4.67	Unknown 2	0.000	2268920	25785903	3	
4	6.35	BROMIDE	0.161	1259	16816	4	2.75
5	12.13	SULFATE	0.070	336	8307	1	1.11
		---total(s)---	0.466	2292623	26230982		



UA17-00368

Sample Name : TY45 B17 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:10:22 PM

Injection Number : 71
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_071.DXD
Injection Volume : 1.00

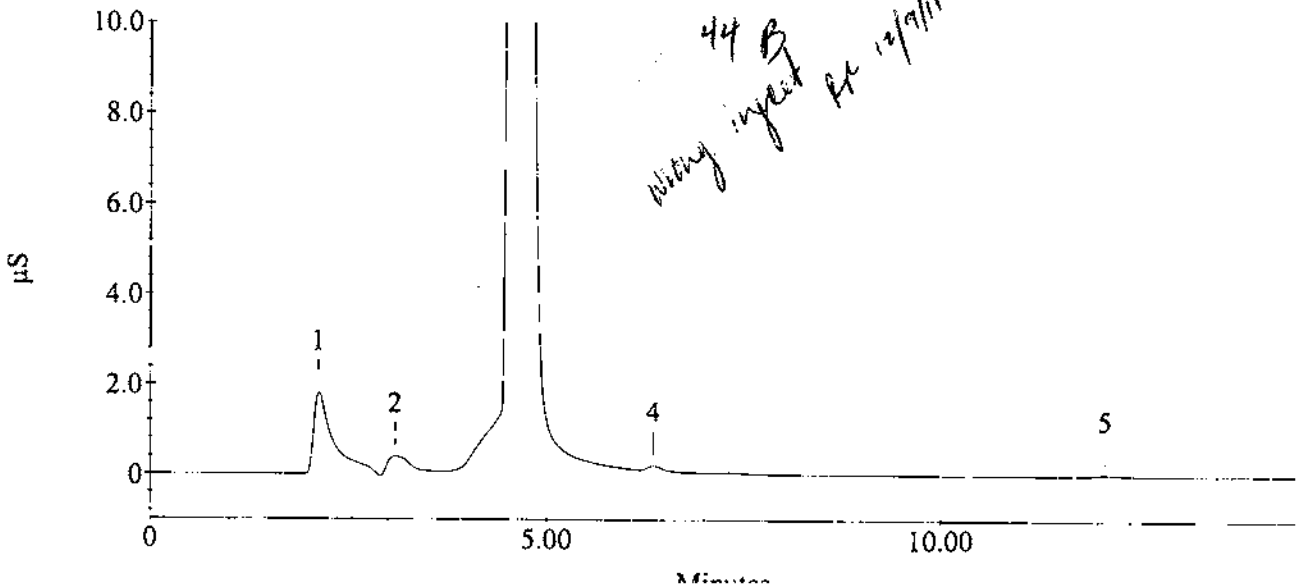
Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	17831	321518	1	
2	3.08	FLUORIDE	0.238	4287	100600	2	2.78
3	4.67	Unknown 2	0.000	2253979	25817349	3	
4	6.35	BROMIDE	0.207	1456	23401	4	2.75
5	12.08	SULFATE	0.065	320	7072	1	0.69
		---total(s)---	0.510	2277872	26269940		

TY45 B17 DUP

44 B
Wtng inject pt 12/9/11



Sample Name : TY45 B17 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:27:08 PM

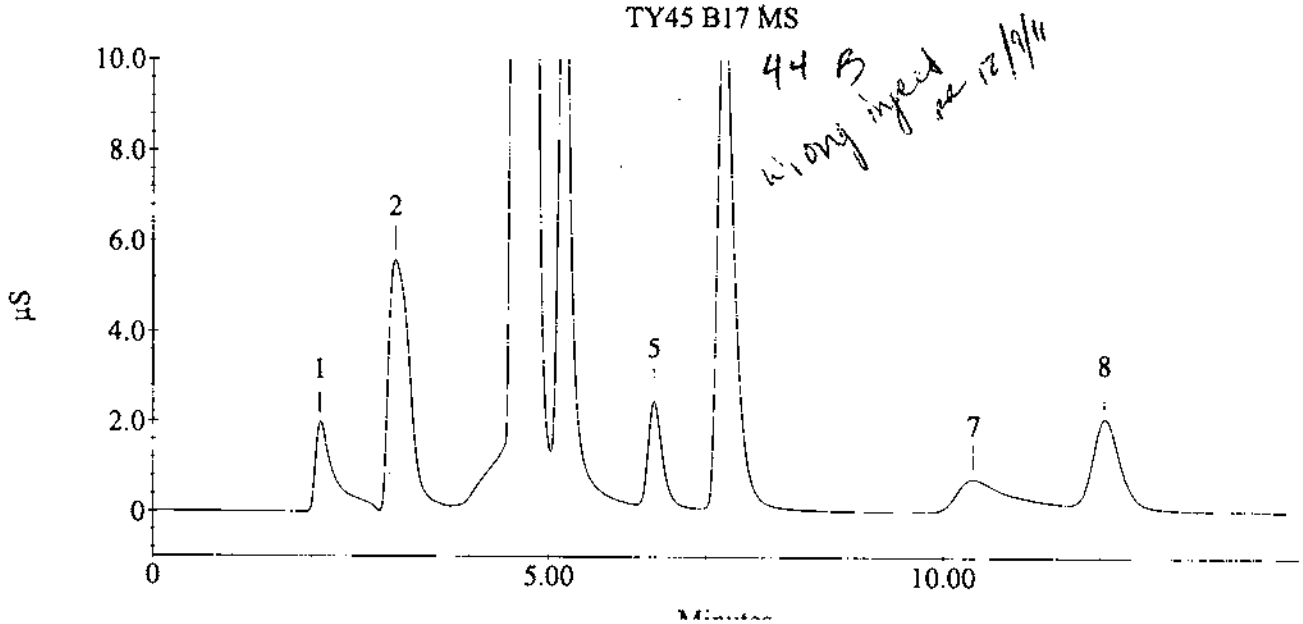
Injection Number : 72
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_072.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	19593	338483	2	
2	3.07	FLUORIDE	2.023	55535	1036765	2	2.22
3	4.70	Unknown 2	0.000	2403502	26437649	2	
4	5.17	NITRITE-N	2.207	144914	1691713	2	3.96
5	6.33	BROMIDE	2.189	23670	305045	2	2.48
6	7.22	NITRATE-N	1.884	113221	1714661	1	2.66
7	10.38	PHOSPHATE-P	0.982	6722	278701	1	3.83
8	12.05	SULFATE	1.928	19330	455271	1	0.42
		---total(s)---	11.213	2786486	32258288		



UA17-08978

Sample Name : TY75 F17 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 12:43:57 PM

Injection Number : 73
Dilution Factor : 5.00
column :

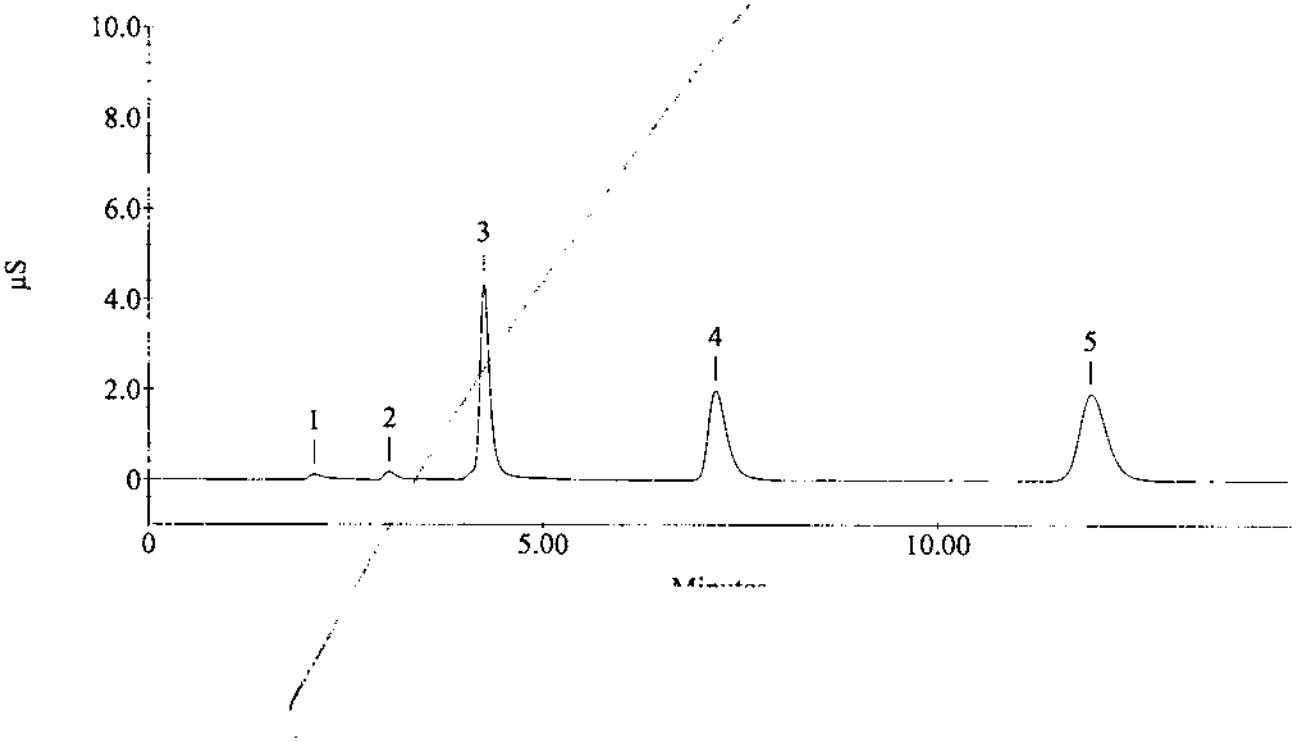
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_073.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1136	13560	1	
2	3.05	FLUORIDE	0.390	1695	16467	1	1.67
3	4.25	CHLORIDE	5.606	42857	395147	1	1.19
4	7.20	NITRATE-N	2.178	19851	329439	1	2.42
5	11.97	SULFATE	9.982	19100	471732	1	-0.28
		---total(s)---	18.156	84639	1226344		

TY75 F17 5X



Sample Name : TY75 F17 DUP 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:00:43 PM

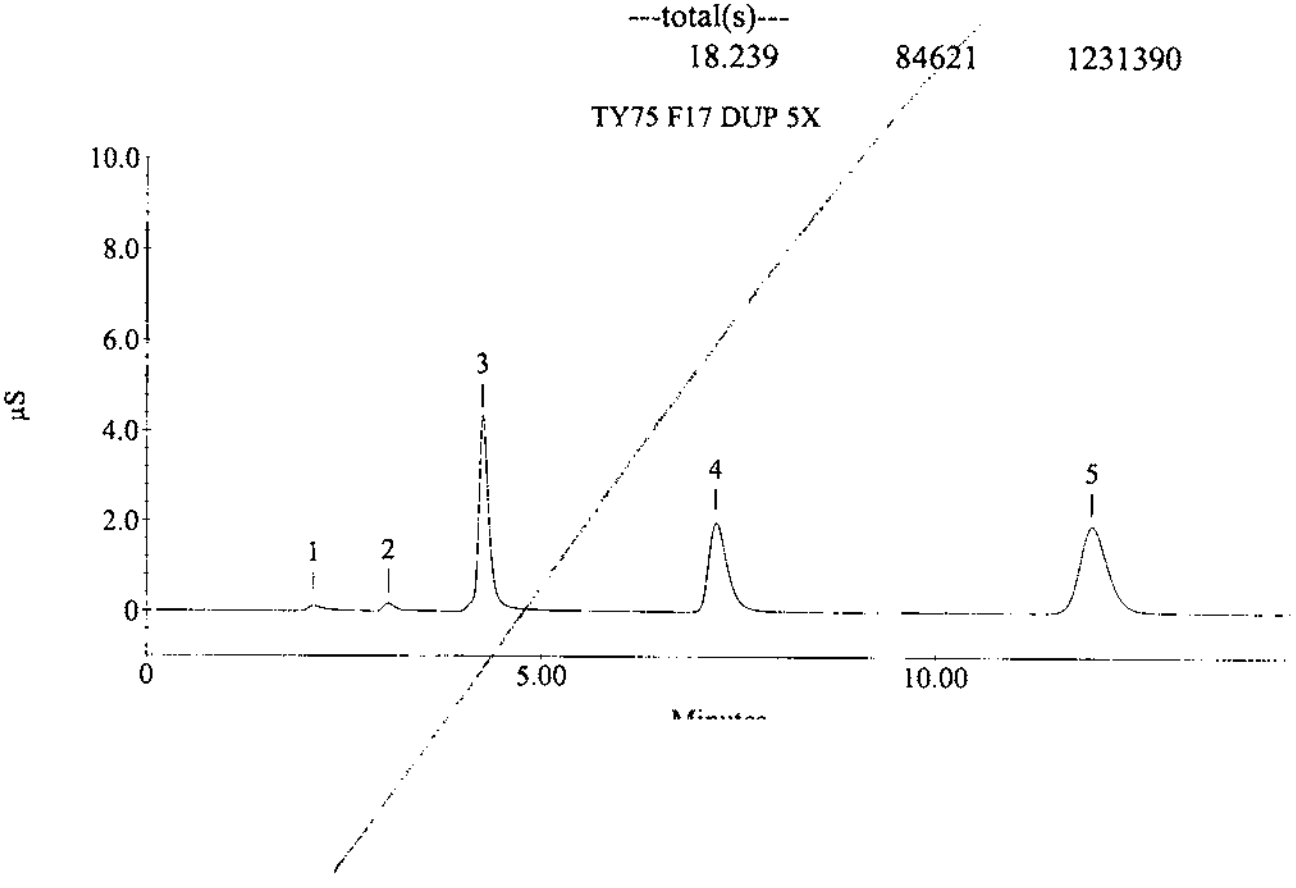
Injection Number : 74
Dilution Factor : 5.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_074.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	1112	14422	1	
2	3.05	FLUORIDE	0.388	1685	16249	1	1.67
3	4.25	CHLORIDE	5.760	42955	406445	1	1.19
4	7.20	NITRATE-N	2.153	19693	324655	1	2.42
5	11.97	SULFATE	9.938	19176	469619	1	-0.28
		---total(s)---	18.239	84621	1231390		



UA17-00372

Sample Name : TY75 F17 MS 5X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:17:30 PM

Injection Number : 75
Dilution Factor : 5.00
column :

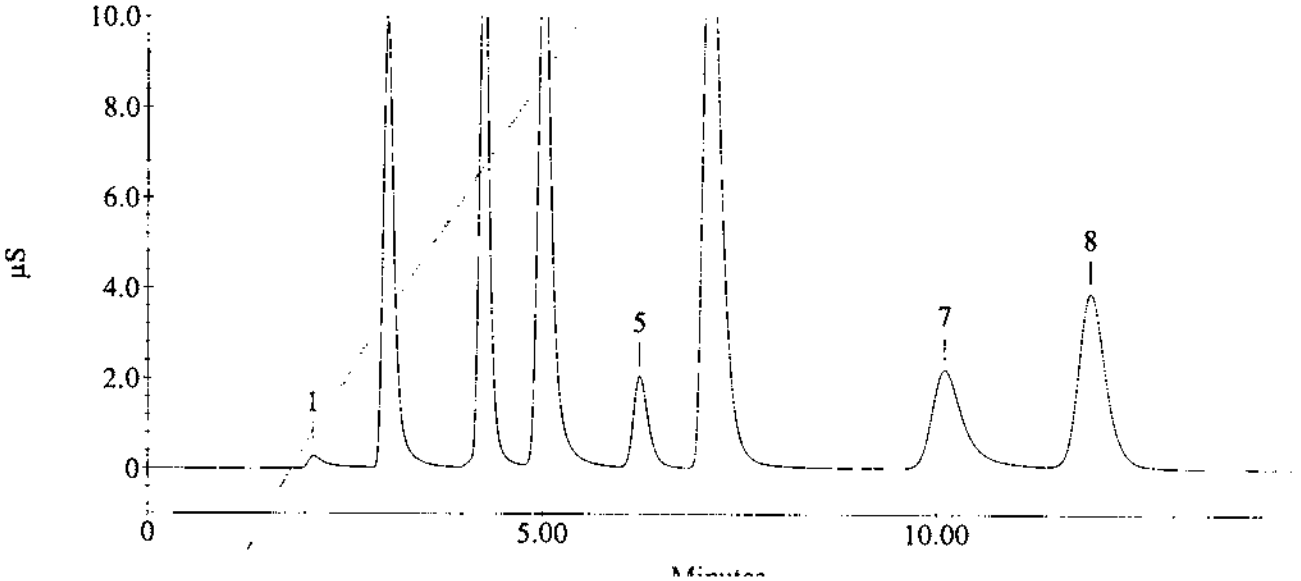
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_075.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2688	44084	2	
2	3.03	FLUORIDE	9.829	97056	1006722	2	1.11
3	4.25	CHLORIDE	15.427	124989	1113603	2	1.19
4	5.00	NITRITE-N	9.638	117705	1471925	2	0.60
5	6.23	BROMIDE	9.939	20174	276432	2	0.86
6	7.13	NITRATE-N	11.412	129617	2095274	1	1.47
7	10.10	PHOSPHATE-P	10.253	21712	600864	1	1.00
8	11.95	SULFATE	19.625	38357	935621	1	-0.42
		---total(s)---	86.123	552298	7544524		

TY75 F17 MS 5X



Sample Name : UA31 A1 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:34:17 PM

Injection Number : 76
Dilution Factor : 10.00
column :

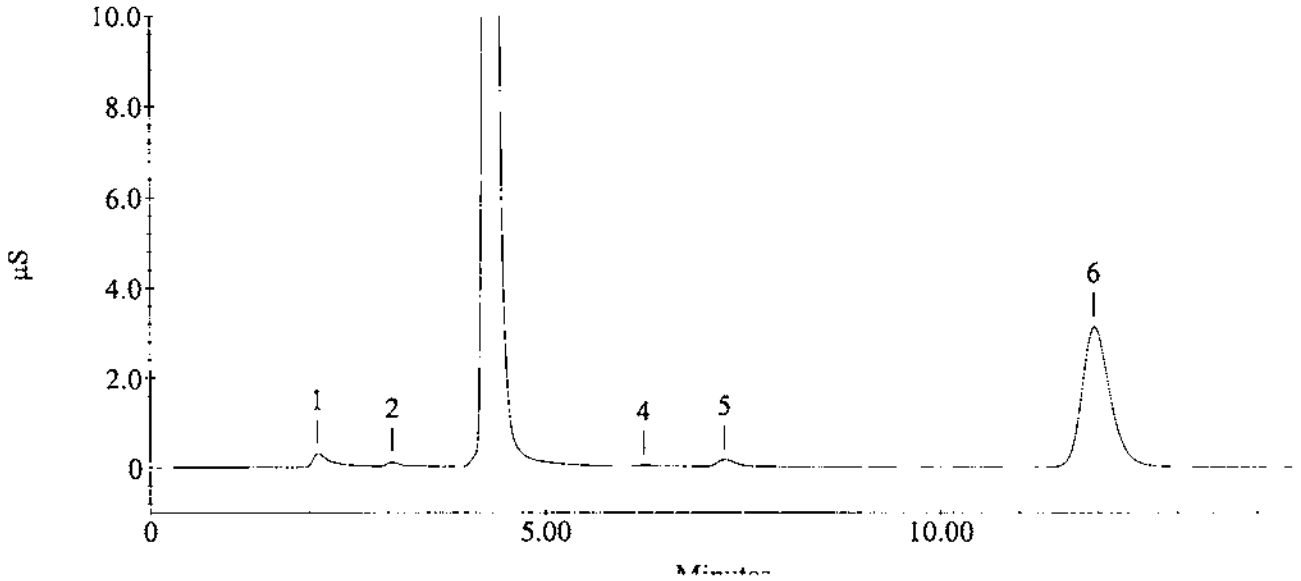
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_076.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2939	46781	1	
2	3.05	FLUORIDE	0.625	826	8334	1	1.67
3	4.32	CHLORIDE	148.178	634769	5404906	2	2.78
4	6.25	BROMIDE	0.666	252	3419	2	1.13
5	7.27	NITRATE-N	1.154	1520	23299	1	3.37
6	11.95	SULFATE	32.046	31161	762358	1	-0.42
		---total(s)---	182.669	671468	6249098		

UA31 A1 10X



UA17-00374

Sample Name : UA31 A1 DUP 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 1:51:01 PM

Injection Number : 77
Dilution Factor : 10.00
column :

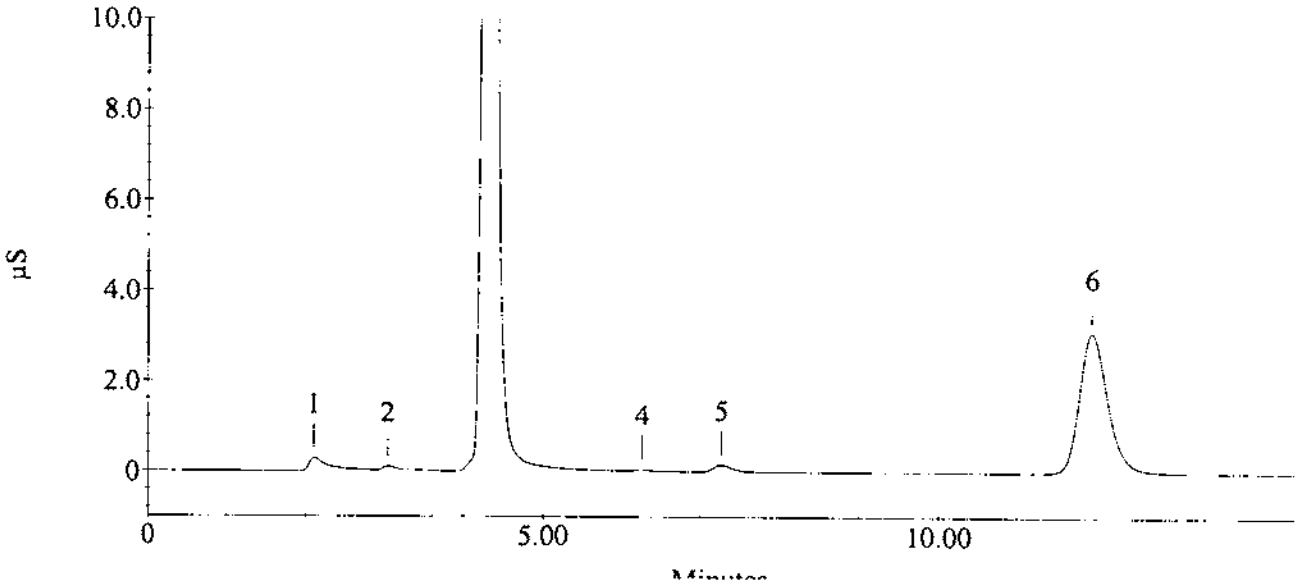
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_077.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2858	47912	2	
2	3.03	FLUORIDE	0.616	788	7873	2	1.11
3	4.30	CHLORIDE	146.586	602263	5346694	1	2.38
4	6.27	BROMIDE	0.696	282	3850	1	1.40
5	7.27	NITRATE-N	1.176	1528	25397	1	3.37
6	11.95	SULFATE	32.047	30919	762363	1	-0.42
		---total(s)---	181.122	638639	6194090		

UA31 A1 DUP 10X



UA17-00378

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:07:45 PM

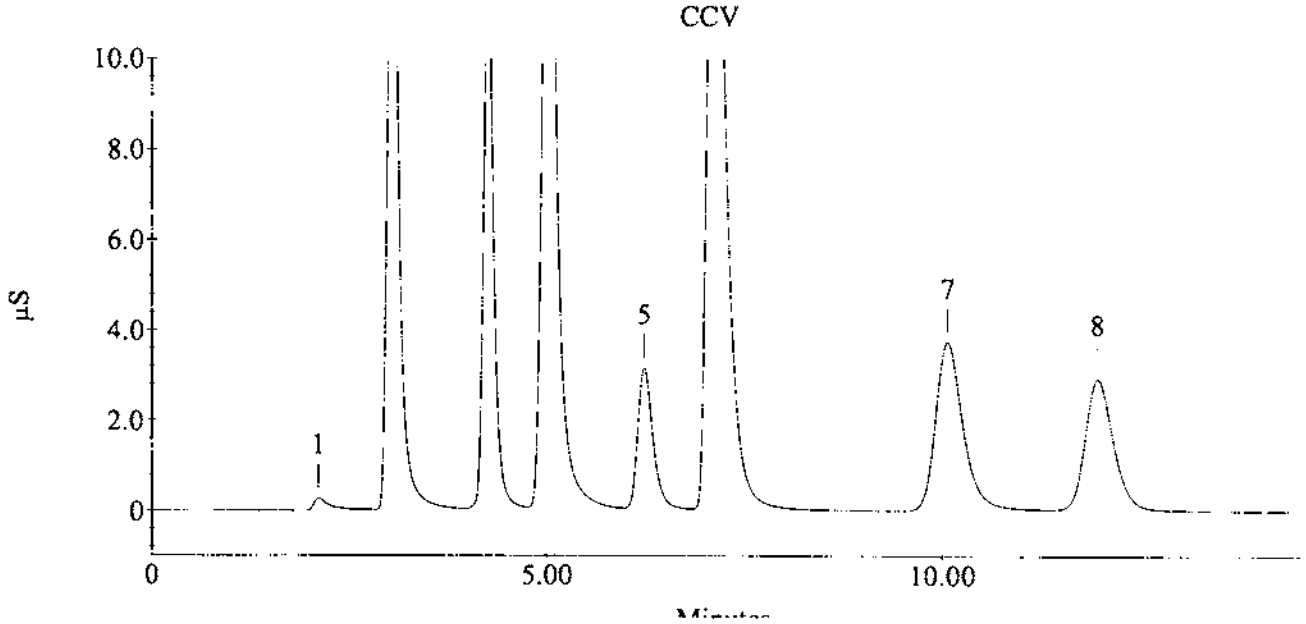
Injection Number : 78
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_078.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2546	33352	1	
2	3.03	FLUORIDE	3.013	152635	1556149	2	1.11
3	4.25	CHLORIDE	2.996	120070	1080893	2	1.19
4	5.02	NITRITE-N	2.952	186068	2277971	2	0.94
5	6.23	BROMIDE	3.003	31134	420662	2	0.86
6	7.12	NITRATE-N	2.927	166475	2711593	1	1.23
7	10.07	PHOSPHATE-P	2.991	37180	884312	1	0.67
8	11.95	SULFATE	2.974	28967	706942	1	-0.42
		----total(s)---					
			20.856	725075	9671874		



UA17-00375

Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:24:32 PM

Injection Number : 79
Dilution Factor : 1.00
column :

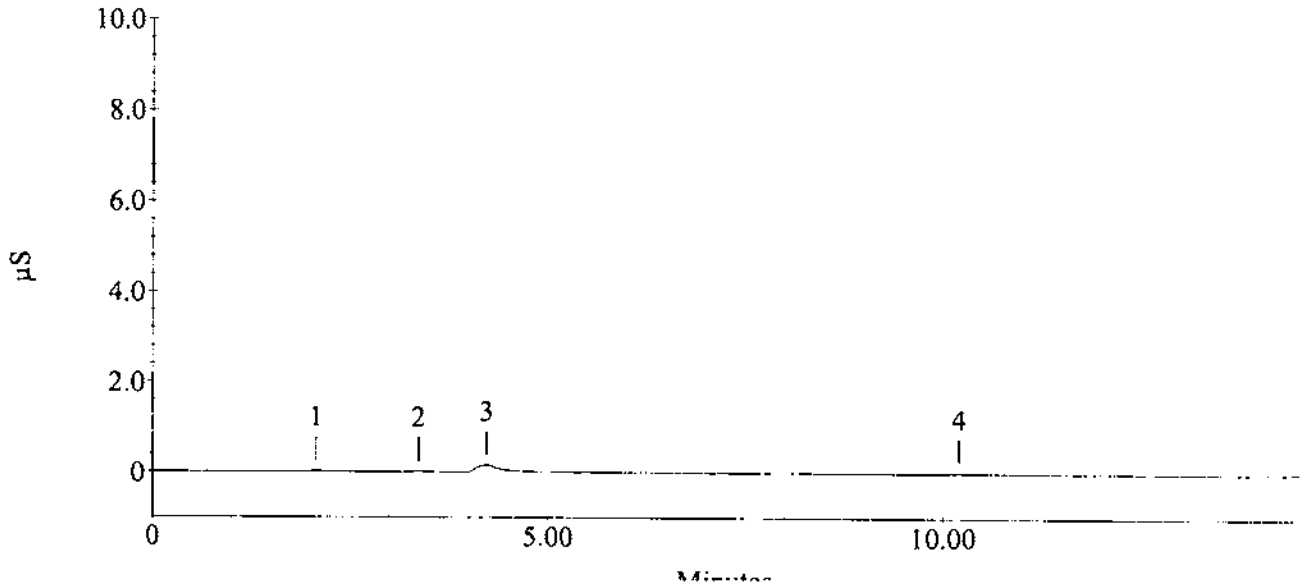
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_079.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.07	Unknown 1	0.000	214	1720	1	
2	3.37	Unknown 2	0.000	190	2937	1	
3	4.22	CHLORIDE	0.128	1575	31905	1	0.40
4	10.20	PHOSPHATE-P	0.063	92	1689	1	2.00
		---total(s)---	0.191	2070	38251		

CCB



UA17 00377

Sample Name : UA31 A1 MS 10X
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:41:18 PM

Injection Number : 80
Dilution Factor : 10.00
column :

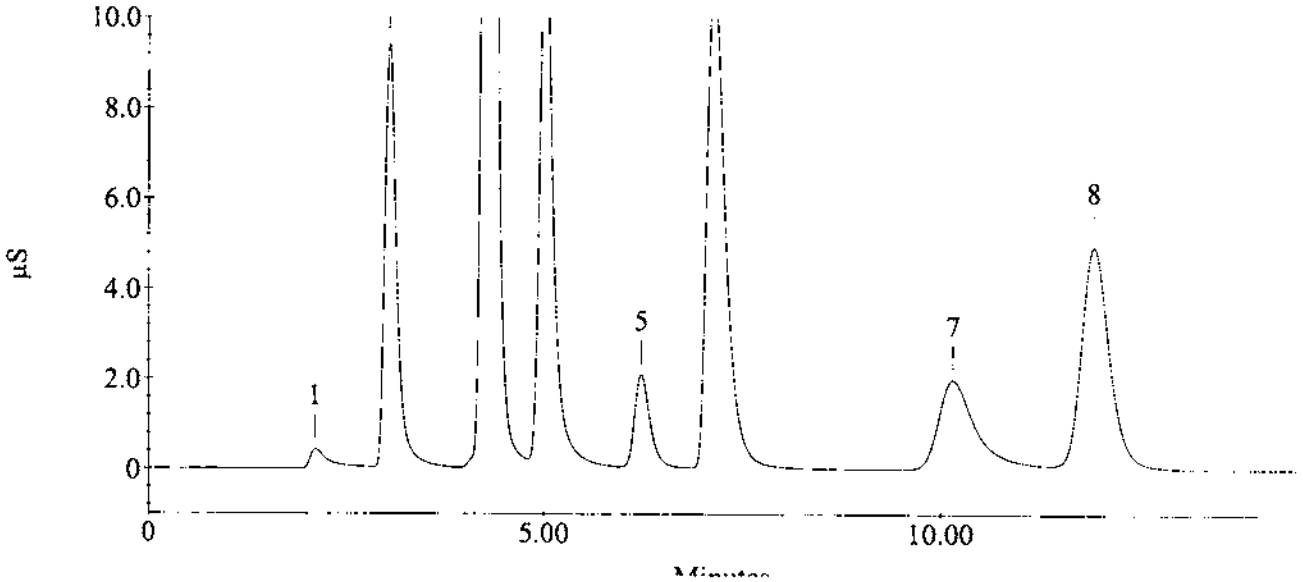
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_080.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	4267	73140	2	
2	3.03	FLUORIDE	19.634	93067	1005455	2	1.11
3	4.30	CHLORIDE	156.927	641151	5724921	2	2.38
4	5.00	NITRITE-N	19.766	121776	1510478	2	0.60
5	6.23	BROMIDE	20.164	20641	280503	2	0.86
6	7.13	NITRATE-N	19.202	108396	1749046	1	1.47
7	10.15	PHOSPHATE-P	20.879	19526	612077	1	1.50
8	11.93	SULFATE	49.205	48708	1175082	1	-0.56
		---total(s)---	305.778	1057532	12130702		

UA31 A1 MS 10X



UA17-00378

Sample Name : TY45 B17
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 2:58:06 PM

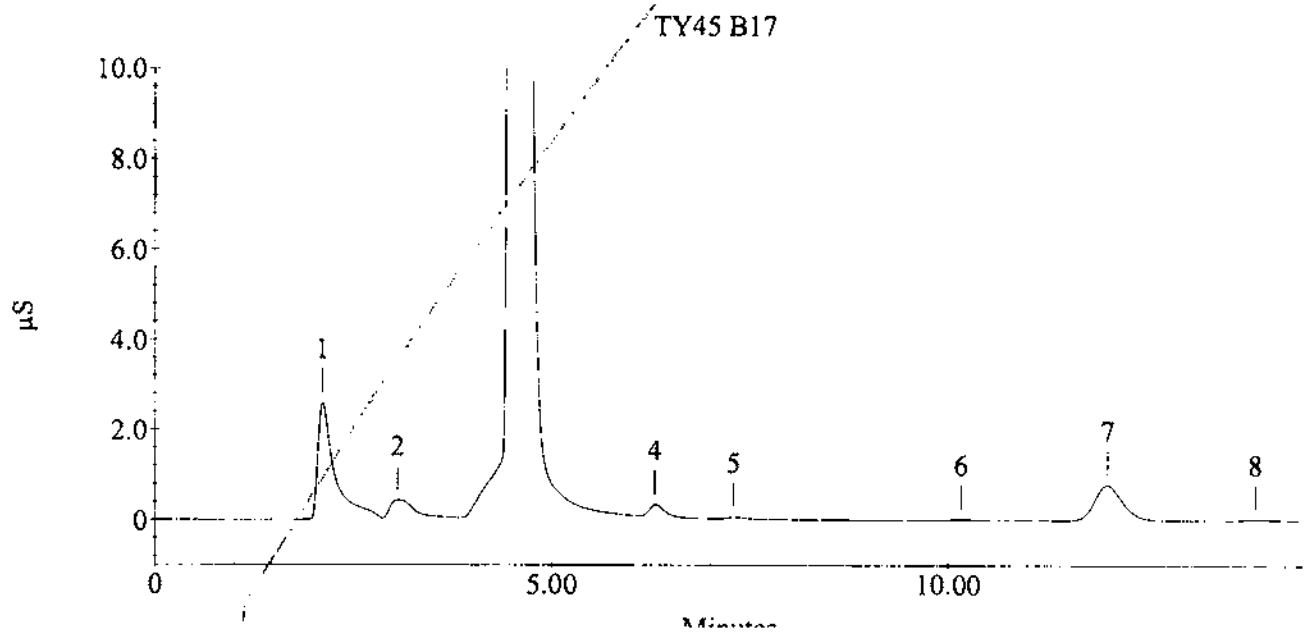
Injection Number : 81
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_081.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	25704	390878	2	
2	3.07	FLUORIDE	0.227	4197	94445	2	2.22
3	4.62	Unknown 2	0.000	2017060	20386789	2	
4	6.30	BROMIDE	0.370	3035	46538	2	1.94
5	7.30	NITRATE-N	0.098	414	6196	1	3.84
6	10.17	PHOSPHATE-P	0.067	153	2781	1	1.67
7	12.02	SULFATE	0.819	7807	188632	1	0.14
8	13.88	Unknown 3	0.000	244	4783	1	
		---total(s)---	1.580	2058613	21121042		



UA17:00379

Sample Name : TY45 B17 DUP
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:14:55 PM

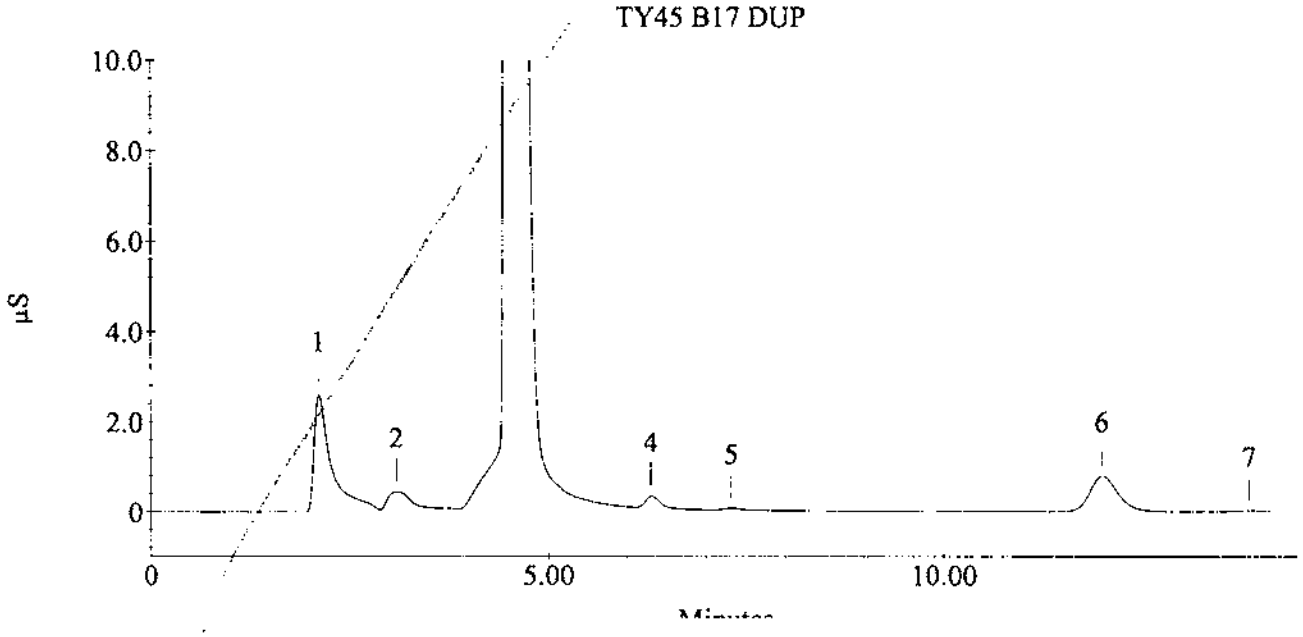
Injection Number : 82
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_082.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	25665	386207	2	
2	3.08	FLUORIDE	0.193	3925	77023	2	2.78
3	4.62	Unknown 2	0.000	2019822	20367486	2	
4	6.30	BROMIDE	0.367	2990	46044	2	1.94
5	7.32	NITRATE-N	0.098	392	6218	1	4.08
6	12.00	SULFATE	0.824	7878	189769	1	0.00
7	13.85	Unknown 3	0.000	203	4188	1	
		---total(s)---	1.482	2060876	21076935		



UA17 00380

Sample Name : TY45 B17 MS
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:31:42 PM

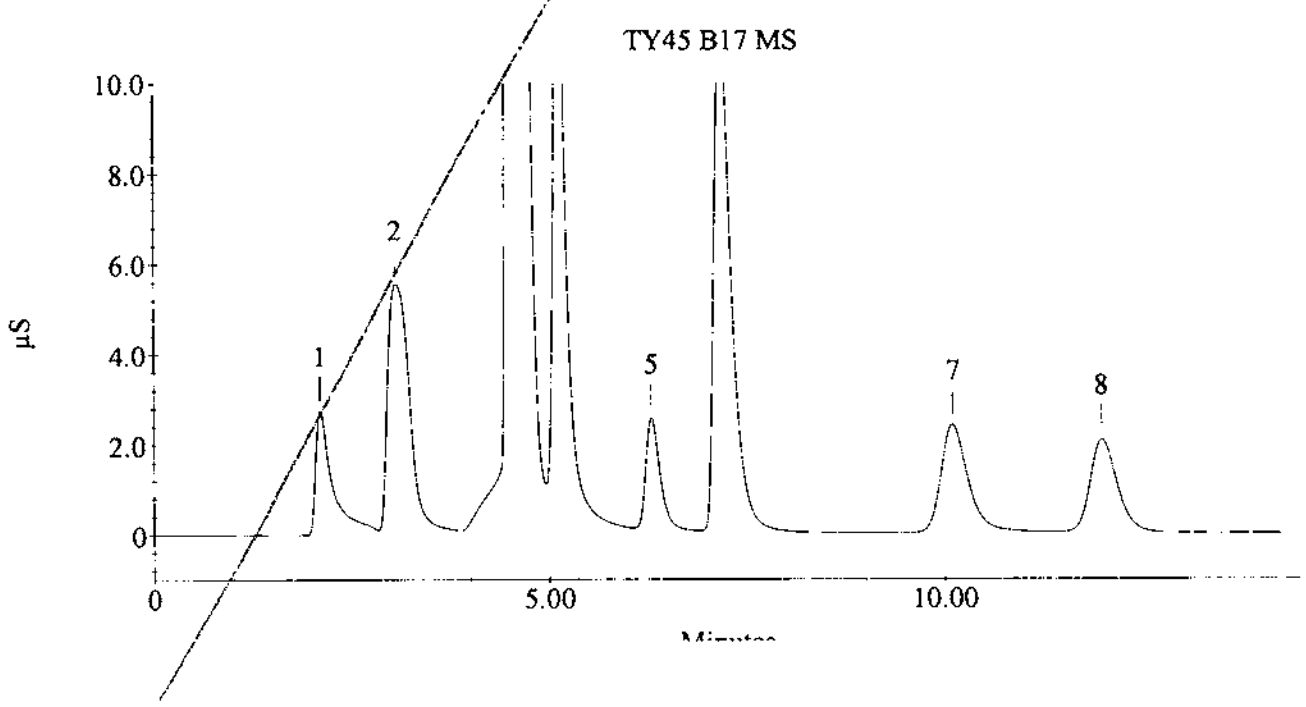
Injection Number : 83
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_083.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	27459	417342	2	
2	3.05	FLUORIDE	2.067	55173	1059833	2	1.67
3	4.62	Unknown 2	0.000	2038270	21207242	2	
4	5.12	NITRITE-N	2.190	145817	1678052	2	2.95
5	6.28	BROMIDE	2.333	25082	325502	2	1.67
6	7.17	NITRATE-N	1.885	111953	1714910	1	1.94
7	10.10	PHOSPHATE-P	1.912	23927	559178	1	1.00
8	11.98	SULFATE	2.068	20626	488986	1	-0.14
		---total(s)---	12.455	2448308	27451044		



UA17 00381

Sample Name : CCV
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 3:48:29 PM

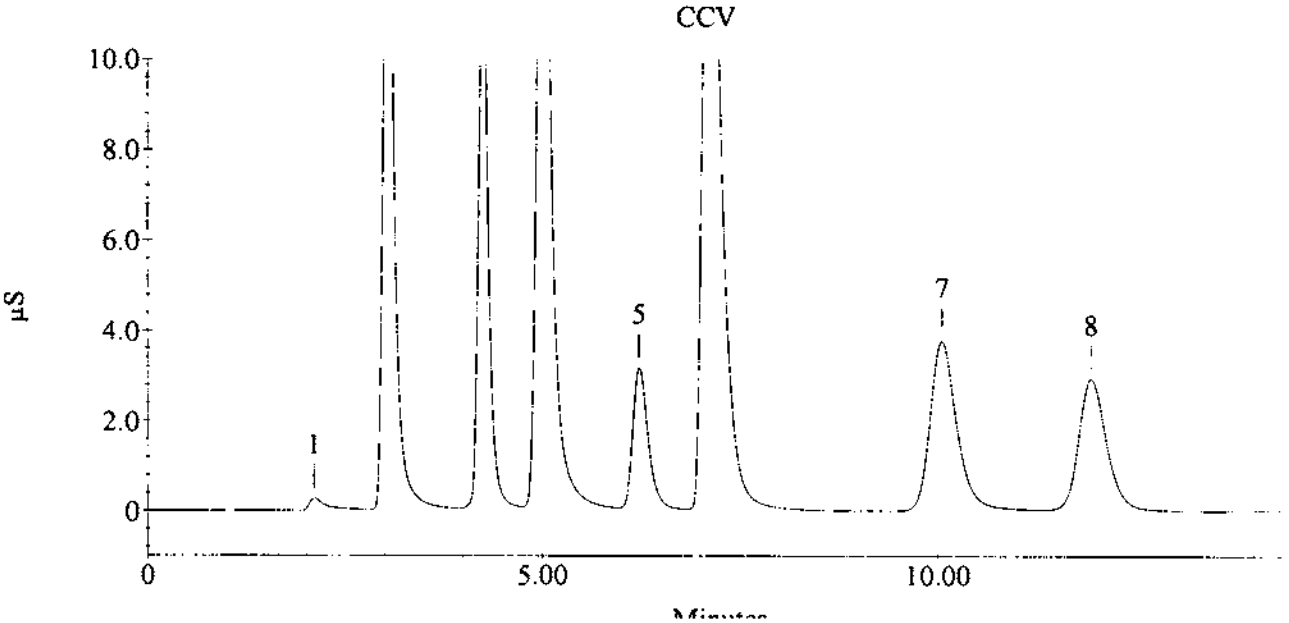
Injection Number : 84
Dilution Factor : 1.00
column :

Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_084.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.10	Unknown 1	0.000	2723	41451	2	
2	3.03	FLUORIDE	3.030	154405	1564779	2	1.11
3	4.25	CHLORIDE	3.020	122987	1089509	2	1.19
4	5.00	NITRITE-N	2.960	185905	2283697	2	0.60
5	6.22	BROMIDE	3.022	31313	423425	2	0.59
6	7.10	NITRATE-N	2.935	167055	2719782	1	1.00
7	10.05	PHOSPHATE-P	2.964	37391	876319	1	0.50
8	11.93	SULFATE	3.012	29039	716037	1	-0.56
		---total(s)---					
			20.943	730818	9714998		



UA17 00382

Sample Name : CCB
Method File Name : c:\peaknet\method\std6_new.met

Current Date : 12/9/11
Date Time Collected : 12/9/11 4:05:17 PM

Injection Number : 85
Dilution Factor : 1.00
column :

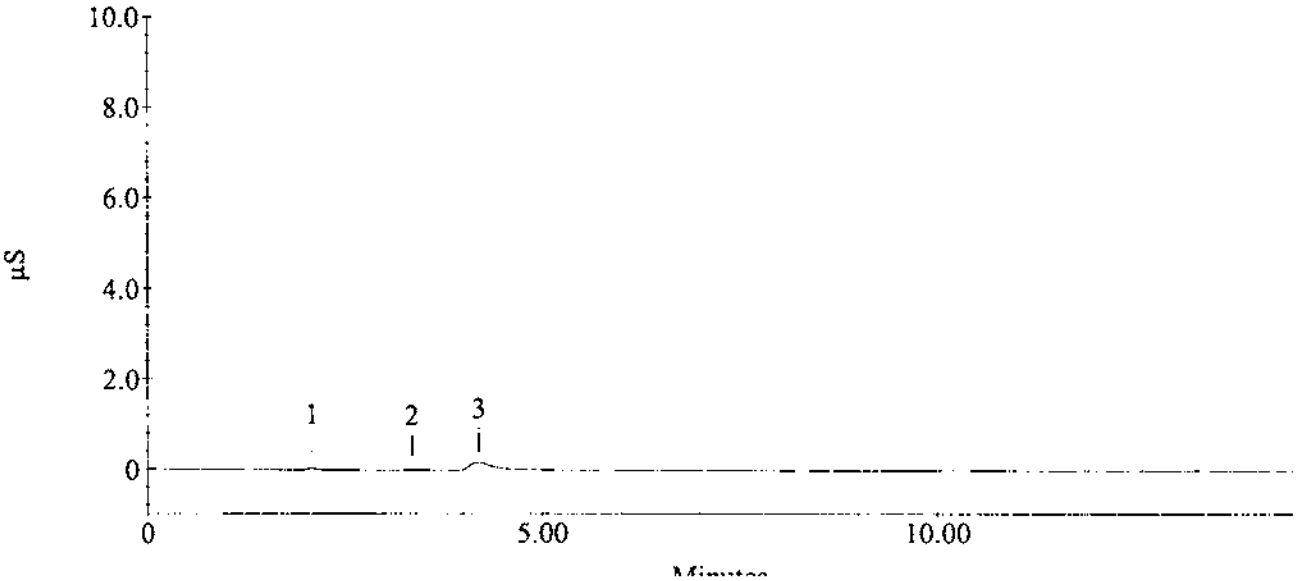
Calibration Date : 12/7/11 10:16:04 AM
Data File Name : ...\DEC0811RR_085.DXD
Injection Volume : 1.00

Module ID : 34 07 2a
Schedule File Name : ...\dec0811rr.sch

Peak Information : All Peaks

Pk. Num	Ret Time	Component Name	conc. (ppm)	Height	Area	Bl. Code	%Delta
1	2.08	Unknown 1	0.000	364	3721	1	
2	3.35	Unknown 2	0.000	159	2570	1	
3	4.20	CHLORIDE	0.137	1692	35030	1	0.00
		---total(s)---					
			0.137	2214	41321		

CCB



UA17:00383

W
12-19-11

PHOSPHORUS BENCHSHEET, Aqueous

	Digested:	Analyzed:
Soluble Reactive P (SRP) by EPA 365.2, SM 450(Date	12/15/11 15:00	12/16/11 18:55
Indicate "Total" or "SRP" **total** Analyst	CDE	CDE

Total P by digestion (indicate procedure used) ***SM 4500-P B5-99, Acid persulfate***

NOTE: *curve standards must be digested !* ***SM 4500-P B4-99, Sulfuric-Nitric Acid***

Curve Standards ***make no entries to shaded cells, they are calculated !!***

Prep date: 6/1/2011 *Stock #:* 00116/8

Weight KH2PO4: 0.2197 *grams in* 1000 *mL*

Conc = 50.00 *mg/L P*

Intermediate Std = 5 *mL stk to* 50 *mL DI =* ***5.00*** *mg P/L*

Calibration Curve *std make-up volume (mL) =* 50

for Digested Curve mL digest = 50 final vol (mL) = 50

REGRESSION DATA

CONC = (ABS-intercept)/ slope

ml int Std SRP	ml int Std Total P	CONC (mg/L)	UNITS (ABS 880 nm 5cm cell)		AVG	mg/L
0.00	0.00	0.000	0.000		0.000	*0.000*
0.04	0.30	0.030	0.087		0.087	*0.029*
0.25	0.60	0.060	0.175		0.175	*0.058*
0.50	1.50	0.150	0.449		0.449	*0.150*
1.00	5.00	0.500	1.515		1.515	*0.505*
5.0	10.0	1.000	2.996		2.996	*0.998*

intercept = -0.0006
Slope = 3.0029
r = 1.0000

Comment: *Calibration OK!*

maxabs = 2.996

Verification Standards *Source:* *ERA # 200610* *Conc (mg/L)* 1000

ICV *dilution =* 0.06 *mL Int to* 250 *mL DI =* ***0.240*** ***mg/L*** *CVS*

Verification Standards *Source:* *ERA # 3303093* *Conc (mg/L)* 1000

Intermediate 0.50 *mL to* 50 *mL DI =* ***10.0*** ***mg/L***

Tot P *dilution =* 0.40 *mL Int to* 25 *mL DI =* ***0.160*** ***mg/L*** *LCS*

DQL Standard (low level) *Source:* ***Curve Intermediate*** *Conc (mg/L)* 5.0

SRP	0.100	*ml to*	50	*ml DI =*	***0.010***	***mg/L***
Total P	0.400	*ml to*	25	*ml DI =*	***0.080***	***mg/L***
Total P	0.160	*ml to*	10	*ml DI =*	***0.080***	***mg/L***

Sample Data

1. *For SRP, leave digest data blank!!*
2. *Spike with 10 mg/L Intermediate Standard* *enter dilution as final vol / sample vol*

SAMPLE ID	Tot P Digest mL sample	mL digest	Analysis Data Abs	Dilution	(mg/L)	TOT P (mg/L)	SRP (mg/L)	Notes
Calib Blank			0.000	1.0	0.0002		**< 0.03**	*OK*
ICV			0.755	1.0	0.2516		**0.252**	*104.84%*
MB total	25	50	0.035	1.0	0.0118	**< 0.06**		*OK*
DQL Total	25	50	0.155	1.0	0.0518	**0.104**		
LCS 1	25	50	0.269	1.0	0.0898	**0.180**		*112.21%*
TZ97 A8	25	50	1.834	1.0	0.6109	**1.222**		
TZ97 A8 dup	25	50	1.873	1.0	0.6239	**1.248**		*RPD = 2.1*
TZ97 A8 ms	25	50	2.216	1.0	0.7382	**1.476**		*127.2% Rec*
Spike =	0.5	*ml of*	10	*mg/L to*	25	*ml sample =*	0.200	
TZ97 B18	25	50	0.576	1.0	0.1920	**0.384**		
TZ97 C3	25	50	****	1.0	#VALUE!	#VALUE!		*offscale*
UA09 B5	25	50	0.169	1.0	0.0565	**0.113**		
UA17 A2	25	50	1.844	1.0	0.6143	**1.229**		
Calib Blank			0.000	1.0	0.0002		**< 0.03**	*OK*
CCV			0.753	1.0	0.2509		**0.251**	*104.56%*
UA20 A4	25	50	0.287	1.0	0.0958	**0.192**		
UA20 B3	25	50	0.378	1.0	0.1261	**0.252**		
UA50 A2	25	50	****	1.0	#VALUE!	#VALUE!		*offscale*
UB21 A1	25	50	0.111	1.0	0.0372	**0.074**		
UB21 B1	25	50	0.220	1.0	0.0735	**0.147**		
UB21 C1	25	50	0.189	1.0	0.0631	**0.126**		
UB22 A1	25	50	0.184	1.0	0.0615	**0.123**		

UB22 B1	25	50	0.148	1.0	0.0495	**0.099**		
UB22 C1	25	50	0.315	1.0	0.1051	**0.210**		
UB22 D1	25	50	0.238	1.0	0.0794	**0.159**		
Calib Blank			-0.001	1.0	-0.0001		**< 0.03**	*OK*
CCV			0.757	1.0	0.2523		**0.252**	*105.12%*
UB23 A1	25	50	0.576	1.0	0.1920	**0.384**		
UB23 B1	25	50	0.530	1.0	0.1767	**0.353**		
UB23 C1	25	50	0.105	1.0	0.0352	**0.070**		
UB23 D1	25	50	0.140	1.0	0.0468	**0.094**		
TZ97 C3	25	50	1.953	2.0	0.6506	**2.602**		
UA50 A2	25	50	1.801	2.0	0.5999	**2.400**		
Calib Blank			0.000	1.0	0.0002		**< 0.03**	*OK*
CCV			0.754	1.0	0.2513		**0.251**	*104.70%*

PHOSPHORUS BENCHSHEET, Aqueous

	Digested:	Analyzed:
Date	12-15-11 15:00	12-16-11 18:55
Analyst	CPE	CDL

Soluble Reactive P (SRP) by EPA 365.2, SM 4500

Indicate "Total" or "SRP": **total**

Total P by digestion (indicate procedure used)

NOTE: *curve standards must be digested !*

SM 4500-P B5-99, Acid persulfate

SM 4500-P B4-99, Sulfuric-Nitric Acid

Curve Standards — ***make no entries to shaded cells, they are calculated !!***

Prep date: 6-1-11 *Stock #:* 00116-8

Weight KH2PO4: 0.2197 *grams in* 1000 *mL*

Conc = 50.00 *mg/L P*

Intermediate Std = 5 *mL stk to* 50 *mL DI =* ***5.00*** ***mg P/L***

Calibration Curve — *std make-up volume (mL) =* 50

for Digested Curve *mL digest =* ~~25~~ 50 *final vol (mL) =* 50

REGRESSION DATA

CONC = (ABS-intercept)/ slope

ml int Std		CONC	UNITS	AVG	
SRP	Total P	(mg/L)	(ABS 880 nm 5cm cell)		mg/L
0.00	0.00	0.000	0.000		
0.04	0.30	0.015	0.087		
0.25	0.60	0.030	0.175		
0.50	1.50	0.075	0.449		
1.00	5.00	0.250	1.515		
5.0	10.0	0.500	2.996		

intercept =

Slope =

r =

Comment:

maxabs = 0.000

Verification Standards *Source:* *ERA # 200610* *Conc (mg/L)* 1000

Intermediate ~~0.50~~ *mL to* ~~50~~ *mL DI =* ***10.0*** ***mg/L***

ICV *dilution =* ~~1.250%~~ *mL Int to* 250 *mL DI =* ~~0.050~~ 0.24 ***mg/L*** *CVS*

Verification Standards *Source:* *ERA # 3303093* *Conc (mg/L)* 1000

Intermediate 0.50 *mL to* 50 *mL DI =* ***10.0*** ***mg/L***

Tot P LCS *dilution =* 0.40 *mL Int to* 25 *mL DI =* ***0.160*** ***mg/L*** *LCS*

DQL Standard (low level) *Source:* ***Curve Intermediate*** *Conc (mg/L)* 5.0

SRP 0.100 *ml to* 50 *ml DI =* ***0.010*** ***mg/L***

Total P 0.400 *ml to* 25 *ml DI =* ***0.080*** ***mg/L***

Sample Data

1. *For SRP, leave digest data blank!!*
2. *Spike with 10 mg/L Intermediate Standard* *enter dilution as final vol / sample vol*

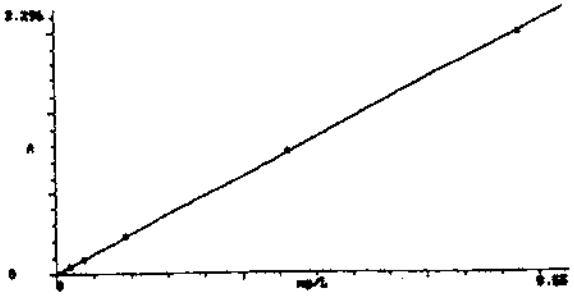
SAMPLE ID	Tot P Digest		Analysis Data			TOT P	SRP	
	mL sample	mL digest	Abs	Dilution	(mg/L)	(mg/L)	(mg/L)	*Notes*
Calib Blank			0.000	1.0				
ICV			0.755	1.0				
MB total	25	50	0.035	1.0				
~~LCS 1 DQL~~	25	50	0.155	1.0				
~~DQL Total LCS~~	25	50	0.269	1.0				
T297 A3			1.834	1.0				
↓ A3 dup			1.873	1.0				
↓ A3 ms			2.216	1.0				0% Rec
Spike =	0.5	*ml of*	10	*mg/L to*	25	*ml sample =*	0.200	
T297 B3			0.578	1.0				
↓ C3				1.0				
UA09 B5			0.169	1.0				
UA17 A2			1.844	1.0				
CCB			0.000	1.0				
CCV			0.753	1.0				
UA20 A4			0.287	1.0				
↓ B3			0.378	1.0				
UA50 A2				1.0				
UB21 A1			0.111	1.0				
↓ B1			0.220	1.0				
↓ C1			0.189	1.0				
UB22 A1			0.184	1.0				

UA17:00386

SAMPLE ID	Tot P Digest		Analysis Data			TOT P	SRP	Notes
	mL sample	mL digest	Abs	Dilution	(mg/L)	(mg/L)	(mg/L)	
UB22 B1			0.149	1.0				
C1			0.315	1.0				
D1			0.238	1.0				
CCB			-0.001	1.0				
CCV			0.757	1.0				
UB23 A1			0.576	1.0				
B1			0.530	1.0				
C1			0.105	1.0				
D1			0.140	1.0				
TZ97 C3			1.953	~~1.0~~ 2X				
UA50 A2			1.901	~~1.0~~ 2X				
CCB			0.000	1.0				
CCV			0.754	1.0				
				1.0				
				1.0				

TEST SETUP
GENESYS 10 v2.021 2GZG048006

Standard Curve	18:58 16Dec11
Test Name	TOTAL PHOS[Saved]
Date Standards Measured	16Dec11
Wavelength	880nm
Ref. Wavelength Correction	Off
Curve Fit	Linear
Number of Standards	6
Units	mg/L
ID# (0=OFF)	Off
Low/High Limits	0.000/0.800
Statistics	Off
Auto Print	On



Curve Fit	Linear
Slope	6.01
Intercept	-0.00056
Std Dev	0.008
Corr Coeff	1.000

Conc. mg/L	Abs 880nm
0.000	0.000
0.015	0.087
0.030	0.175
0.075	0.449
0.250	1.515
0.500	2.996

12-16-11
ADC

TEST SETUP
GENESYS 10 v2.021 2GZG048006

Advanced A-XT-C	18:59 16Dec11
Test Name	TOTAL PHOS[Saved]
Measurement Mode	Absorbance
Wavelength	880nm
Ref. Wavelength Correction	Off
Delay Time (min:sec)	0:00
ID# (0=OFF)	1
Low/High Limits	0.000/0.800
Statistics	Off
Auto Print	On

ID#	Abs 880nm
1	0.000
2	0.755
3	0.035
4	0.155
5	0.269
6	1.834
7	1.873
8	2.216
9	0.576
10	[*****]
11	0.169
12	1.844
13	0.000
14	0.753
15	0.287
16	0.378
17	[*****]
18	0.111
19	0.220
20	0.189
21	0.184
22	0.148
23	0.315
24	0.238
25	-0.001
26	0.757
27	0.576
28	0.530
29	0.105
30	0.140
31	1.953
32	1.801
33	0.000
34	0.754

12-8-11

HEXAVALENT CHROMIUM BENCHSHEET

Diphenyl carbazide colorimetric (SW-846 7196A)

Date / Time: 12/6/11 15:20
Analyst: CDE

REAGENTS	ID
Sulfuric Acid:	8072C
Acetone:	
Diphenylcarbazide:	8745C

pH METER
Meter ID: ACCUMET AR60
Electrode ID: 9154015P 18

CALIBRATION

Cr+6 Curve Standard — *ARI ID:* 00116-1 — *Date Prepared:* 5/2/2011

Stock	0.0709	*g K2Cr2O7 to*	500	*mL =*	50.1	*mg/L Cr+6*
Intermediate	5	*mL Stock to*	50	*mL =*	5.01	*mg/L Cr+6*

Standard Curve Data — *final volume of prepared standards =* **50** *mL*

TIME: — *Instrument Used:* SPEC 2

ml Intermediate	Conc (mg/l)	Absorbance @ 540 nm 1	Absorbance @ 540 nm 2	Avg Blk Corr Abs	
0.0	0.00	0.000		0.000	*= blank abs*
0.1	0.01	0.008		0.008	*E 0.01*
0.5	0.05	0.042		0.042	*0.05*
1.0	0.10	0.088		0.088	*0.10*
5.0	0.50	0.425		0.425	*0.51*
10.0	1.00	0.827		0.827	*1.00*

Regression Data
Conc = (abs-intercept)/slope

intercept =	0.0032
slope =	0.8258
r =	1.000
Comment:	Calibration OK!
maxabs =	0.827

Calibration Verification Standard

Source	*ERA # 0504093*			*Stock Conc*	1,000	*mg/L Cr+6*
DQL Int.=	0.10	*ml stock to*	10	*mL pH2 =*	10.00	*mg/L Cr+6*
DQL =	0.40	*ml DQL Int. to*	100	*mL pH2 =*	0.04	*mg/L Cr+6*
CVS =	0.05	*ml stock to*	200	*mL pH2 =*	**0.25**	***mg/L Cr+6***

Prep Check Standard

Dilution	0.50	*ml stock to*	40.00	*mL DI =*	**0.63**	***mg/L Cr+6***

SAMPLE DATA — ***Sample pre-dilution assumes 40 mL of sample are pH adjusted then diluted to 50 mL***

mg/L = ((Abs - Blkabs -Blkgabs) - intercept) / slope *NOTE: enter dilution factor as mLfinal/mLsample (e.g. 1mL diluted to 5mL = 5/1 = 2.0)*

SAMPLE ID	Time of Analysis	Sample pre-dilution	Spectrophotometric Data: dilution	Background	ABS @ 540nm	(mg/L)	Corrected (mg/L)	NOTES
ICB		1.000	1		0.000	-0.004	**< 0.01**	*Blk OK*
ICV		1.000	1		0.222	0.265	**0.265**	*106.01%*
Prep Blk		1.250	1		0.001	-0.003	**< 0.01**	*Blk OK*
Prep Chk		1.250	1		0.408	0.613	**0.613**	*97.81%*
DQL		1.250	1		0.028	0.038	**0.038**	
UA20 A2		1.250	1		0.001	-0.003	**< 0.01**	
UA20 A2 dup		1.250	1		0.001	-0.003	**< 0.01**	*RPD NA*
UA20 A2 ms		1.250	1		0.410	0.616	**0.616**	*% Rec= 98.3*
Spike at	0.500	*mL stock to*		40	*mL sample=*	0.627	*mg/L*	*Validated*
UA20 B1		1.250	1		0.002	-0.002	**< 0.01**	
CCB		1.000	1		0.000	-0.004	**< 0.01**	*Blk OK*
CCV		1.000	1		0.222	0.265	**0.265**	*106.01%*

UA17 : 00389

HEXAVALENT CHROMIUM BENCHSHEET

Diphenyl carbazide colorimetric (SW-846 7196A)

Date / Time: 12-6-11 15:20

Analyst: CMS

REAGENTS

Sulfuric Acid: ~~8702C~~ CMJD 8072C

Acetone:

Diphenylcarbazide: 8745C

pH METER

Meter ID: ACCUMET AR60

Electrode ID: 9154015P 18

CALIBRATION

Cr+6 Curve Standard		ARI ID: 00116-1			Date Prepared: 5-2-11	
Stock	0.0709	g K2Cr2O7 to	500	mL =	50.1	mg/L Cr+6
Intermediate	5	mL Stock to	50	mL =	5.01	mg/L Cr+6

Standard Curve Data — final volume of prepared standards = 50 mL

TIME: — Instrument Used: SPEC 2

ml Intermediate	Conc (mg/l)	Absorbance @ 540 nm 1	2	Avg Blk Corr Abs		
0.0	0.00	0.000			= blank abs	
0.1	0.01	0.008				
0.5	0.05	0.042				
1.0	0.10	0.088				
5.0	0.50	0.425				
10.0	1.00	0.827				

Regression Data

Conc = (abs-intercept)/slope

intercept =

slope =

r =

Comment:

maxabs =

Calibration Verification Standard

Source	ERA # 0504093			Stock Conc	1,000	mg/L Cr+6
DQL Int.=	0.10	ml stock to	10	mL pH2 =	10.00	mg/L Cr+6
DQL =	0.40	ml DQL Int. to	100	mL pH2 =	0.04	mg/L Cr+6
CVS =	0.05	ml stock to	200	mL pH2 =	0.25	mg/L Cr+6

Prep Check Standard

Dilution	0.50	ml stock to	40.00	mL DI =	0.63	mg/L Cr+6

SAMPLE DATA — ***Sample pre-dilution assumes 40 mL of sample are pH adjusted then diluted to 50 mL***

mg/L = ((Abs - Blkabs -Bkgabs) - intercept) / slope NOTE: enter dilution factor as mLfinal/mLsample (e.g. 1mL diluted to 5mL = 5/1 = 2.0)

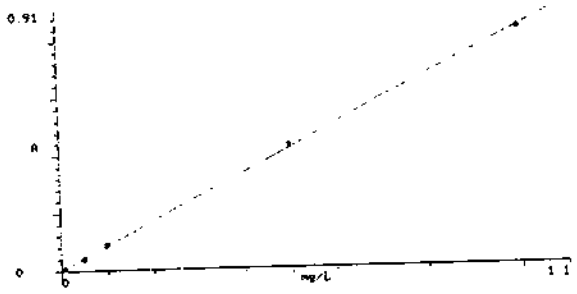
SAMPLE ID	Time of Analysis	Sample pre-dilution	Spectrophotometric Data: dilution	Background	ABS @ 540nm	(mg/L)	Corrected (mg/L)	NOTES
ICB		1.000	1		0.000			
ICV		1.000	1		0.222			
Prep Blk		1.250	1		0.001			
Prep Chk		1.250	1		0.408			
DQL		1.250	1		0.028			
LLA20 A^2		1.250	1		0.001			
A^{2R}		1.250	1		0.001			
A^2_{MS}		1.250	1		0.410			
B^1		1.250	1		0.002			
CCB		1.250	1		0.000			
CCV		1.250	1		0.222			
		1.250	1					
CCB		1.000	1					
CCV		1.000	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
		1.250	1					
CCB		1.000	1					
CCV		1.000	1					

12-6-11 CMS

UA17 : 00390

TEST SETUP
GENESYS 10 v3.001 2D7H048001

Standard Curve	5:01pm 6Dec11
Test Name	CHROME 6[Saved]
Date Standards Measured	5Dec11
Wavelength	540nm
Ref. Wavelength Correction	Off
Curve Fit	Linear
Number of Standards	6
Units	mg/L
ID# (0=OFF)	1
Low/High Limits	-9999/9999
Statistics	Off
Auto Print	On



Curve Fit	Linear
Slope	0.829
Intercept	0.00233
Std Dev	0.005
Corr Coeff	1.000

Std #	Conc. mg/L	Abs 540nm
1	0.000	0.000
2	0.010	0.008
3	0.050	0.042
4	0.100	0.088
5	0.500	0.425
6	1.000	0.827

12-6-11
CMC

2	0.222
3	0.001
4	0.408
5	0.028
6	0.001
7	0.001
8	0.410
9	0.002
10	0.000
11	0.222

TEST SETUP
GENESYS 10 v3.001 2D7H048001

Advanced A-XT-C	5:21pm 6Dec11
Test Name	CHROME 6[Saved]
Measurement Mode	Absorbance
Wavelength	540nm
Ref. Wavelength Correction	Off
Delay Time (min:sec)	0:00
ID# (0=OFF)	1
Low/High Limits	-9999/9999
Statistics	Off
Auto Print	On

ID#	Abs 540nm
1	0.000

Original Run Filename: OM_12-8-2011_03-52-51PM.OMN Created: 12/8/2011 3:52:51 PM
Original Run Author's Signature: [Ursula Walter]
Current Run Filename: 120811NH3C.omn Last Modified: 12/8/2011 6:57:44 PM
Current Run Author's Signature: [Ursula Walter]
Description: LACHAT1
ARI In-House Standards:00117-5

Sample	Cup No.	Channel 1		Detection Time	MANUAL DILUTION FACTOR	
STD 1.0	S1	1	36.3795	12/8/2011@3:53:51 PM		
STD 0.8	S2	0.8	28.4636	12/8/2011@3:55:01 PM		
STD 0.5	S3	0.5	17.7943	12/8/2011@3:56:11 PM		
STD 0.2	S4	0.2	6.6334	12/8/2011@3:57:22 PM		
STD 0.05	S5	0.05	2.6908	12/8/2011@3:58:32 PM		
STD 0.02	S6	0.02	0.3943	12/8/2011@3:59:42 PM		
STD 0.01	S7	0.01	0.2603	12/8/2011@4:00:53 PM		
BLANK	S8	0	-0.1156	12/8/2011@4:02:04 PM		
ICV ERA 130611	9	0.4591	16.4913	12/8/2011@4:03:14 PM		% R = 91.82
Known Conc:		0.5				
Calibration:		Table/Fig. : 1				
ICB	10	0.0043	0.0796	12/8/2011@4:09:22 PM		
Known Conc:		0				
LOW	11	0.0068	0.1682	12/8/2011@4:15:30 PM		% R = 68.00
Known Conc:		0.01				
FILTER BLK	12	-0.001	-0.113	12/8/2011@4:22:07 PM		
TZ60 A4	13	0.0166	0.5246	12/8/2011@4:23:18 PM		
TZ46 A3	14	0.0014	-0.0236	12/8/2011@4:24:28 PM		% RPD = NA
TZ46 A3 DUP	15	0.0066	0.161	12/8/2011@4:25:38 PM		
TZ46 A3 MS	16	0.5243	18.8454	12/8/2011@4:26:50 PM		% R = 104.86
Spiking Conc:		0.5				0.25 ml * 20 ppm / 10 ml

TZ46 B3	19	0.0106	0.3071	12/8/2011@4:28:00 PM		
TZ46 C3	20	0.0127	0.3813	12/8/2011@4:29:11 PM		
TZ46 D3	21	0.0094	0.2654	12/8/2011@4:30:22 PM		
TZ46 E3	22	0.0071	0.1794	12/8/2011@4:31:33 PM		
~~CCV~~	~~17~~	~~0.3876~~	~~14.2727~~	12/8/2011@4:32:44 PM		~~% R = 79.52~~
Known Conc:		0.5				
CCB	18	-0.0052	-0.2648	12/8/2011@4:38:55 PM		
Known Conc:		0				
CCV	17	0.5359	19.2635	12/8/2011@4:45:03 PM		% R = 107.18
Known Conc:		0.5				
~~LOW~~	~~11~~	~~0.0046~~	~~0.0918~~	12/8/2011@4:49:57 PM		
~~Known Conc:~~		~~0.01~~				
~~TZ46 F3~~	~~23~~	~~-0.0026~~	~~-0.1667~~	12/8/2011@4:51:36 PM		
TZ47 A4	24	0.0457	1.5722	12/8/2011@4:52:47 PM		
TA47 B4	25	0.0094	0.2625	12/8/2011@4:53:57 PM		
TZ47 C4	26	0.0094	0.2641	12/8/2011@4:55:09 PM		
TZ47 D4	27	0.0126	0.3804	12/8/2011@4:56:20 PM		
TZ47 E4	28	0.0279	0.9328	12/8/2011@4:57:31 PM		
TZ47 F4	29	-7.97E-05	-0.0784	12/8/2011@4:58:42 PM		
TZ47 G4	30	0.0073	0.1862	12/8/2011@4:59:53 PM		
CCV	17	0.5252	18.8757	12/8/2011@5:01:04 PM		% R = 105.04
Known Conc:		0.5				
CCB	18	0.0028	0.0255	12/8/2011@5:07:13 PM		
Known Conc:		0				
TZ46 F3	31	0.0092	0.2559	12/8/2011@5:13:22 PM		
TZ84 A12	32	0.3597	12.905	12/8/2011@5:14:34 PM		

TZ84 A12 DUP	33	0.3737	13.4106	12/8/2011@5:15:45 PM		% RPD = 3.82
TZ84 A12 MS	34	0.8157	29.3611	12/8/2011@5:16:56 PM		% R = 91.20
Spiking Conc:		0.5				0.25 ml * 20 ppm / 10 ml
~~TZ84 B8~~	~~35~~	~~1.923~~	~~68.3194~~	12/8/2011@5:18:07 PM		
~~TZ97 A9~~	~~36~~	~~2.2813~~	~~82.2514~~	12/8/2011@5:19:19 PM		
TZ97 B17	37	0.4707	16.9113	12/8/2011@5:20:31 PM		
UA20 A5	38	0.0403	1.3799	12/8/2011@5:21:43 PM		
UA20 B4	39	0.2068	7.3883	12/8/2011@5:22:54 PM		
UA20 C2	40	0.074	2.5938	12/8/2011@5:24:05 PM		
CCV	17	0.5391	19.379	12/8/2011@5:25:16 PM		% R = 107.82
Known Conc:		0.5				
CCB	18	0.0004	-0.0624	12/8/2011@5:31:25 PM		
Known Conc:		0				
TZ84 B8	41	1.8195	13.0566	12/8/2011@5:37:35 PM	5	
TZ97 A9	42	2.056	14.7633	12/8/2011@5:38:46 PM	5	
TZ87 A1	43	0.2016	7.1981	12/8/2011@5:39:58 PM		
TZ87 A1 DUP	44	0.1943	6.9372	12/8/2011@5:41:10 PM		% RPD = 3.69
TZ87 A1 MS	45	0.7293	26.2433	12/8/2011@5:42:22 PM		% R = 105.54
Spiking Conc:		0.5				0.25 ml * 20 ppm / 10 ml
UA03 A2	46	0.6979	25.1115	12/8/2011@5:43:33 PM		
UA03 A2 DUP	47	0.7411	26.6702	12/8/2011@5:44:45 PM		% RPD = 6.00
~~UA03 A2 MS~~	~~48~~	~~1.2196~~	~~43.9334~~	12/8/2011@5:45:57 PM		
~~Spiking Conc:~~		~~0.5~~				
UA03 B2	49	0.0088	0.2434	12/8/2011@5:47:09 PM		
UA03 C2	50	0.0199	0.641	12/8/2011@5:48:21 PM		
CCV	17	0.5357	19.2565	12/8/2011@5:49:32 PM		% R = 107.14

Known Conc:		0.5				
CCB	18	0.0045	0.086	12/8/2011@5:55:40 PM		
Known Conc:		0				
UA03 A2 MS @ 2.5 PPM	51	3.2925	23.6881	12/8/2011@6:01:51 PM	5	% R = 103.78
						0.25 ml * 20 ppm / 10 ml
UA31 A3	52	0.0182	0.582	12/8/2011@6:03:02 PM		
UA31 A3 DUP	53	0.0193	0.6201	12/8/2011@6:04:15 PM		% RPD = 5.87
UA31 A3 MS	54	0.5435	19.5361	12/8/2011@6:05:26 PM		% R = 105.06
Spiking Conc:		0.5				0.25 ml * 20 ppm / 10 ml
~~UA31 B3~~	~~55~~	~~0.0247~~	~~0.8176~~	12/8/2011@6:06:38 PM		
UA31 C3	56	0.0456	1.5695	12/8/2011@6:07:51 PM		
UA31 D3	57	0.023	0.7558	12/8/2011@6:09:03 PM		
UA43 A4	58	0.0099	0.2823	12/8/2011@6:10:15 PM		
UA43 B4	59	0.0248	0.8189	12/8/2011@6:11:27 PM		
UA43 C4	60	0.0284	0.9506	12/8/2011@6:12:39 PM		
CCV	17	0.529	19.0153	12/8/2011@6:13:50 PM		% R = 105.80
Known Conc:		0.5				
CCB	18	0.0095	0.2688	12/8/2011@6:19:58 PM		
Known Conc:		0				
UA43 D4	19	0.0294	0.9848	12/8/2011@6:26:07 PM		
UA43 E4	20	0.017	0.5378	12/8/2011@6:27:17 PM		
UA43 F4	21	-0.0031	-0.1882	12/8/2011@6:28:29 PM		
~~UA50 A2~~	~~22~~	~~19.2323~~	~~693.9603~~	12/8/2011@6:29:40 PM		
~~UA31 B3~~	~~23~~	~~-0.0286~~	~~-1.1059~~	12/8/2011@6:30:51 PM		
~~DI WATER~~	~~8~~	~~-0.0029~~	~~-0.1793~~	12/8/2011@6:32:01 PM		
~~DI WATER~~	~~8~~	~~0.0012~~	~~-0.0323~~	12/8/2011@6:36:30 PM		

UA50 A2	24	24.185	8.6522	12/8/2011@6:37:41 PM	100
UA31 B3	23	0.0068	0.1714	12/8/2011@6:38:51 PM	
~~1 PPM~~	~~1~~	~~0.9948~~	~~35.8255~~	12/8/2011@6:40:02 PM	
CCV	17	0.5176	18.6014	12/8/2011@6:46:11 PM	
Known Conc:		0.5			
CCB	18	0.0061	0.144	12/8/2011@6:52:19 PM	
Known Conc:		0			

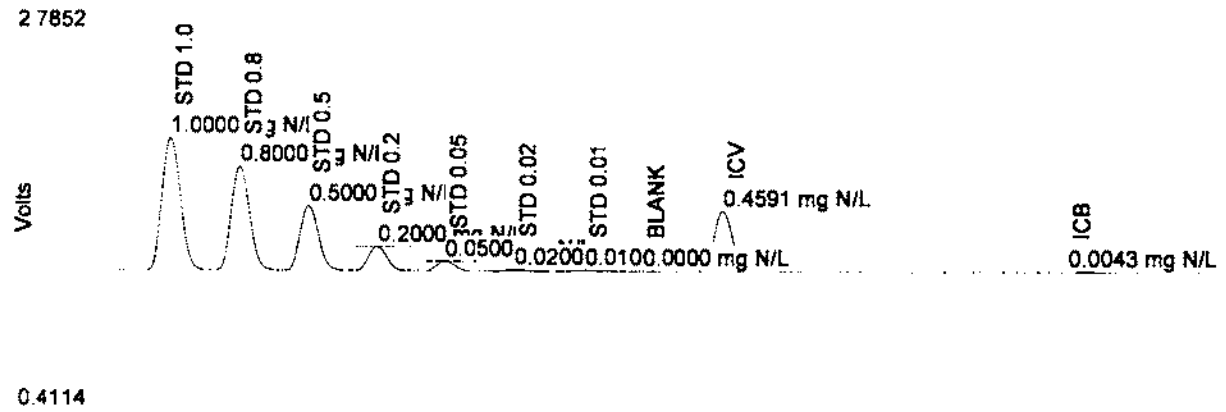
% R = 103.52

Original Run Filename: OM_12-8-2011_03-52-51PM.OMN Created: 12/8/2011 3:52:51 PM
Original Run Author's Signature: [Ursula Walter]
Current Run Filename: 120811NH3C.omn Last Modified: 12/8/2011 6:57:44 PM
Current Run Author's Signature: [Ursula Walter]
Description: Default New Run

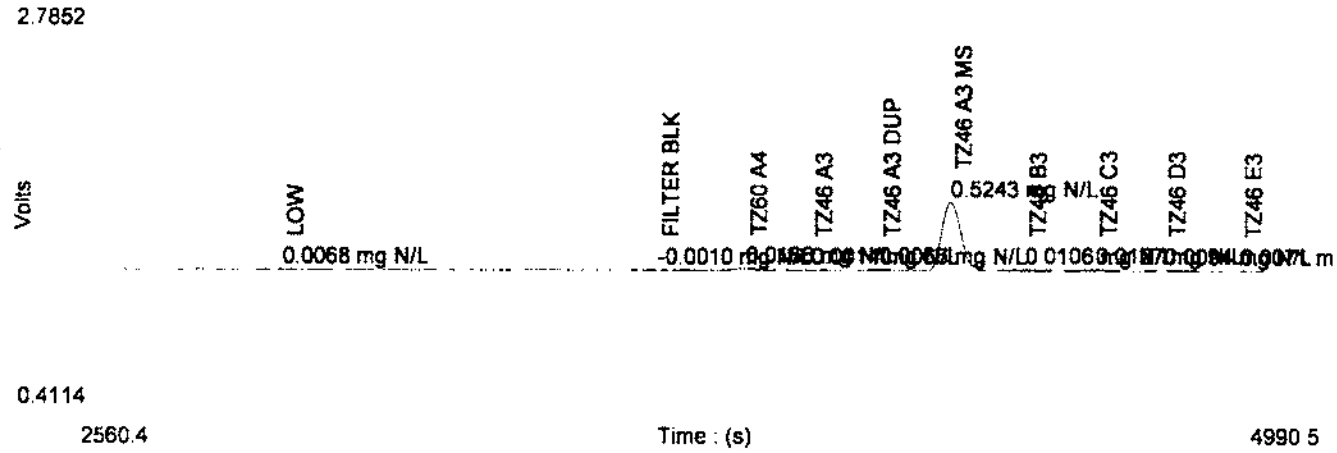
Sample	Cup No.	Channel 1 NH3 Conc. (mg N/L)	Area (V.s)	Detection Time	MDF
STD 1.0	S1	1.0000	36.3795	12/8/2011@3:53:51 PM	
STD 0.8	S2	0.8000	28.4636	12/8/2011@3:55:01 PM	
STD 0.5	S3	0.5000	17.7943	12/8/2011@3:56:11 PM	
STD 0.2	S4	0.2000	6.6334	12/8/2011@3:57:22 PM	
STD 0.05	S5	0.0500	2.6908	12/8/2011@3:58:32 PM	
STD 0.02	S6	0.0200	0.3943	12/8/2011@3:59:42 PM	
STD 0.01	S7	0.0100	0.2603	12/8/2011@4:00:53 PM	
BLANK	S8	0.0000	-0.1156	12/8/2011@4:02:04 PM	
ICV	9	0.4591	16.4913	12/8/2011@4:03:14 PM	
Known Conc:		0.5000			
Calibration:		Table/Fig. : 1			
ICB	10	0.0043	0.0796	12/8/2011@4:09:22 PM	
Known Conc:		0.0000			
LOW	11	0.0068	0.1682	12/8/2011@4:15:30 PM	
Known Conc:		0.0100			
FILTER BLK	12	-0.0010	-0.1130	12/8/2011@4:22:07 PM	
TZ60 A4	13	0.0166	0.5246	12/8/2011@4:23:18 PM	
TZ46 A3	14	0.0014	-0.0236	12/8/2011@4:24:28 PM	
TZ46 A3 DUP	15	0.0066	0.1610	12/8/2011@4:25:38 PM	
TZ46 A3 MS	16	0.5243	18.8454	12/8/2011@4:26:50 PM	
Spiking Conc:		0.5000			
TZ46 B3	19	0.0106	0.3071	12/8/2011@4:28:00 PM	
TZ46 C3	20	0.0127	0.3813	12/8/2011@4:29:11 PM	
TZ46 D3	21	0.0094	0.2654	12/8/2011@4:30:22 PM	
TZ46 E3	22	0.0071	0.1794	12/8/2011@4:31:33 PM	
CCV	17	0.3976	14.2727	12/8/2011@4:32:44 PM	
Known Conc:		0.5000			
CCB	18	-0.0052	-0.2648	12/8/2011@4:38:55 PM	
Known Conc:		0.0000			
CCV	17	0.5359	19.2635	12/8/2011@4:45:03 PM	
Known Conc:		0.5000			
LOW	11	0.0046	0.0918	12/8/2011@4:49:57 PM	
Known Conc:		0.0100			
TZ46 F3	23	-0.0025	-0.1667	12/8/2011@4:51:36 PM	
TZ47 A4	24	0.0457	1.5722	12/8/2011@4:52:47 PM	
TA47 B4	25	0.0094	0.2625	12/8/2011@4:53:57 PM	
TZ47 C4	26	0.0094	0.2641	12/8/2011@4:55:09 PM	
TZ47 D4	27	0.0126	0.3804	12/8/2011@4:56:20 PM	
TZ47 E4	28	0.0279	0.9328	12/8/2011@4:57:31 PM	
TZ47 F4	29	-7.9664e-5	-0.0784	12/8/2011@4:58:42 PM	
TZ47 G4	30	0.0073	0.1862	12/8/2011@4:59:53 PM	
CCV	17	0.5252	18.8757	12/8/2011@5:01:04 PM	
Known Conc:		0.5000			
CCB	18	0.0028	0.0255	12/8/2011@5:07:13 PM	
Known Conc:		0.0000			
TZ46 F3	31	0.0092	0.2559	12/8/2011@5:13:22 PM	
TZ84 A12	32	0.3597	12.9050	12/8/2011@5:14:34 PM	
TZ84 A12 DUP	33	0.3737	13.4106	12/8/2011@5:15:45 PM	
TZ84 A12 MS	34	0.8157	29.3611	12/8/2011@5:16:56 PM	
Spiking Conc:		0.5000			
TZ84 B8	35	1.9230	69.3194	12/8/2011@5:18:07 PM	
TZ97 A9	36	2.2813	82.2514	12/8/2011@5:19:19 PM	
TZ97 B17	37	0.4707	16.9113	12/8/2011@5:20:31 PM	
UA20 A5	38	0.0403	1.3799	12/8/2011@5:21:43 PM	
UA20 B4	39	0.2068	7.3883	12/8/2011@5:22:54 PM	
UA20 C2	40	0.0740	2.5938	12/8/2011@5:24:05 PM	
CCV	17	0.5391	19.3790	12/8/2011@5:25:16 PM	
Known Conc:		0.5000			

CCB	18	0.0004	-0.0624	12/8/2011@5:31:25 PM	
Known Conc:		0.0000			
TZ84 B8	41	1.8195	13.0566	12/8/2011@5:37:35 PM	5.00
TZ97 A9	42	2.0560	14.7633	12/8/2011@5:38:46 PM	5.00
TZ87 A1	43	0.2016	7.1981	12/8/2011@5:39:58 PM	
TZ87 A1 DUP	44	0.1943	6.9372	12/8/2011@5:41:10 PM	
TZ87 A1 MS	45	0.7293	26.2433	12/8/2011@5:42:22 PM	
Spiking Conc:		0.5000			
UA03 A2	46	0.6979	25.1115	12/8/2011@5:43:33 PM	
UA03 A2 DUP	47	0.7411	26.6702	12/8/2011@5:44:45 PM	
UA03 A2 MS	48	1.2195	43.9334	12/8/2011@5:45:57 PM	
Spiking Conc:		0.5000			
UA03 B2	49	0.0088	0.2434	12/8/2011@5:47:09 PM	
UA03 C2	50	0.0199	0.6410	12/8/2011@5:48:21 PM	
CCV	17	0.5357	19.2565	12/8/2011@5:49:32 PM	
Known Conc:		0.5000			
CCB	18	0.0045	0.0860	12/8/2011@5:55:40 PM	
Known Conc:		0.0000			
UA03 A2 MS @ 2.5 PPM	51	3.2925	23.6881	12/8/2011@6:01:51 PM	5.00
UA31 A3	52	0.0182	0.5820	12/8/2011@6:03:02 PM	
UA31 A3 DUP	53	0.0193	0.6201	12/8/2011@6:04:15 PM	
UA31 A3 MS	54	0.5435	19.5361	12/8/2011@6:05:26 PM	
Spiking Conc:		0.5000			
UA31 B3	55	0.0247	0.8176	12/8/2011@6:06:38 PM	
UA31 C3	56	0.0456	1.5695	12/8/2011@6:07:51 PM	
UA31 D3	57	0.0230	0.7558	12/8/2011@6:09:03 PM	
UA43 A4	58	0.0099	0.2823	12/8/2011@6:10:15 PM	
UA43 B4	59	0.0248	0.8189	12/8/2011@6:11:27 PM	
UA43 C4	60	0.0284	0.9506	12/8/2011@6:12:39 PM	
CCV	17	0.5290	19.0153	12/8/2011@6:13:50 PM	
Known Conc:		0.5000			
CCB	18	0.0095	0.2688	12/8/2011@6:19:58 PM	
Known Conc:		0.0000			
UA43 D4	19	0.0294	0.9848	12/8/2011@6:26:07 PM	
UA43 E4	20	0.0170	0.5378	12/8/2011@6:27:17 PM	
UA43 F4	21	-0.0031	-0.1882	12/8/2011@6:28:29 PM	
UA50 A2	22	19.2323	693.9603	12/8/2011@6:29:40 PM	
UA31 B3	23	-0.0286	-1.1059	12/8/2011@6:30:51 PM	
DI WATER	8	-0.0029	-0.1793	12/8/2011@6:32:01 PM	
DI WATER	8	0.0012	-0.0323	12/8/2011@6:36:30 PM	
UA50 A2	24	24.1850	8.6522	12/8/2011@6:37:41 PM	100.00
UA31 B3	23	0.0068	0.1714	12/8/2011@6:38:51 PM	
Sample81	1	0.9948	35.8255	12/8/2011@6:40:02 PM	
CCV	17	0.5176	18.6014	12/8/2011@6:46:11 PM	
Known Conc:		0.5000			
CCB	18	0.0061	0.1440	12/8/2011@6:52:19 PM	
Known Conc:		0.0000			

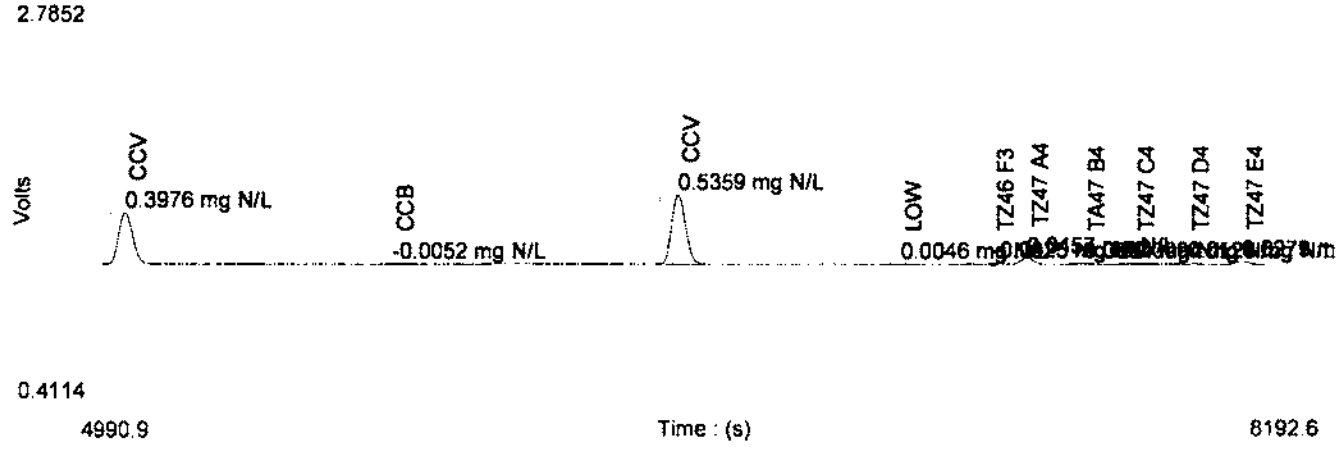
Channel 1 - Set: 1 / 9



Channel 1 - Set: 2 / 9

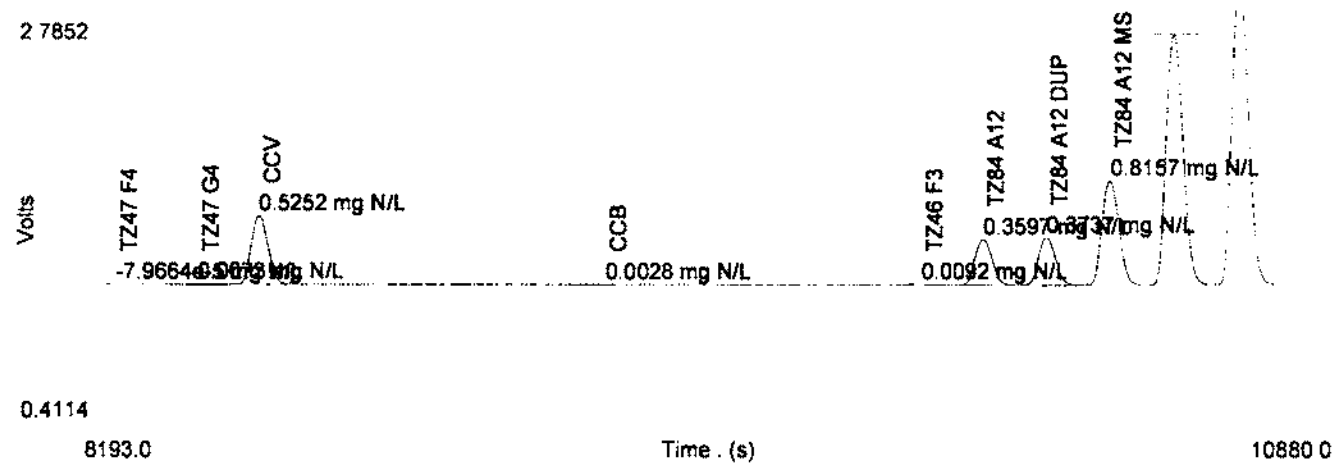


Channel 1 - Set: 3 / 9

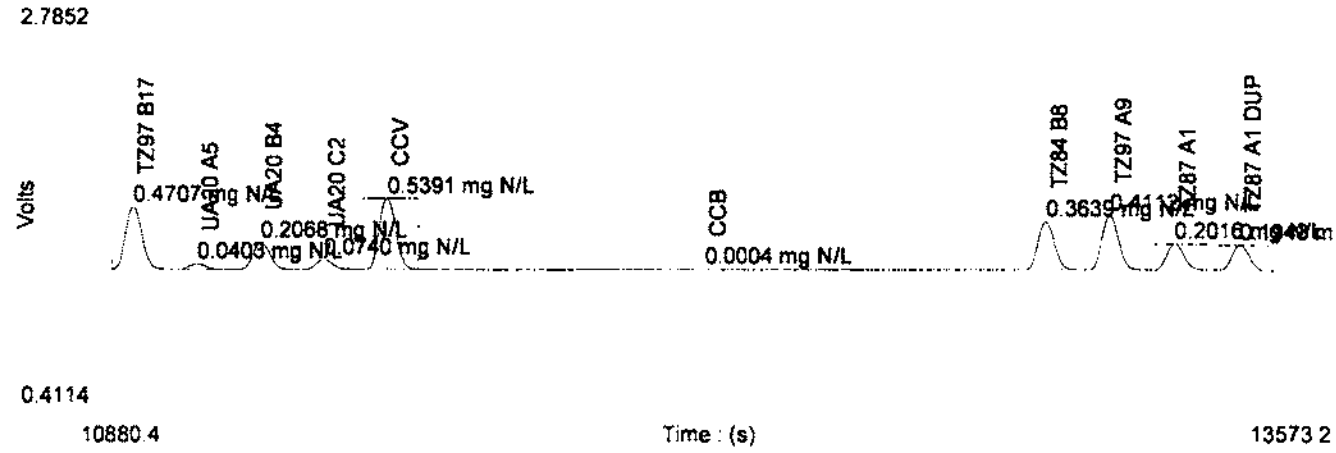


UA17 : 00399

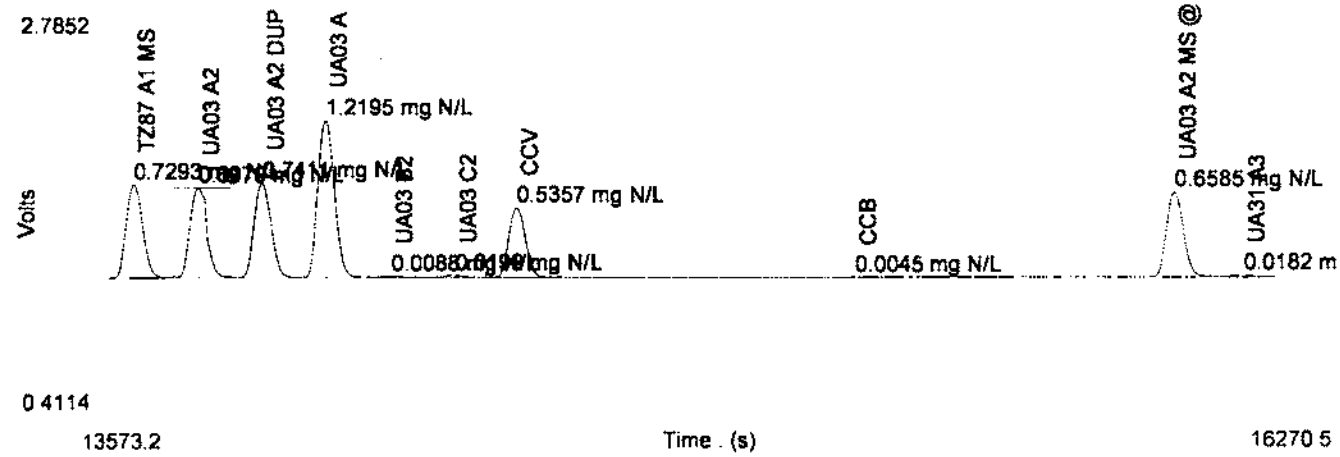
Channel 1 - Set: 4 / 9



Channel 1 - Set: 5 / 9

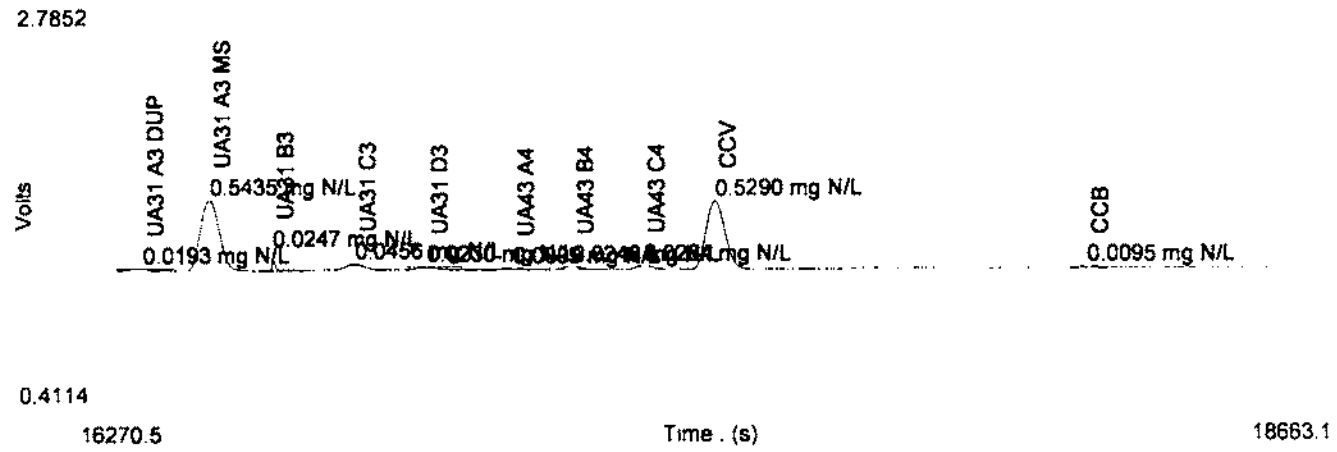


Channel 1 - Set: 6 / 9

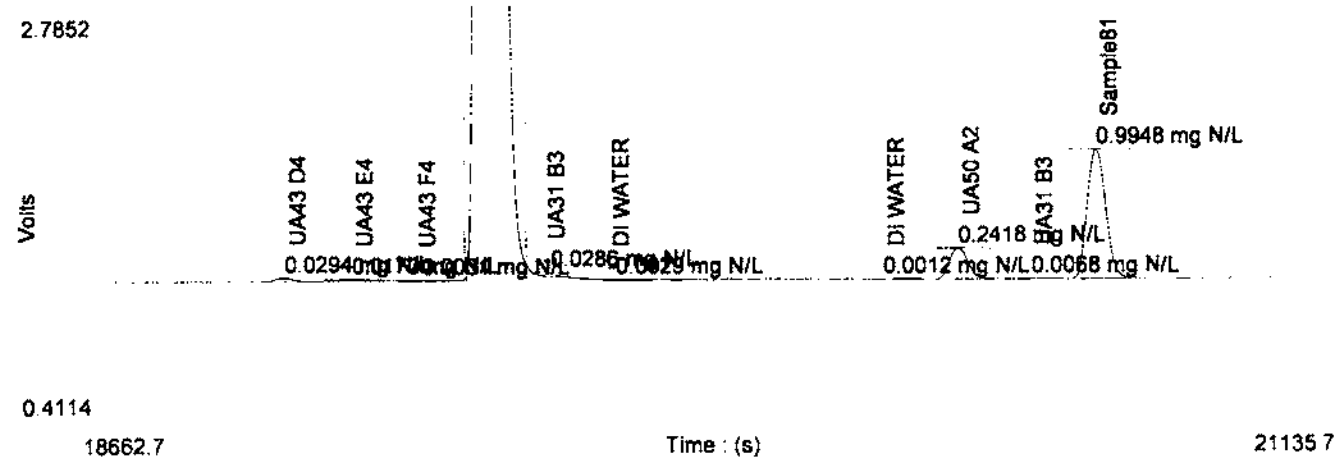


UA17 : 00400

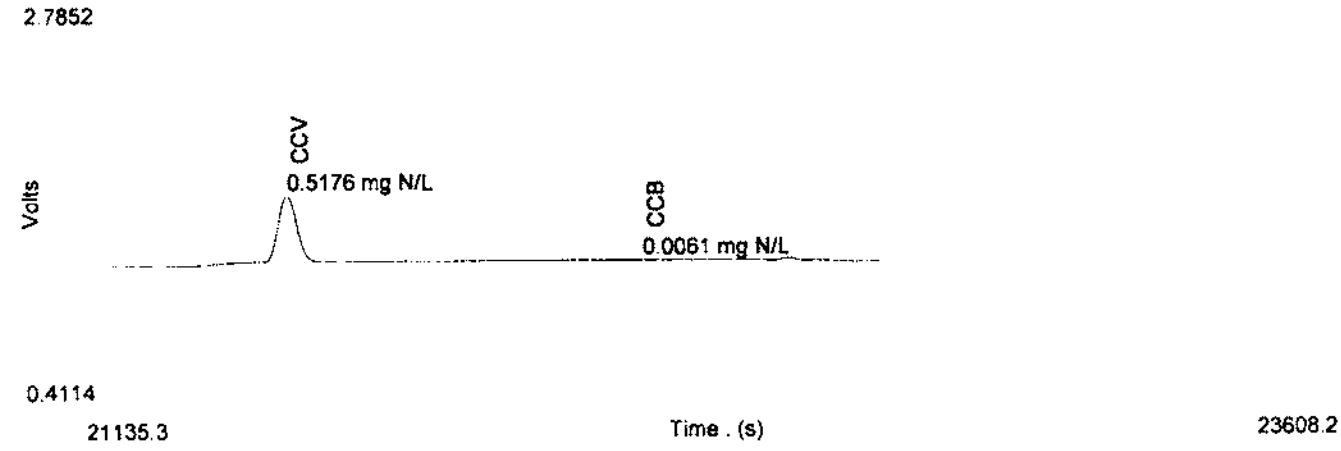
Channel 1 - Set: 7 / 9



Channel 1 - Set: 8 / 9



Channel 1 - Set: 9 / 9

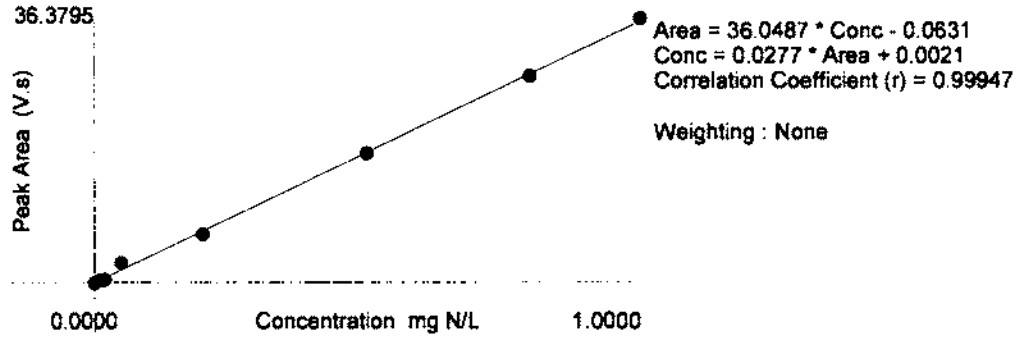


UA17:00401

Table : 1 (NH3)

	Known Conc. (mg N/L)	Rep.	Peak Area (V.s)	Peak Height (V)	% RSD	% Residual	Det. Conc (mg N/L)	Detection Date	Detection Time
1	1.0000	1	36.3795	0.8251	0.0	-1.1	1.0102	12/8/2011	3:53:51 PM
2	0.8000	1	28.4636	0.6461	0.0	1.1	0.7908	12/8/2011	3:55:01 PM
3	0.5000	1	17.7943	0.4019	0.0	0.9	0.4952	12/8/2011	3:56:11 PM
4	0.2000	1	6.6334	0.1494	0.0	7.2	0.1859	12/8/2011	3:57:22 PM
5	0.0500	1	2.6908	0.0613	0.0	-54.7	0.0767	12/8/2011	3:58:32 PM
6	0.0200	1	0.3943	0.0098	0.0	40.1	0.0130	12/8/2011	3:59:42 PM
7	0.0100	1	0.2603	0.0067	0.0	12.5	0.0093	12/8/2011	4:00:53 PM
8	0.0000	1	-0.1156	-0.0021			-0.0011	12/8/2011	4:02:04 PM

Figure : 1 (NH3)



UA17 : 00402

12-8-11

TOTAL SUSPENDED SOLIDS / VOLATILE SUSPENDED SOLIDS (TSS / TVSS)

Methods : SM 2540 D-97, 2540 E-97

DATE: 12/8/11 944

ANALYST: SM

Instrumentation ***Drying Ovens:*** 12 ***Analytical Balance:*** 1123230597

Muffle Furnace:

make no entries to shaded cells
they are calculated !!

TSS (mg/l) calculated as:
Final dry wt (mg) = (minimum Dry Wt - Tare Wt)*1000
TSS = [(Final Dry Wt)/ ml Sample] * 1000
if dy wt < 1mg, TSS = <1mg / mL sample * 1000
with "<" flag

Loss on ignition (LOI) = TVSS (mg/L) calculated as:
LOI (mg) = Dry wt(mg) -((min ash wt - tare wt) * 1000)
TVSS (mg/L) = LOI / mL sample * 1000
if LOI <1mg, TVSS = <1mg / mL sample * 1000
with "<" flag

LCS source: *Cellulose, MP Biomedicals Lot# 6399J* 0.05 grams to 1000 mL = **50** ***mg/L TSS***

SAMPLE ID	DISH #	filtered (mL)	TARE WT (grams)	DRY WT 104C (grams) 1	2	3	4	DryWT (mg)	TSS (mg/L)	ASH WT 550C (grams) 1	2	3	4	LOI (mg)	TVSS (mg/l)
Cal Weight ID			CV-02	CV-02	CV-02	CV-02	CV-02			CV-02	CV-02	CV-02	CV-02		
Date & Time				12/8/11 1203	12/8/11 1424										
Cal Wt (g) 10.0000				10.0000	10.0000										
record weights to 4 places				*Cal OK!*	*Cal OK!*										
BLANK		1000	0.1135	0.1134	0.1135	STOP		-0.1	< 1						
LCS # 586-8		1000	0.1189	0.1667	0.1669	STOP		47.8	**47.8**	95.6%	% Recovery				
UA31 A6		950	0.1179	0.1183	0.1183	STOP		0.4	**< 1.1**						
UA31 B6		960	0.1201	0.1207	0.1207	STOP		0.6	**< 1**						
UA31 C6		850	0.1150	0.1216	0.1215	STOP		6.5	**7.6**						
UA31 D6		970	0.1159	0.1168	0.1169	STOP		0.9	**< 1**						
UA20 A7		945	0.1181	0.1200	0.1199	STOP		1.8	**1.9**						
UA20 B6		930	0.1219	0.1240	0.1240	STOP		2.1	**2.3**						
UA17 A5		930	0.1151	0.1450	0.1447	STOP		29.6	**31.8**						
UA09 B6		940	0.1185	0.1222	0.1222	STOP		3.7	**3.9**						
UA40 A8		920	0.1175	0.1174	0.1174	STOP		-0.1	**< 1.1**						

UA17 : 00h09

Analytical Resources, Incorporated
Analytical Chemists and Consultants

TOTAL SUSPENDED (TSS) / TOTAL VOLATILE SUSPENDED SOLID(TVSS) BENCHSHEET

Analyst:	SM	Date/Time:	12-8-11 944	Oven #:	12	Muffle Furnance:		Balance:	1123230597

Dry at 104 °C (12-24 hrs) then combust at 550 °C for 30 min. Record Weights to 4 places

TSS (mg/L) calculated as:
Final Dry Weight (mg) = (Min Dry Weight – Tare Weight) * 1000
TSS = (Final Dry Weight) / (mL Sample) * 1000
If dry wt < 1 mg / mL sample * 1000 use "<" flag

Loss on Ignition (LOI) = TVSS (mg / L) is calculated as:
LOI (mg / L) = Dry Weight (mg) – [(Minimum Ash Weight – Tare Weight) * 1000]
TVSS (mg / L) = LOI / mL sample * 1,000
If LOI < 1 mg, TVSS = < 1 mg / mL sample * 1000 use "<" flag

LCS (Cellulose from MP Biochemicals) Lott #		8399J	0.0500 Gram to 1000 mL = 50 mg / L TSS								
Cal Weight ID	CV-02	CV-02	CV-02	CV-02	CV-02			CV-02	CV-02		
Date & Time:			12-8-11 1203	12-8-11 1424							
Cal Weight (10.0000g):			10.0000	10.0000							

Sample ID	Dish #	Filtered mL	Tare	Dry Weight 104°C (grams) 1	2	3	Dry Wt mg	TSS	Ash Weight 550°C 1	2	LOI - mg	TVSS mg/L
BLANK		1000	0.1135	0.1134	0.1135							
LCS 5868		1000	0.1189	0.1667	0.1669							
UA31 A6	1	950	0.1179	0.1183	0.1183							
B6	2	960	0.1201	0.1207	0.1207							
C6	3	850	0.1150	0.1216	0.1215							
D6	4	970	0.1159	0.1168	0.1169							
UA20 A7	5	945	0.1181	0.1200	0.1199							
B6	6	930	0.1219	0.1240	0.1240							
UA17 A5	7	930	0.1151	0.1450	0.1447							
UA09 B6	8	940	0.1185	0.1222	0.1222							
UA40 98	9	920	0.1175	0.1174	0.1174							

UA17 : 00484

[redacted]

Name:	**DEC0611RR**	*Calibration:*	**OCT0611RR** **ARI # 581-9**
Directory:	**Instrument Data\DEC 2011**	*Calibration exp:*	**1/6/2012**
Data Vault:	**ChromeleonLocal**	*Queue Start:*	12/6/2011 11:37
No. of Injections.	**23.000**	*User:*	**RR**

[redacted]

		ERA 161110	ERA 411010	ERA 401010	ERA 111109	ERA 160111	ERA 230611	ERA 200610
Name	Dilution	Amount n.a. Fluoride	Amount n.a. Chloride	Amount n.a. Nitrite	Amount n.a. Bromide	Amount n.a. Sulfate	Amount n.a. Nitrate	Amount n.a. Phosphate
RINSE	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ICV	1.0	2.997	3.039	3.173	3.010	2.540	3.033	2.923
%R=		**99.9%**	**101.3%**	**105.8%**	**100.3%**	**84.7%**	**101.1%**	**97.4%**
ICB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
[redacted]		0.020	20.296	n.a.	n.a.	n.a.	[redacted]	0.027
		0.023	6.959	n.a.	n.a.	4.095	[redacted]	0.019
		0.272	6.965	0.032	0.051	1.485	[redacted]	n.a.
		0.398	[redacted]	0.013	n.a.	19.087	[redacted]	n.a.
		0.398	[redacted]	0.013	n.a.	19.076	[redacted]	n.a.
%RPD=		**0.02%**	**0.11%**	**2.93%**		**0.06%**	**0.96%**	
[redacted]		2.395	[redacted]	2.004	1.875	n.a.	[redacted]	1.933
%R=		**99.9%**	**102.6%**	**99.6%**	**93.8%**		**107.0%**	**96.6%**
SPK=	**0.05mL*200ppm/5mL**		**=2ppm**					
[redacted]		0.218	[redacted]	0.011	n.a.	0.167	[redacted]	1.158
		0.211	2.516	n.a.	n.a.	n.a.	[redacted]	0.037
		0.211	2.519	n.a	n.a.	n.a.	[redacted]	0.020
%RPD=		**0.14%**	**0.10%**				**0.49%**	
[redacted]		2.211	4.571	1.996	1.916	n.a.	[redacted]	1.828
%R=		**100.0%**	**102.7%**	**99.8%**	**95.8%**		**108.0%**	**91.4%**
SPK=	**0.05mL*200ppm/5mL**		**=2ppm**					
CCV	1.0	2.995	3.051	3.157	3.019	2.453	3.064	2.954
%R=		**99.8%**	**101.7%**	**105.2%**	**100.6%**	**81.8%**	**102.1%**	**98.5%**
CCB	1.0	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	0.020
[redacted]		0.193	577.803	n.a.	1.795	n.a.	[redacted]	n.a
MIKE PRE	1.0	0.709	4.931	n.a.	n.a.	1.371	0.054	n.a.
MIKE POST	1.0	0.670	4.655	n.a.	n.a.	1.328	n.a.	n.a.
[redacted]		0.150	[redacted]	0.015	n.a.	10.547	[redacted]	n.a.
[redacted]		0.232	[redacted]	n.a.	n.a	1.236	[redacted]	n.a.
CCV	1.0	2.996	3.050	3.157	3.023	2.464	3.185	2.907
%R=		**99.9%**	**101.7%**	**105.2%**	**100.8%**	**82.1%**	**106.2%**	**96.9%**
CCB	1.0	n.a.	n.a.	n.a.	n.a.	n.a	n.a.	0.018
STOP	1.0	n.a.	n.a.	n.a.	n.a	n.a.	n.a.	n.a

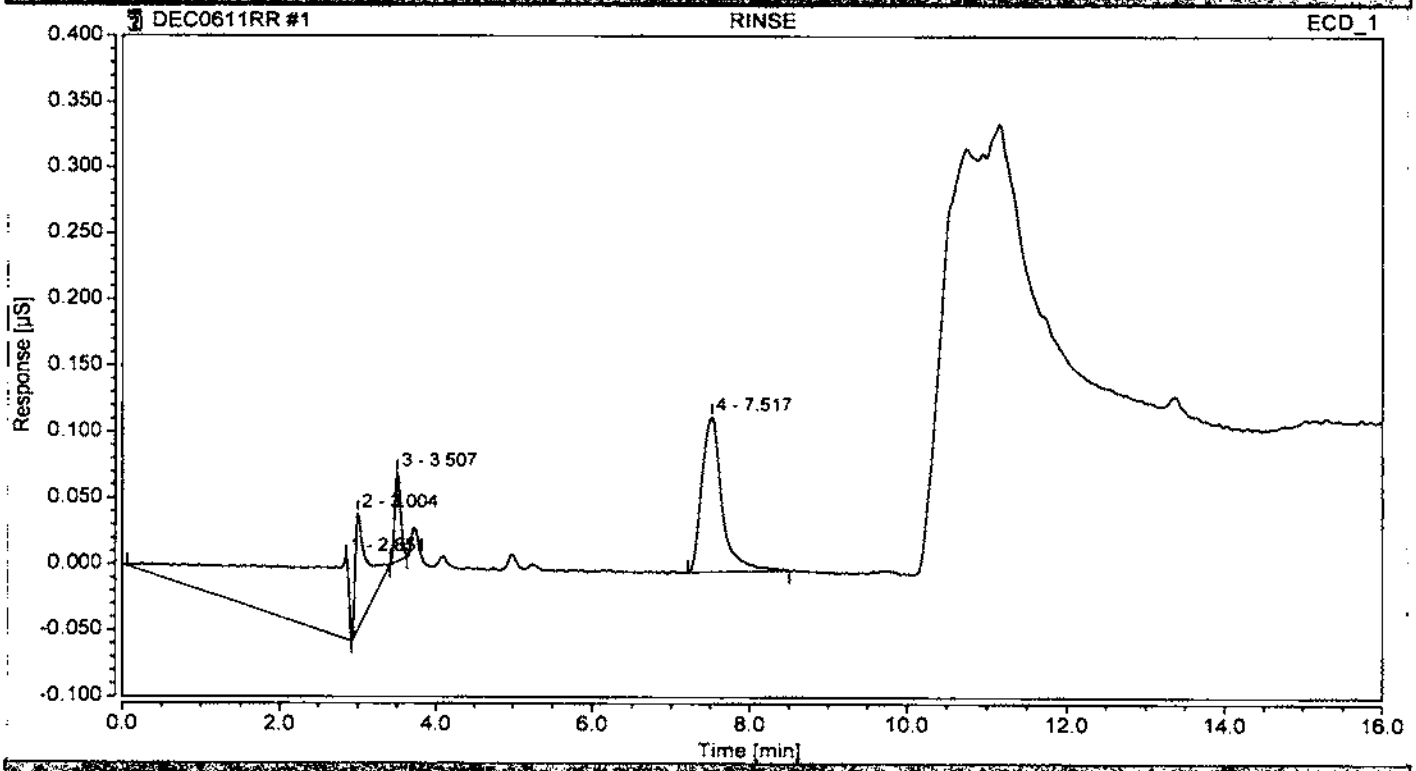
Name:	**DEC0611RR**	*Queue Start:*	**2011-12-06T11:37:27-**
Directory:	**Instrument Data\DEC 2011**	*Created By:*	**pat**
Data Vault:	**ChromeleonLocal**		
No. of Injections:	**23**		

No.	Injection Name	Position	Type	Level	Dilution	Inject Time
1	RINSE	1	Unknown		1.0	06/Dec/11 11:37:27
2	ICV	2	Check Standard	06	1.0	06/Dec/11 11:56:21
3	ICB	3	Blank		1.0	06/Dec/11 12:15:32
4	TZ94 A5	4	Unknown		1.0	06/Dec/11 12:34:48
5	TZ94 B5	5	Unknown		1.0	06/Dec/11 12:54:11
6	TZ97 A1	6	Unknown		1.0	06/Dec/11 13:13:37
7	TZ97 B1	7	Unknown		1.0	06/Dec/11 13:33:08
8	TZ97 B1 DUP	8	Unknown		1.0	06/Dec/11 13:52:46
9	TZ97 B1 MS	9	Unknown		1.0	06/Dec/11 14:12:29
10	TZ97 C1	10	Unknown		1.0	06/Dec/11 14:32:18
11	TZ99 A1	11	Unknown		1.0	06/Dec/11 14:52:13
12	TZ99 A1 DUP	12	Unknown		1.0	06/Dec/11 15:12:13
13	TZ99 A1 MS	13	Unknown		1.0	06/Dec/11 15:32:20
14	CCV	2	Check Standard	06	1.0	06/Dec/11 15:52:32
15	CCB	3	Blank		1.0	06/Dec/11 16:13:07
16	TZ99 B1	14	Unknown		1.0	06/Dec/11 16:33:49
17	MIKE PRE	15	Unknown		1.0	06/Dec/11 16:54:17
18	MIKE POST	16	Unknown		1.0	06/Dec/11 17:14:50
19	UA20 A1	17	Unknown		1.0	06/Dec/11 17:35:28
20	UA20 B1	18	Unknown		1.0	06/Dec/11 17:56:10
21	CCV	2	Check Standard	06	1.0	06/Dec/11 18:16:58
22	CCB	3	Blank		1.0	06/Dec/11 18:36:59
23	STOP	1	Unknown		1.0	06/Dec/11 18:57:10

Chromeleon (c) Dionex
Version 7.0.1.272

UA17 : 00408

Injection Name:	*RINSE*	Inject Number:	1
Vial Number:	*1*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodai*		
Injection Date/Time:	*06/12/11 11:37*		

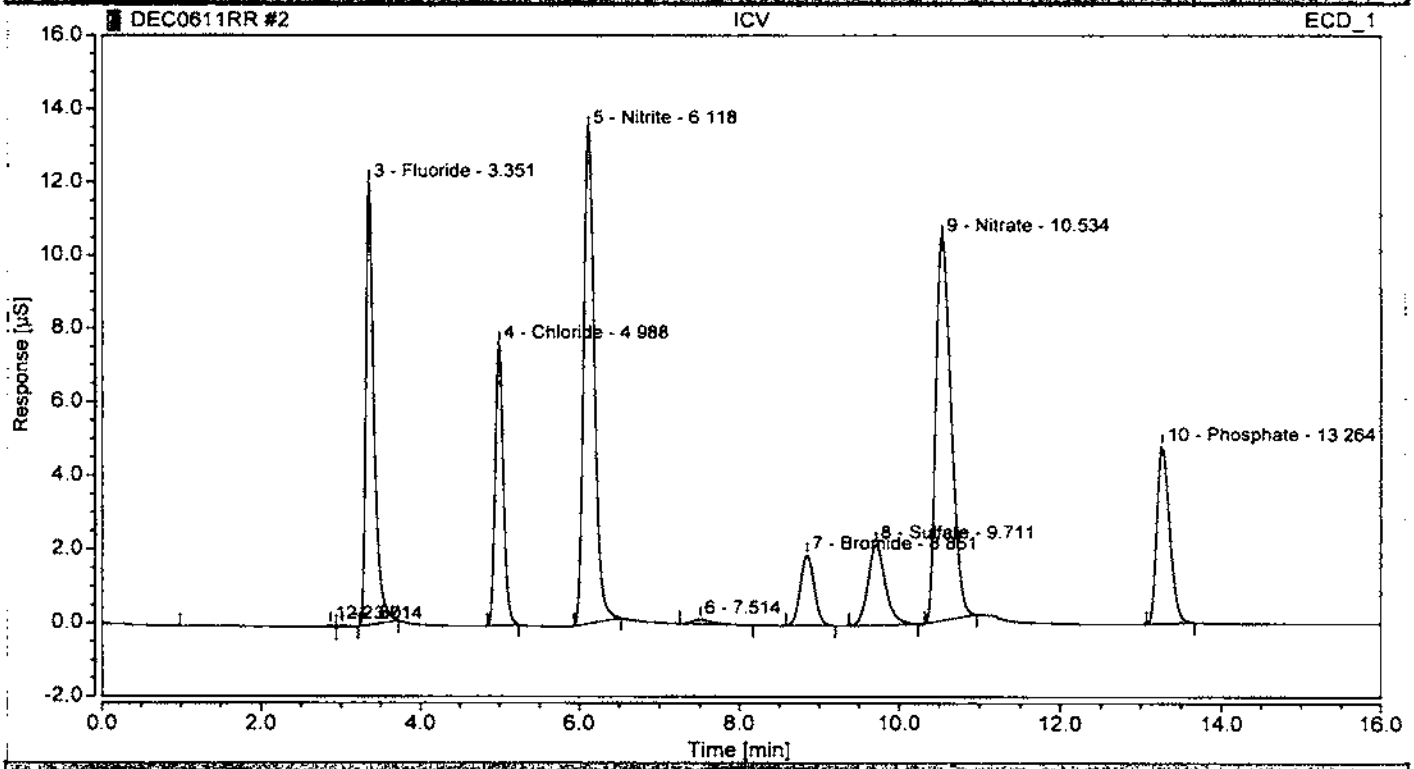


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.85	0.079	0.062	FALSE	n.a.
2		1.0	n.a.	3.00	0.015	0.088	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.006	0.067	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	7.52	0.035	0.117	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*ICV*	Inject Number:	2
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 11:56*		

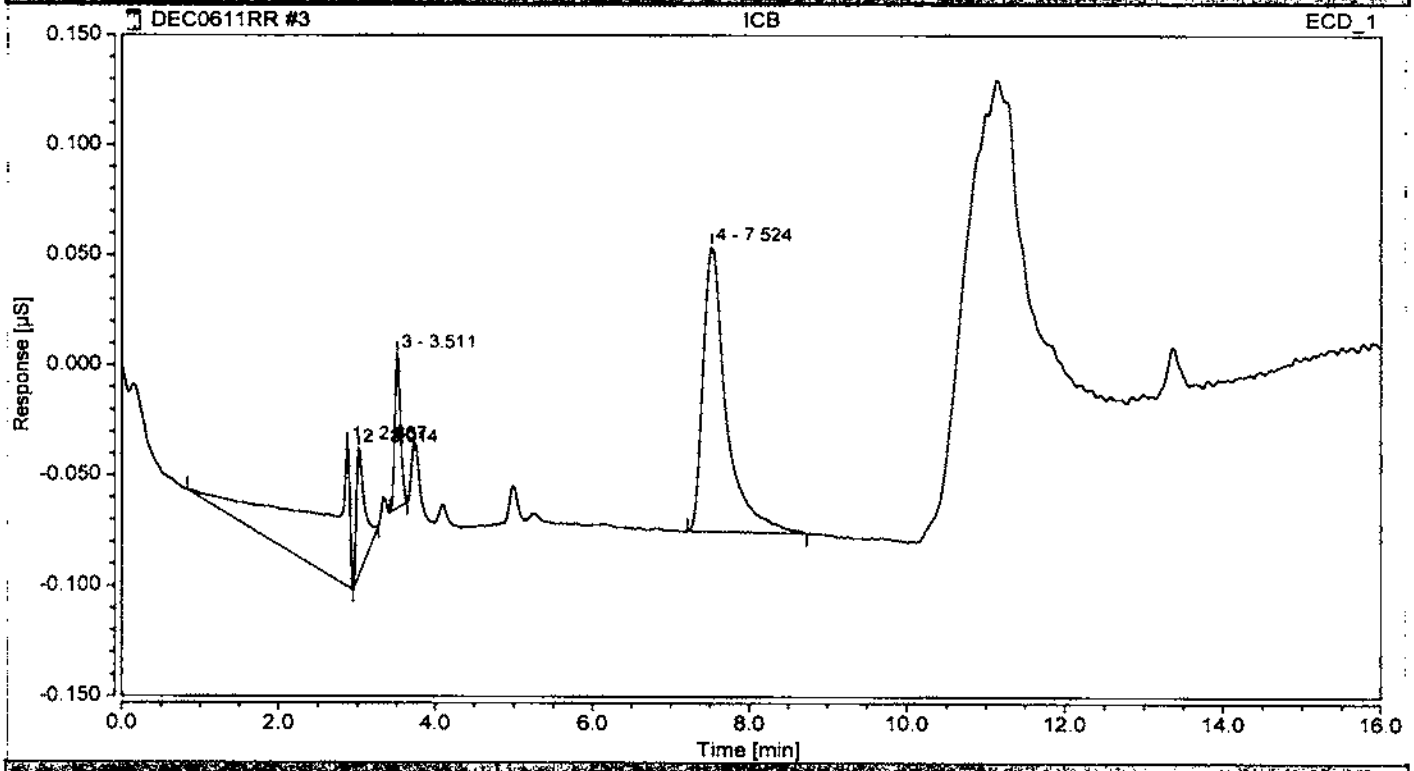
[redacted]



[redacted]

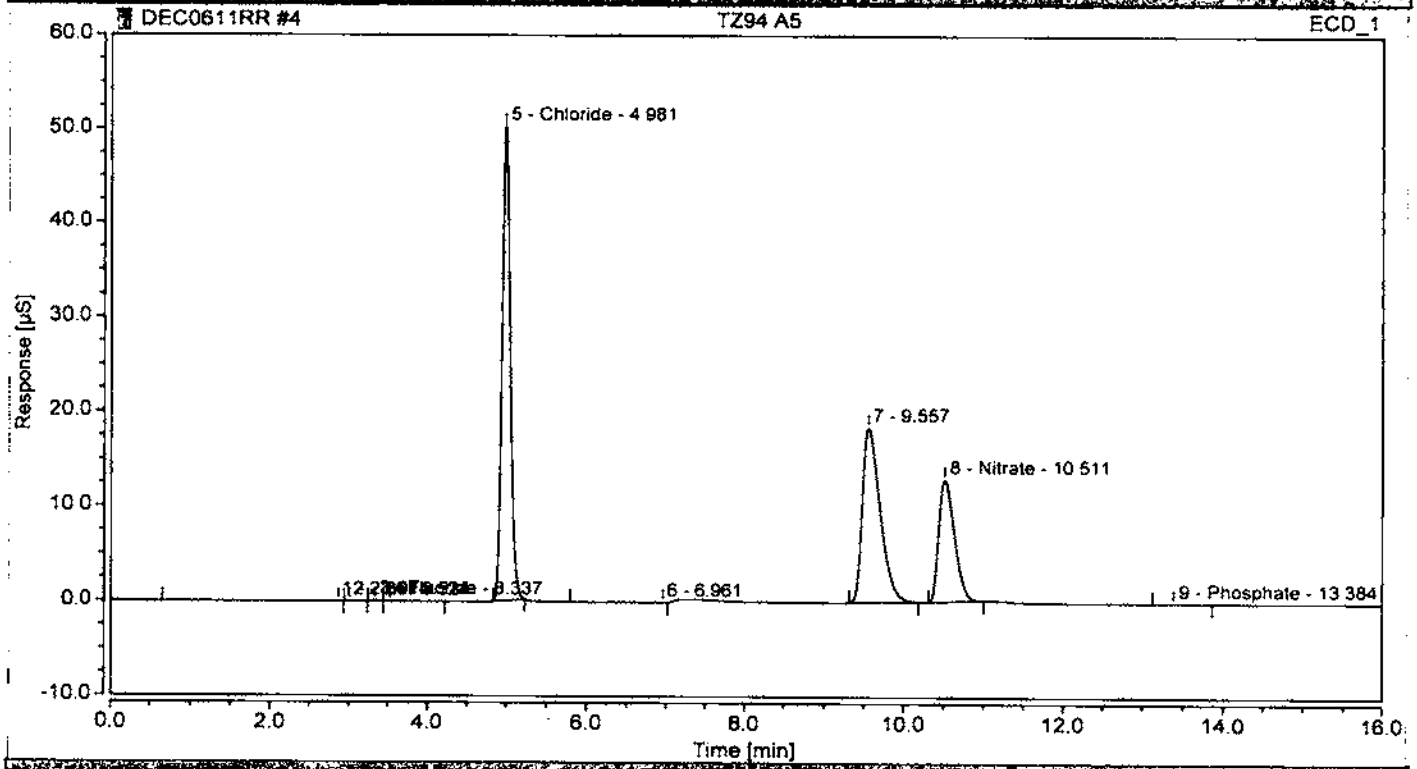
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.029	0.063	FALSE	n.a.
2		1.0	n.a.	3.01	0.006	0.055	FALSE	n.a.
3	Fluoride	1.0	2.997	3.35	1.439	12.033	FALSE	-0.11
4	Chloride	1.0	3.039	4.99	0.899	7.633	FALSE	1.32
5	Nitrite	1.0	3.173	6.12	2.121	13.458	FALSE	5.77
6		1.0	n.a.	7.51	0.034	0.117	FALSE	n.a.
7	Bromide	1.0	3.010	8.85	0.384	1.906	FALSE	0.35
8	Sulfate	1.0	2.540	9.71	0.554	2.189	FALSE	-15.34
9	Nitrate	1.0	3.033	10.53	2.295	10.436	FALSE	1.11
10	Phosphate	1.0	2.923	13.26	0.883	4.799	FALSE	-2.57

Injection Name:	*ICB*	Inject Number:	3
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 12:15*		



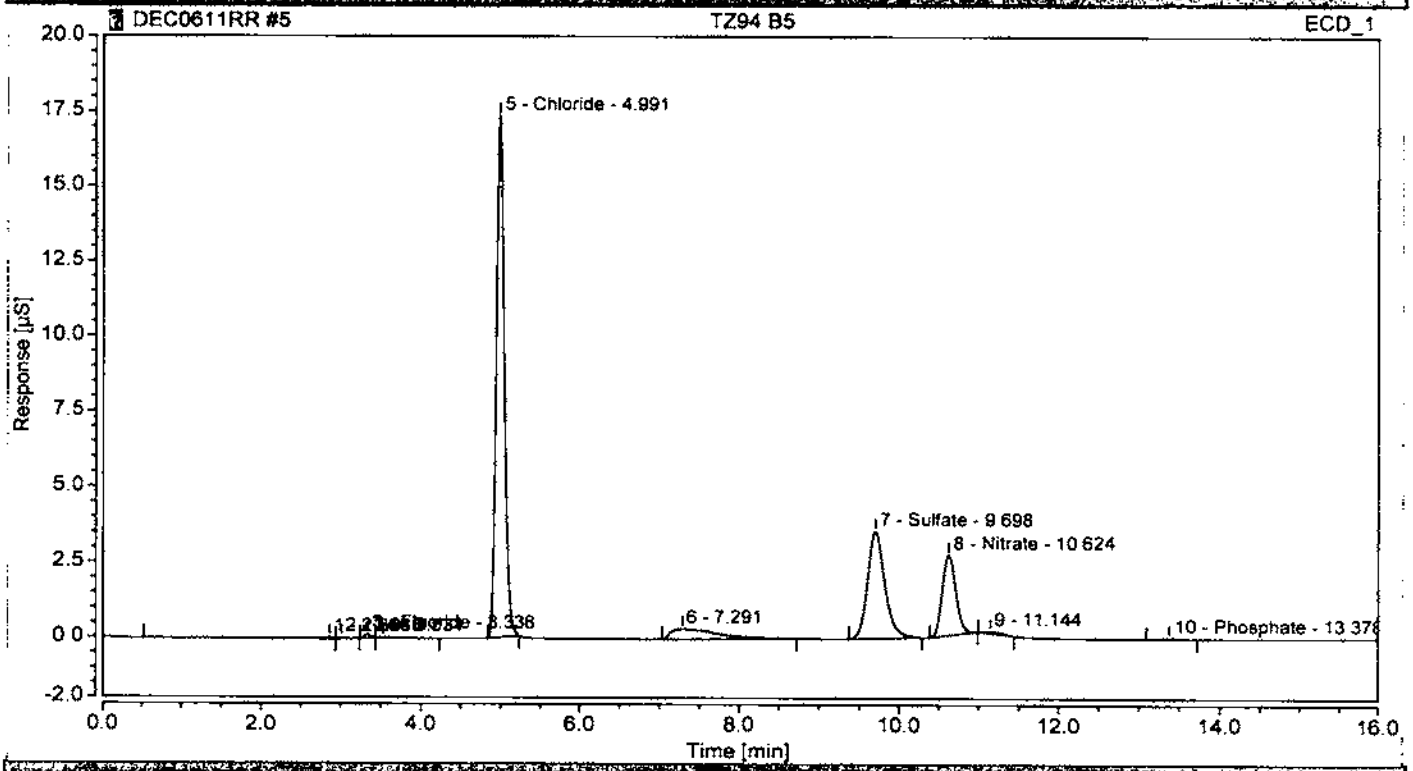
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.033	0.064	FALSE	n.a.
2		1.0	n.a.	3.01	0.007	0.057	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.006	0.070	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	7.52	0.044	0.129	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ94 A5*	Inject Number:	4
Vial Number:	*4*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 12:34*		



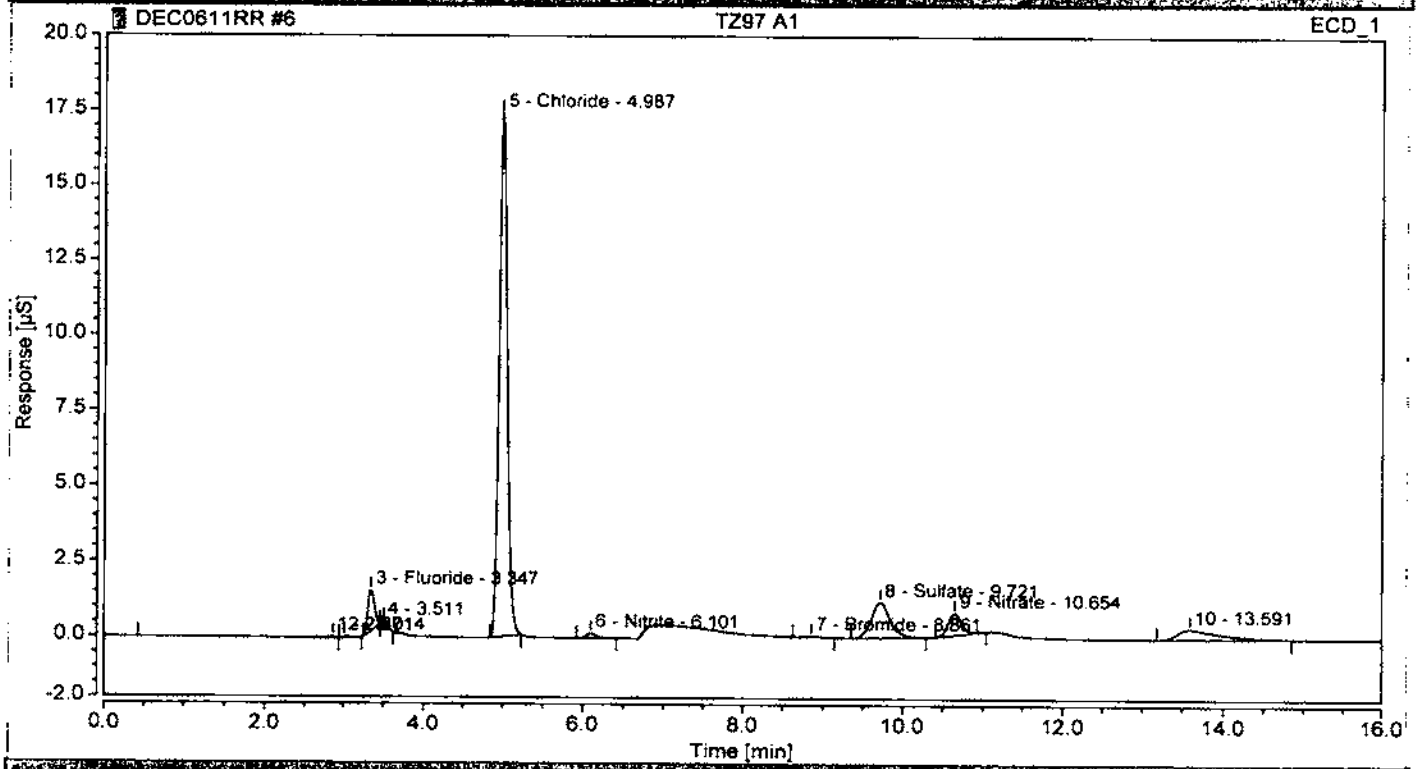
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.038	0.062	FALSE	n.a.
2		1.0	n.a.	3.01	0.006	0.057	FALSE	n.a.
3	Fluoride	1.0	0.020	3.34	0.009	0.113	FALSE	n.a.
4		1.0	n.a.	3.62	0.007	0.031	FALSE	n.a.
5	Chloride	1.0	20.296	4.98	6.006	50.288	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		1.0	n.a.	6.96	0.005	0.010	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		1.0	n.a.	9.56	4.783	18.476	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8	Nitrate	1.0	3.912	10.51	2.960	12.915	FALSE	n.a.
9	Phosphate	1.0	0.027	13.38	0.008	0.036	FALSE	n.a.

Injection Name:	*TZ94 B5*	Inject Number:	5
Vial Number:	*5*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 12:54*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.042	0.064	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.058	FALSE	n.a.
3	Fluoride	1.0	0.023	3.34	0.011	0.133	FALSE	n.a.
4		1.0	n.a.	3.63	0.008	0.034	FALSE	n.a.
5	Chloride	1.0	6.959	4.99	2.060	17.345	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		1.0	n.a.	7.29	0.235	0.336	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7	Sulfate	1.0	[illegible]	9.70	0.893	3.544	FALSE	n.a.
8	Nitrate	1.0	0.592	10.62	0.524	2.655	FALSE	n.a.
9		1.0	n.a.	11.14	0.016	0.055	FALSE	n.a.
10	Phosphate	1.0	0.019	13.38	0.006	0.028	FALSE	n.a.

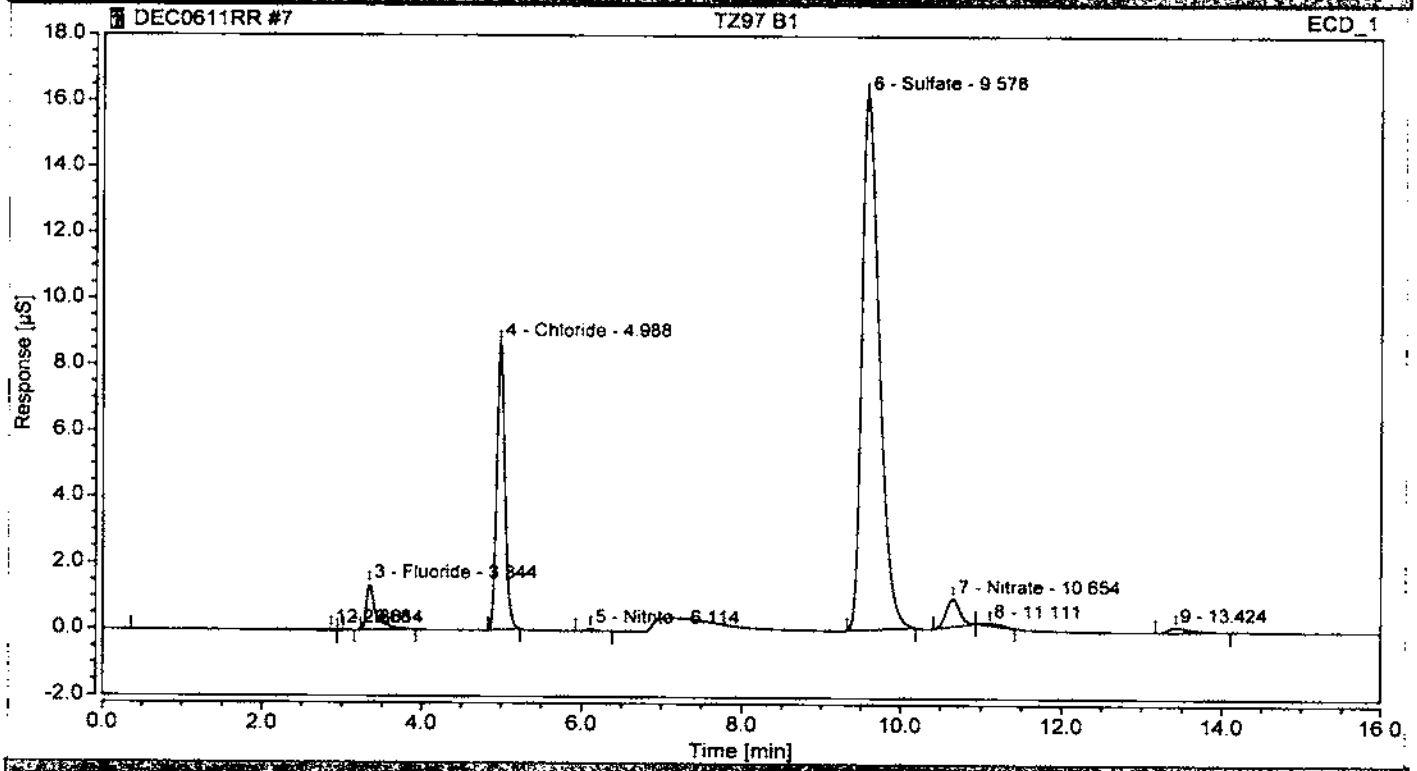
Injection Name:	*TZ97 A1*	Inject Number:	6
Vial Number:	*6*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 13:13*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.044	0.058	FALSE	n.a.
2		1.0	n.a.	3.01	0.006	0.055	FALSE	n.a.
3	Fluoride	1.0	0.272	3.35	0.131	1.353	FALSE	n.a.
4		1.0	n.a.	3.51	0.013	0.182	FALSE	n.a.
5	Chloride	1.0	6.985	4.99	2.061	17.415	FALSE	n.a.
6	Nitrite	1.0	0.032	6.10	0.022	0.160	FALSE	n.a.
7	Bromide	1.0	0.051	8.86	0.006	0.032	FALSE	n.a.
8	Sulfate	1.0	1.485	9.72	0.324	1.180	FALSE	n.a.
9	Nitrate	1.0	0.192	10.65	0.145	0.725	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10		1.0	n.a.	13.59	0.205	0.332	FALSE	n.a.

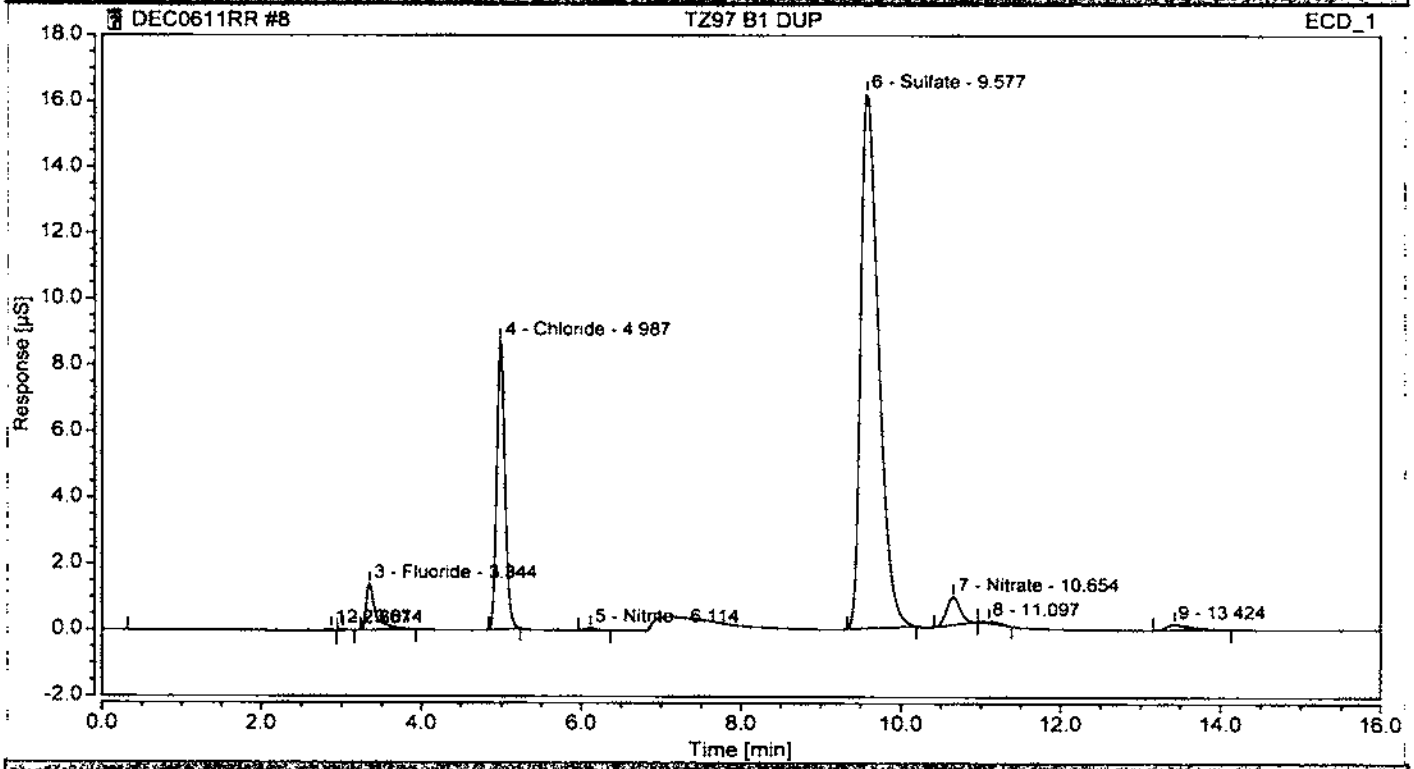
UA17 : 00412

Injection Name:	*TZ97 B1*	Inject Number:	7
Vial Number:	*7*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 13:33*		



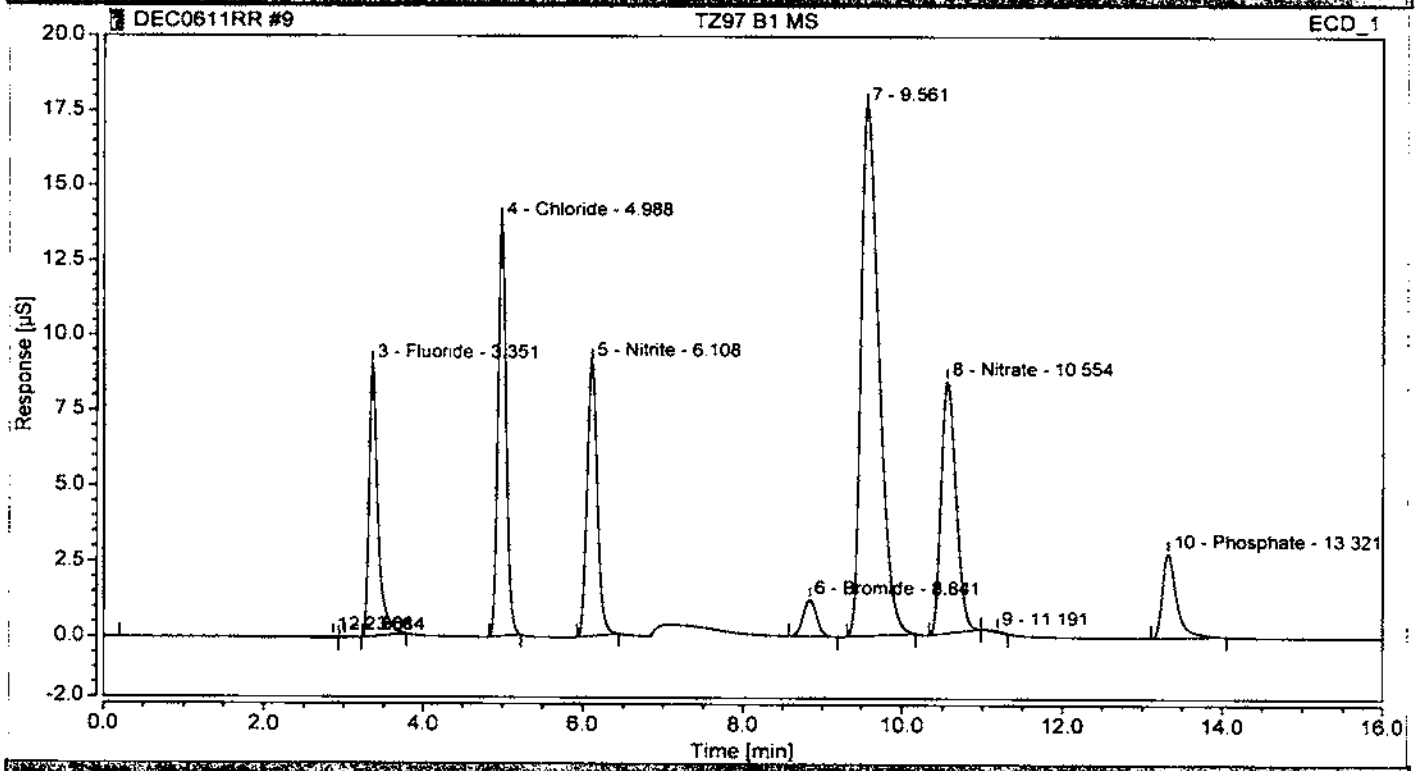
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.045	0.060	FALSE	n.a.
2		1.0	n.a.	3.01	0.005	0.052	FALSE	n.a.
3	Fluoride	1.0	0.398	3.34	0.191	1.391	FALSE	n.a.
4	Chloride	1.0	3.668	4.99	1.028	8.692	FALSE	n.a.
5	Nitrite	1.0	0.013	6.11	0.009	0.065	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	19.667	9.58	4.161	16.170	FALSE	n.a.
7	Nitrate	1.0	0.216	10.65	0.164	0.839	FALSE	n.a.
8		1.0	n.a.	11.11	0.019	0.084	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9		1.0	n.a.	13.42	0.050	0.149	FALSE	n.a.

Injection Name:	*TZ97 B1 DUP*	Inject Number:	8
Vial Number:	*8*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 13:52*		



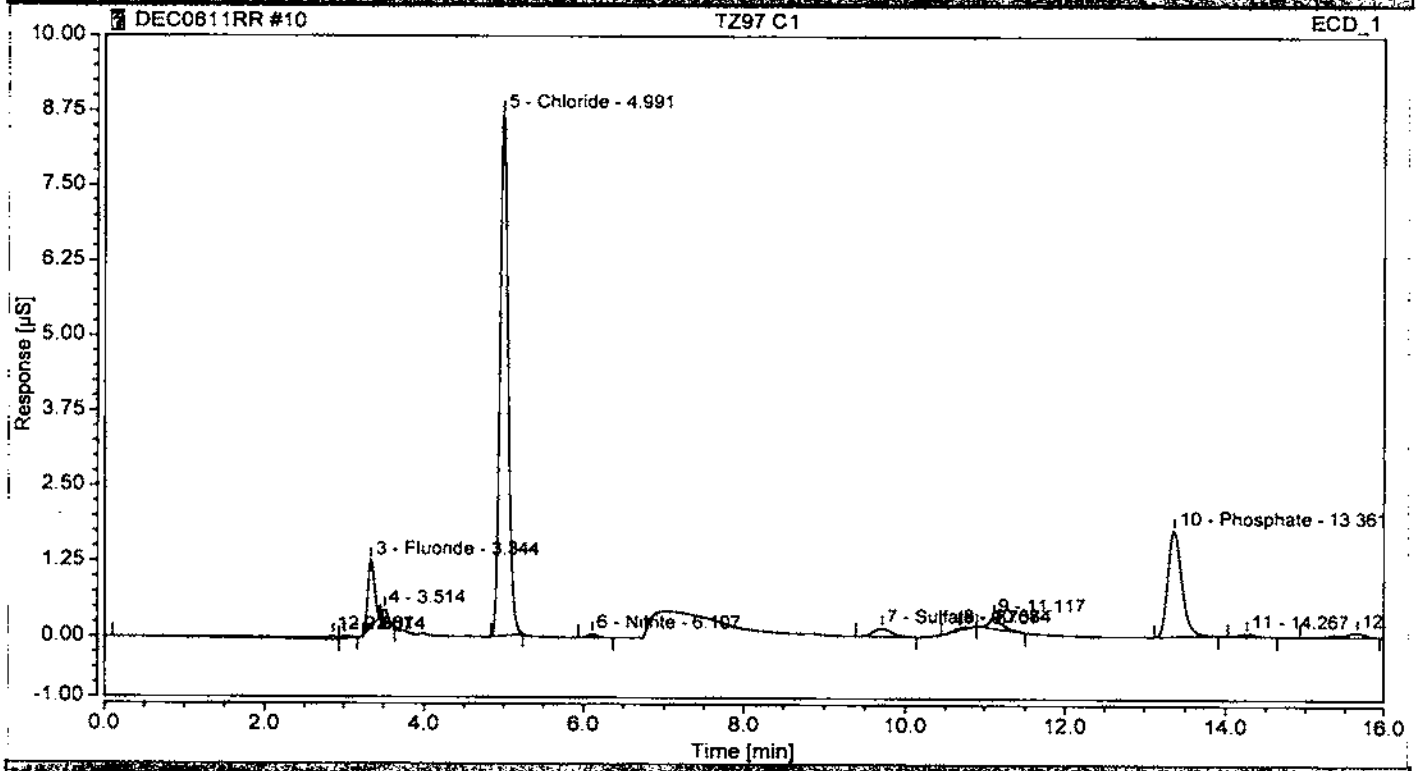
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.049	0.060	FALSE	n.a.
2		1.0	n.a.	3.01	0.005	0.053	FALSE	n.a.
3	Fluoride	1.0	0.398	3.34	0.191	1.394	FALSE	n.a.
4	Chloride	1.0	3.472	4.99	1.027	8.706	FALSE	n.a.
5	Nitrite	1.0	0.013	6.11	0.009	0.064	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	19.076	9.58	4.158	16.161	FALSE	n.a.
7	Nitrate	1.0	0.218	10.65	0.165	0.842	FALSE	n.a.
8		1.0	n.a.	11.10	0.015	0.051	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
9		1.0	n.a.	13.42	0.058	0.165	FALSE	n.a.

Injection Name:	*TZ97 B1 MS*	Inject Number:	9
Vial Number:	*9*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 14:12*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.050	0.060	FALSE	n.a.
2		1.0	n.a.	3.01	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	2.395	3.35	1.151	9.040	FALSE	n.a.
4	Chloride	1.0	5.620	4.99	1.633	13.801	FALSE	n.a.
5	Nitrite	1.0	2.004	6.11	1.339	9.087	FALSE	n.a.
6	Bromide	1.0	1.675	8.84	0.239	1.207	FALSE	n.a.
7		1.0	n.a.	9.56	4.573	17.592	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8	Nitrate	1.0	2.857	10.55	1.763	8.341	FALSE	n.a.
9		1.0	n.a.	11.19	0.009	0.047	FALSE	n.a.
10	Phosphate	1.0	1.933	13.32	0.584	2.787	FALSE	n.a.

Injection Name:	*TZ97 C1*	Inject Number:	10
Vial Number:	*10*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodai*		
Injection Date/Time:	*06/12/11 14:32*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.051	0.057	FALSE	n.a.
2		1.0	n.a.	3.01	0.005	0.053	FALSE	n.a.
3	Fluoride	1.0	0.218	3.34	0.105	1.110	FALSE	n.a.
4		1.0	n.a.	3.51	0.015	0.186	FALSE	n.a.
5	Chloride	1.0	3.465	4.99	1.025	8.682	FALSE	n.a.
6	Nitrite	1.0	0.011	6.11	0.008	0.066	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7	Sulfate	1.0	0.167	9.71	0.036	0.130	FALSE	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8		1.0	n.a.	10.68	0.008	0.036	FALSE	n.a.
9		1.0	n.a.	11.12	0.034	0.181	FALSE	n.a.
10	Phosphate	1.0	1.158	13.36	0.350	1.749	FALSE	n.a.
11		1.0	n.a.	14.27	0.009	0.042	FALSE	n.a.
12		1.0	n.a.	15.65	0.025	0.070	FALSE	n.a.

UA17 : 00416

[redacted]

Injection Name:	*TZ99 A1*	Inject Number:	11
Vial Number:	*11*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 14:52*		

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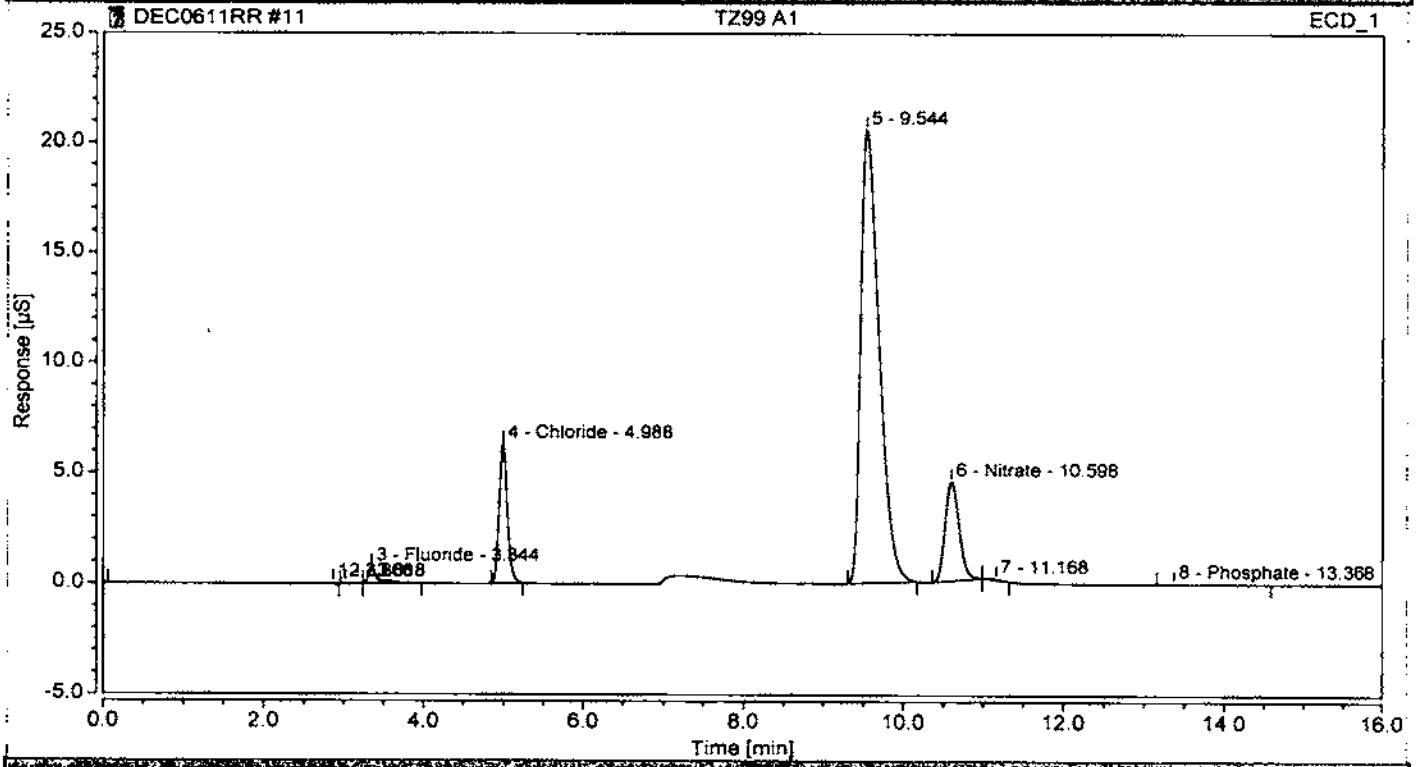

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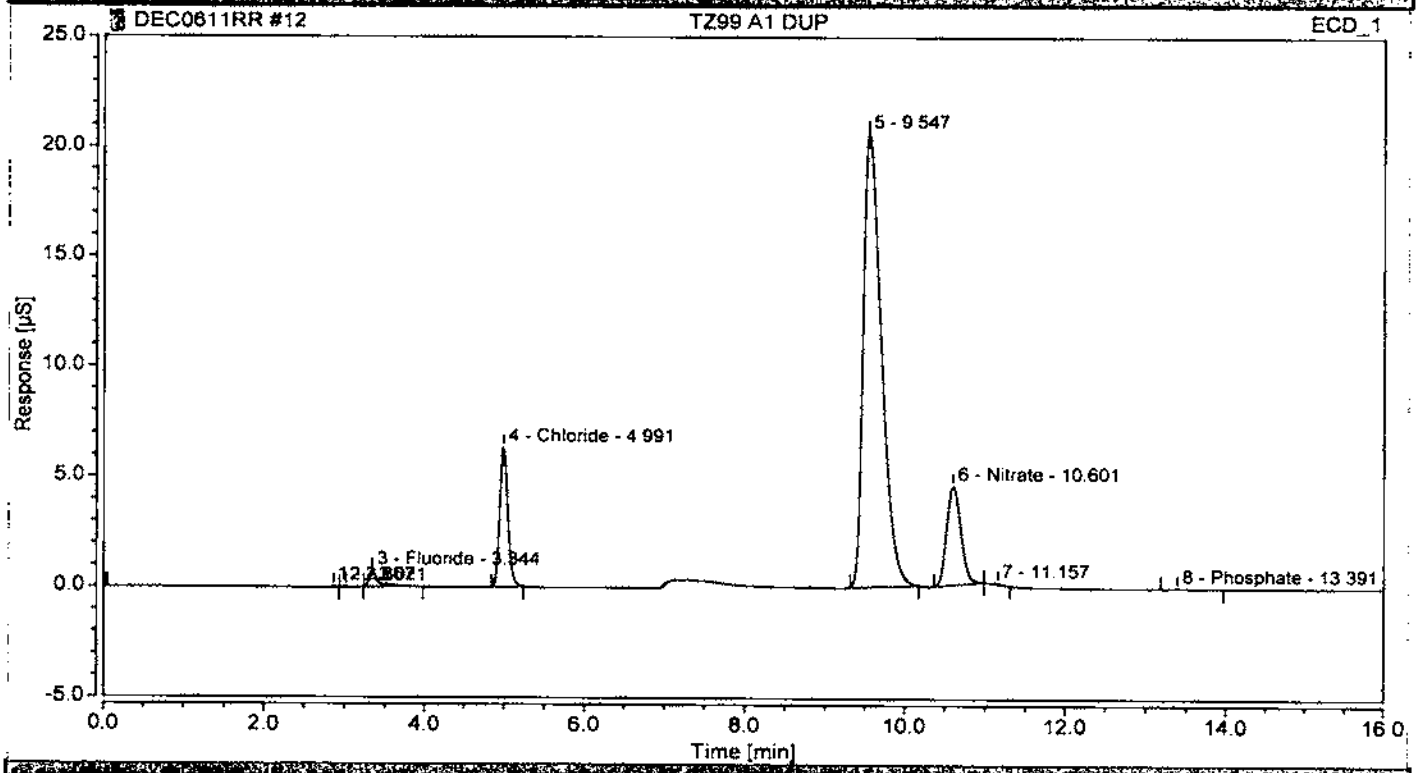
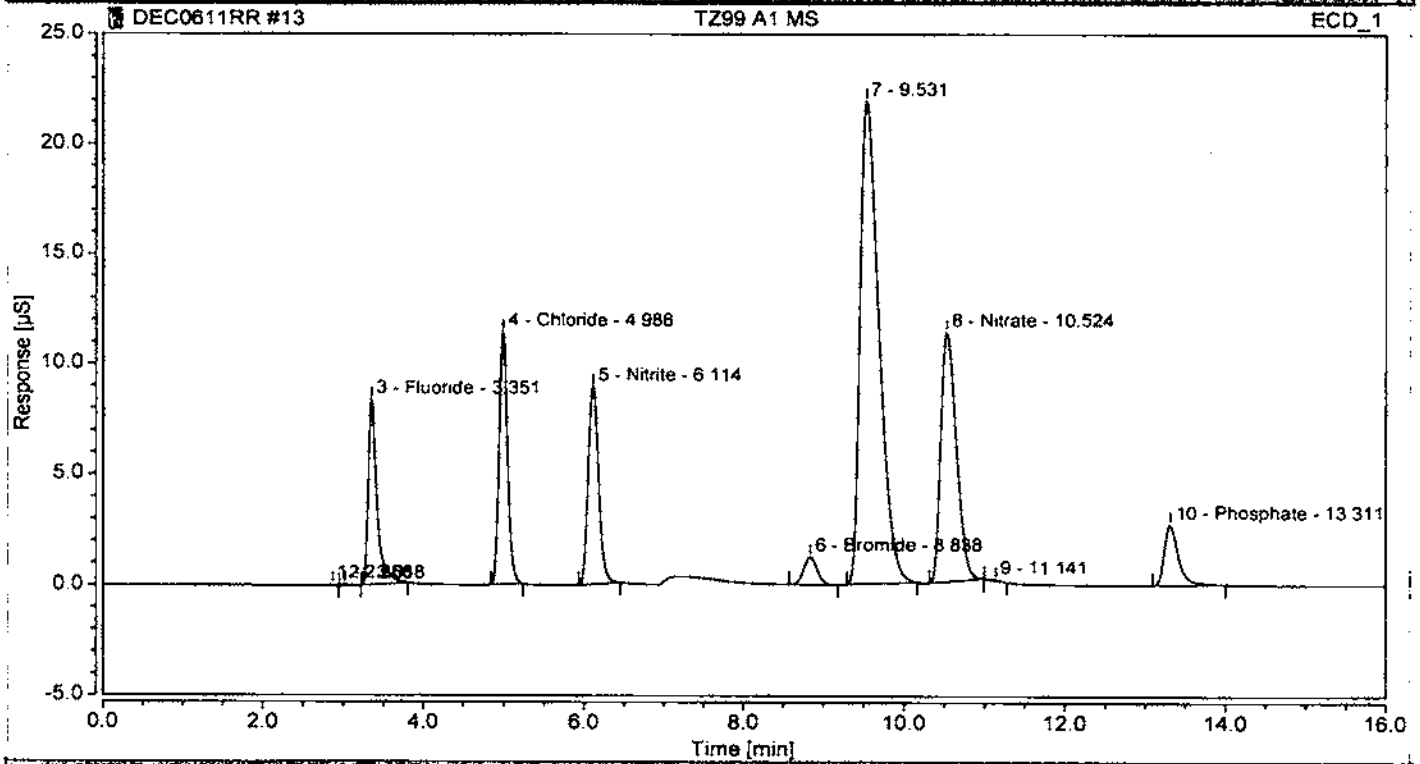
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.053	0.060	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.057	FALSE	n.a.
3	Fluoride	1.0	0.211	3.34	0.101	0.732	FALSE	n.a.
4	Chloride	1.0	2.516	4.99	0.745	6.305	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	9.54	5.430	20.531	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Nitrate	1.0	1.197	10.60	0.905	4.454	FALSE	n.a.
7		1.0	n.a.	11.17	0.008	0.047	FALSE	n.a.
8	Phosphate	1.0	0.037	13.37	0.011	0.026	FALSE	n.a.

Injection Name:	*TZ99 A1 DUP*	Inject Number:	12
Vial Number:	*12*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 15:12*		



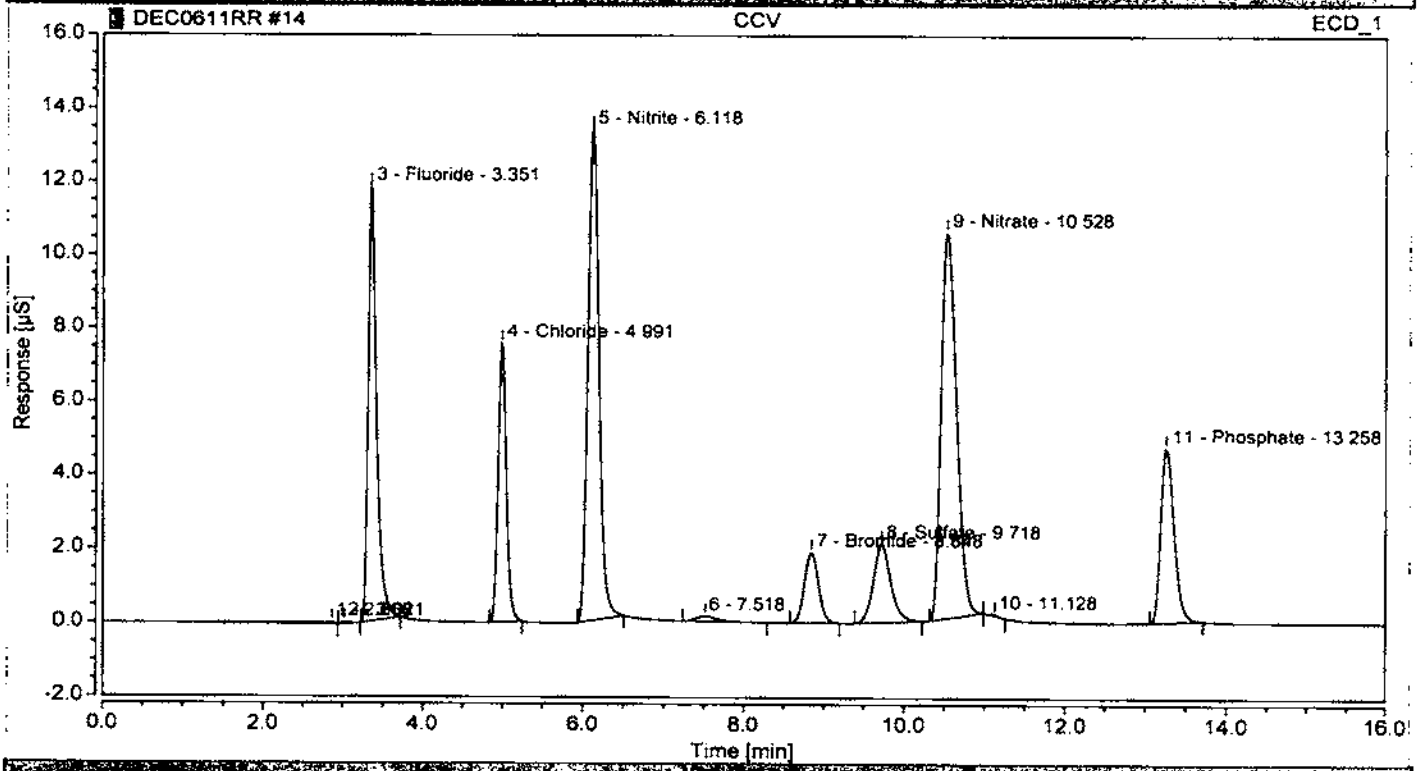
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.054	0.060	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	0.211	3.34	0.101	0.731	FALSE	n.a.
4	Chloride	1.0	2.619	4.99	0.745	6.312	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	9.55	5.439	20.567	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Nitrate	1.0	1.209	10.60	0.910	4.463	FALSE	n.a.
7		1.0	n.a.	11.16	0.008	0.046	FALSE	n.a.
8	Phosphate	1.0	0.020	13.39	0.006	0.021	FALSE	n.a.

Injection Name:	*TZ99 A1 MS*	Inject Number:	13
Vial Number:	*13*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 15:32*		



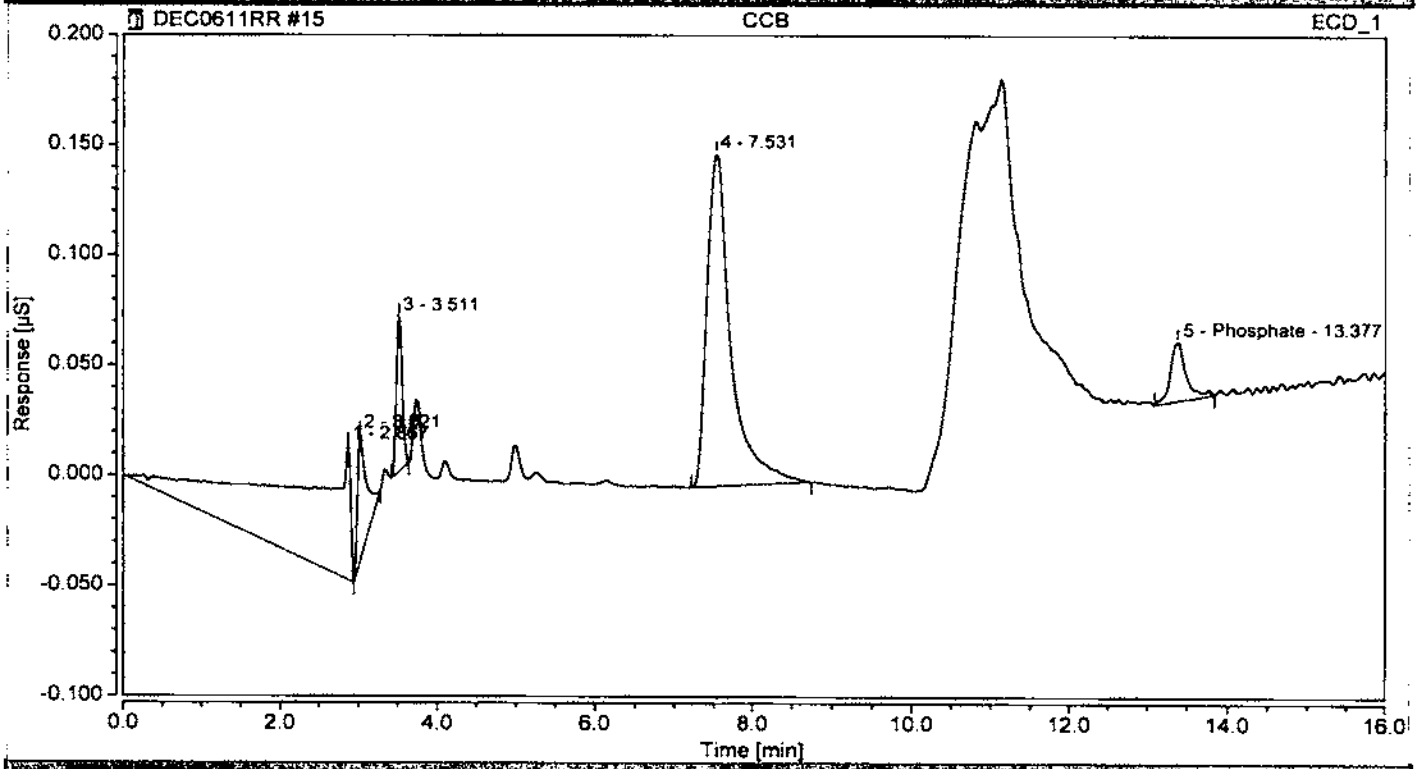
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.057	0.060	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	2.211	3.35	1.062	8.346	FALSE	n.a.
4	Chloride	1.0	4.571	4.99	1.353	11.410	FALSE	n.a.
5	Nitrite	1.0	1.996	6.11	1.334	8.917	FALSE	n.a.
6	Bromide	1.0	1.916	8.84	0.244	1.239	FALSE	n.a.
7		1.0	n.a.	9.53	5.837	21.859	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8	Nitrate	1.0	3.356	10.52	2.539	11.266	FALSE	n.a.
9		1.0	n.a.	11.14	0.006	0.042	FALSE	n.a.
10	Phosphate	1.0	1.826	13.31	0.552	2.720	FALSE	n.a.

Injection Name:	*CCV*	Inject Number:	14
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 15:52*		



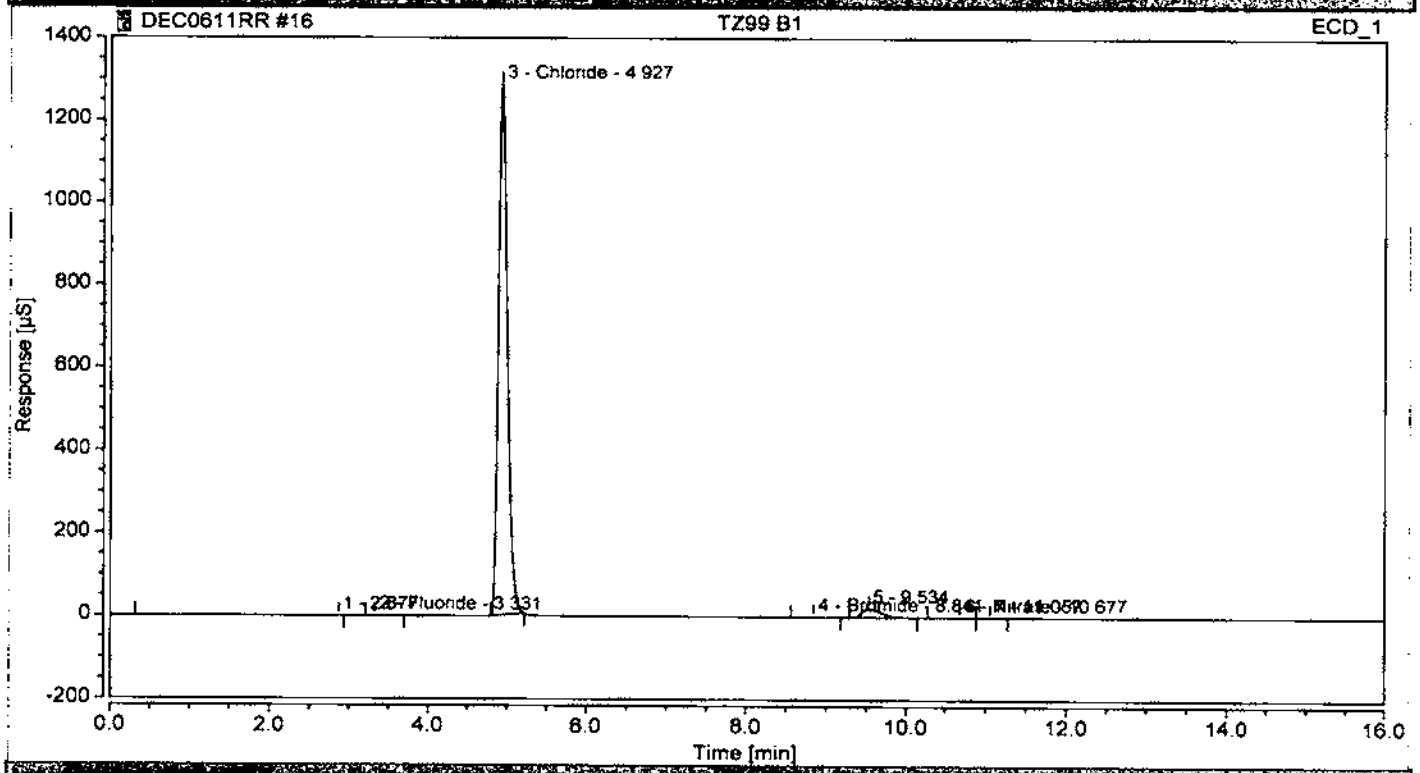
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.058	0.060	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.057	FALSE	n.a.
3	Fluoride	1.0	2.995	3.35	1.438	11.824	FALSE	-0.17
4	Chloride	1.0	3.051	4.99	0.903	7.576	FALSE	1.71
5	Nitrite	1.0	3.157	6.12	2.110	13.352	FALSE	5.24
6		1.0	n.a.	7.52	0.044	0.143	FALSE	n.a.
7	Bromide	1.0	3.018	8.85	0.385	1.906	FALSE	0.65
8	Sulfate	1.0	2.453	9.72	0.535	2.125	FALSE	-18.25
9	Nitrate	1.0	3.064	10.53	2.318	10.490	FALSE	2.14
10		1.0	n.a.	11.13	0.006	0.043	FALSE	n.a.
11	Phosphate	1.0	2.954	13.26	0.892	4.733	FALSE	-1.53

Injection Name:	*CCB*	Inject Number:	15
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 16:13*		



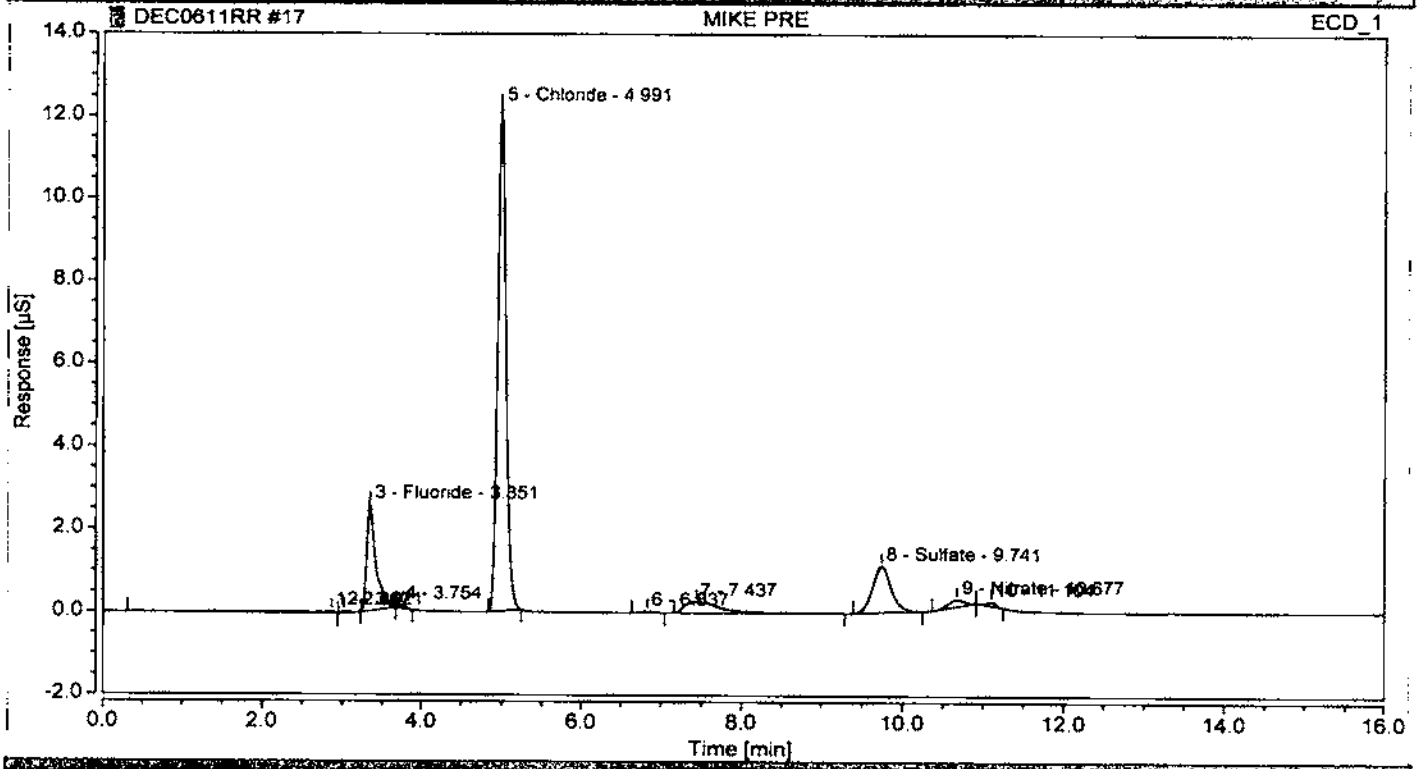
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.67	0.060	0.061	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.058	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.006	0.070	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	7.53	0.054	0.151	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Phosphate	1.0	0.020	13.38	0.006	0.027	FALSE	n.a.

Injection Name:	*TZ99 B1*	Inject Number:	16
Vial Number:	*14*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 16:33*		



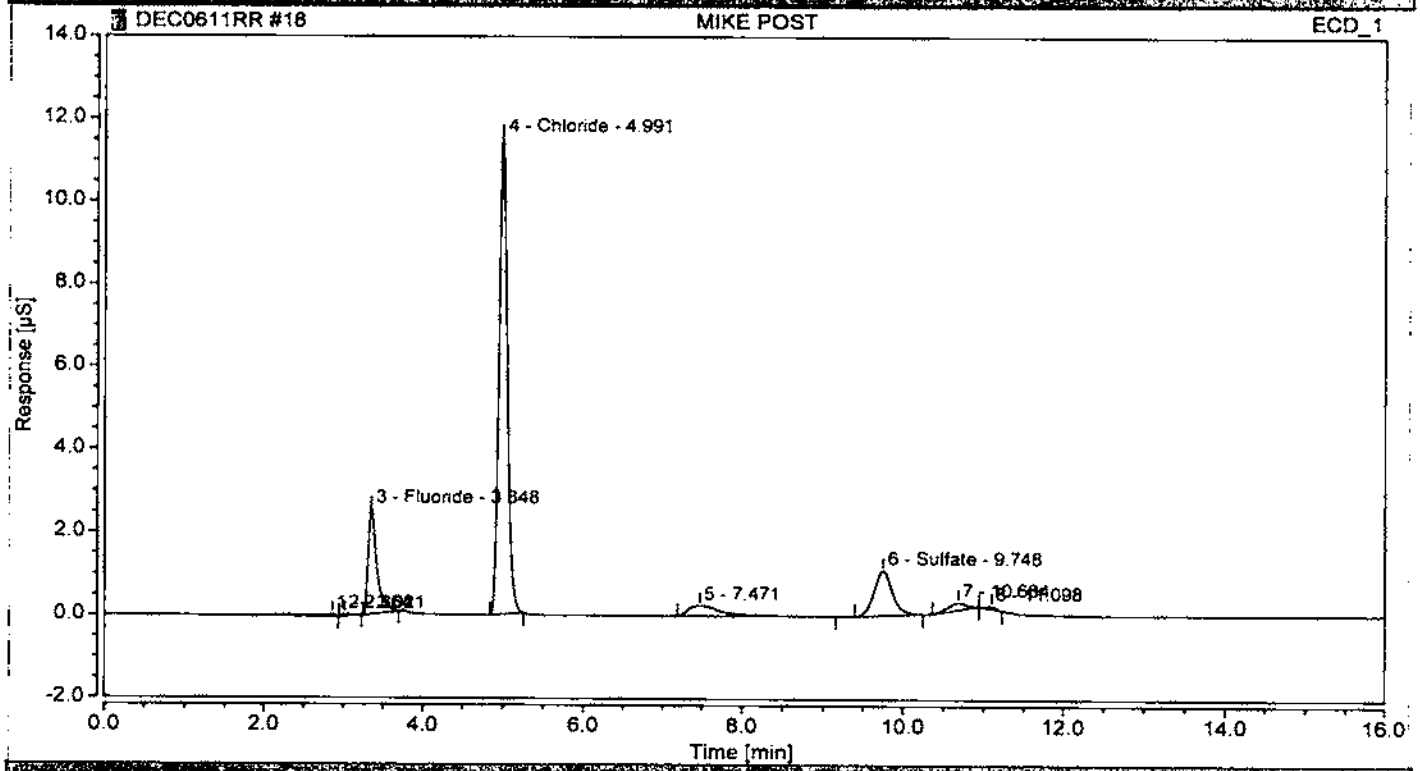
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.026	0.026	FALSE	n.a.
2	Fluoride	1.0	0.193	3.33	0.093	0.661	FALSE	n.a.
3	Chloride	1.0	577.803	4.93	170.992	1284.884	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Bromide	1.0	1.795	8.84	0.229	1.152	FALSE	n.a.
5		1.0	n.a.	9.53	5.805	21.505	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Nitrate	1.0	0.046	10.66	0.037	0.122	FALSE	n.a.
7		1.0	n.a.	11.06	0.006	0.035	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*MIKE PRE*	Inject Number:	17
Vial Number:	*15*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 16:54*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.058	0.061	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	0.709	3.35	0.340	2.563	FALSE	n.a.
4		1.0	n.a.	3.75	0.007	0.081	FALSE	n.a.
5	Chloride	1.0	4.931	4.99	1.459	12.206	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		1.0	n.a.	6.84	0.005	0.032	FALSE	n.a.
7		1.0	n.a.	7.44	0.149	0.271	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8	Sulfate	1.0	1.371	9.74	0.299	1.121	FALSE	n.a.
9	Nitrate	1.0	0.054	10.88	0.040	0.170	FALSE	n.a.
10		1.0	n.a.	11.10	0.014	0.104	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*MIKE POST*	Inject Number:	18
Vial Number:	*16*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 17:14*		

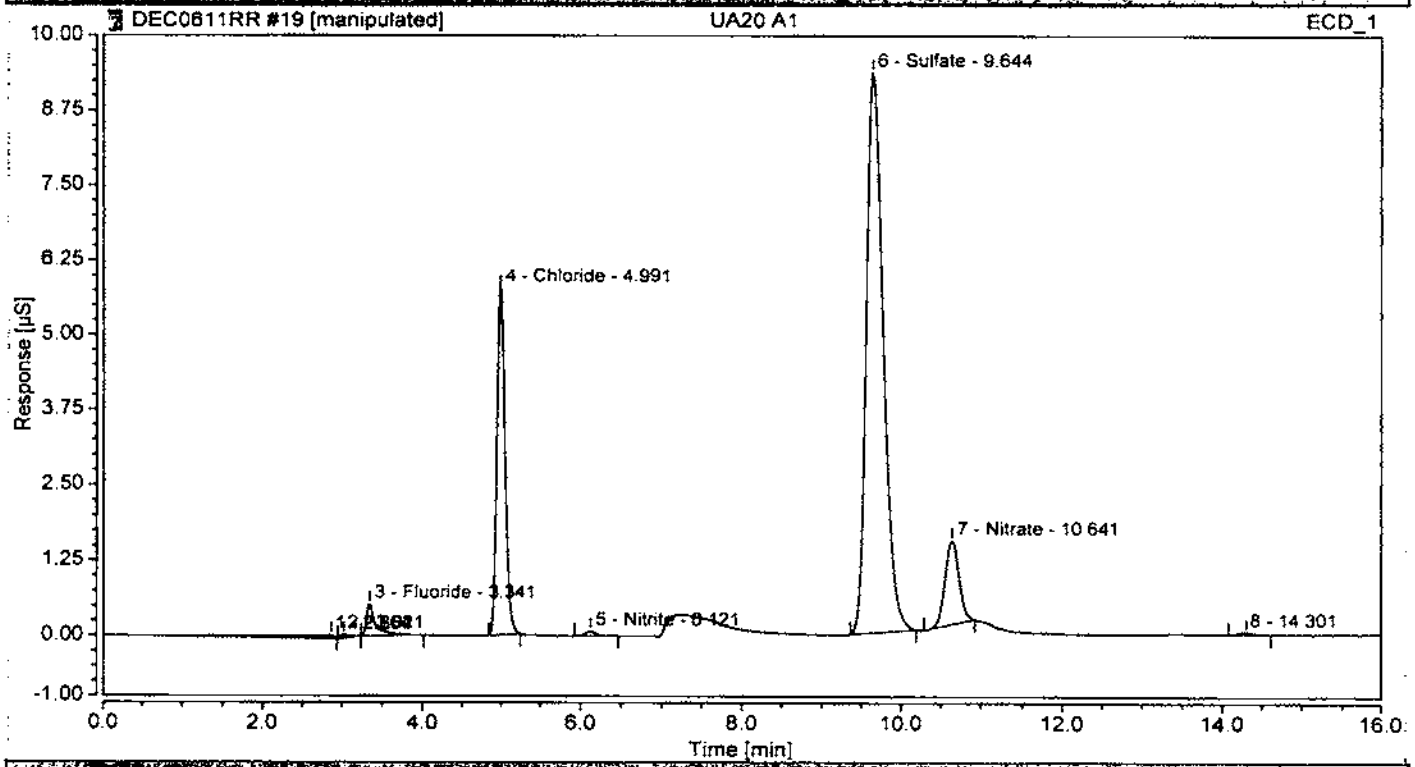


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.86	0.064	0.061	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	0.670	3.35	0.322	2.535	FALSE	n.a.
4	Chloride	1.0	4.655	4.99	1.377	11.519	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	7.47	0.130	0.253	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	1.328	9.75	0.290	1.085	FALSE	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7		1.0	n.a.	10.68	0.046	0.177	FALSE	n.a.
8		1.0	n.a.	11.10	0.009	0.071	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*UA20 A1*	Inject Number:	19
Vial Number:	*17*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 17:35*		

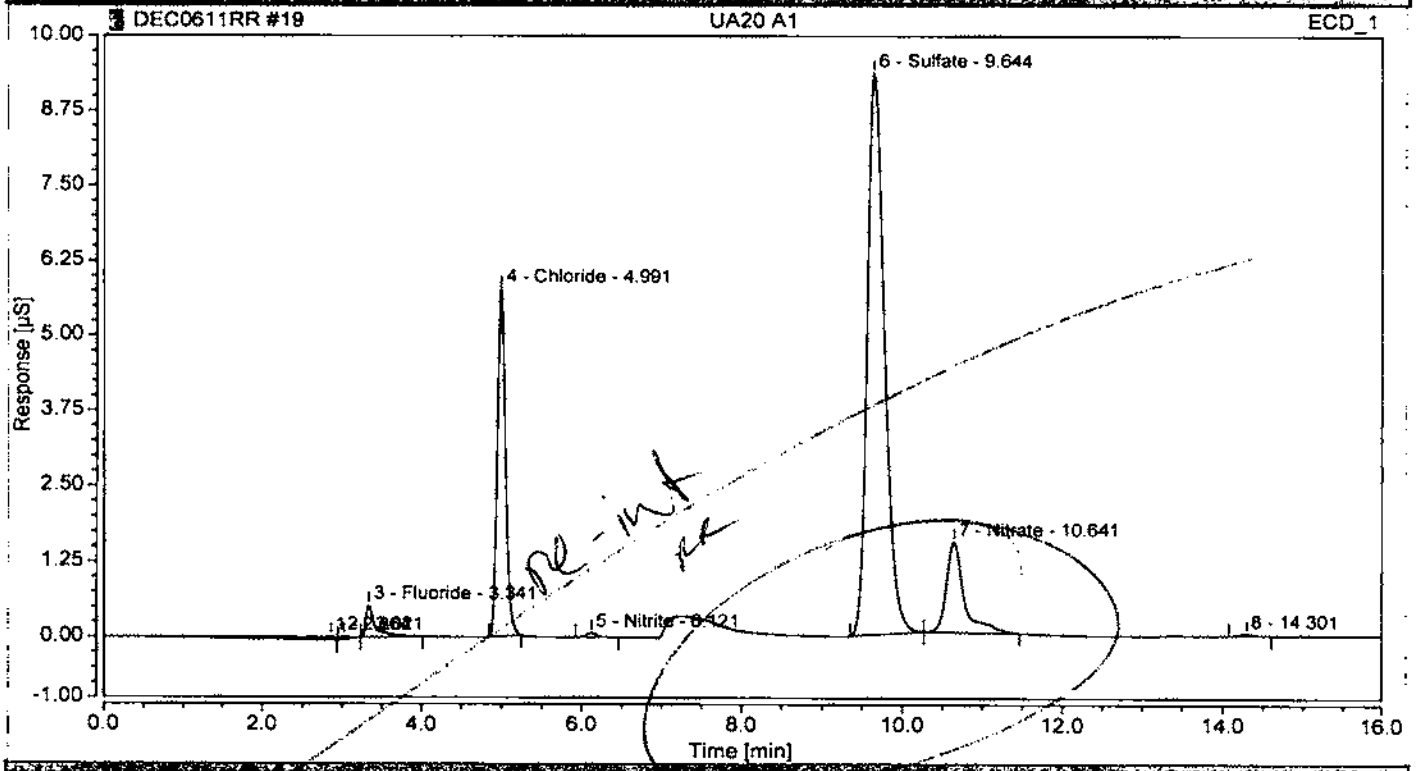
[redacted]



[redacted]

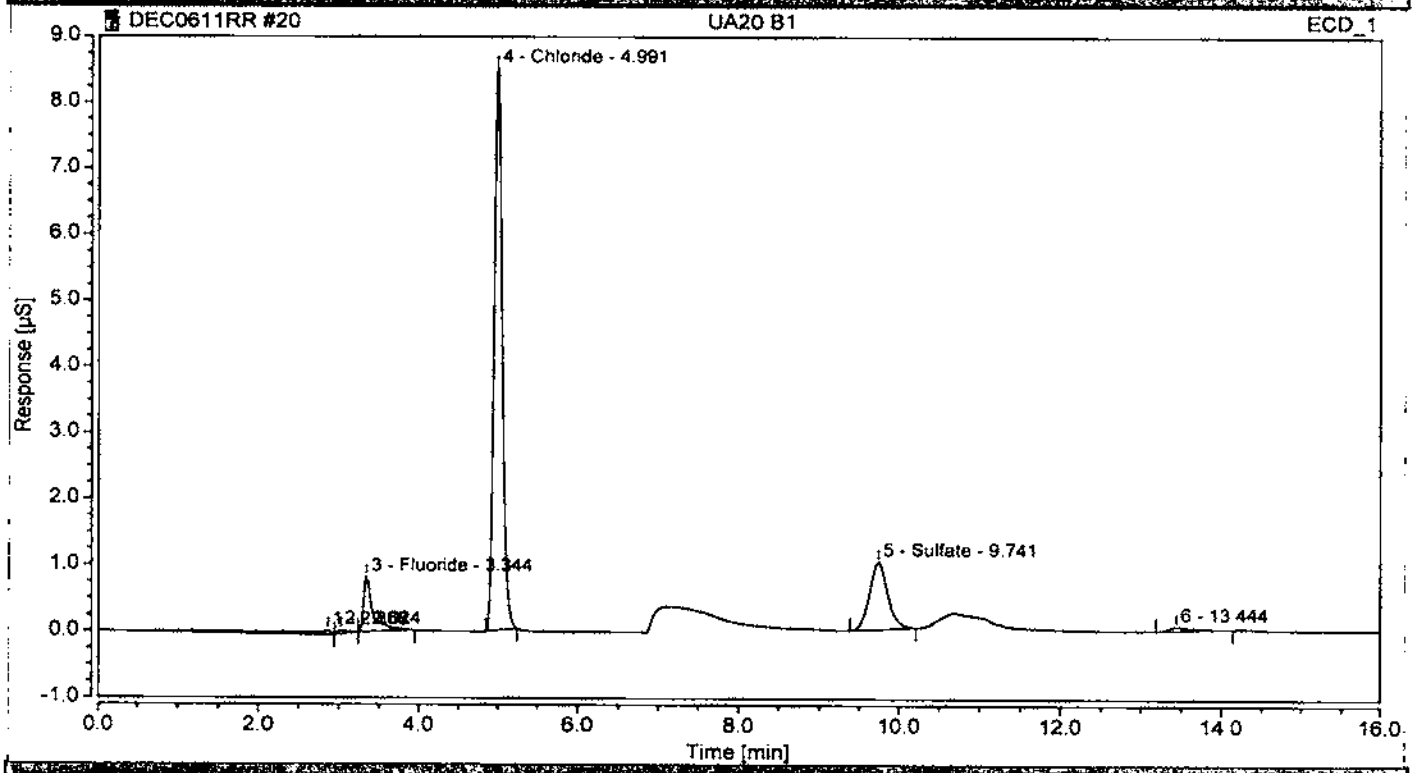
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.86	0.065	0.059	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.055	FALSE	n.a.
3	Fluoride	1.0	0.150	3.34	0.072	0.531	FALSE	n.a.
4	Chloride	1.0	2.315	4.99	0.685	5.779	FALSE	n.a.
5	Nitrite	1.0	0.015	6.12	0.010	0.072	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	10.520	9.64	2.293	9.330	TRUE	n.a.
7	Nitrate	1.0	0.371	10.64	0.281	1.390	TRUE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8		1.0	n.a.	14.30	0.007	0.035	FALSE	n.a.

Injection Name:	*UA20 A1*	Inject Number:	19
Vial Number:	*17*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 17:35*		



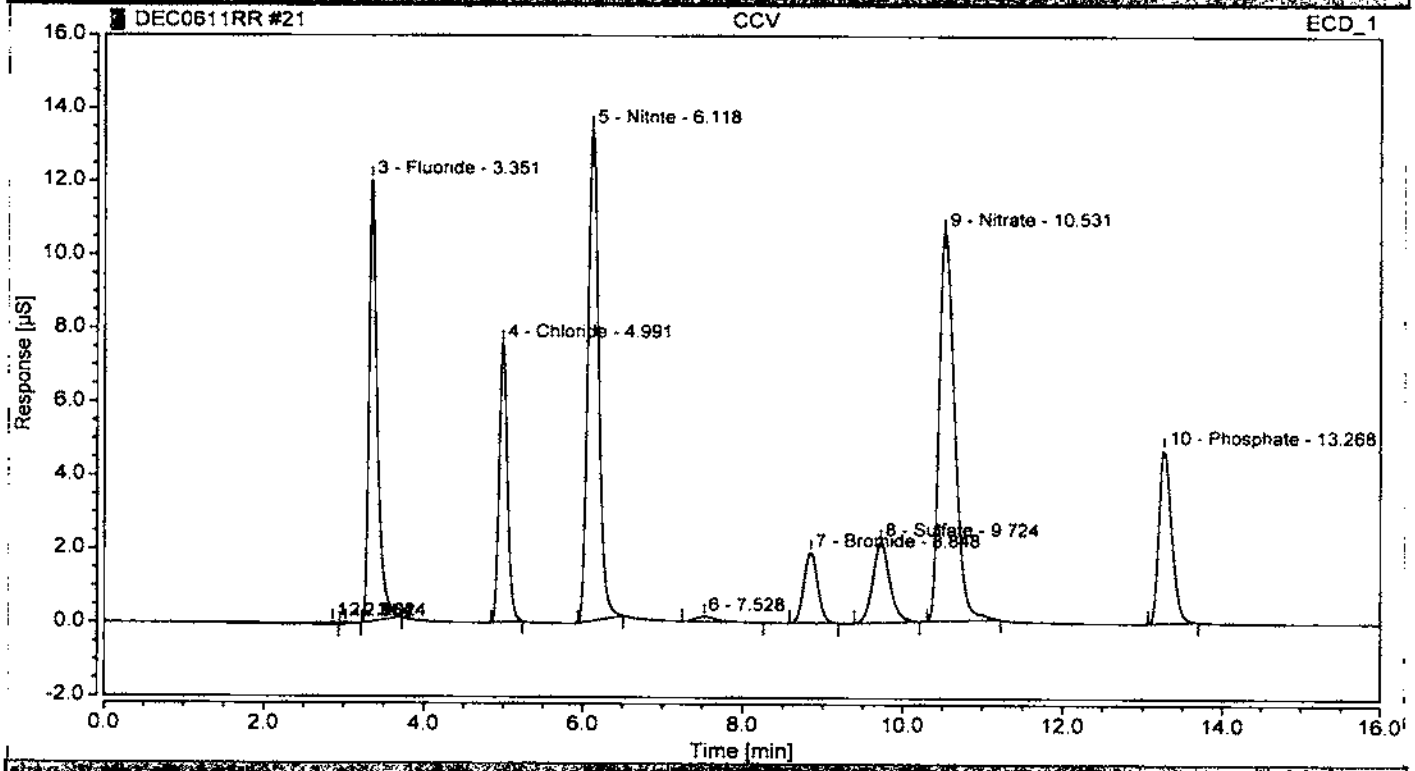
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.86	0.085	0.059	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.055	FALSE	n.a.
3	Fluoride	1.0	0.150	3.34	0.072	0.531	FALSE	n.a.
4	Chloride	1.0	2.815	4.99	0.685	5.779	FALSE	n.a.
5	Nitrite	1.0	0.015	6.12	0.010	0.072	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	10.547	9.64	2.299	9.334	FALSE	n.a.
7	Nitrate	1.0	0.512	10.64	0.387	1.497	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8		1.0	n.a.	14.30	0.007	0.035	FALSE	n.a.

Injection Name:	*UA20 B1*	Inject Number:	20
Vial Number:	*18*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 17:56*		



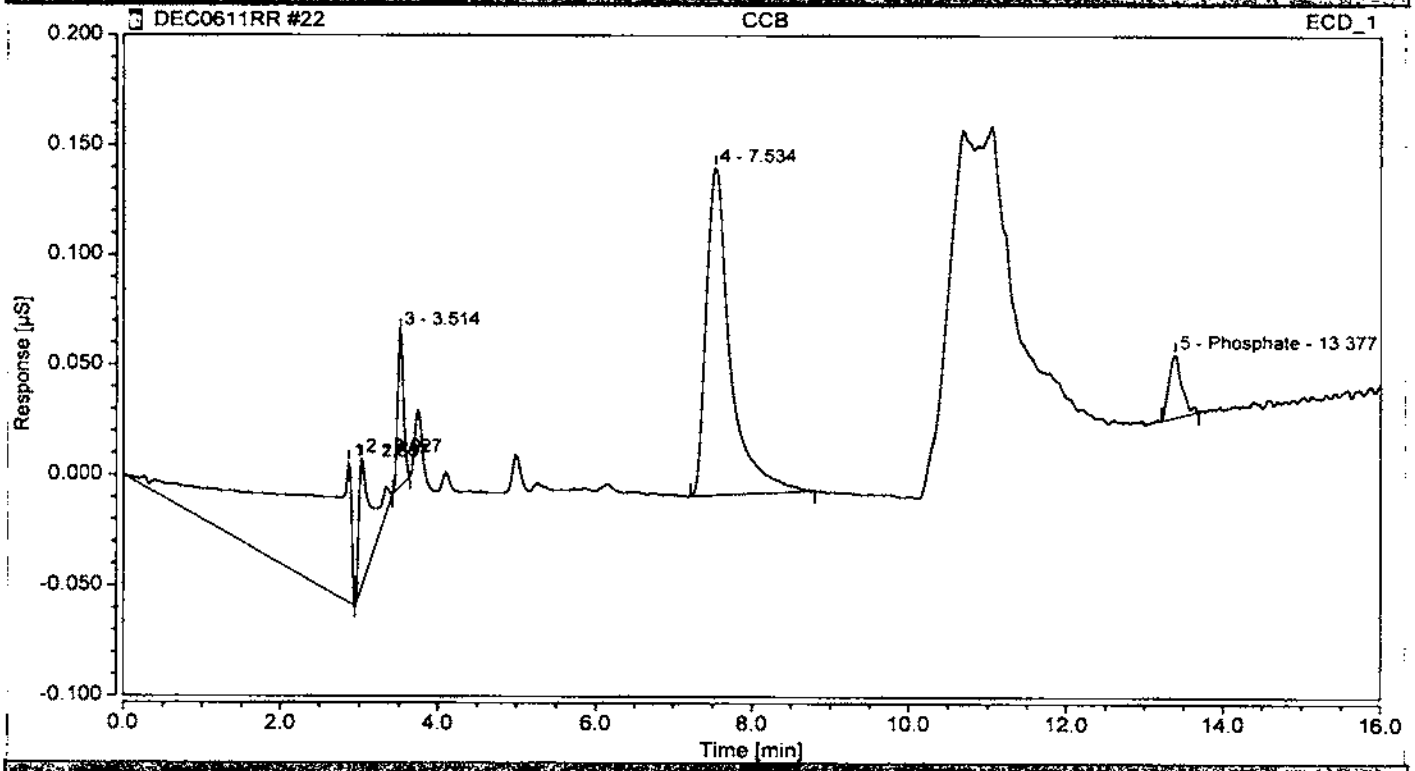
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.066	0.059	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.056	FALSE	n.a.
3	Fluoride	1.0	0.232	3.34	0.112	0.820	FALSE	n.a.
4	Chloride	1.0	3.595	4.99	1.005	8.499	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	1.0	1.236	9.74	0.289	1.014	FALSE	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		1.0	n.a.	13.44	0.020	0.055	FALSE	n.a.

Injection Name:	*CCV*	Inject Number:	21
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 18:16*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.86	0.066	0.063	FALSE	n.a.
2		1.0	n.a.	3.02	0.007	0.055	FALSE	n.a.
3	Fluoride	1.0	2.996	3.35	1.439	12.007	FALSE	-0.14
4	Chloride	1.0	3.050	4.99	0.903	7.575	FALSE	1.67
5	Nitrite	1.0	3.157	6.12	2.110	13.377	FALSE	5.22
6		1.0	n.a.	7.53	0.042	0.137	FALSE	n.a.
7	Bromide	1.0	3.023	8.85	0.386	1.910	FALSE	0.76
8	Sulfate	1.0	2.464	9.72	0.537	2.192	FALSE	-17.85
9	Nitrate	1.0	3.185	10.53	2.410	10.564	FALSE	6.17
10	Phosphate	1.0	2.907	13.27	0.878	4.704	FALSE	-3.09

Injection Name:	*CCB*	Inject Number:	22
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*06/12/11 18:36*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.066	0.063	FALSE	n.a.
2		1.0	n.a.	3.03	0.010	0.058	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.006	0.070	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	7.53	0.053	0.149	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Phosphate	1.0	0.018	13.38	0.006	0.029	FALSE	n.a.

Injection Name:	*STOP*	Inject Number:	23
Vial Number:	*1*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC0611RR
Dilution Factor:	*1.0*		
Instrument Method:	*SHUTDOWN*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*06/12/11 18:57*		

Can't read channel ECD_1 from injection #23 - STOP
Channel is not available

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			n.a.	min	matogram in con	matogram in		n.a.

W

12-134

ALKALINITY BENCHSHEET methods: **SM 2320 B-97**

Date/Time: 12/12/11 10:34

pH meter verification **pH meter ID: ACCUMET AR60** **3uret ID: 01G30627**

Analyst: KE

Buffer pH 7.00 **pH Probe ID : AR60**

Measured pH 7.01 *Calibration OK* **LOW CURVE**

Standardization of acid titrant ***(titration to pH 4.5)***

ARI ID: ***00122 - 1***

grams Na2CO3 =	**0.6250**	*to*	**250**	*ml DI*
Normality Na2CO3 =	0.0472			
Assumed Acid Normality =	**0.02**			
Standardized Acid Normality=	0.0198	***OK!***		

BLANK		STANDARD TITRATION		
BLANK	ml ACID	ml Na2CO3	ml ACID	N H2SO4
1	0.08	5	12.02	0.020
2	0.08	5	11.98	0.020
3	0.09	5	12.01	0.020
AVERAGE	0.08			0.020

Partitioning Calculations

T=Total, P=Phenolphthalein

Obs	*HCO3*	*CO3*	*OH*
P =0	T	0	0
P< 0.5T	T - 2P	2P	0
P= 0.5T	0	2P	0
P> 0.5T	0	2(T - P)	2P - T
P =T	0	0	T

Calibration Verification Standard (second source sodium carbonate solution)

ARI ID: ***00133 - 2***

grams Na2CO3 = **0.6260** *grams in* **250** *mL =* *2363* *mg/L CaCO3*

dilution: **5.0** *mL to* **100** *CVS =* **118.1**

DQL Std (2ppm) *dilute* **0.085** *mL stock to 100 mL DI =* **2.0**

Laboratory Control Standard (LCS)

Source: ***P194 - 506*** *mg/L CaCO3* **49.20**

SAMPLE DATA

Alk (mg/L CaCO3 = [(mL acid X Nacid) X 50,000] / mL sample *(shaded cells are calculated, make no entries)*

low level = {{{(2 X mL4.5)-mL4.2] X Nacid) X 50,000} / mL sample

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4 pH=8.3	ml H2SO4 pH =4.5	ml H2SO4 pH=4.2	ALK (mg CaCO3/l) Phenolph	ALK (mg CaCO3/l) TOT HIGH	ALK (mg CaCO3/l) TOT LOW	Partitioning (mg/l CaCO3) HCO3	Partitioning (mg/l CaCO3) CO3	Partitioning (mg/l CaCO3) OH	(mg/l) FREE CO2
ICV		10.44	100	20.9	5.89	12.00	0.00	58.3	117.9		*99.8%*	*OK!*		
ICB		5.04	100	20.8	0.00	0.09	0.17	0.0		0.1	0.1	0.0	0.0	1.8
DQL Std (2ppm)		6.98	100	20.5	0.00	0.26	0.36	0.0		1.6				
LCS		8.88	50	19.8	1.18	2.48	0.00	23.4	49.1		*99.7%*	*OK!*		
TZ47 A2		6.44	100	18.9	0.00	8.22	0.00	0.0	81.3		81.3	0.0	0.0	59.1
TZ47 A2 dup		6.46	100	19.0	0.00	8.20	0.00	0.0	81.1		81.1	0.0	0.0	56.3
RPD =									*0.2%*		*0.2%*			*4.8%*
TZ47 B2		6.52	100	19.2	0.00	3.78	0.00	0.0	37.4		37.4	0.0	0.0	22.6
TZ47 C2		6.44	100	19.5	0.00	5.55	0.00	0.0	54.9		54.9	0.0	0.0	39.9
TZ47 D2		6.38	100	19.8	0.00	16.94	0.00	0.0	167.6		167.6	0.0	0.0	139.7
TZ47 E2		6.50	100	19.4	0.00	6.08	0.00	0.0	60.2		60.2	0.0	0.0	38.0
TZ47 F2		6.54	100	19.4	0.00	7.46	0.00	0.0	73.8		73.8	0.0	0.0	42.6
TZ47 G2		6.72	100	19.6	0.00	3.42	0.00	0.0	33.8		33.8	0.0	0.0	12.9
TZ84 B10		6.65	100	19.0	0.00	19.26	0.00	0.0	190.6		190.6	0.0	0.0	85.3
TZ97 A10		6.52	100	21.2	0.00	21.88	0.00	0.0	216.5		216.5	0.0	0.0	130.8
CCV		10.48	100	20.6	5.84	12.01	0.00	57.8	118.0		*99.9%*	*OK!*		0.0
TZ97 B19		6.48	100	20.7	0.00	14.27	0.00	0.0	141.2		141.2	0.0	0.0	93.5
TZ97 B19 dup		6.52	100	20.6	0.00	14.22	0.00	0.0	140.7		140.7	0.0	0.0	85.0
RPD =									*0.4%*		*0.4%*			*9.6%*
UA20 A6		6.84	100	20.4	0.00	9.44	0.00	0.0	93.4		93.4	0.0	0.0	27.0
UA20 B5		6.36	100	20.5	0.00	12.23	0.00	0.0	121.0		121.0	0.0	0.0	105.6
UA31 C4		6.90	100	20.7	0.00	4.50	0.00	0.0	44.5		44.5	0.0	0.0	11.2
UA31 C4 dup		6.92	100	20.7	0.00	4.53	0.00	0.0	44.8		44.8	0.0	0.0	10.8
RPD =									*0.7%*		*0.7%*			*3.9%*

UA17 : 00134

SAMPLE DATA

Alk (mg/L CaCO3 = [(mL acid X Nacid) X 50,000) / mL sample *(shaded cells are calculated, make no entries)*

low level = {{{(2 X mL4.5)-mL4.2] X Nacid) X 50,000} / mL sample

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4			ALK (mg CaCO3/l)			Partitioning (mg/l CaCO3)			(mg/l)
					pH=8.3	pH =4.5	pH=4.2	Phenolph	TOT HIGH	TOT LOW	HCO3	CO3	OH	FREE CO2
UA31 D4		7.68	100	20.6	0.00	23.76	0.00	0.0	235.1		235.1	0.0	0.0	9.8
UA43 C5		6.68	100	20.2	0.00	3.90	0.00	0.0	38.6		38.6	0.0	0.0	16.1
UA43 D5		7.24	100	20.4	0.00	19.09	0.00	0.0	188.9		188.9	0.0	0.0	21.7
UA67 B3		7.21	100	20.1	0.00	15.70	0.00	0.0	155.3		155.3	0.0	0.0	19.2
CCV		10.48	100	20.7	5.85	12.03	0.00	57.9	118.2		*100.1%*	*OK!*		0.0
UA74 C5		6.64	100	20.0	0.00	8.12	0.00	0.0	80.3		80.3	0.0	0.0	36.8
UA74 D2		7.46	100	20.2	0.00	17.02	0.00	0.0	168.4		168.4	0.0	0.0	11.7
UA61 A1		8.09	50	21.1	0.00	8.28	0.00	0.0	163.8		163.8	0.0	0.0	2.7
UA61 B1		11.95	50	21.1	42.55	48.15	0.00	842.0	952.8		0.0	221.6	731.2	0.0
UA61 C1		6.83	50	21.2	0.00	4.82	0.00	0.0	95.4		95.4	0.0	0.0	28.2
UA37 A2		6.54	25	20.9	0.00	2.57	0.00	0.0	101.7		101.7	0.0	0.0	58.7
UA42 A3		7.06	100	20.8	0.00	7.82	0.00	0.0	77.4		77.4	0.0	0.0	13.5
UA42 A3 dup		7.08	100	20.7	0.00	7.77	0.00	0.0	76.9		76.9	0.0	0.0	12.8
RPD =									*0.6%*		*0.6%*			*5.2%*
UA42 B3		6.46	100	20.5	0.00	10.26	0.00	0.0	101.5		101.5	0.0	0.0	70.4
CCV		10.44	100	20.0	5.79	12.01	0.00	57.3	118.0		*99.9%*	*OK!*		0.0

UA11 : 00432

12-12-11 (D)

ALKALINITY BENCHSHEET

methods: **SM 2320 B-97**

Date/Time: 12-12-11 10:54

Analyst: (D)

pH meter verification — pH meter ID: **ACCUMET AR60** — Buret ID: **01G30627**

Buffer pH: **7.00** — Measured pH: **7.01** (must agree within 0.1 pH unit) — pH Probe ID: **AR60** — **LOW CURVE**

Standardization of acid titrant *(titration to pH 4.5)*

ARI ID: **00122 - 1**

grams Na2CO3 =	0.6250	to	250 ml DI
Normality Na2CO3 =	0.0472		
Assumed Acid Normality =	0.02		
Standardized Acid Normality=			

BLANK		STANDARD TITRATION		
BLANK	ml ACID	ml Na2CO3	ml ACID	N H2SO4
1	0.08	5	12.02	
2	0.08	5	11.98	
3	0.09	5	12.01	
AVERAGE				

Partitioning Calculations (T=Total, P=Phenolphthalein)

Obs	HCO3	CO3	OH
P =0	T	0	0
P< 0.5T	T - 2P	2P	0
P= 0.5T	0	2P	0
P> 0.5T	0	2(T - P)	2P - T
P =T	0	0	T

Calibration Verification Standard (second source sodium carbonate solution)

ARI ID: **00133 - 2** — mg/L CaCO3

grams Na2CO3 = **0.6260** grams in **250** mL = **2363**

dilution: **5.0** mL to **100** CVS = **118.1**

DQL Std (2ppm): dilute **0.085** mL stock to 100 mL DI = **2.0**

Laboratory Control Standard (LCS)

Source: **P194 - 506** — mg/L CaCO3 **49.20**

SAMPLE DATA

Alk (mg/L CaCO3 = [(mL acid X Nacid) X 50,000] / mL sample (shaded cells are calculated, make no entries)

low level = ((((2 X mL4.5)-mL4.2] X Nacid) X 50,000) / mL sample

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4 pH=8.3	ml H2SO4 pH =4.5	ml H2SO4 pH=4.2	ALK (mg CaCO3/l) Phenolph	ALK (mg CaCO3/l) TOT HIGH	ALK (mg CaCO3/l) TOT LOW	Partitioning (mg/l CaCO3) HCO3	Partitioning (mg/l CaCO3) CO3	Partitioning (mg/l CaCO3) OH	(mg/l) FREE CO2
ICV		10.44	100	20.9	5.89	12.00	0.00							
ICB		5.04	100	20.8	0.00	0.09	0.17							
DQL Std (2ppm)		6.98	100	20.5	0.00	0.36	0.36							
LCS		8.89	50	19.8	1.16	2.88	0.02							
T247 A2		6.94	100	18.9	0.00	8.22	0.00							
A2-2		6.96	100	19.0	0.00	8.20	0.00							
B2		6.52	100	19.2	0.00	3.78	0.00							
C2		6.94	100	19.5	0.00	5.60	0.00							
D2		6.38	100	19.8	0.00	16.94	0.00							
E2		6.50	100	19.4	0.00	6.08	0.00							
OOF 2		6.52	100	19.4	0.00	7.46	0.00							
G2		6.72	100	19.6	0.00	3.47	0.00							
T254 B10		6.65	100	19.0	0.00	19.21	0.00							
T247 A10		6.53	100	21.2	0.00	21.88	0.00							
CCV		10.48	100	20.6	5.89	12.01	0.00							
T247 B19		6.48	100	20.7	0.00	14.27	0.00							
2B19		6.52	100	20.6	0.00	14.22	0.00							
(A) UA20 A6		6.84	100	20.4	0.00	9.44	0.00							
G5		6.36	100	20.5	0.00	12.23	0.00							
UA31 C14		6.90	100	20.7	0.00	4.50	0.00							
DPC4		6.92	100	20.7	0.00	4.53	0.00							
D4		7.69	100	20.6	0.00	23.76	0.00							
UA43 C8		6.68	100	20.2	0.00	3.90	0.00							
DF		7.24	100	20.4	0.00	19.09	0.00							
UA67 A3		7.21	100	20.1	0.00	15.70	0.00							
CCV		10.48	100	20.1	5.85	12.03	0.00							

UA12 . 00493

(1) 12-12-11 (W) (2) 25-12-12-11 (L) (3) 20.8 12-12-11 (4)

ALKALINITY BENCHSHEET methods: **SM 2320 B-97** Date/Time: 12-12-11

pH meter verification **pH meter ID:** **ACCUMET AR60** **Buret ID:** **01G30627** Analyst: (4)

Buffer pH **7.00** **pH Probe ID :** **AR60**

Measured pH 7.01 *must agree within 0.1 pH unit*

Partitioning Calculations

T=Total, P=Phenolphthalein

Sample Number	Sample ID	Initial pH	Volume (ml)	TEMP (C)	ml H2SO4 pH=8.3	ml H2SO4 pH =4.5	ml H2SO4 pH=4.2	ALK (mg CaCO3/l) Phenolph	ALK (mg CaCO3/l) TOT HIGH	ALK (mg CaCO3/l) TOT LOW	(mg/l CaCO3) HCO3	(mg/l CaCO3) CO3	(mg/l CaCO3) OH	(mg/l) FREE CO2
UA74 C5		6.64	100	22.0	0.00	8.12	0.00							
UA74 B2		7.46	100	20.2	0.00	17.02	0.00							
UA61 A1		8.09	~~100~~	21.1	0.00	8.28	0.00							
B1		11.95	50	21.1	42.55	43.15	0.00							
C1		6.83	~~50~~	21.2	0.00	4.82	0.00							
UA37 A2	654	~~6.55~~	~~50~~	20.9	0.00	2.97	0.00							
UA42 A3		7.11	100	~~20.5~~	0.00	7.82	0.00							
A3		7.08	100	20.7	0.00	7.77	0.00							
B3		6.46	100	20.5	0.00	10.26	0.00							
C3		6.70	100	20.9	0.00		0.00	high						
CCV		10.44	100	20.0	5.79	12.01	0.00							
CCV														
CCV														

12-12-11 (4)

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.4803
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9996

No.	Injection Name	Calibration Level	X Value Fluoride	Y Value Fluoride	Amount mg/l Fluoride	Area µS*min Fluoride	Height µS Fluoride
1	STD1	01	0.1000	0.0476	0.0991	0.048	0.532
2	STD2	02	0.5000	0.2412	0.5022	0.241	2.740
3	STD3	03	1.0000	0.4992	1.0394	0.499	5.679
4	STD4	04	2.5000	1.2284	2.5577	1.228	13.746
5	STD5	05	5.0000	2.3837	4.9631	2.384	25.998

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2959
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9998

No.	Injection Name	Calibration Level	X Value Chloride	Y Value Chloride	Amount mg/l Chloride	Area µS*min Chloride	Height µS Chloride
1	STD1	01	0.1000	0.0295	0.0996	0.029	0.246
2	STD2	02	0.5000	0.1390	0.4696	0.139	1.172
3	STD3	03	1.0000	0.2864	0.9678	0.286	2.426
4	STD4	04	2.5000	0.7316	2.4721	0.732	6.232
5	STD5	05	5.0000	1.4866	5.0234	1.487	12.625

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.6684
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9996

No.	Injection Name	Calibration Level	X Value Nitrite	Y Value Nitrite	Amount mg/l Nitrite	Area µS*min Nitrite	Height µS Nitrite
1	STD1	01	0.1000	0.0614	0.0818	0.061	0.405
2	STD2	02	0.5000	0.3342	0.5000	0.334	2.240
3	STD3	03	1.0000	0.6969	1.0427	0.697	4.634
4	STD4	04	2.5000	1.7087	2.5564	1.709	10.970
5	STD5	05	5.0000	3.3174	4.9634	3.317	20.325

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.1276
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9995

No.	Injection Name	Calibration Level	X Value Bromide	Y Value Bromide	Amount mg/l Bromide	Area µS*min Bromide	Height µS Bromide
1	STD1	01	0.1000	0.0116	0.0905	0.012	0.052
2	STD2	02	0.5000	0.0576	0.4515	0.058	0.262
3	STD3	03	1.0000	0.1212	0.9496	0.121	0.553
4	STD4	04	2.5000	0.3135	2.4568	0.313	1.449
5	STD5	05	5.0000	0.6427	5.0367	0.643	3.000

Calibration Details

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2180
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9999

No.	Injection Name	Calibration Level	X Value Sulfate	Y Value Sulfate	Amount mg/l Sulfate	Area µS*min Sulfate	Height µS Sulfate
1	STD1	01	0.1000	0.0248	0.1137	0.025	0.147
2	STD2	02	0.5000	0.1076	0.4946	0.108	0.692
3	STD3	03	1.0000	0.2162	0.9918	0.216	1.430
4	STD4	04	2.5000	0.5378	2.4673	0.538	3.653
5	STD5	05	5.0000	1.0939	5.0183	1.094	7.341

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.7566
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9999

No.	Injection Name	Calibration Level	X Value Nitrate	Y Value Nitrate	Amount mg/l Nitrate	Area µS*min Nitrate	Height µS Nitrate
1	STD1	01	0.1000	0.0781	0.1032	0.078	0.427
2	STD2	02	0.5000	0.3541	0.4681	0.354	2.154
3	STD3	03	1.0000	0.7404	0.9786	0.740	4.473
4	STD4	04	2.5000	1.8748	2.4781	1.875	10.705
5	STD5	05	5.0000	3.7967	5.0183	3.797	19.625

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.3019
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9998

No.	Injection Name	Calibration Level	X Value Phosphate	Y Value Phosphate	Amount mg/l Phosphate	Area µS*min Phosphate	Height µS Phosphate
1	STD1	01	0.1000	0.0247	0.0818	0.025	0.120
2	STD2	02	0.5000	0.1414	0.4683	0.141	0.687
3	STD3	03	1.0000	0.2933	0.9712	0.293	1.464
4	STD4	04	2.5000	0.7448	2.4668	0.745	3.618
5	STD5	05	5.0000	1.5175	5.0259	1.518	6.679

UA17 : 00486

Name:	DEC1011RR	*Calibration:*	DEC0811RR ARI # 586-7
Directory:	Instrument Data\DEC 2011	*Calibration exp:*	3/8/2011
Data Vault:	ChromeleonLocal	*Queue Start:*	12/10/2011 9:53
No. of Injections:	51.000	*User:*	RR

		ERA 161110	ERA 411010	ERA 401010	ERA 111109	ERA 160111	ERA 230511	ERA 200610
Name	Dilution	Amount n.a. Fluoride	Amount n.a. Chloride	Amount n.a. Nitrite	Amount n.a. Bromide	Amount n.a. Sulfate	Amount n.a. Nitrate	Amount n.a. Phosphate
RINSE	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ICV	1.0	3.044	2.944	3.042	3.005	2.999	3.039	2.995
%R=		101.5%	98.1%	101.4%	100.2%	100.0%	101.3%	99.8%
ICB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
[redacted]			55.640	n.a.	0.139	n.a.	[redacted]	[redacted]
[redacted]			55.722	n.a.	0.139	n.a.	[redacted]	[redacted]
%RPD=		2.23%	0.15%		0.41%		0.40%	
[redacted]			57.184	2.038	1.978	n.a.	[redacted]	[redacted]
%R=		96.7%	77.2%	101.9%	92.0%		102.1%	81.0%
SPK=	0.05mL*200ppm/5mL		=2ppm					
[redacted]			16.580	n.a.	0.052	n.a.	[redacted]	[redacted]
[redacted]			8.418	n.a.	n.a.	20.898	9.279	[redacted]
[redacted]			14.589	n.a.	0.060	22.492	[redacted]	[redacted]
[redacted]		0.198	[redacted]	n.a.	n.a.	20.612	1.286	n.a.
[redacted]		0.200	[redacted]	n.a.	n.a.	20.718	1.279	n.a.
%RPD=		1.12%	0.09%			0.51%	1.01%	
[redacted]		10.355	[redacted]	9.933	9.446	30.928	11.766	9.181
%R=		101.6%	88.7%	99.3%	94.5%	103.2%	105.0%	91.8%
SPK=	0.25mL*200ppm/5mL		=10ppm					
[redacted]		0.035	[redacted]	n.a.	0.099	20.064	[redacted]	n.a.
CCV	1.0	3.047	2.947	3.025	3.008	2.909	3.034	2.987
%R=		101.6%	98.2%	100.8%	100.3%	97.0%	101.1%	99.6%
CCB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
UA74 A1	20.0	1.750	54.533	n.a.	n.a.	41.649	2.243	n.a.
UA74 A1 DUP	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
UA74 A1 MS	20.0	n.a.	96.018	n.a.	n.a.	82.702	5.651	n.a.
[redacted]		0.066	[redacted]	n.a.	n.a.	48.504	1.162	n.a.
[redacted]		n.a.	15.781	n.a.	n.a.	[redacted]	4.379	n.a
[redacted]		n.a.	8.198	n.a.	n.a.	[redacted]	9.936	n.a
[redacted]		0.118	[redacted]	n.a.	n.a.	[redacted]	n.a.	n.a.
[redacted]		0.696	40.173	n.a.	0.306	[redacted]	n.a.	1.480
[redacted]		0.217	10.436	n.a.	n.a.	[redacted]	n.a.	n.a.
[redacted]		0.214	10.366	n.a.	n.a.	[redacted]	n.a.	n.a.
%RPD=		1.27%	0.69%			1.31%		
CCV	1.0	3.045	2.949	3.030	3.002	2.901	3.187	2.979
%R=		101.5%	98.3%	101.0%	100.1%	96.7%	106.2%	99.3%
CCB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
[redacted]		10.194	19.964	10.129	9.553	[redacted]	10.827	9.403
%R=		99.8%	95.3%	101.3%	95.6%	108.5%	108.3%	94.0%
SPK=	0.05mL*200ppm/5mL		=2ppm					
[redacted]		0.262	50.158	n.a.	n.a.	[redacted]	n.a.	0.087
[redacted]		n.a.	[redacted]	n.a.	n.a.	[redacted]	5.985	n.a.
[redacted]		n.a.	[redacted]	n.a.	n.a.	[redacted]	6.149	n.a.
%RPD=			0.52%			0.88%		
[redacted]		n.a.	[redacted]	n.a.	n.a.	[redacted]	5.896	n.a
%R=			103.6%			121.6%		
SPK=	0.05mL*200ppm/5mL		=2ppm					
[redacted]		n.a.	19.341	n.a.	n.a.	[redacted]	4.648	n.a.
[redacted]		0.022	6.795	n.a.	n.a.	[redacted]	0.860	n.a.
[redacted]		0.469	6.770	0.029	0.050	[redacted]	0.355	n.a.

UA17:00437

[redacted]		0.474	[redacted]	0.028	n.a.	1.389	0.588	n.a.
[redacted]		0.202	3.248	n.a.	n.a.	[redacted]	1.100	n.a
CCV	1.0	3.039	2.949	3.036	3.009	2.908	3.054	2.979
%R=		**101.3%**	**98.3%**	**101.2%**	**100.3%**	**96.9%**	**101.8%**	**99.3%**
CCB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.017
[redacted]		0.202	3.239	n.a.	n.a.	[redacted]	1.151	n.a.
%RPD=		**0.02%**	**0.27%**			**0.60%**	**4.53%**	
[redacted]		20.125	23.038	20.445	19.597	[redacted]	22.066	19.094
%R=		**99.6%**	**99.0%**	**102.2%**	**98.0%**	**90.9%**	**104.8%**	**95.5%**
SPK=	**0.05mL*200ppm/5mL**		**=2ppm**					
[redacted]		0.364	3.393	0.012	n.a.	[redacted]	n.a.	1.031
[redacted]		n.a.	2.342	n.a.	n.a.	[redacted]	1.330	0.272
[redacted]		n.a.	2.341	n.a.	n.a	[redacted]	2.889	n.a.
%RPD=			**0.07%**			**0.58%**	**73.92%**	
[redacted]		20.509	21.988	20.249	19.428	[redacted]	22.755	19.203
%R=		**102.5%**	**98.2%**	**101.2%**	**97.1%**	**103.2%**	**107.1%**	**94.7%**
SPK=	**0.05mL*200ppm/5mL**		**=2ppm**					
[redacted]		n.a.	571.775	n.a.	1.701	[redacted]	n.a.	n.a
[redacted]		0.070	2.158	n.a.	n.a.	[redacted]	0.414	n.a.
[redacted]		0.240	3.355	n.a.	n.a.	[redacted]	0.218	n.a.
CCV	1.0	3.047	2.952	3.030	3.009	2.868	3.041	3.000
%R=		**101.6%**	**98.4%**	**101.0%**	**100.3%**	**95.6%**	**101.4%**	**100.0%**
CCB	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.020
STOP	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a	n.a.

UA17 : 00438

Sequence Overview

Sequence Details

Name:	**DEC1011RR**	*Queue Start:*	**2011-12-10T09:53:23-**
Directory:	**Instrument Data\DEC 2011**	*Created By:*	**pat**
Data Vault:	**ChromeleonLocal**		
No. of Injections:	**51**		

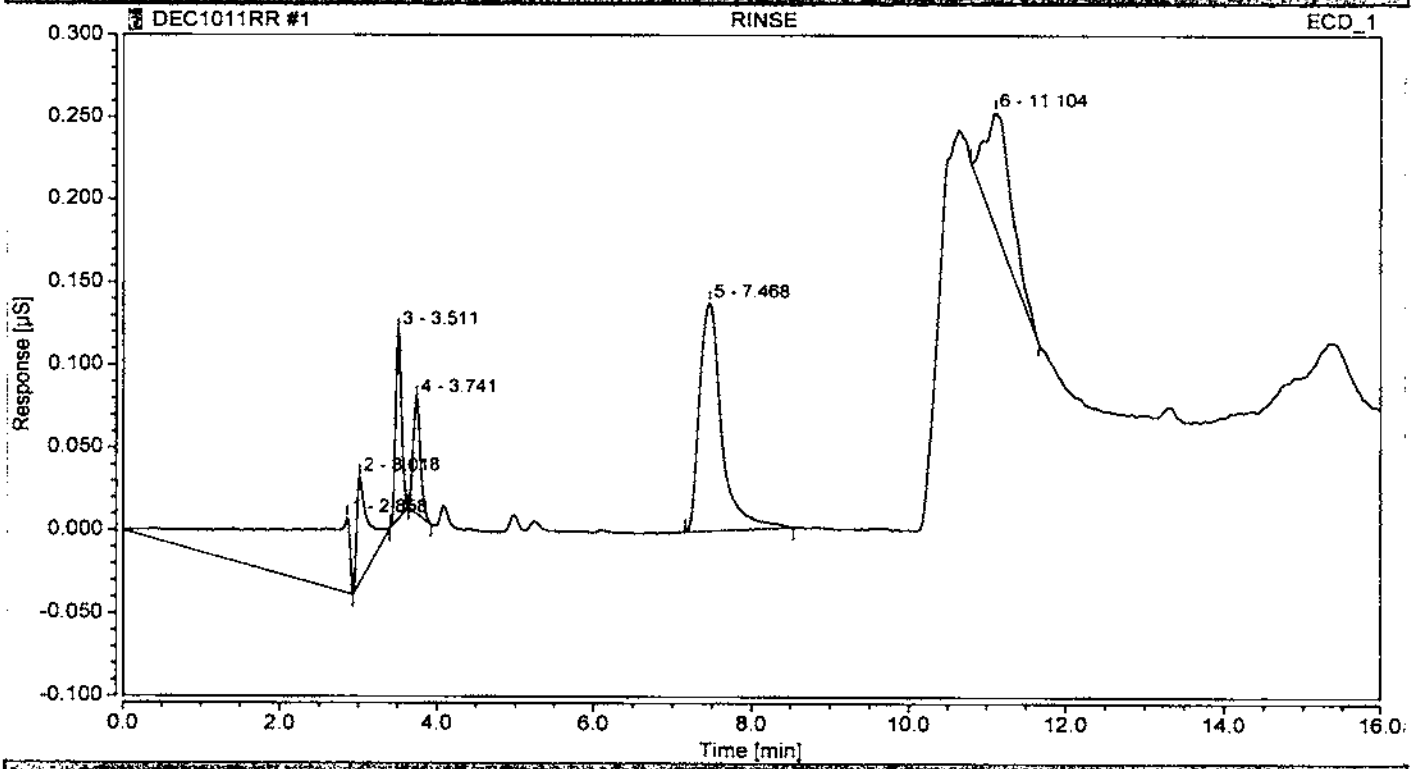
Injection Details

No.	Injection Name	Position	Type	Level	Dilution	Inject Time
1	RINSE	1	Unknown		1.0	10/Dec/11 09:53:23
2	ICV	2	Check Standard	06	1.0	10/Dec/11 10:12:17
3	ICB	3	Blank		1.0	10/Dec/11 10:31:26
4	UA74 A1	4	Unknown		1.0	10/Dec/11 10:50:41
5	UA74 A1 DUP	5	Unknown		1.0	10/Dec/11 11:10:37
6	UA74 A1 MS	6	Unknown		1.0	10/Dec/11 11:30:05
7	UA74 B1	7	Unknown		1.0	10/Dec/11 11:49:36
8	UA74 C1	8	Unknown		1.0	10/Dec/11 12:09:14
9	UA74 D1	9	Unknown		1.0	10/Dec/11 12:28:56
10	UA09 B4	10	Unknown		5.0	10/Dec/11 12:48:45
11	UA09 B4 DUP	11	Unknown		5.0	10/Dec/11 13:08:41
12	UA09 B4 MS	12	Unknown		5.0	10/Dec/11 13:28:41
13	UA74 C1	13	Unknown		2.0	10/Dec/11 13:48:48
14	CCV	2	Check Standard	06	1.0	10/Dec/11 14:08:59
15	CCB	3	Blank		1.0	10/Dec/11 14:29:35
16	UA74 A1	14	Unknown		20.0	10/Dec/11 15:52:19
17	UA74 A1 DUP	15	Unknown		20.0	10/Dec/11 14:53:26
18	UA74 A1 MS	16	Unknown		20.0	10/Dec/11 16:12:32
19	UA74 B1	17	Unknown		5.0	10/Dec/11 16:33:10
20	UA74 B1	18	Unknown		20.0	10/Dec/11 16:53:54
21	UA74 C1	19	Unknown		5.0	10/Dec/11 17:14:43
22	UA74 D1	20	Unknown		5.0	10/Dec/11 17:34:04
23	TZ83 A3	21	Unknown		1.0	10/Dec/11 17:53:30
24	TZ84 A1	22	Unknown		5.0	10/Dec/11 18:13:01
25	TZ84 A1 DUP	23	Unknown		5.0	10/Dec/11 18:32:37
26	CCV	2	Check Standard	06	1.0	10/Dec/11 18:52:18
27	CCB	3	Blank		1.0	10/Dec/11 19:12:43
28	TZ84 A1 MS	24	Unknown		5.0	10/Dec/11 19:33:17
29	TZ84 B1	25	Unknown		5.0	10/Dec/11 19:53:17
30	UA74 A1	14	Unknown		20.0	10/Dec/11 20:13:17
31	UA74 A1 DUP	15	Unknown		20.0	10/Dec/11 20:33:42
32	UA74 A1 MS	16	Unknown		20.0	10/Dec/11 20:53:52
33	TZ84 A5	26	Unknown		5.0	10/Dec/11 21:14:24
34	TZ84 B5	27	Unknown		1.0	10/Dec/11 21:34:45
35	TZ97 A1	28	Unknown		1.0	10/Dec/11 21:55:06
36	TZ97 A1	29	Unknown		2.0	10/Dec/11 22:15:31
37	TZ97 B1	30	Unknown		5.0	10/Dec/11 22:36:00
38	CCV	31	Check Standard	06	1.0	10/Dec/11 22:56:32
39	CCB	32	Blank		1.0	10/Dec/11 23:17:08
40	TZ97 B1 DUP	33	Unknown		5.0	10/Dec/11 23:37:49
41	TZ97 B1 MS	34	Unknown		10.0	10/Dec/11 23:58:34
42	TZ97 C1	35	Unknown		1.0	11/Dec/11 00:17:49
43	TZ99 A1	36	Unknown		10.0	11/Dec/11 00:37:09

44	TZ99 A1 DUP	37	Unknown		10.0	11/Dec/11 00:56:31
45	TZ99 A1 MS	38	Unknown		10.0	11/Dec/11 01:15:59
46	TZ99 B1	39	Unknown		10.0	11/Dec/11 01:35:30
47	UA20 A1	40	Unknown		5.0	11/Dec/11 01:55:06
48	UA20 B1	41	Unknown		1.0	11/Dec/11 02:14:45
49	CCV	31	Check Standard	06	1.0	11/Dec/11 02:34:27
50	CCB	32	Blank		1.0	11/Dec/11 02:54:41
51	STOP	1	Unknown		1.0	11/Dec/11 03:15:10

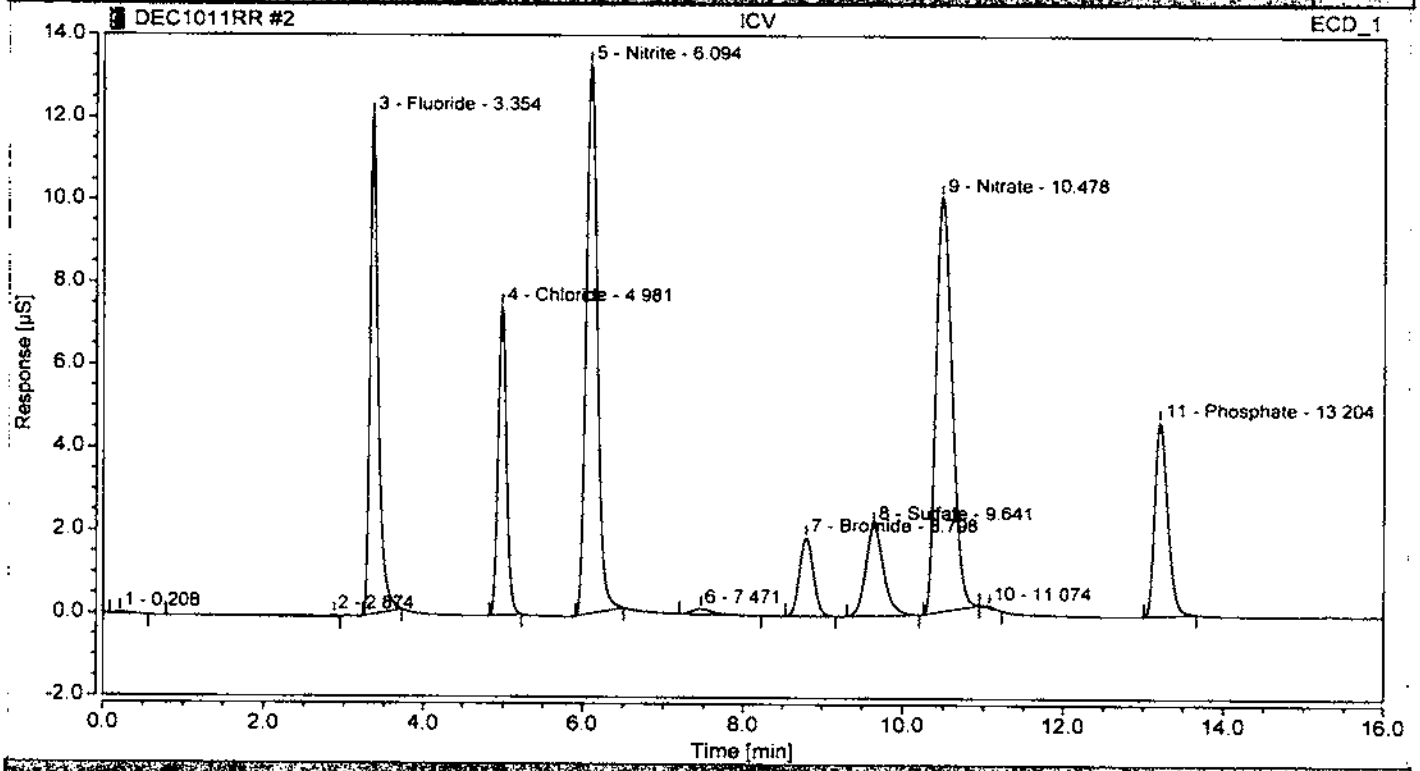
UA17 : 00446

Injection Name:	*RINSE*	Inject Number:	1
Vial Number:	*1*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 09:53*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.86	0.057	0.045	FALSE	n.a.
2		1.0	n.a.	3.02	0.011	0.064	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.010	0.114	FALSE	n.a.
4		1.0	n.a.	3.74	0.007	0.070	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	7.47	0.045	0.138	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		1.0	n.a.	11.10	0.028	0.070	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

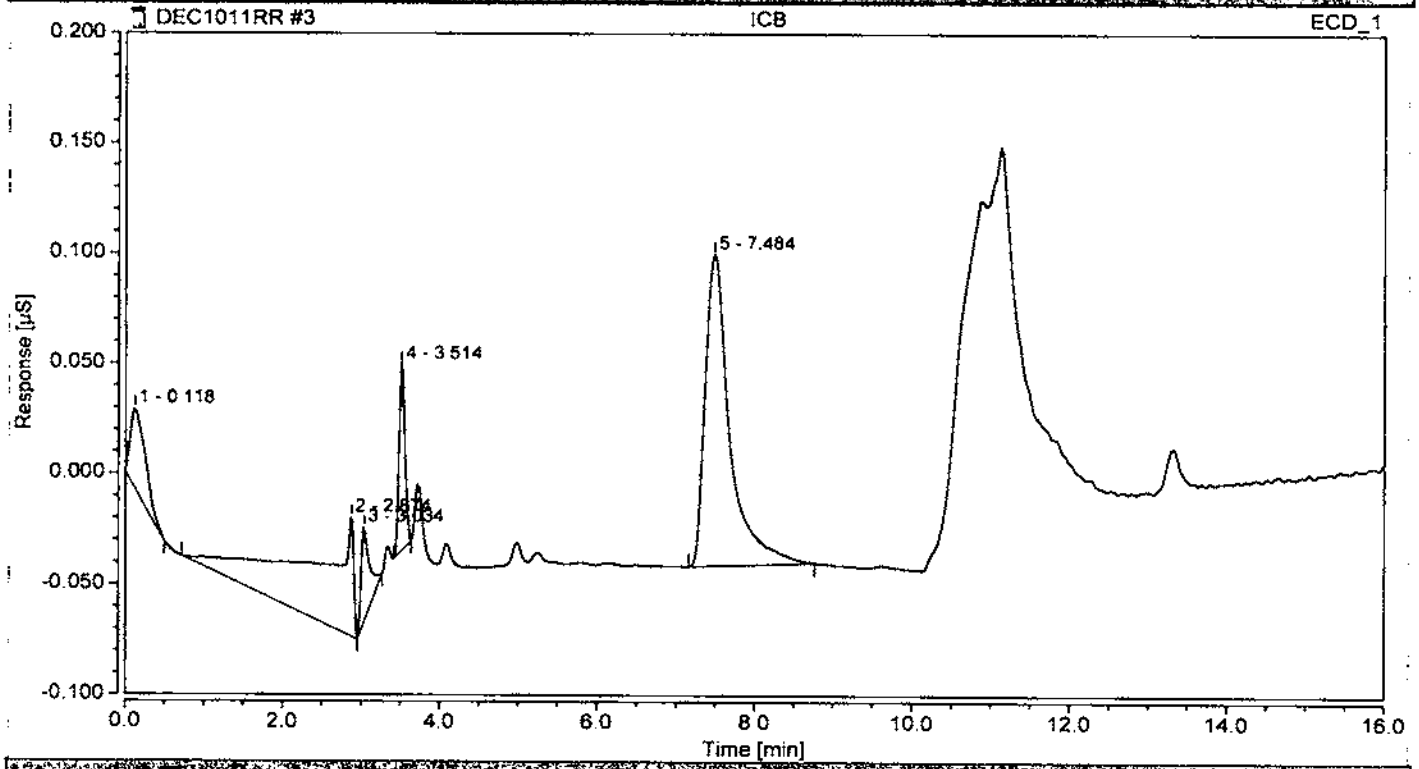
Injection Name:	*ICV*	Inject Number:	2
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 10:12*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	0.21	0.007	0.032	FALSE	n.a.
2		1.0	n.a.	2.87	0.037	0.053	FALSE	n.a.
3	Fluoride	1.0	3.044	3.35	1.442	12.058	FALSE	1.48
4	Chloride	1.0	2.944	4.98	0.892	7.443	FALSE	-1.86
5	Nitrite	1.0	3.042	6.09	2.116	13.261	FALSE	1.39
6		1.0	n.a.	7.47	0.039	0.128	FALSE	n.a.
7	Bromide	1.0	3.005	8.80	0.386	1.890	FALSE	0.16
8	Sulfate	1.0	2.999	9.64	0.556	2.185	FALSE	-0.03
9	Nitrate	1.0	3.039	10.48	2.306	9.997	FALSE	1.31
10		1.0	n.a.	11.07	0.006	0.045	FALSE	n.a.
11	Phosphate	1.0	2.995	13.20	0.886	4.671	FALSE	-0.16

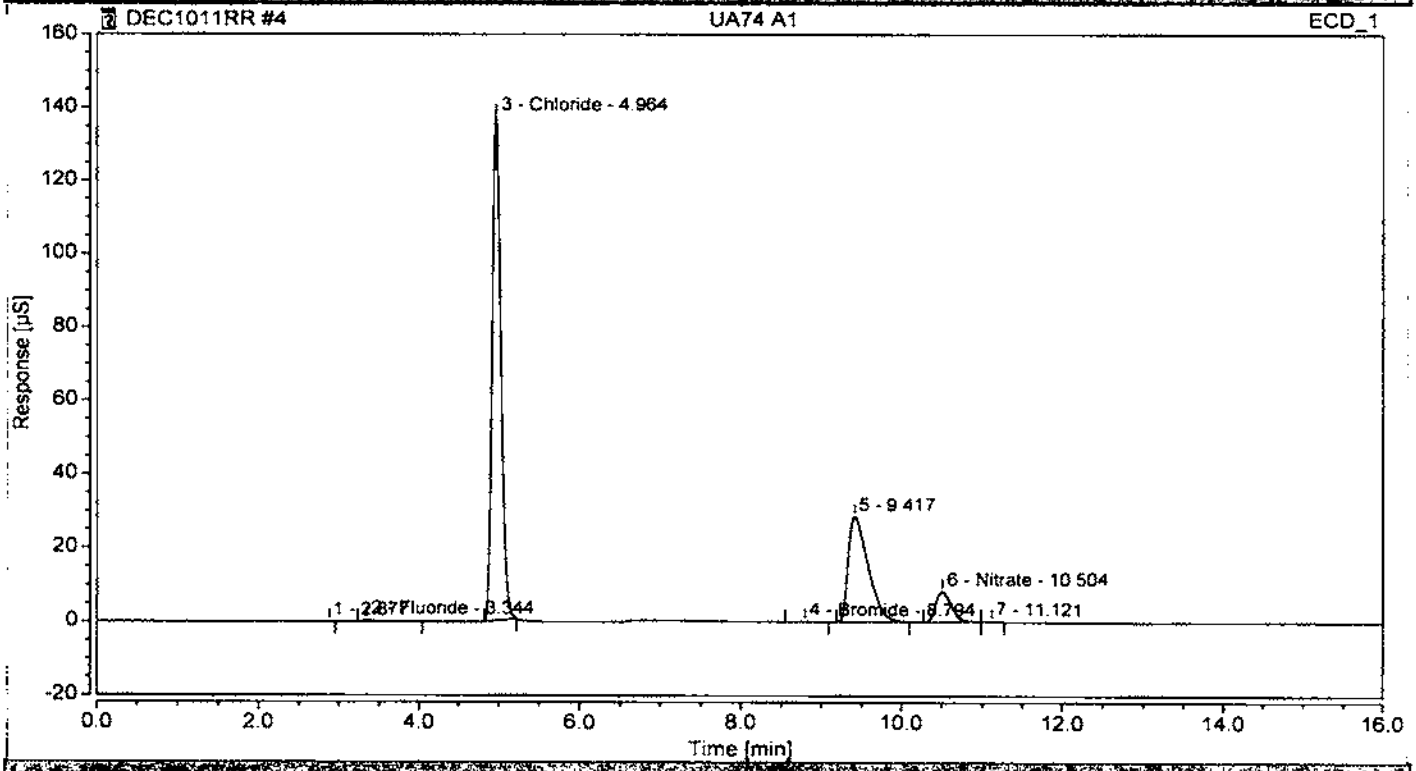
UA17 : 00442

Injection Name:	*ICB*	Inject Number:	3
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 10:31*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	0.12	0.008	0.036	FALSE	n.a.
2		1.0	n.a.	2.87	0.037	0.054	FALSE	n.a.
3		1.0	n.a.	3.03	0.005	0.042	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	3.51	0.007	0.084	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	7.48	0.051	0.141	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

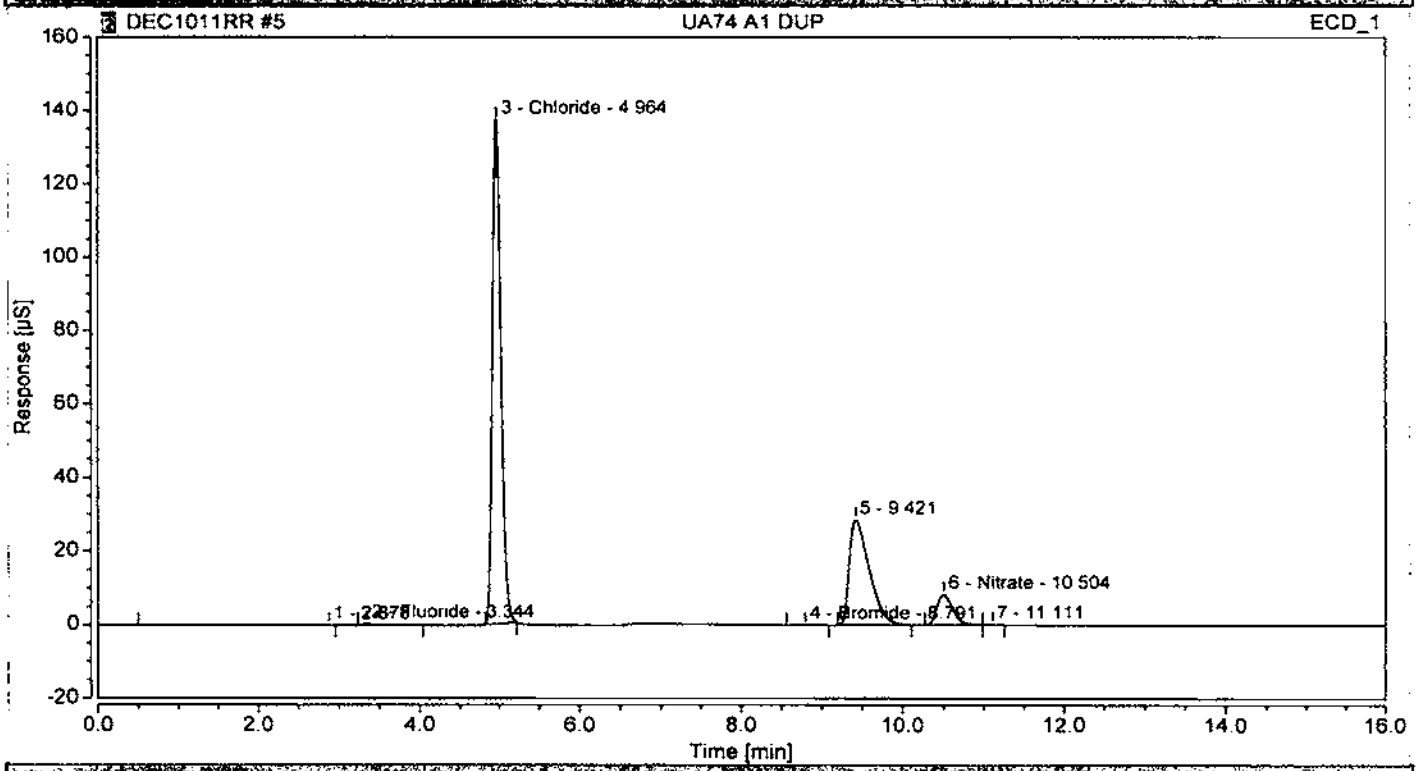
Injection Name:	*UA74 A1*	Inject Number:	4
Vial Number:	*4*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 10:50*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.049	0.044	FALSE	n.a.
2	Fluoride	1.0	0.125	3.34	0.059	0.408	FALSE	n.a.
3	Chloride	1.0	55.640	4.96	16.848	137.278	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Bromide	1.0	0.139	8.79	0.018	0.091	FALSE	n.a.
5		1.0	n.a.	9.42	8.179	28.520	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Nitrate	1.0	2.425	10.50	1.840	8.211	FALSE	n.a.
7		1.0	n.a.	11.12	0.006	0.045	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Quantitation Analysis

Injection Name:	*UA74 A1 DUP*	Inject Number:	5
Vial Number:	5	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 11:10*		

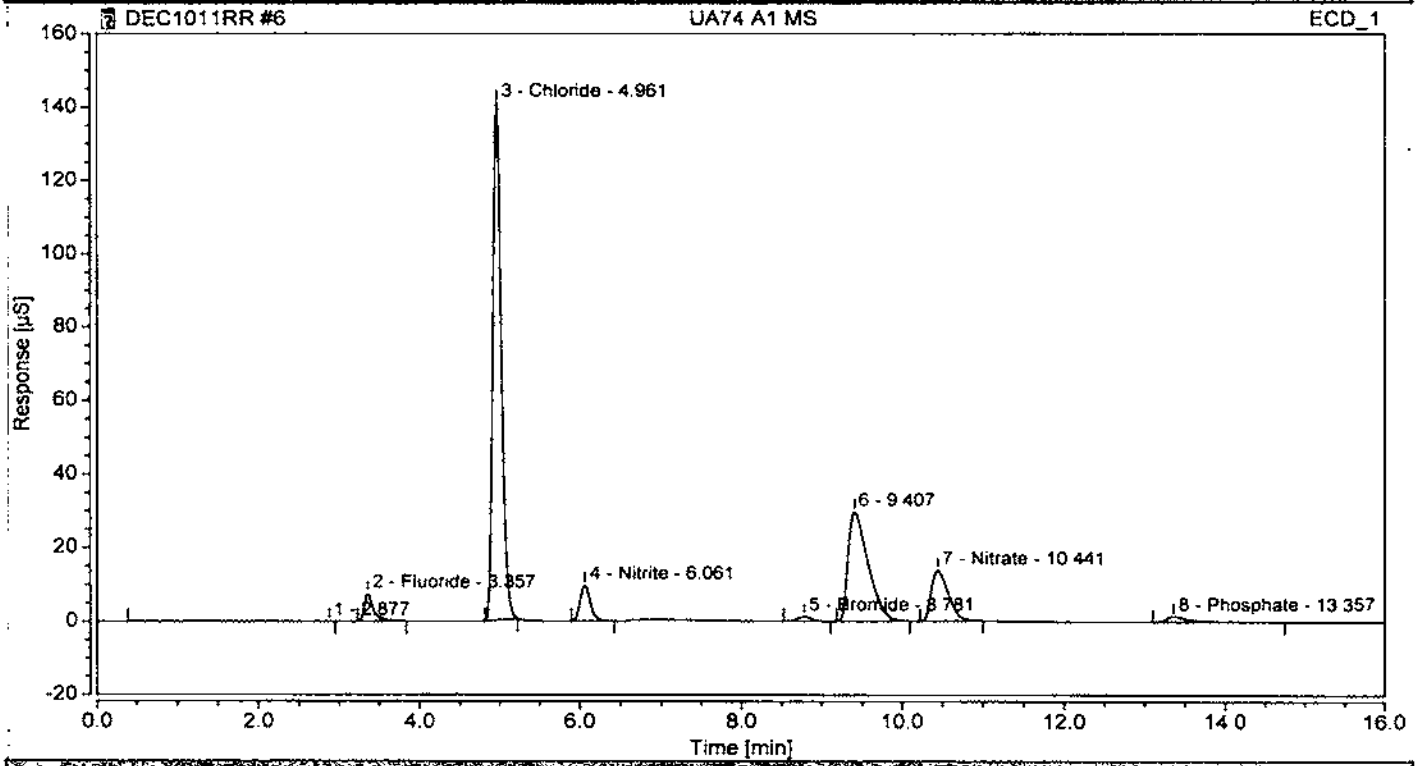


Integration Results

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.042	0.045	FALSE	n.a.
2	Fluoride	1.0	0.122	3.34	0.058	0.395	FALSE	n.a.
3	Chloride	1.0	55.722	4.96	16.873	137.325	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Bromide	1.0	0.139	8.79	0.018	0.090	FALSE	n.a.
5		1.0	n.a.	9.42	8.190	28.526	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Nitrate	1.0	2.435	10.50	1.847	8.238	FALSE	n.a.
7		1.0	n.a.	11.11	0.005	0.042	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Chromatogram and Results

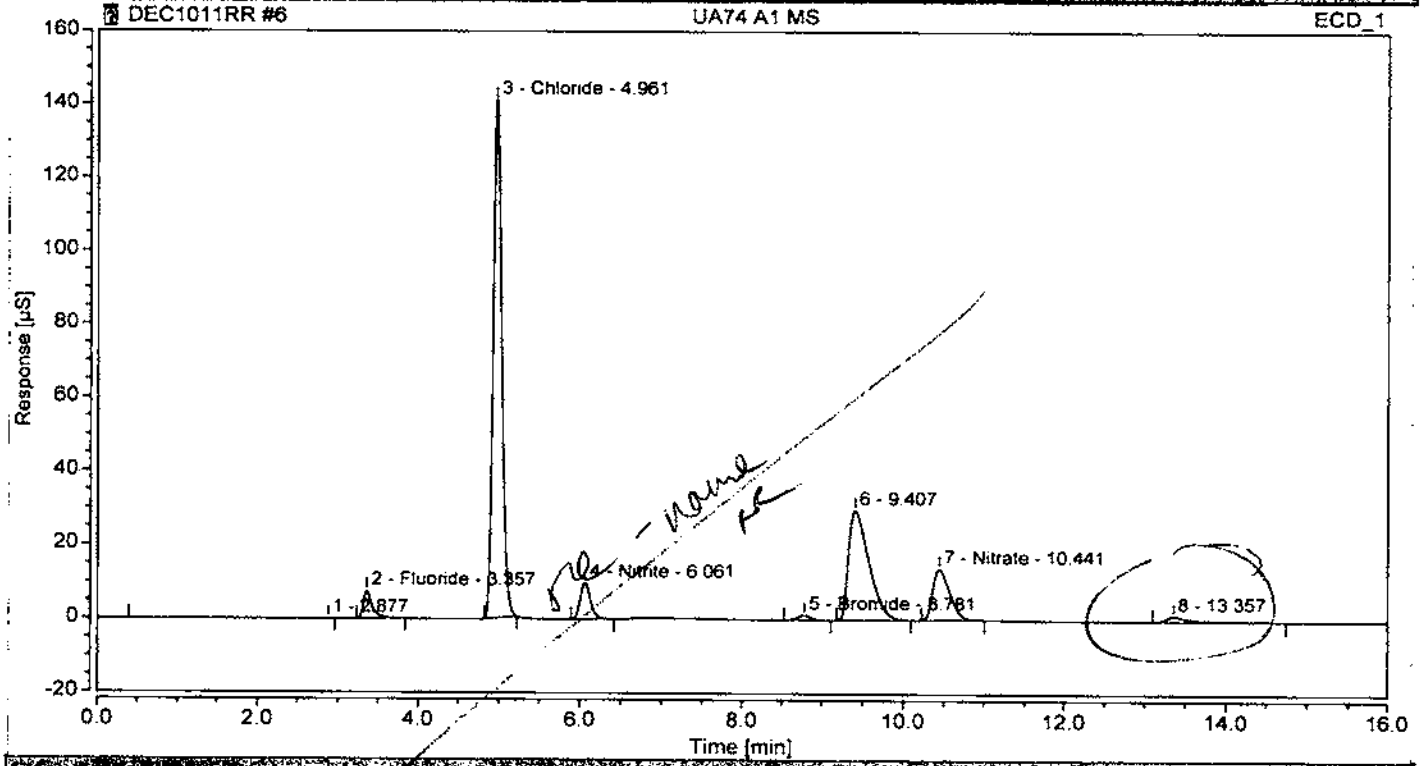
Injection Name:	*UA74 A1 MS*	Inject Number:	6
Vial Number:	*6*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 11:30*		



Integration Results

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.041	0.044	FALSE	n.a.
2	Fluoride	1.0	2.060	3.36	0.976	7.443	FALSE	n.a.
3	Chloride	1.0	57.184	4.96	17.315	140.867	FALSE	n.a.
4	Nitrite	1.0	2.038	6.06	1.419	9.749	FALSE	n.a.
5	Bromide	1.0	1.978	8.78	0.254	1.302	FALSE	n.a.
6		1.0	n.a.	9.41	8.563	29.641	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7	Nitrate	1.0	4.467	10.44	3.388	13.720	FALSE	n.a.
8	Phosphate	1.0	1.619	13.36	0.479	1.444	FALSE	n.a.

Injection Name:	*UA74 A1 MS*	Inject Number:	6
Vial Number:	*6*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 11:30*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.041	0.044	FALSE	n.a.
2	Fluoride	1.0	2.060	3.38	0.976	7.443	FALSE	n.a.
3	Chloride	1.0	57.184	4.96	17.315	140.867	FALSE	n.a.
4	Nitrite	1.0	2.038	6.06	1.419	9.749	FALSE	n.a.
5	Bromide	1.0	1.978	8.78	0.254	1.302	FALSE	n.a.
6		1.0	n.a.	9.41	8.563	29.641	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
7	Nitrate	1.0	4.467	10.44	3.388	13.720	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
8		1.0	n.a.	13.36	0.479	1.444	FALSE	n.a.

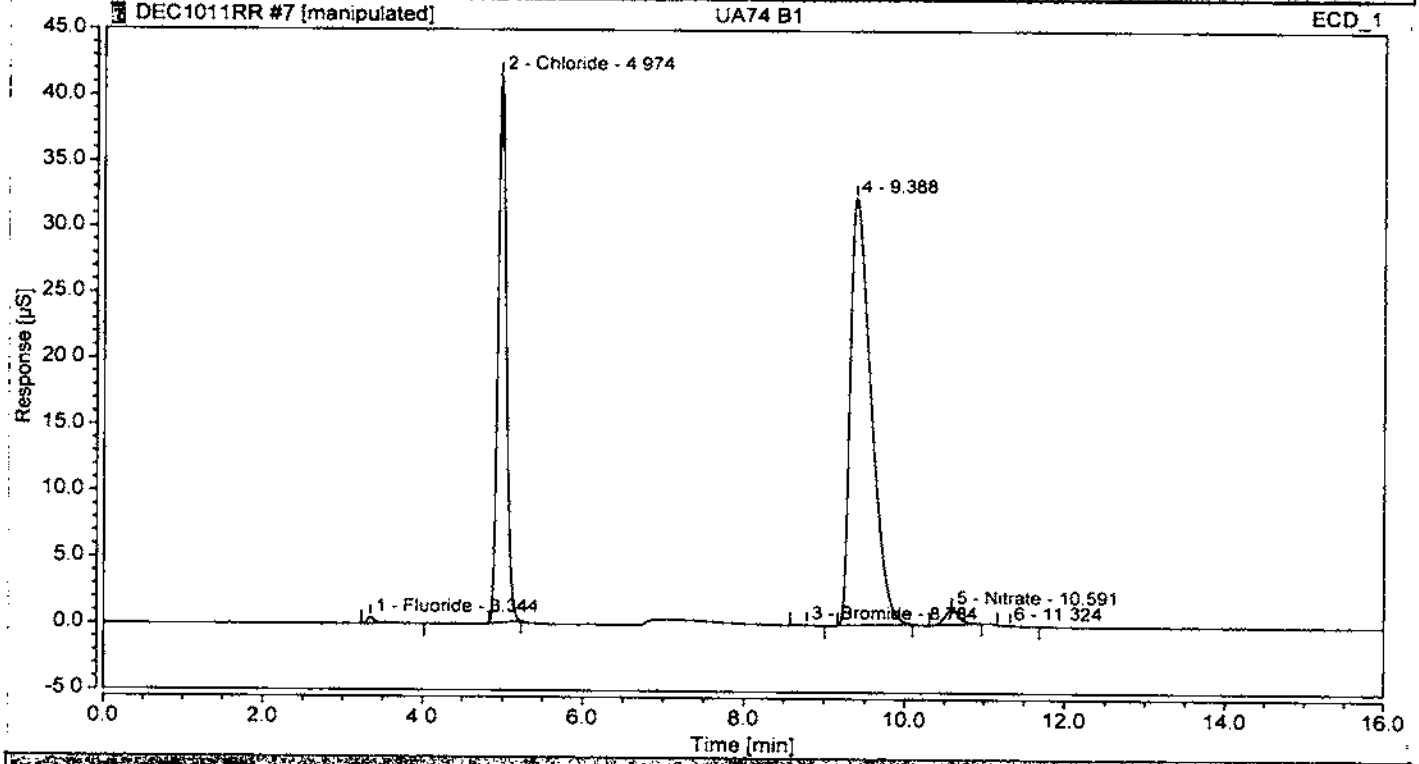
UA17 : 00497

Chromatogram Results

Injection Results

Injection Name:	*UA74 B1*	Inject Number:	7
Vial Number:	*7*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodel*		
Injection Date/Time:	*10/12/11 11:49*		

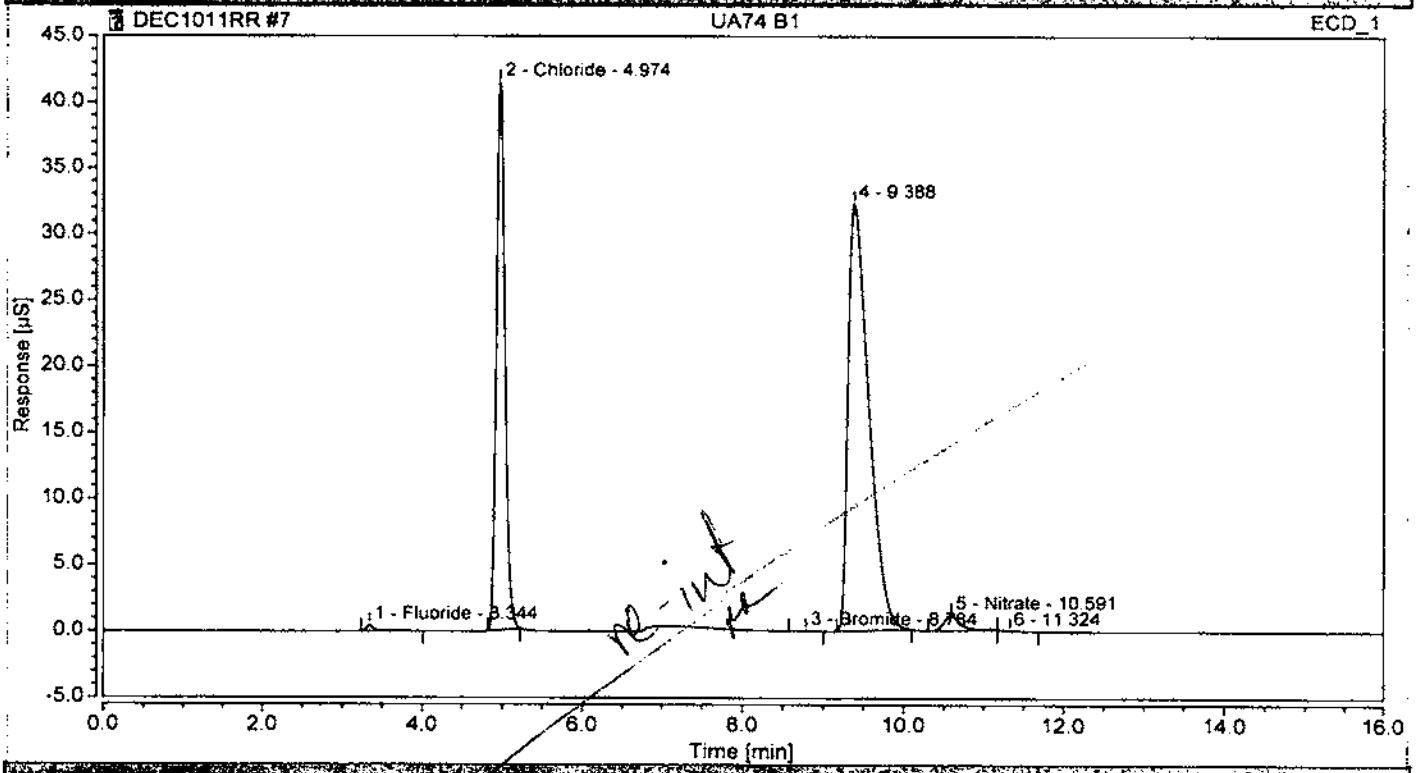
Chromatogram



Integration Results

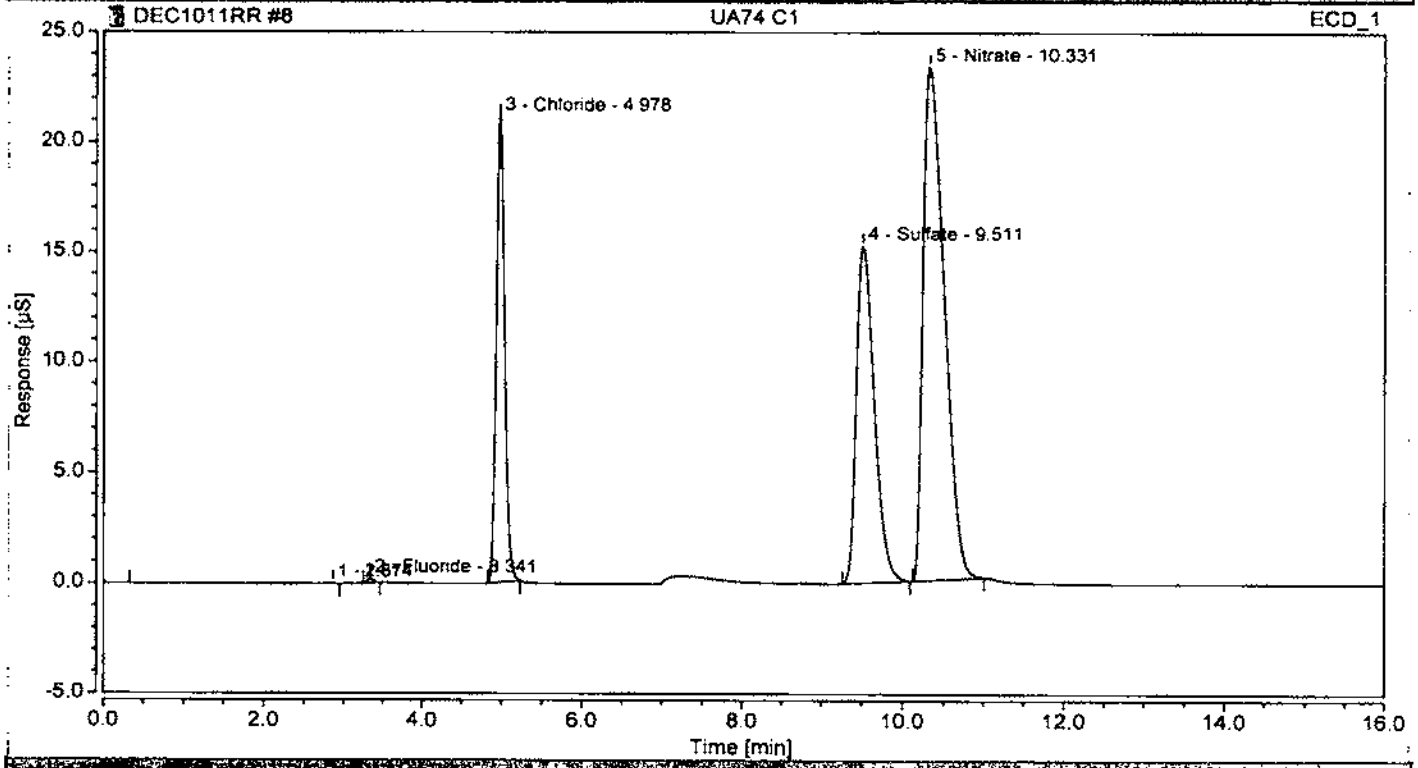
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	1.0	0.134	3.34	0.064	0.449	FALSE	n.a.
2	Chloride	1.0	16.580	4.97	5.020	41.454	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3	Bromide	1.0	0.052	8.78	0.007	0.035	FALSE	n.a.
4		1.0	n.a.	9.39	9.597	32.258	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Nitrate	1.0	0.319	10.59	0.242	1.127	TRUE	n.a.
6		1.0	n.a.	11.32	0.016	0.044	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 B1*	Inject Number:	7
Vial Number:	*7*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 11:49*		



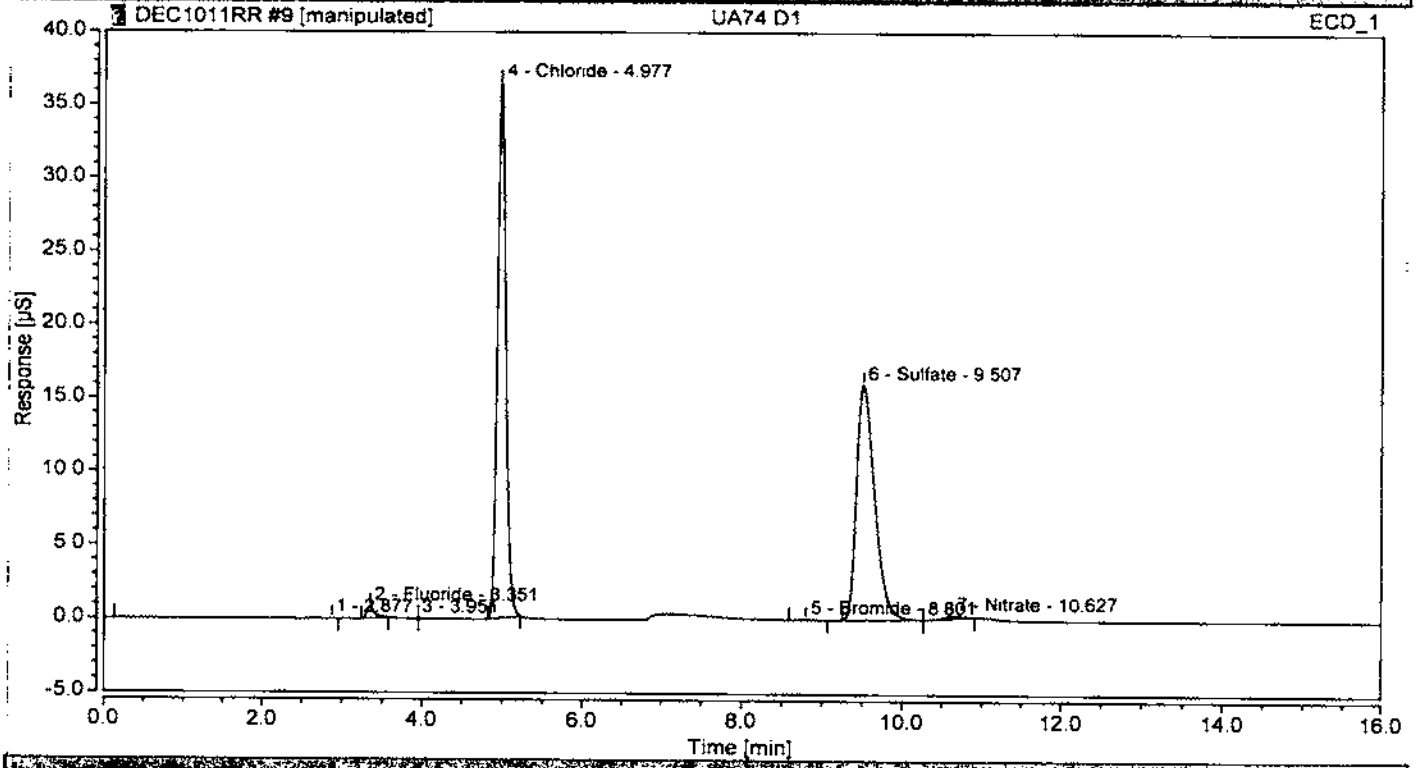
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	1.0	0.134	3.34	0.064	0.449	FALSE	n.a.
2	Chloride	1.0	16.580	4.97	5.020	41.454	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3	Bromide	1.0	0.052	8.78	0.007	0.035	FALSE	n.a.
4		1.0	n.a.	9.39	9.597	32.258	FALSE	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Nitrate	1.0	0.380	10.59	0.288	1.170	FALSE	n.a.
6		1.0	n.a.	11.32	0.016	0.044	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 C1*	Inject Number:	8
Vial Number:	*8*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 12:09*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.044	0.049	FALSE	n.a.
2	Fluoride	1.0	0.037	3.34	0.017	0.205	FALSE	n.a.
3	Chloride	1.0	8.418	4.98	2.549	21.107	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	1.0	20.898	9.51	3.874	15.268	FALSE	n.a.
5	Nitrate	1.0	9.279	10.33	7.039	23.275	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 D1*	Inject Number:	9
Vial Number:	*9*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 12:28*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.046	0.047	FALSE	n.a.
2	Fluoride	1.0	0.183	3.35	0.087	0.787	FALSE	n.a.
3		1.0	n.a.	3.95	0.000	0.057	FALSE	n.a.
4	Chloride	1.0	14.589	4.98	4.417	36.453	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Bromide	1.0	0.060	8.80	0.008	0.039	FALSE	n.a.
6	Sulfate	1.0	22.492	9.51	4.170	15.938	FALSE	n.a.
7	Nitrate	1.0	0.054	10.63	0.041	0.167	TRUE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

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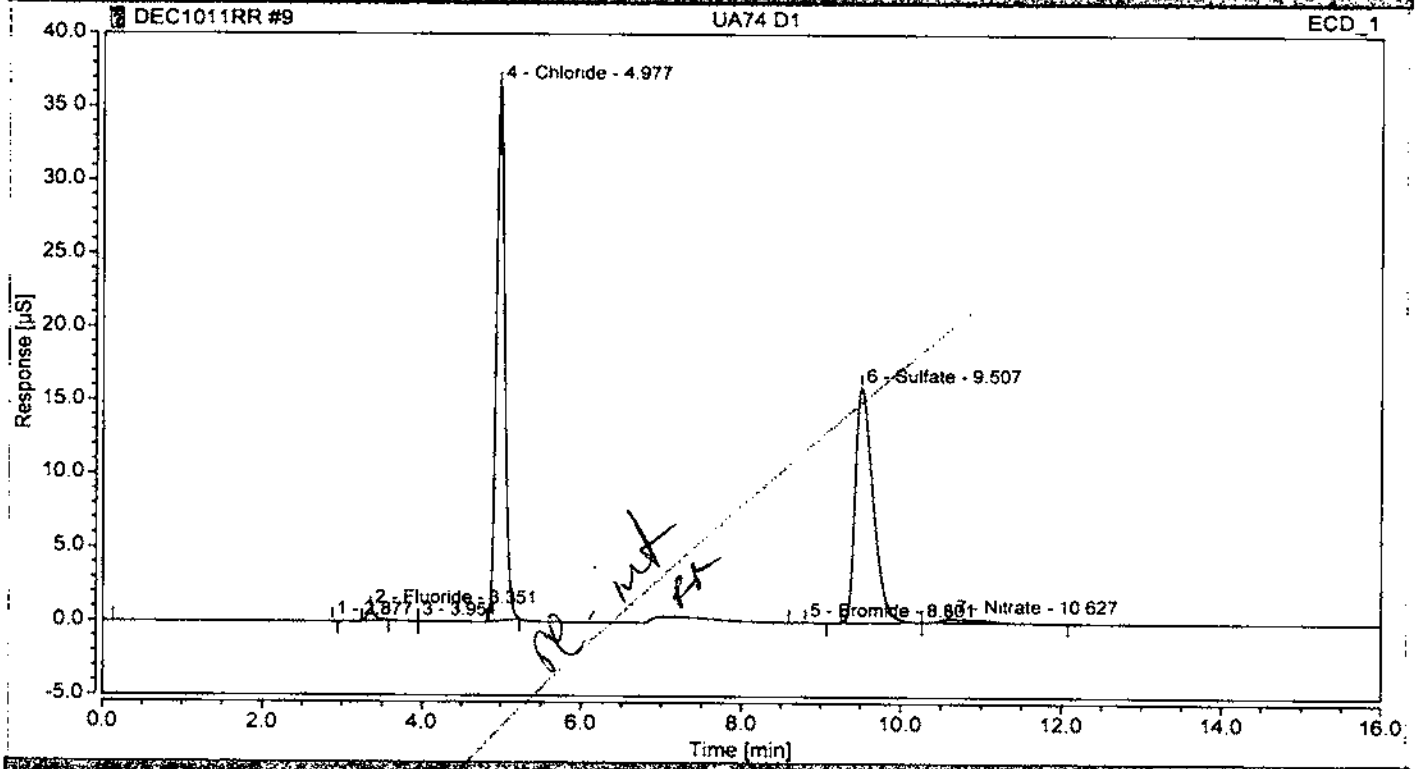
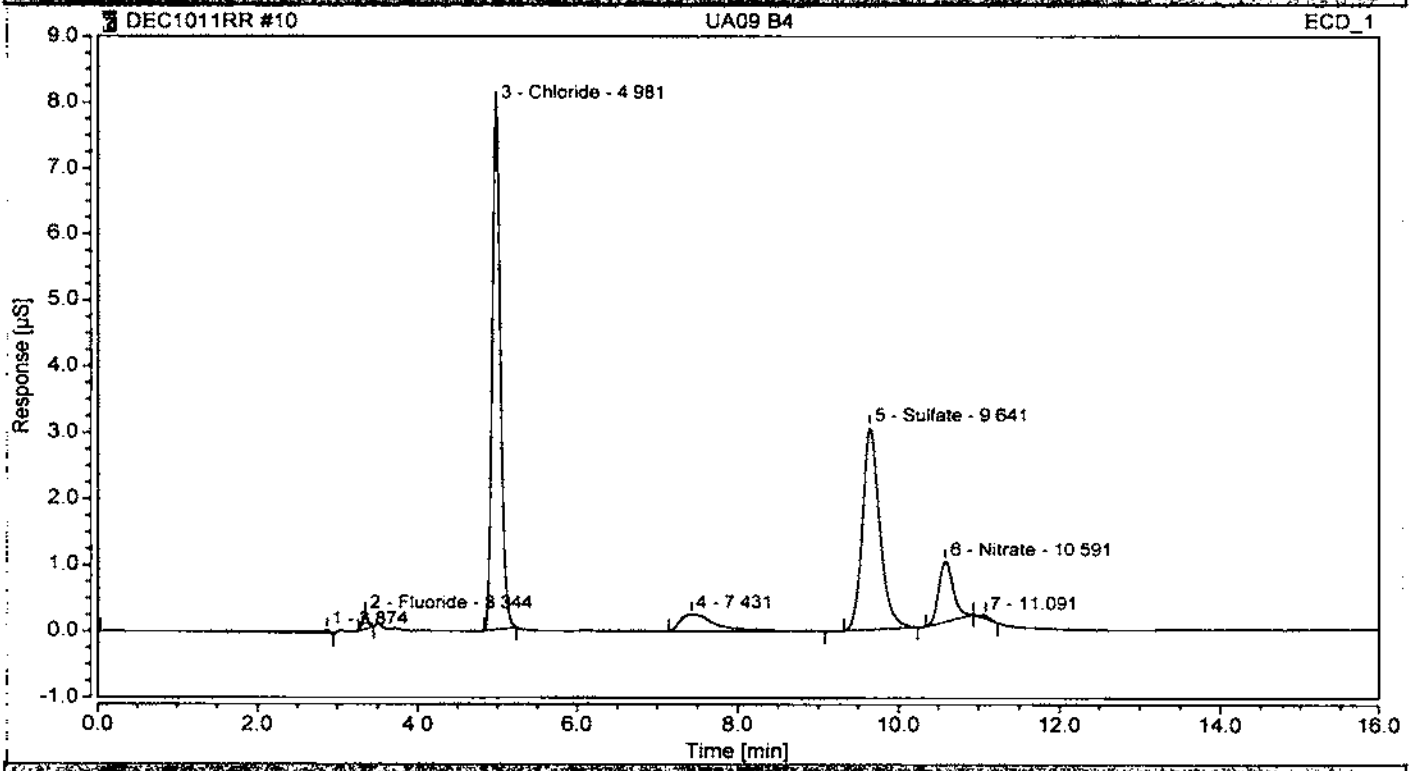
Injection Name:	*UA74 D1*	Inject Number:	9
Vial Number:	*9*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 12:28*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.88	0.046	0.047	FALSE	n.a.
2	Fluoride	1.0	0.183	3.35	0.087	0.787	FALSE	n.a.
3		1.0	n.a.	3.95	0.000	0.057	FALSE	n.a.
4	Chloride	1.0	14.589	4.98	4.417	36.453	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Bromide	1.0	0.060	8.80	0.008	0.039	FALSE	n.a.
6	Sulfate	1.0	22.492	9.51	4.170	15.938	FALSE	n.a.
7	Nitrate	1.0	0.221	10.63	0.168	0.275	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA09 B4*	Inject Number:	10
Vial Number:	*10*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 12:48*		

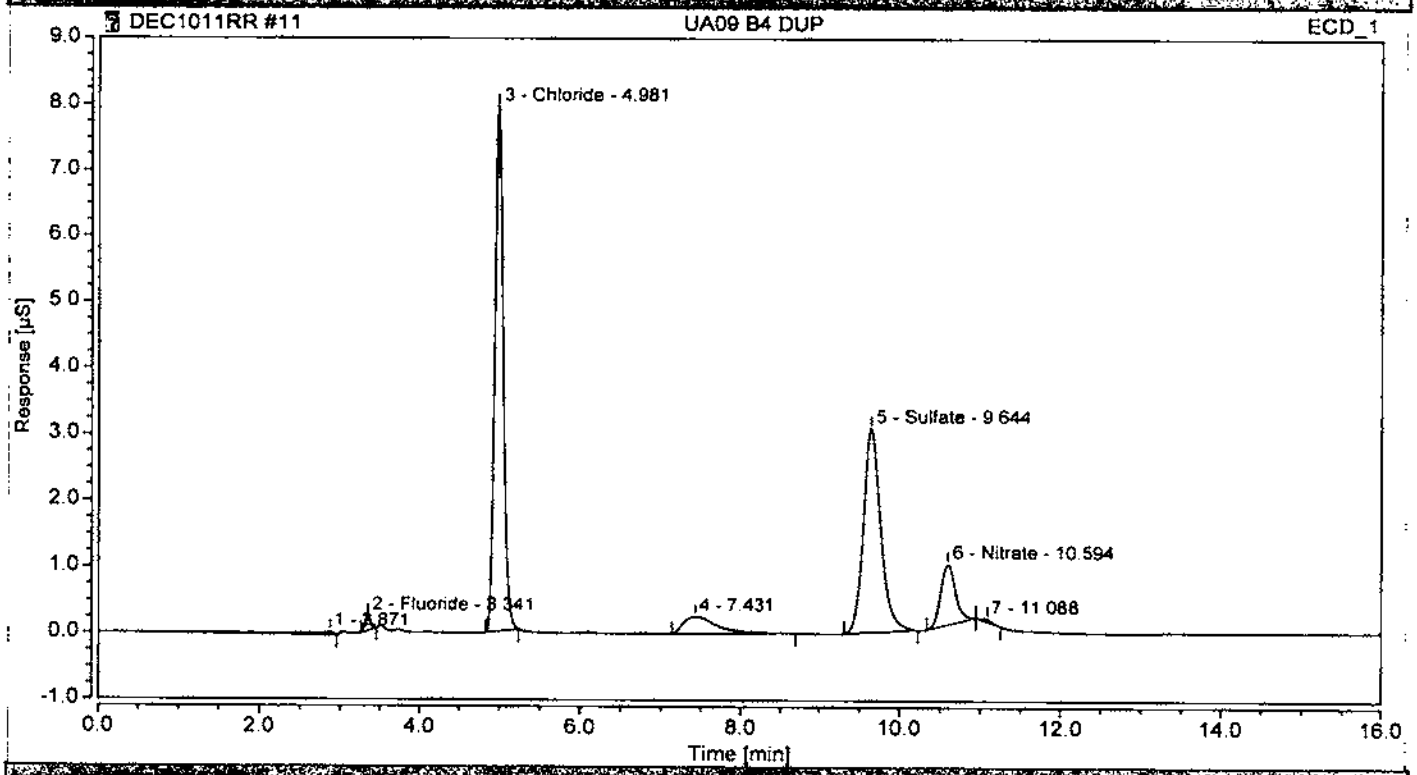


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.047	0.049	FALSE	n.a.
2	Fluoride	5.0	0.198	3.34	0.019	0.223	FALSE	n.a.
3	Chloride	5.0	15.852	4.98	0.960	7.943	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.43	0.134	0.257	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	28.612	9.64	0.764	3.057	FALSE	n.a.
6	Nitrate	5.0	1.266	10.59	0.192	0.908	FALSE	n.a.
7		5.0	n.a.	11.09	0.007	0.049	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Chromeleon (c) Dionex
Version 7.0.1.272

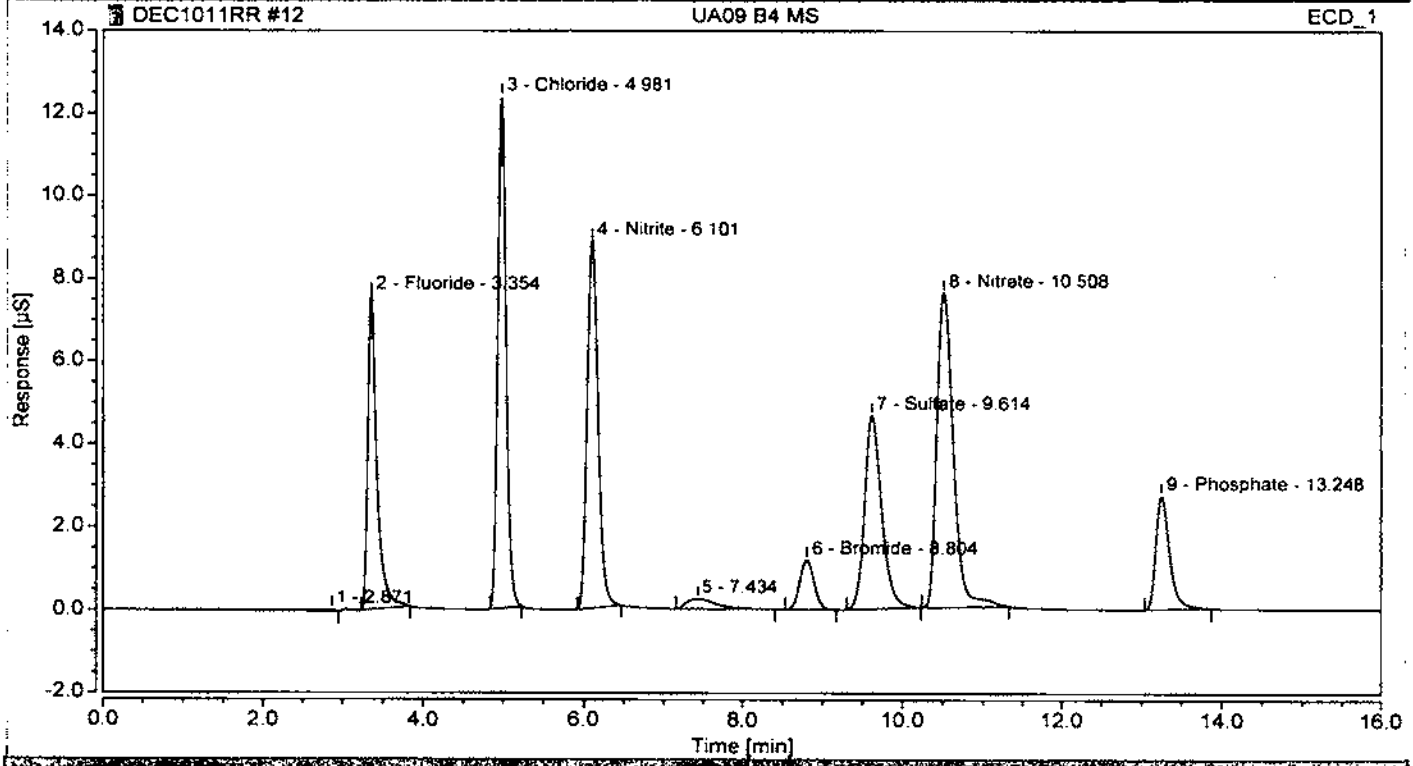
UA17 : 00453

Injection Name:	*UA09 B4 DUP*	Inject Number:	11
Vial Number:	*11*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 13:08*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.048	0.049	FALSE	n.a.
2	Fluoride	5.0	0.200	3.34	0.019	0.226	FALSE	n.a.
3	Chloride	5.0	15.838	4.98	0.959	7.940	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.43	0.127	0.257	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	20.718	9.64	0.768	3.076	FALSE	n.a.
6	Nitrate	5.0	1.279	10.59	0.194	0.911	FALSE	n.a.
7		5.0	n.a.	11.09	0.006	0.046	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA09 B4 MS*	Inject Number:	12
Vial Number:	*12*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 13:28*		

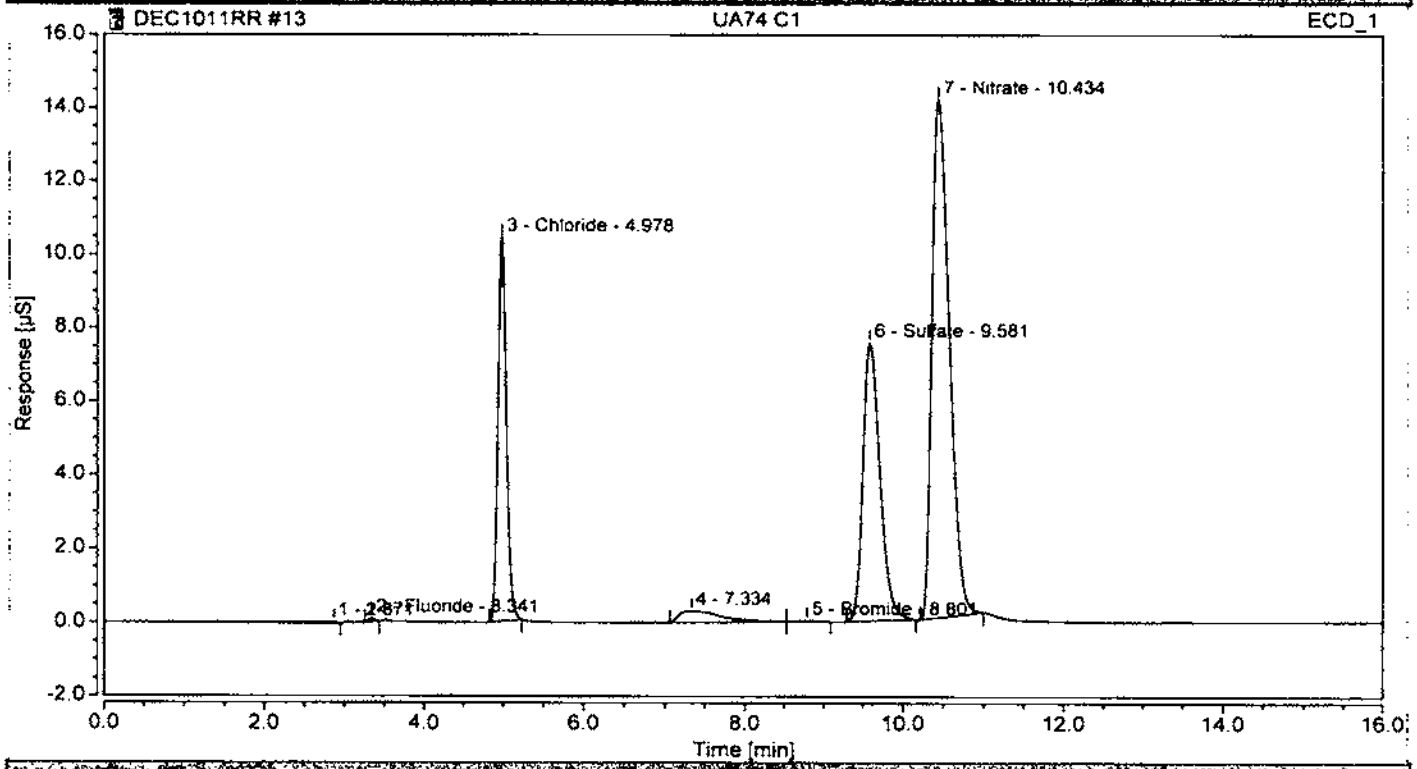


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.049	0.048	FALSE	n.a.
2	Fluoride	5.0	10.355	3.35	0.981	7.590	FALSE	n.a.
3	Chloride	5.0	24.723	4.98	1.497	12.366	FALSE	n.a.
4	Nitrite	5.0	9.933	6.10	1.383	8.871	FALSE	n.a.
5		5.0	n.a.	7.43	0.107	0.239	FALSE	n.a.
6	Bromide	5.0	9.446	8.80	0.243	1.188	FALSE	n.a.
7	Sulfate	5.0	30.928	9.61	1.147	4.647	FALSE	n.a.
8	Nitrate	5.0	11.766	10.51	1.785	7.588	FALSE	n.a.
9	Phosphate	5.0	9.181	13.25	0.543	2.737	FALSE	n.a.

[redacted]

Injection Name:	*UA74 C1*	Inject Number:	13
Vial Number:	*13*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*2.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 13:48*		

[redacted]



[redacted]

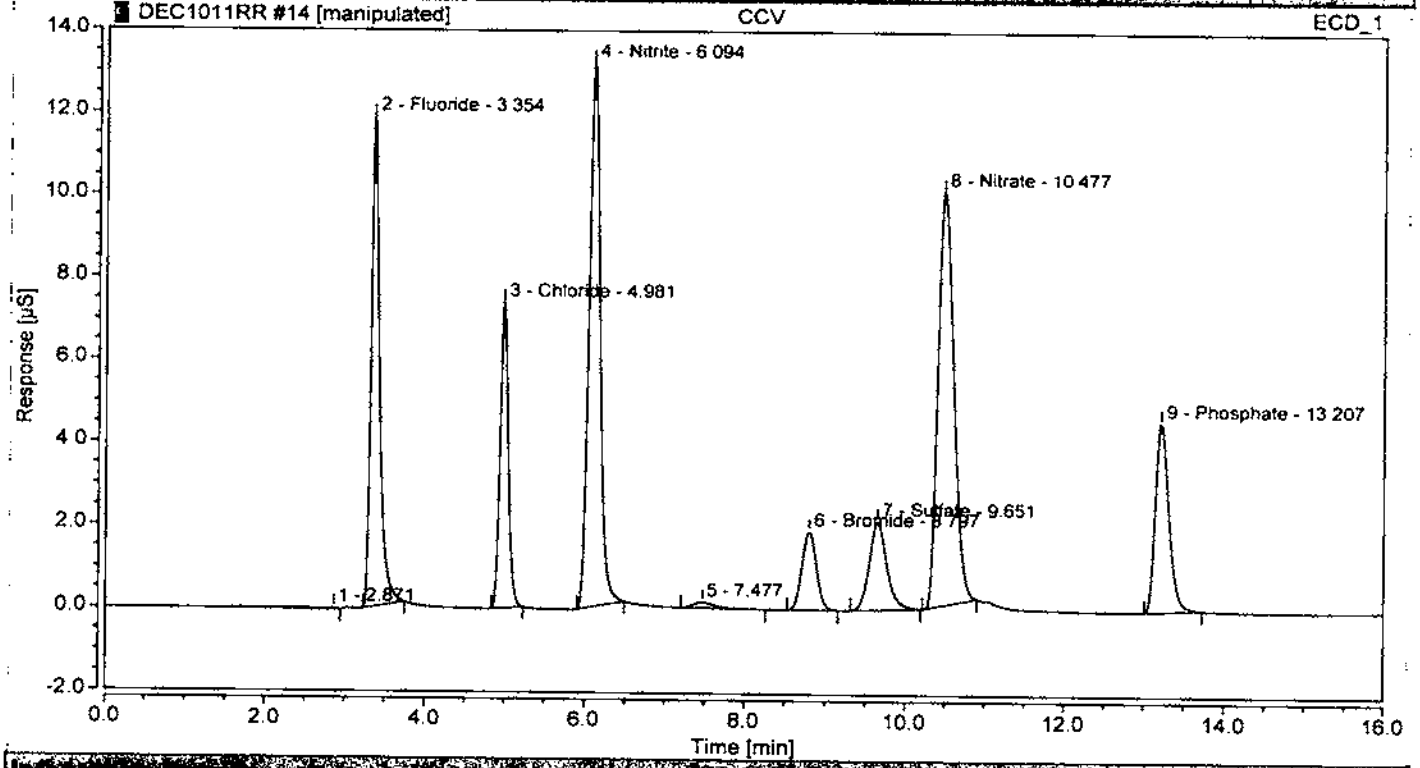
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		2.0	n.a.	2.87	0.049	0.047	FALSE	n.a.
2	Fluoride	2.0	0.035	3.34	0.008	0.103	FALSE	n.a.
3	Chloride	2.0	8.332	4.98	1.262	10.435	FALSE	n.a.
n.a.	Nitrite	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		2.0	n.a.	7.33	0.190	0.310	FALSE	n.a.
5	Bromide	2.0	0.099	8.80	0.006	0.025	FALSE	n.a.
6	Sulfate	2.0	20.064	9.58	1.860	7.550	FALSE	n.a.
7	Nitrate	2.0	9.298	10.43	3.527	14.084	FALSE	n.a.
n.a.	Phosphate	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Details

Injection Name:	*CCV*	Inject Number:	14
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 14:08*		

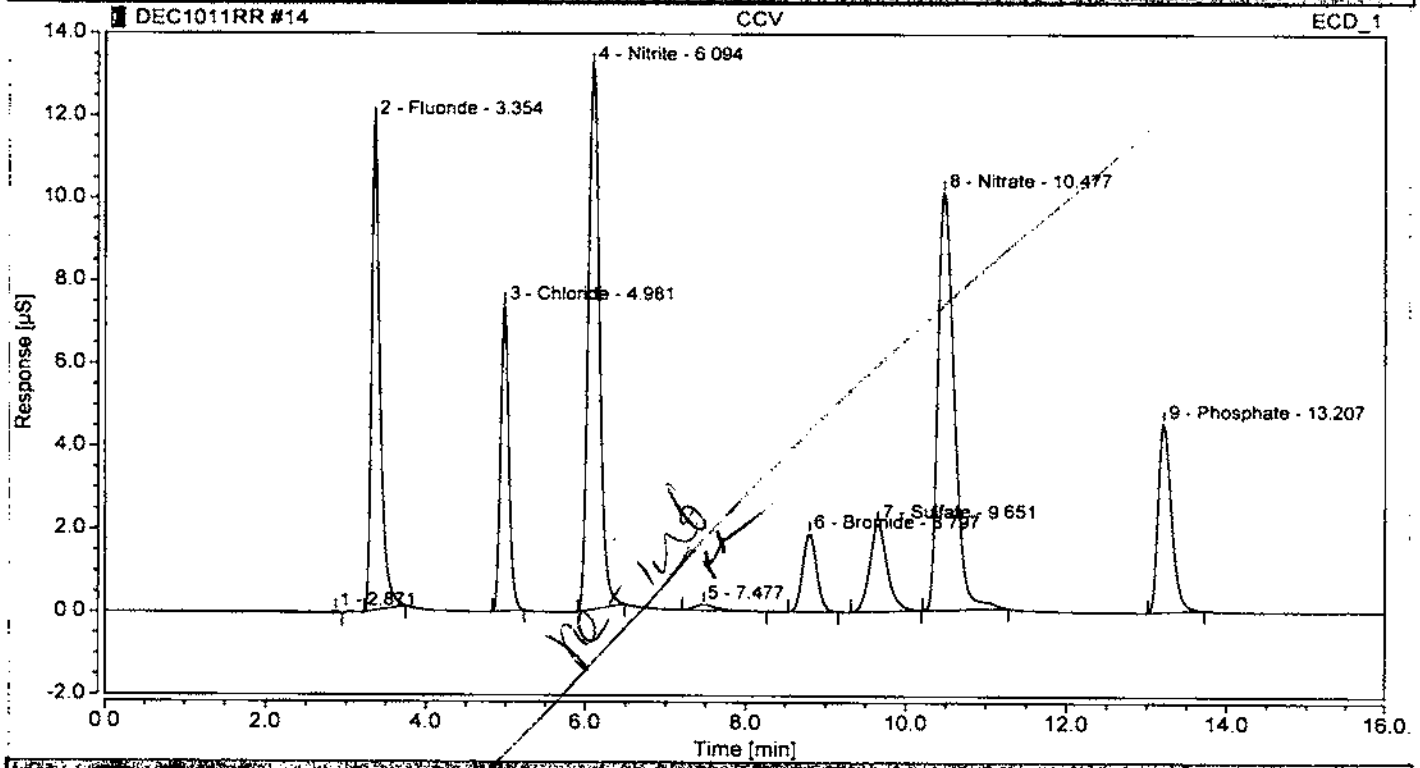
Chromatogram



Integration Results

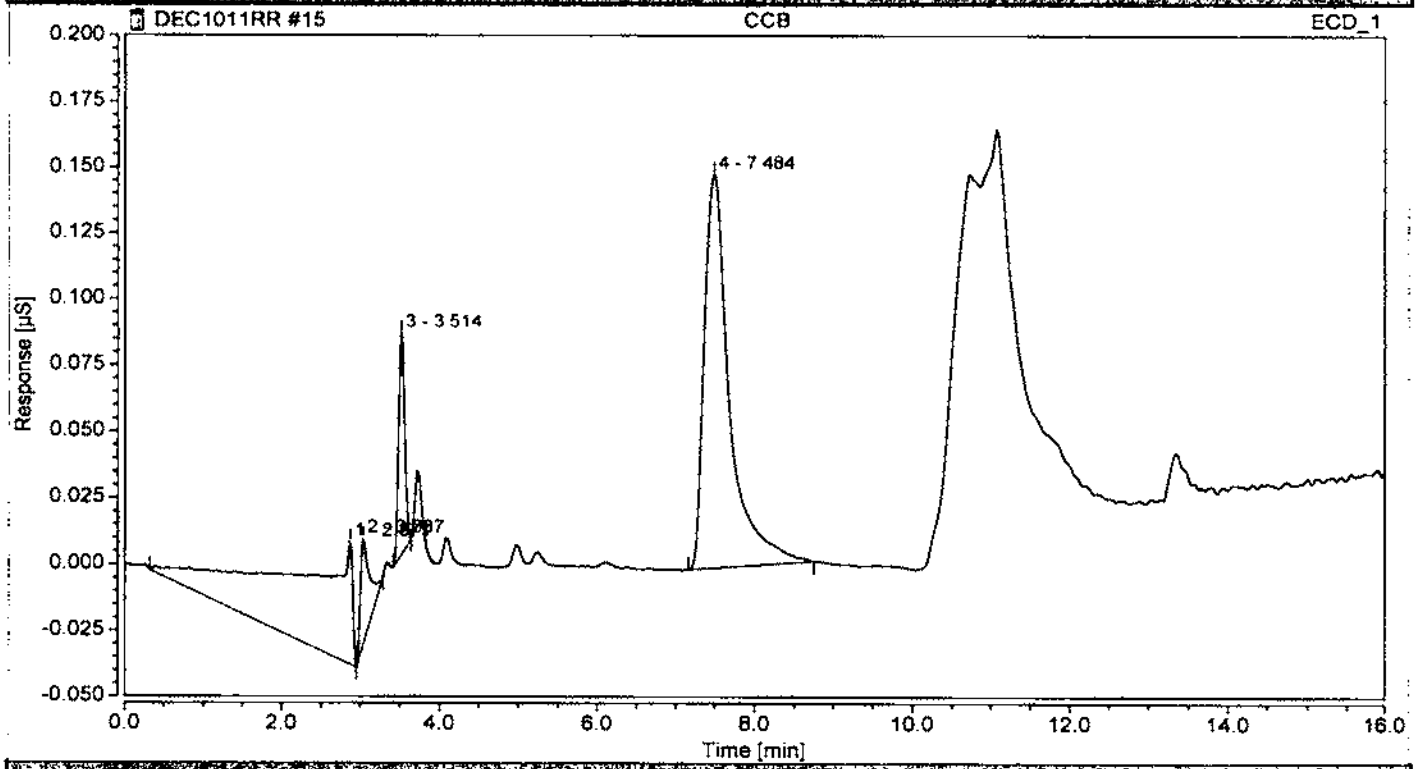
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.049	0.046	FALSE	n.a.
2	Fluoride	1.0	3.047	3.35	1.443	11.858	FALSE	1.56
3	Chloride	1.0	2.947	4.98	0.892	7.378	FALSE	-1.76
4	Nitrite	1.0	3.025	6.09	2.106	13.148	FALSE	0.85
5		1.0	n.a.	7.48	0.044	0.138	FALSE	n.a.
6	Bromide	1.0	3.008	8.80	0.387	1.883	FALSE	0.26
7	Sulfate	1.0	2.909	9.65	0.539	2.120	FALSE	-3.02
8	Nitrate	1.0	3.034	10.48	2.301	9.987	TRUE	1.13
9	Phosphate	1.0	2.987	13.21	0.884	4.545	FALSE	-0.42

Injection Name:	*CCV*	Inject Number:	14
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 14:08*		



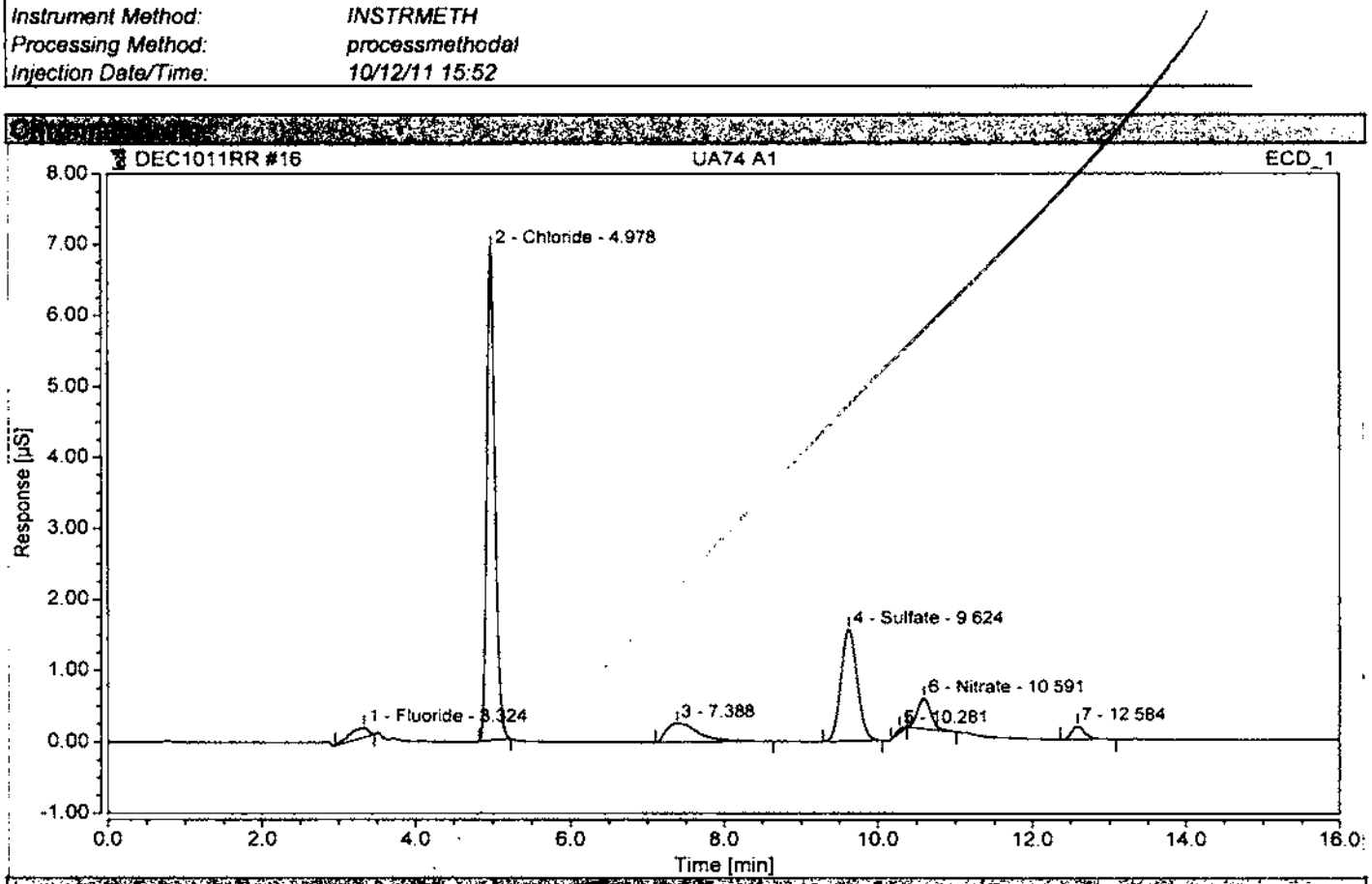
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.049	0.046	FALSE	n.a.
2	Fluoride	1.0	3.047	3.35	1.443	11.658	FALSE	1.56
3	Chloride	1.0	2.947	4.98	0.892	7.378	FALSE	-1.76
4	Nitrite	1.0	3.025	6.09	2.106	13.148	FALSE	0.85
5		1.0	n.a.	7.48	0.044	0.138	FALSE	n.a.
6	Bromide	1.0	3.008	8.80	0.387	1.883	FALSE	0.26
7	Sulfate	1.0	2.909	9.65	0.539	2.120	FALSE	-3.02
8	Nitrate	1.0	3.191	10.48	2.421	10.071	FALSE	6.36
9	Phosphate	1.0	2.987	13.21	0.884	4.545	FALSE	-0.42

Injection Name:	*CCB*	Inject Number:	15
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 14:29*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.045	0.046	FALSE	n.a.
2		1.0	n.a.	3.04	0.005	0.040	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	3.51	0.007	0.084	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	7.48	0.055	0.149	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 A1*	Inject Number:	16
Vial Number:	*14*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 15:52*		



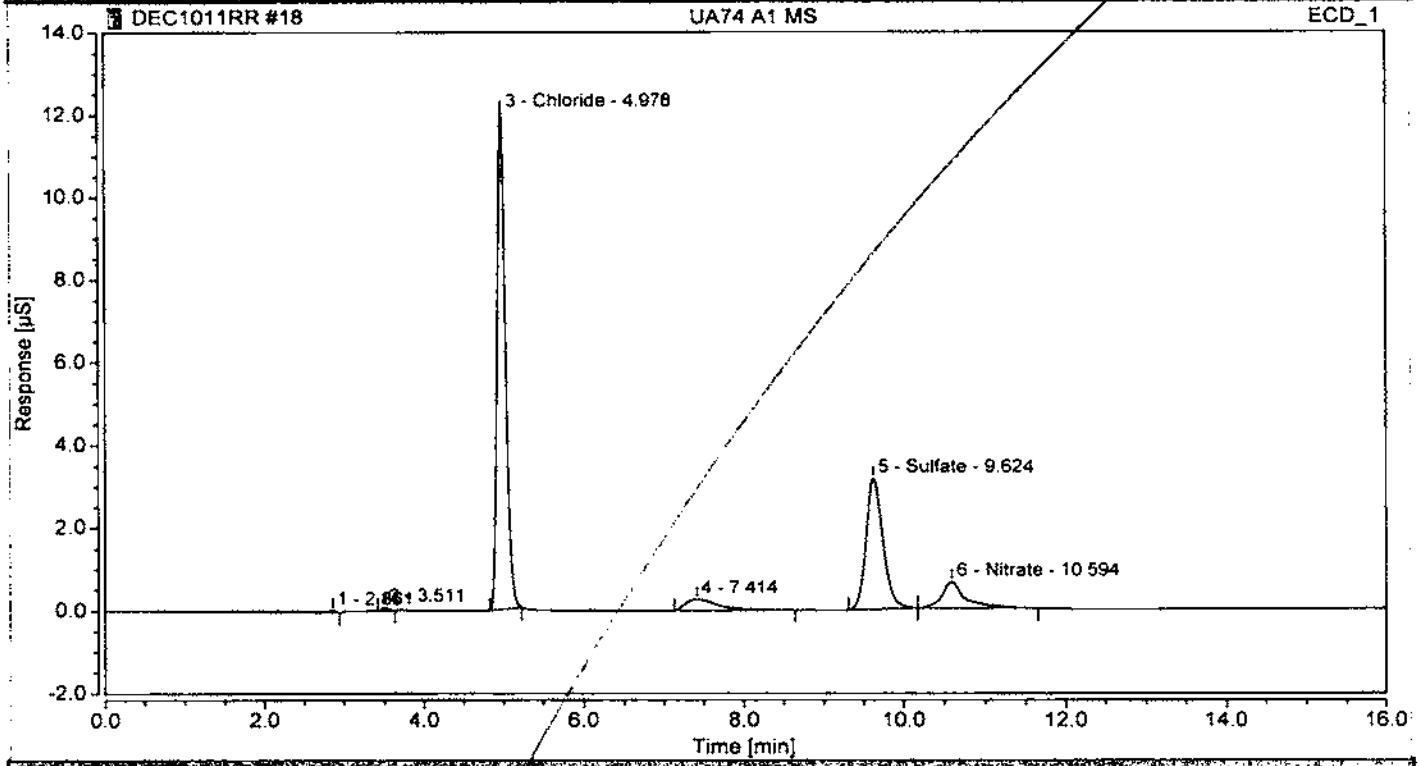
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	20.0	1.750	3.32	0.041	0.135	FALSE	n.a.
2	Chloride	20.0	54.533	4.98	0.826	6.915	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		20.0	n.a.	7.39	0.132	0.263	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	20.0	41.649	9.62	0.386	1.564	FALSE	n.a.
5		20.0	n.a.	10.28	0.006	0.058	FALSE	n.a.
6	Nitrate	20.0	2.243	10.59	0.085	0.423	FALSE	n.a.
7		20.0	n.a.	12.58	0.037	0.189	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 A1 DUP*	Inject Number:	17
Vial Number:	*15*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 14:53*		

Can't read channel ECD_1 from injection #17 - UA74 A1 DUP
Channel is not available

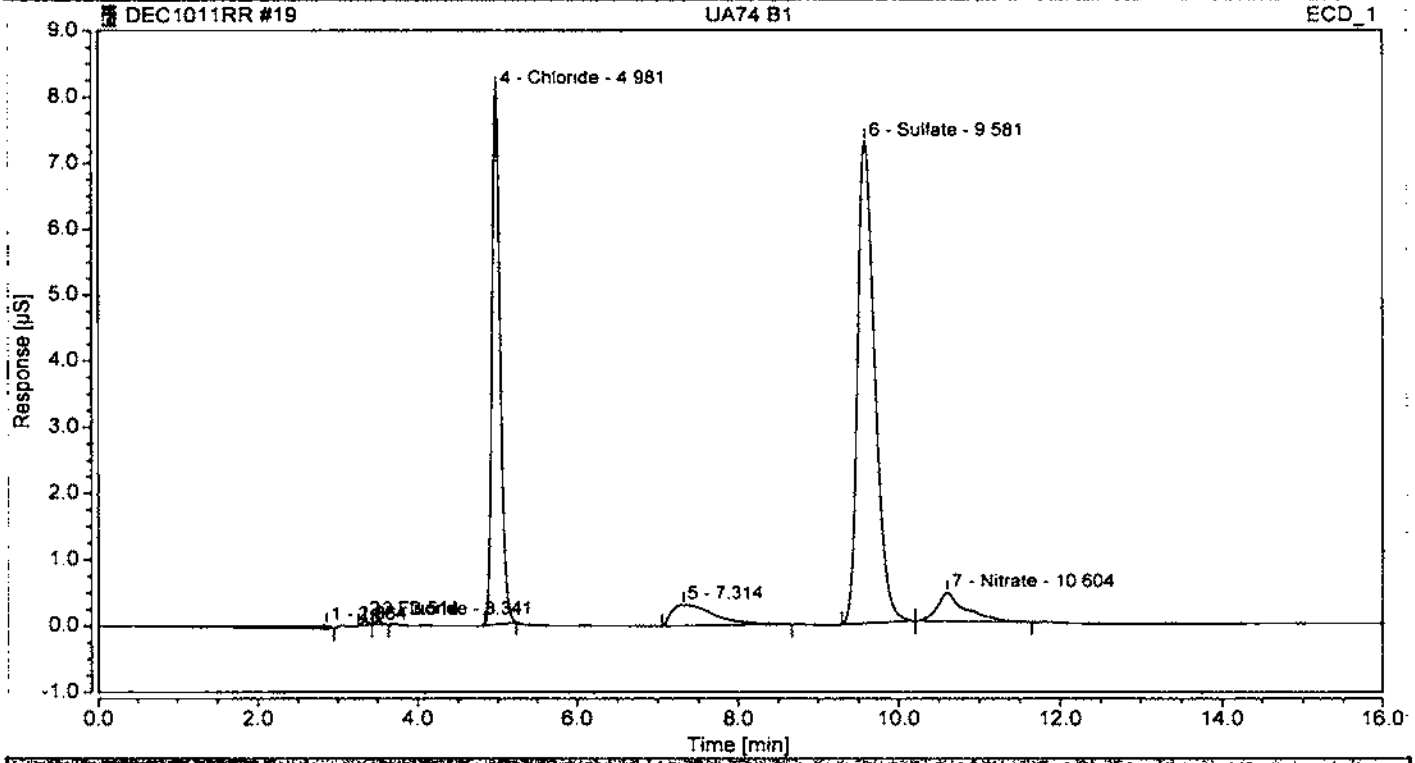
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			n.a.	min	natogram in con	matogram in		n.a.

Injection Name:	*UA74 A1 MS*	Inject Number:	18
Vial Number:	*16*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 16:12*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		20.0	n.a.	2.86	0.052	0.046	FALSE	n.a.
n.a.	Fluoride	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		20.0	n.a.	3.51	0.007	0.077	FALSE	n.a.
3	Chloride	20.0	96.018	4.98	1.454	12.027	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		20.0	n.a.	7.41	0.131	0.263	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	20.0	82.702	9.62	0.767	3.157	FALSE	n.a.
6	Nitrate	20.0	5.651	10.59	0.214	0.631	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 B1*	Inject Number:	19
Vial Number:	*17*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 16:33*		

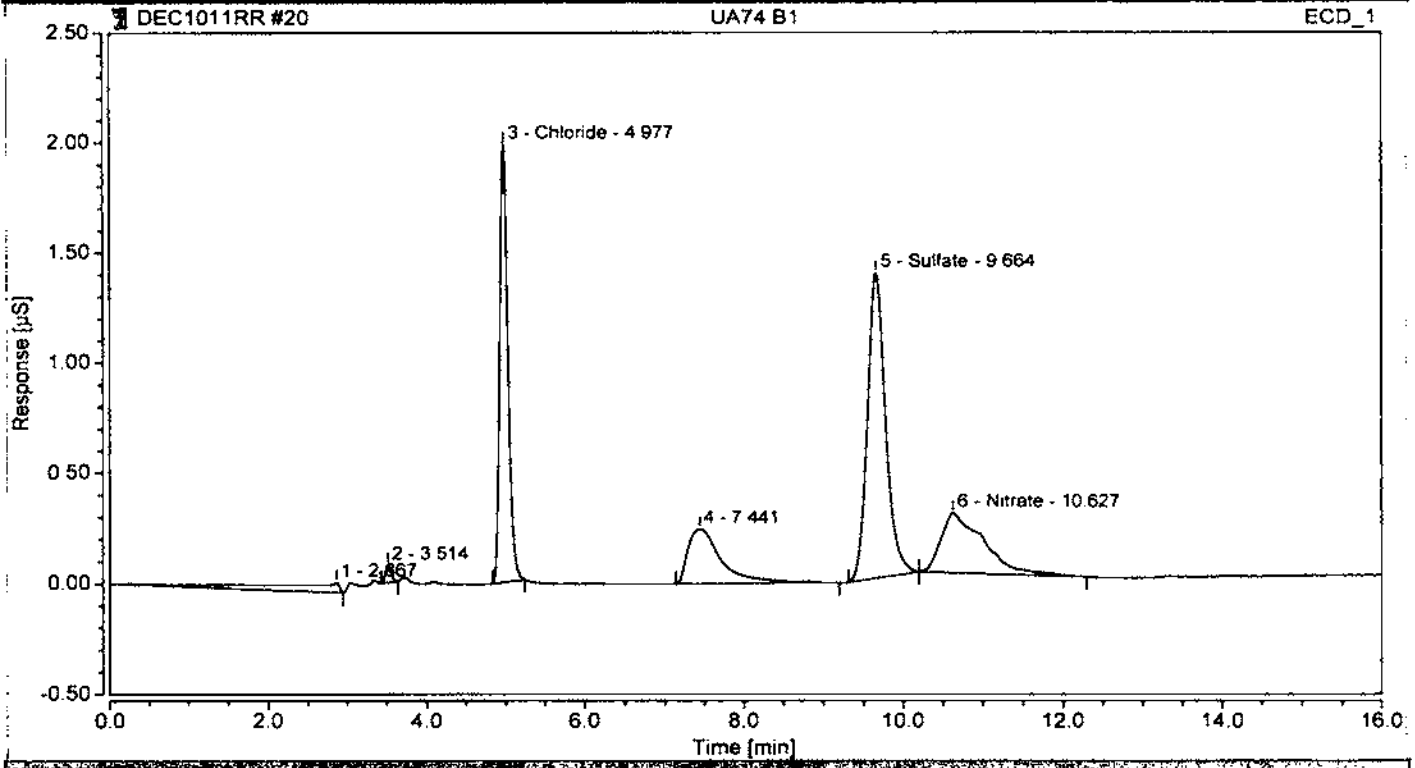


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.86	0.050	0.044	FALSE	n.a.
2	Fluoride	5.0	0.066	3.34	0.006	0.078	FALSE	n.a.
3		5.0	n.a.	3.51	0.005	0.063	FALSE	n.a.
4	Chloride	5.0	16.106	4.98	0.975	8.081	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		5.0	n.a.	7.31	0.199	0.318	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	5.0	48.504	9.58	1.798	7.276	FALSE	n.a.
7	Nitrate	5.0	1.162	10.60	0.176	0.428	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*UA74 B1*	Inject Number:	20
Vial Number:	*18*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 16:53*		

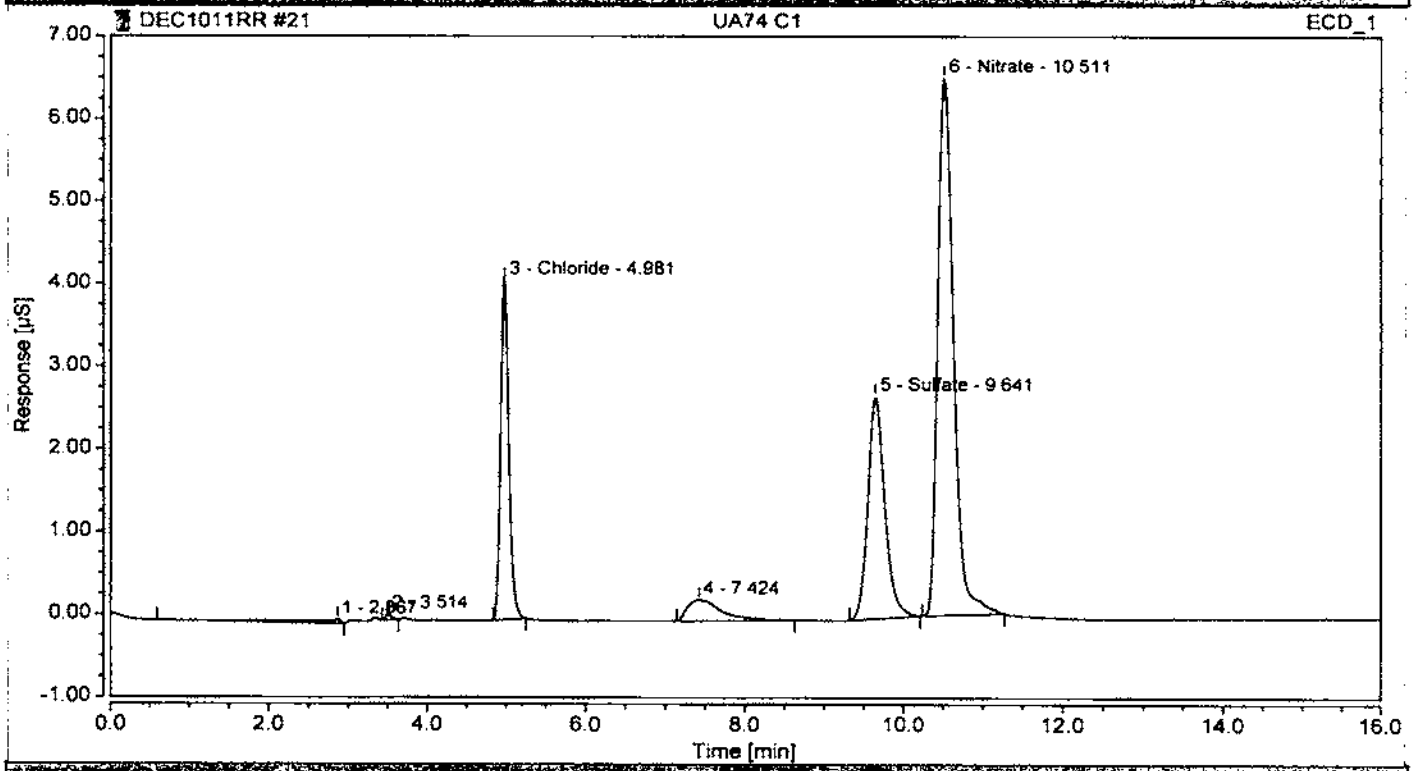
[redacted]



[redacted]

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		20.0	n.a.	2.87	0.048	0.044	FALSE	n.a.
n.a.	Fluoride	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		20.0	n.a.	3.51	0.007	0.075	FALSE	n.a.
3	Chloride	20.0	15.781	4.98	0.239	1.984	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		20.0	n.a.	7.44	0.122	0.245	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	20.0	39.310	9.66	0.384	1.383	FALSE	n.a.
6	Nitrate	20.0	4.379	10.63	0.166	0.269	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA74 C1*	Inject Number:	21
Vial Number:	*19*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 17:14*		

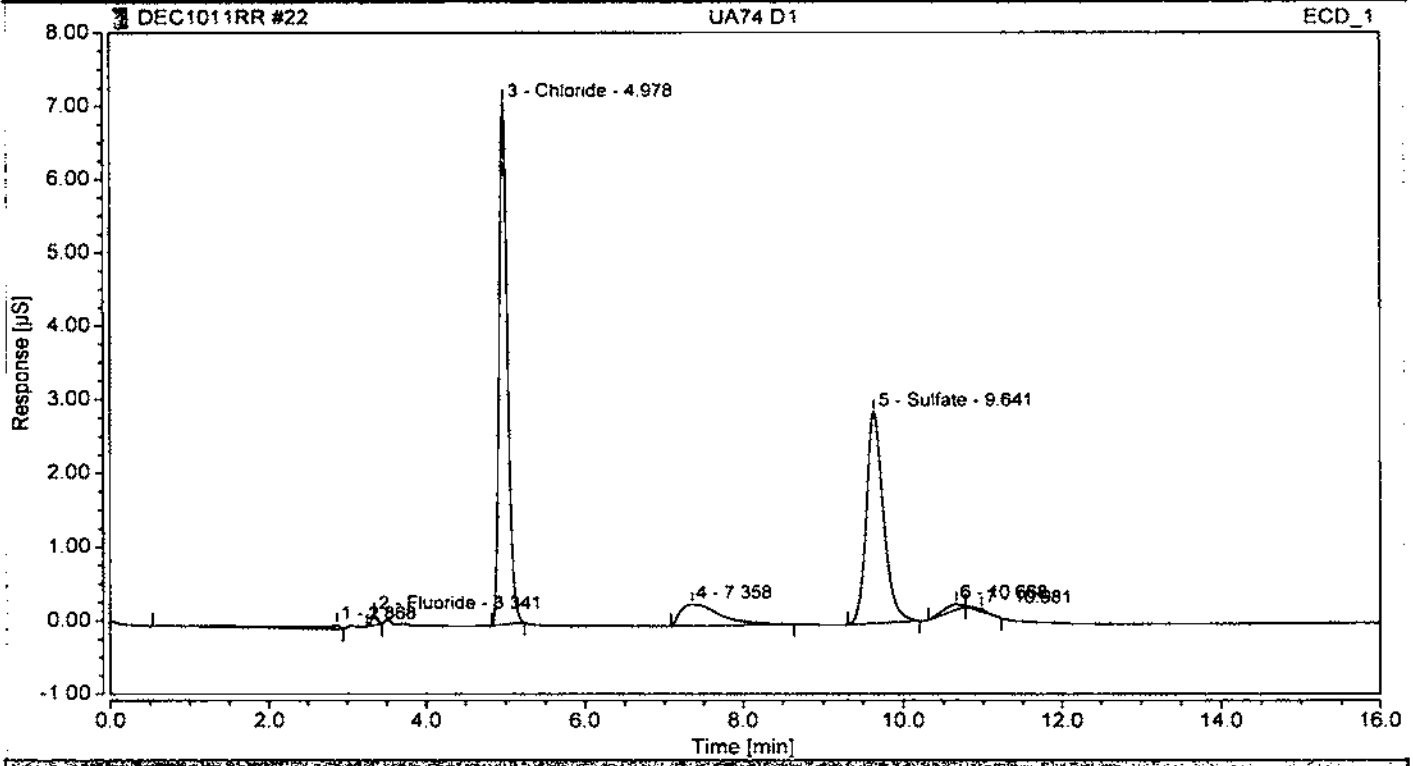


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.042	0.049	FALSE	n.a.
n.a.	Fluoride	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		5.0	n.a.	3.51	0.006	0.069	FALSE	n.a.
3	Chloride	5.0	8.198	4.98	0.496	4.106	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.42	0.128	0.254	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	17.999	9.64	0.667	2.688	FALSE	n.a.
6	Nitrate	5.0	9.936	10.51	1.508	6.504	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*UA74 D1*	Inject Number:	22
Vial Number:	*20*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 17:34*		

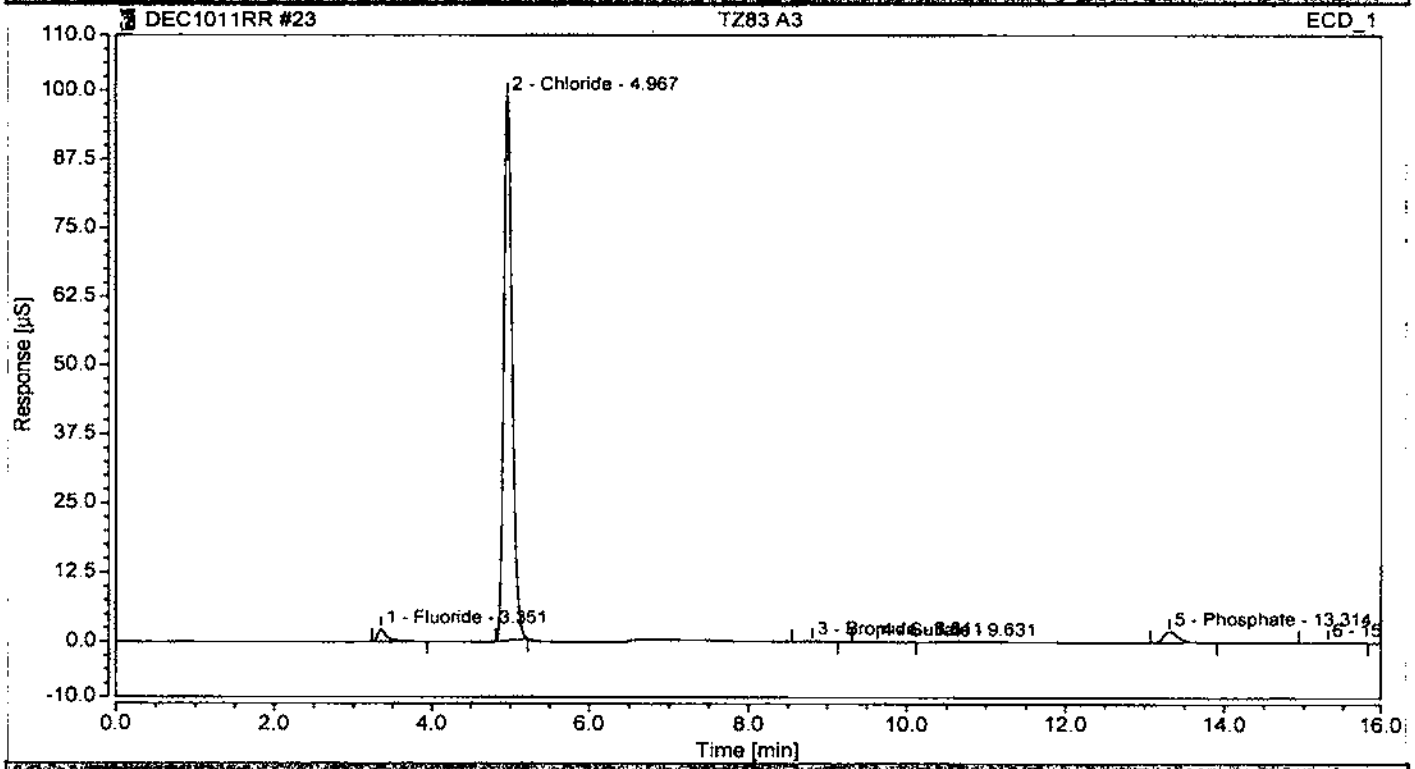
[redacted]



[redacted]

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.048	0.049	FALSE	n.a.
2	Fluoride	5.0	0.118	3.34	0.011	0.137	FALSE	n.a.
3	Chloride	5.0	14.153	4.98	0.857	7.099	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.36	0.172	0.290	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	19.196	9.64	0.712	2.865	FALSE	n.a.
n.a.	Nitrate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6		5.0	n.a.	10.67	0.021	0.076	FALSE	n.a.
7		5.0	n.a.	10.98	0.007	0.034	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

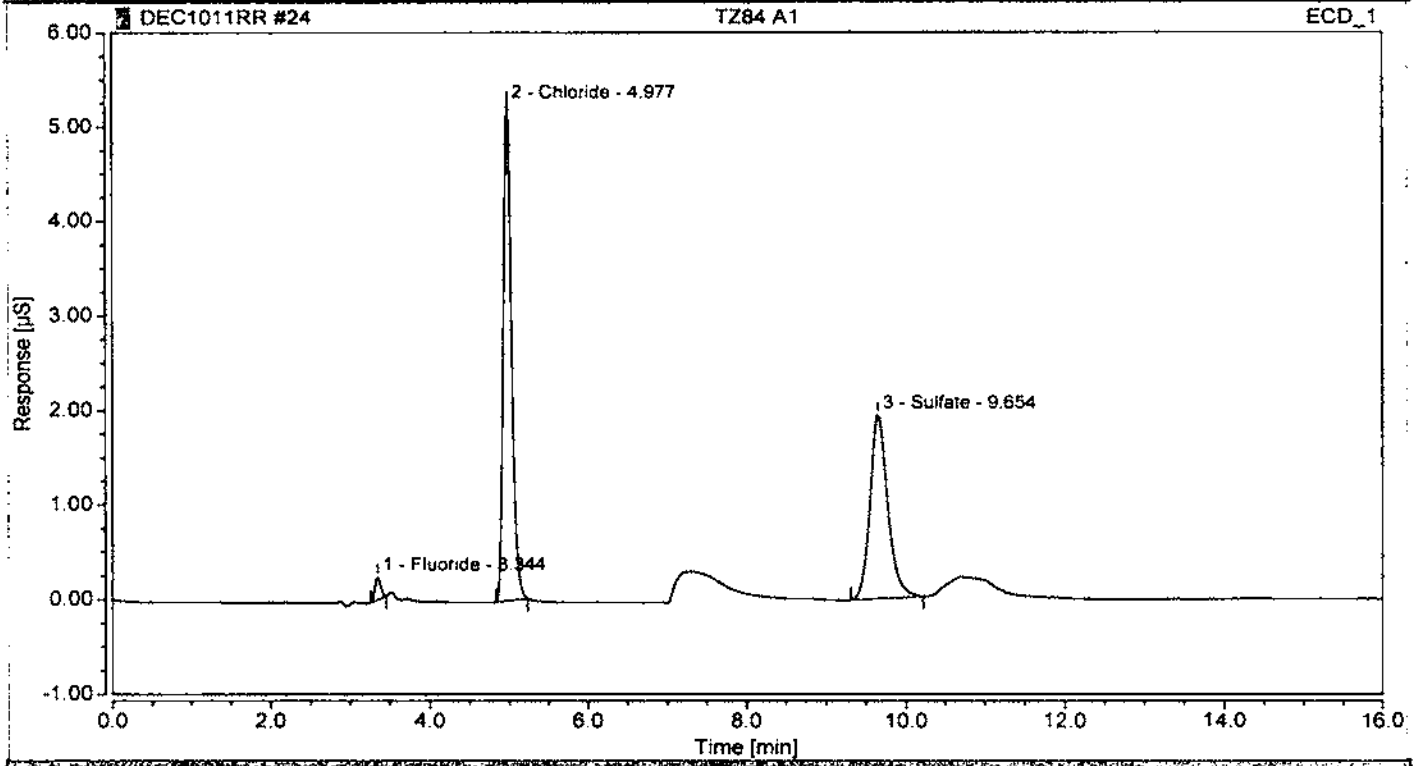
Injection Name:	*TZ83 A3*	Inject Number:	23
Vial Number:	*21*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 17:53*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	1.0	0.696	3.35	0.330	2.244	FALSE	n.a.
2	Chloride	1.0	40.173	4.97	12.184	98.782	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3	Bromide	1.0	0.306	8.81	0.039	0.193	FALSE	n.a.
4	Sulfate	1.0	0.120	9.63	0.022	0.079	FALSE	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Phosphate	1.0	1.480	13.31	0.438	2.034	FALSE	n.a.
6		1.0	n.a.	15.31	0.024	0.088	FALSE	n.a.

UA17 : 00457

Injection Name:	*TZ84 A1*	Inject Number:	24
Vial Number:	*22*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 18:13*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	5.0	0.217	3.34	0.021	0.242	FALSE	n.a.
2	Chloride	5.0	10.438	4.98	0.632	5.253	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3	Sulfate	5.0	13.407	9.65	0.497	1.947	FALSE	n.a.
n.a.	Nitrate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

UA17 : 00468

[redacted]

Injection Name:	*TZ84 A1 DUP*	Inject Number:	25
Vial Number:	*23*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 18:32*		

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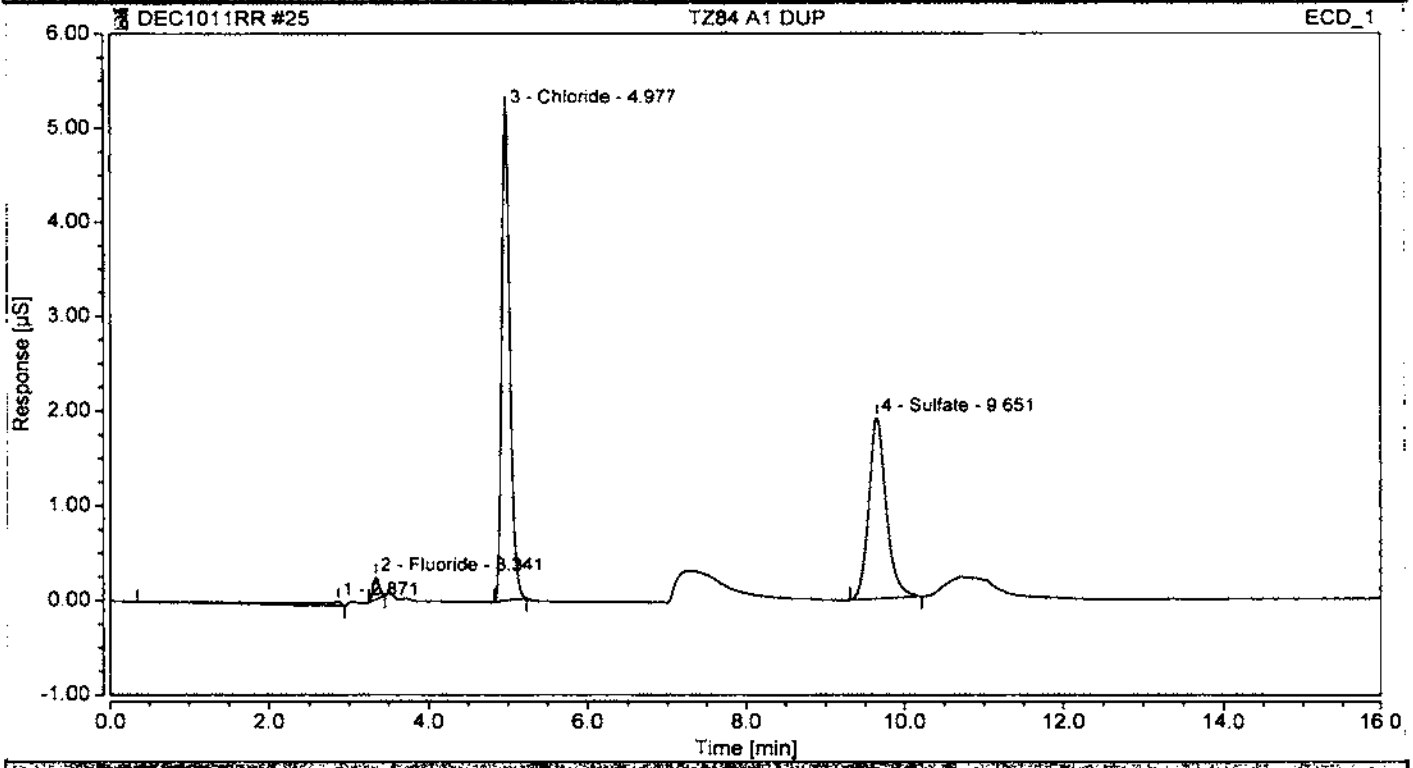

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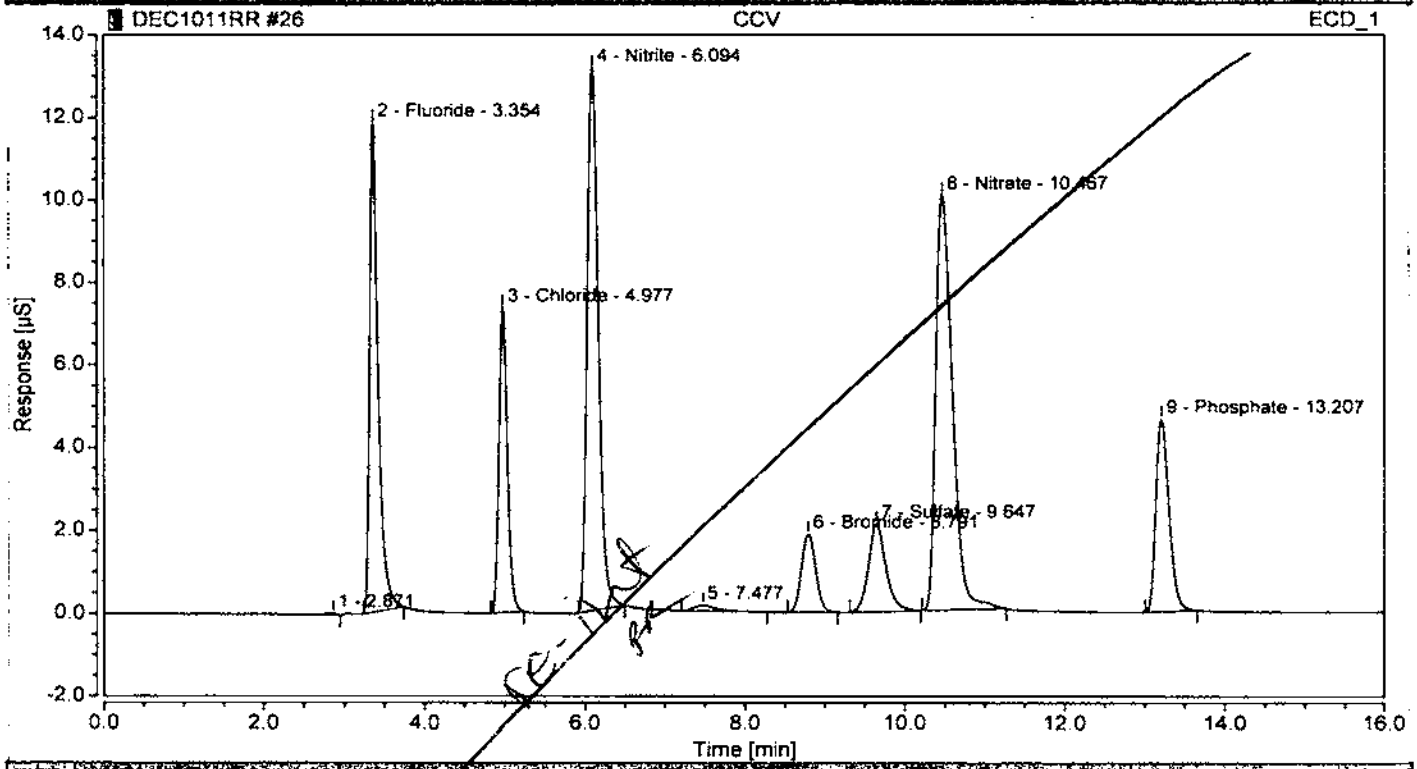
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.045	0.047	FALSE	n.a.
2	Fluoride	5.0	0.214	3.34	0.020	0.240	FALSE	n.a.
3	Chloride	5.0	10.366	4.98	0.628	5.204	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	5.0	13.233	9.65	0.491	1.914	FALSE	n.a.
n.a.	Nitrate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

UA17 : 00469

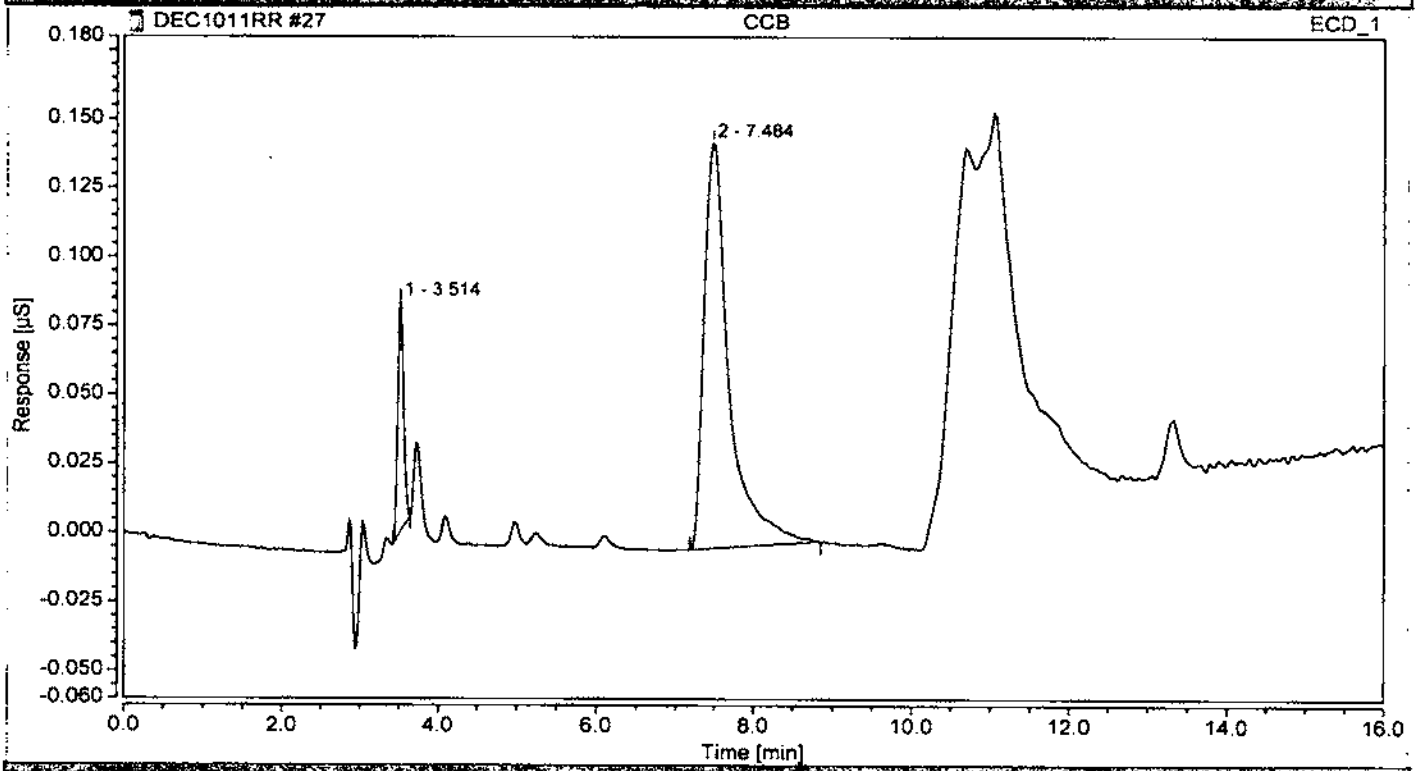
Injection Name:	*CCV*	Inject Number:	26
Vial Number:	*2*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 18:52*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.047	0.045	FALSE	n.a.
2	Fluoride	1.0	3.045	3.35	1.443	11.843	FALSE	1.51
3	Chloride	1.0	2.949	4.98	0.893	7.361	FALSE	-1.71
4	Nitrite	1.0	3.030	6.09	2.109	13.131	FALSE	0.99
5		1.0	n.a.	7.48	0.044	0.138	FALSE	n.a.
6	Bromide	1.0	3.002	8.79	0.386	1.881	FALSE	0.07
7	Sulfate	1.0	2.901	9.65	0.538	2.118	FALSE	-3.29
8	Nitrate	1.0	3.187	10.47	2.418	10.021	FALSE	6.24
9	Phosphate	1.0	2.979	13.21	0.881	4.643	FALSE	-0.69

UA17 : 00476

Injection Name:	*CCB*	Inject Number:	27
Vial Number:	*3*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 19:12*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		1.0	n.a.	3.51	0.007	0.084	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		1.0	n.a.	7.48	0.055	0.147	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*TZ84 A1 MS*	Inject Number:	28
Vial Number:	*24*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 19:33*		

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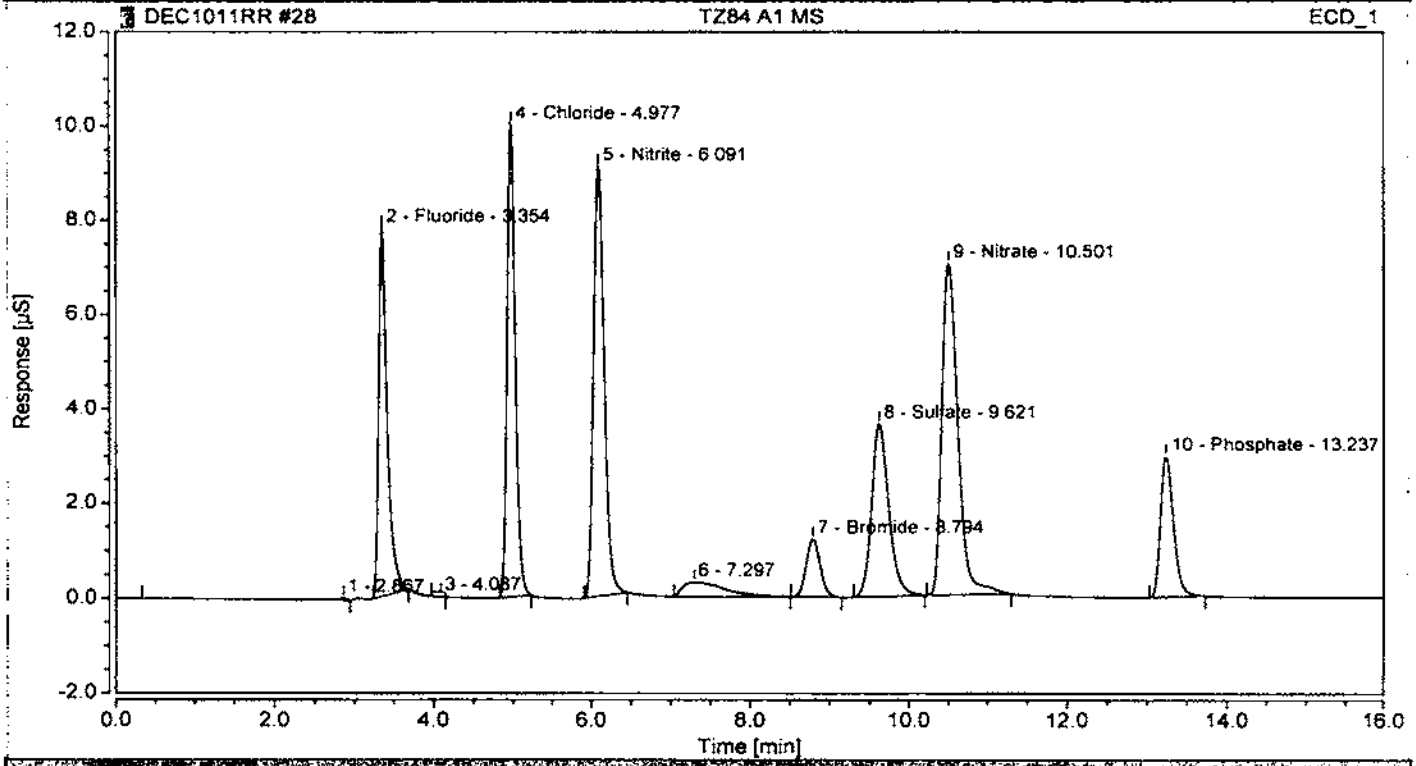

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No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.046	0.046	FALSE	n.a.
2	Fluoride	5.0	10.194	3.35	0.966	7.787	FALSE	n.a.
3		5.0	n.a.	4.09	0.016	0.087	FALSE	n.a.
4	Chloride	5.0	19.964	4.98	1.209	9.992	FALSE	n.a.
5	Nitrite	5.0	10.129	6.09	1.410	9.094	FALSE	n.a.
6		5.0	n.a.	7.30	0.189	0.301	FALSE	n.a.
7	Bromide	5.0	9.553	8.79	0.246	1.205	FALSE	n.a.
8	Sulfate	5.0	24.259	9.62	0.899	3.636	FALSE	n.a.
9	Nitrate	5.0	10.827	10.50	1.643	7.009	FALSE	n.a.
10	Phosphate	5.0	9.403	13.24	0.556	2.963	FALSE	n.a.

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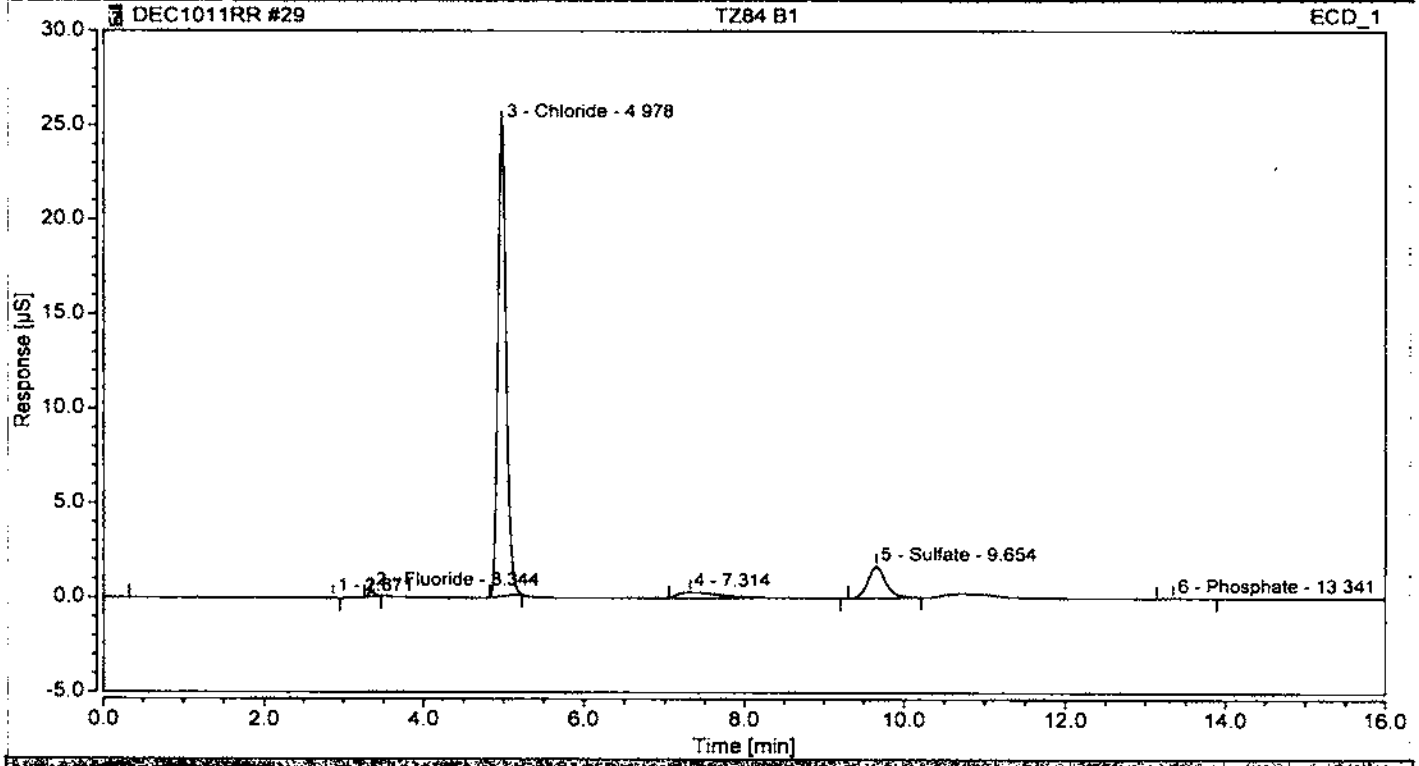
UA17 : 00472

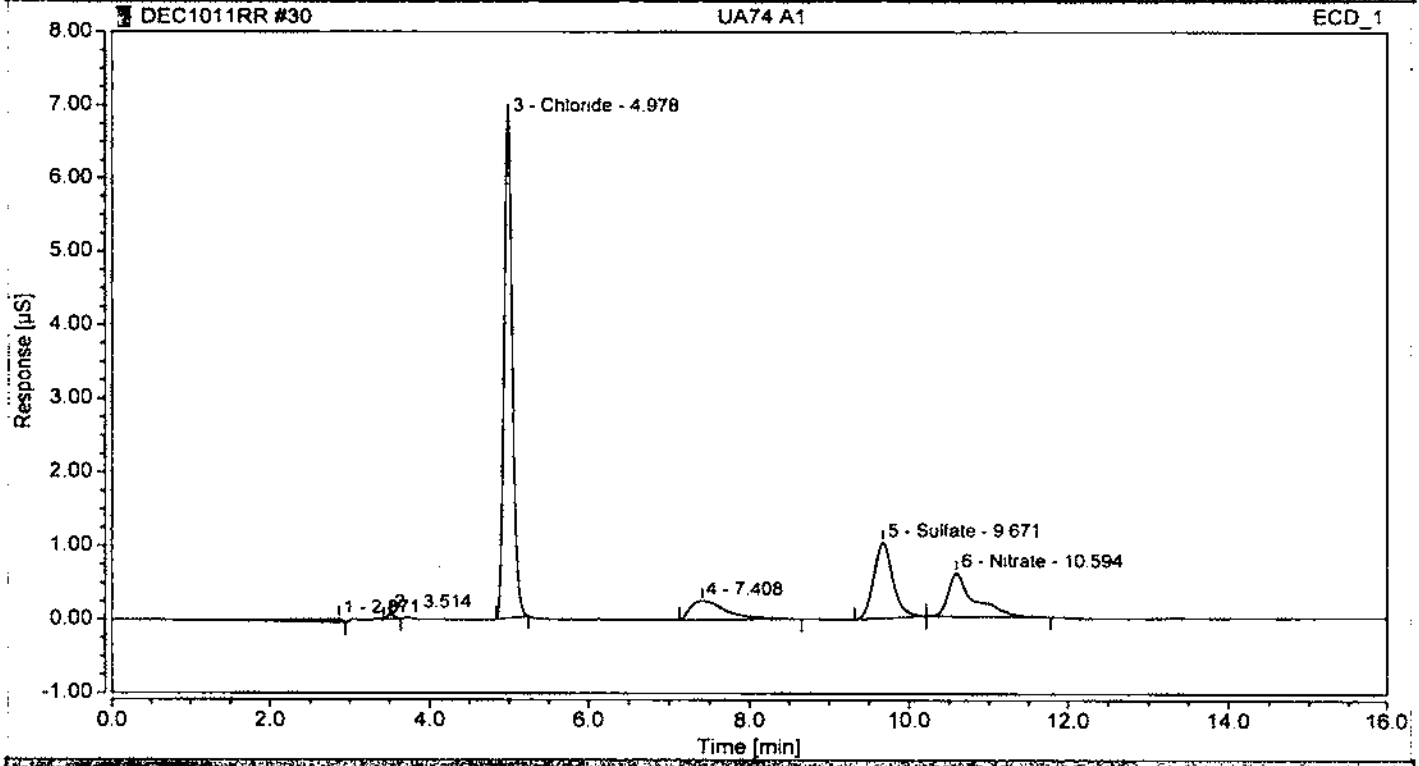
Injection Name:	*TZ84 B1*	Inject Number:	29
Vial Number:	*25*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 19:53*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.044	0.046	FALSE	n.a.
2	Fluoride	5.0	0.262	3.34	0.025	0.288	FALSE	n.a.
3	Chloride	5.0	50.158	4.98	3.038	25.046	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.31	0.216	0.310	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	11.635	9.65	0.431	1.650	FALSE	n.a.
n.a.	Nitrate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Phosphate	5.0	0.087	13.34	0.005	0.021	FALSE	n.a.

UA17 : 00473

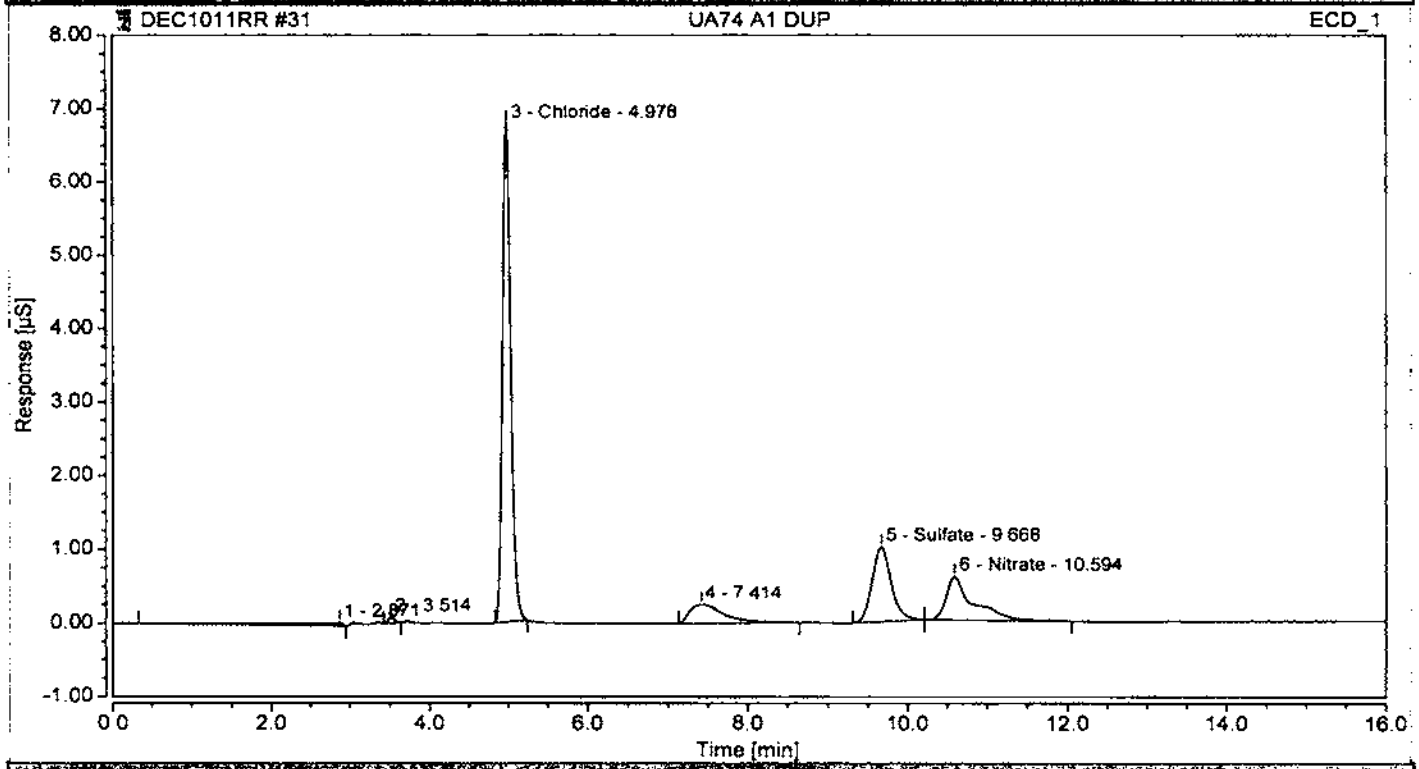
Injection Name:	*UA74 A1*	Inject Number:	30
Vial Number:	*14*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 20:13*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		20.0	n.a.	2.87	0.047	0.044	FALSE	n.a.
n.a.	Fluoride	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		20.0	n.a.	3.51	0.007	0.075	FALSE	n.a.
3	Chloride	20.0	54.420	4.98	0.824	6.816	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		20.0	n.a.	7.41	0.136	0.258	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	20.0	30.725	9.67	0.285	1.028	FALSE	n.a.
6	Nitrate	20.0	5.985	10.59	0.227	0.591	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

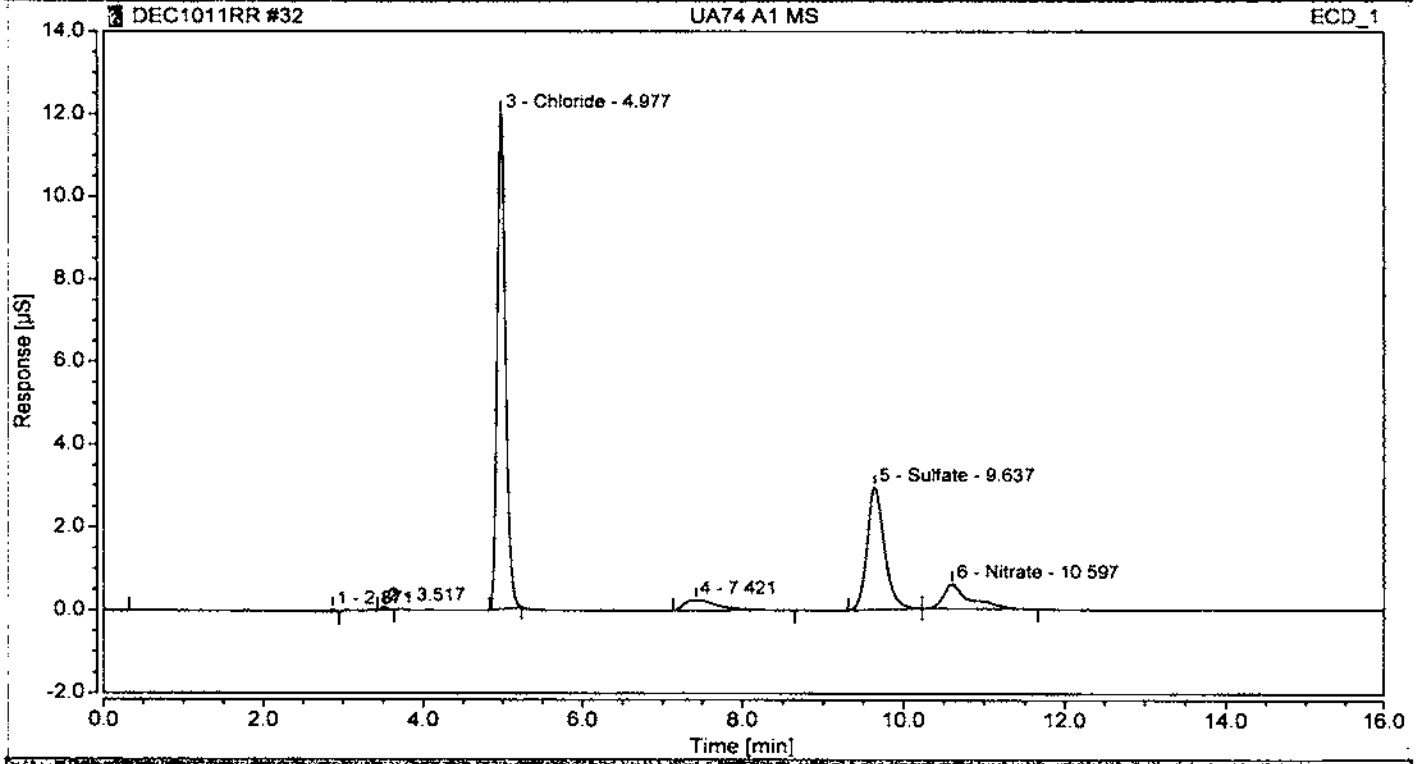
Injection Name:	*UA74 A1 DUP*	Inject Number:	31
Vial Number:	*15*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 20:33*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		20.0	n.a.	2.87	0.044	0.045	FALSE	n.a.
n.a.	Fluoride	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		20.0	n.a.	3.51	0.007	0.076	FALSE	n.a.
3	Chloride	20.0	54.138	4.98	0.820	6.777	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		20.0	n.a.	7.41	0.132	0.255	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	20.0	30.456	9.67	0.282	1.013	FALSE	n.a.
6	Nitrate	20.0	6.149	10.59	0.233	0.589	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*UA74 A1 MS*	Inject Number:	32
Vial Number:	*16*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*20.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 20:53*		



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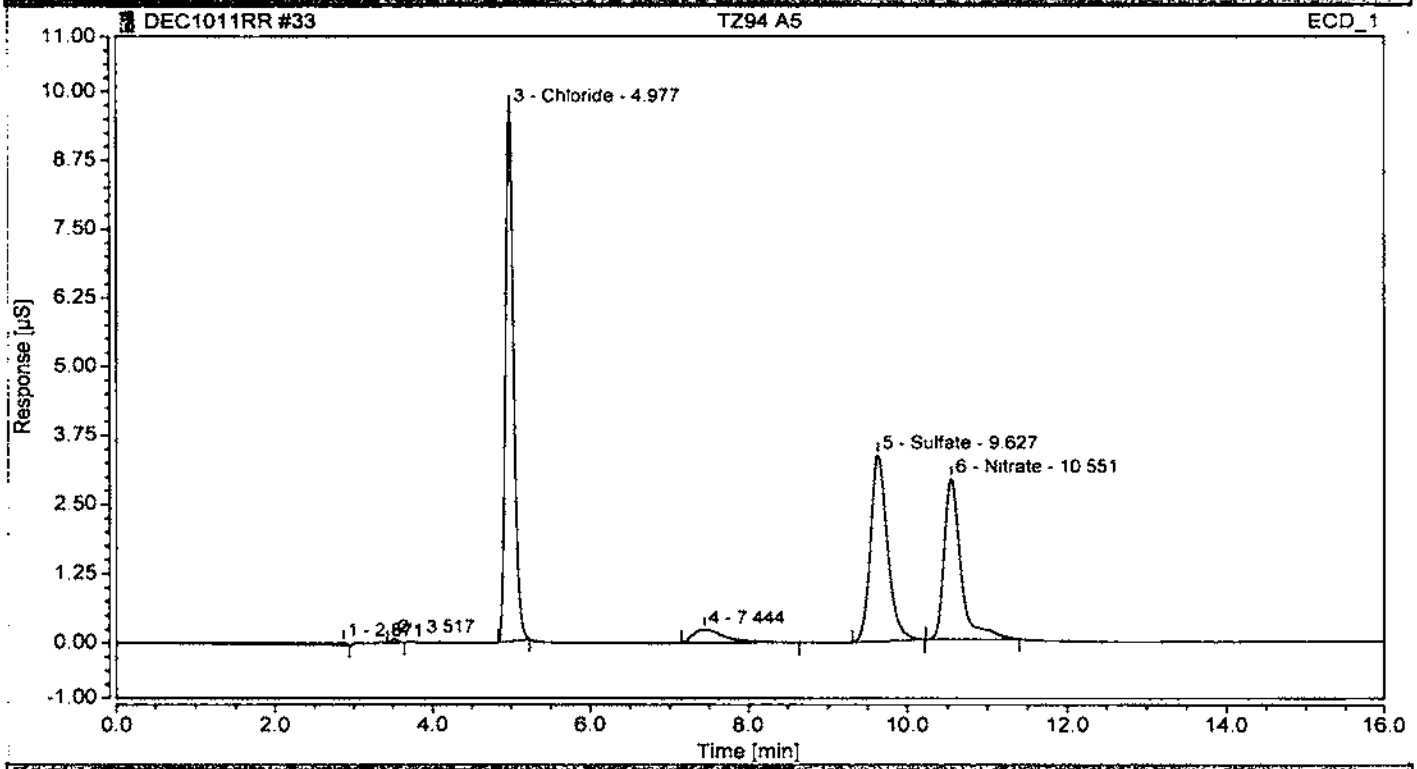
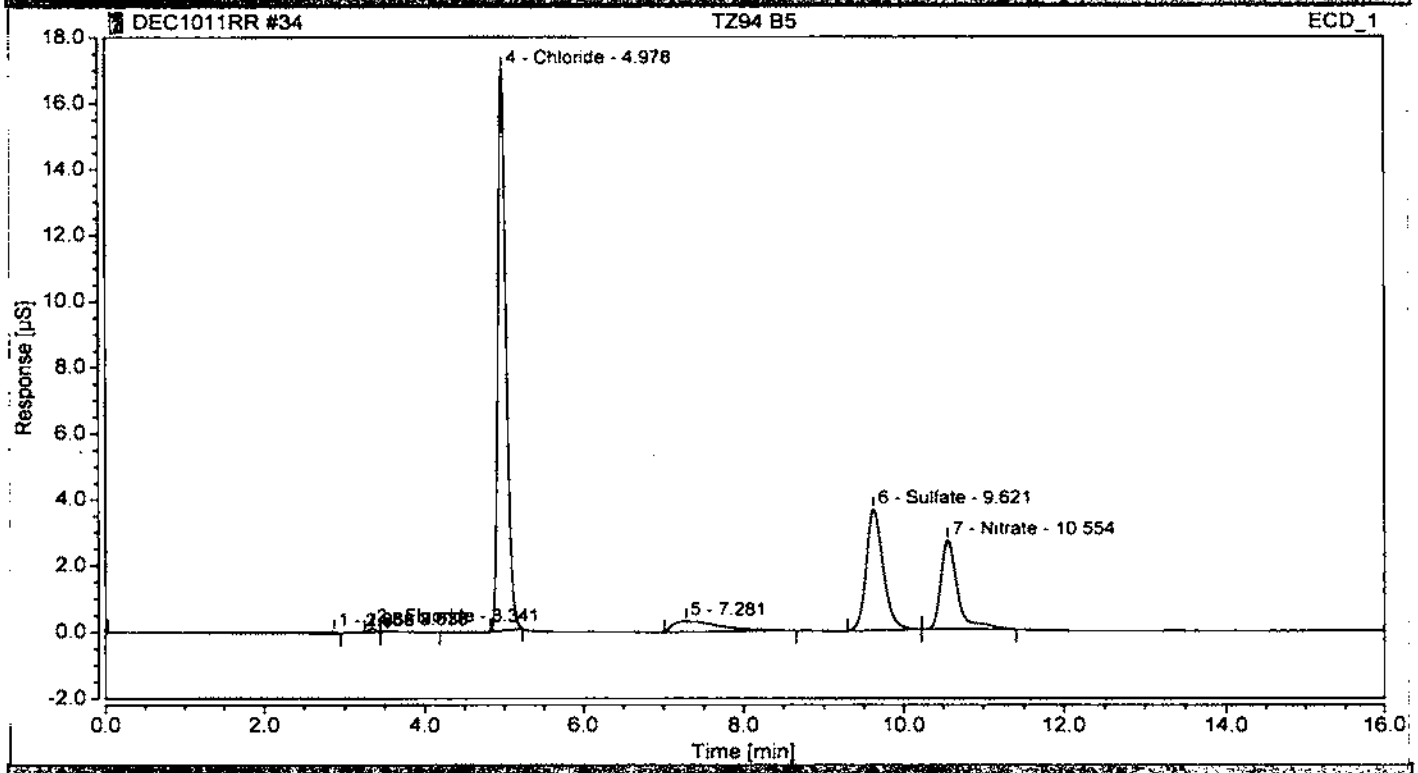
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		20.0	n.a.	2.87	0.045	0.044	FALSE	n.a.
n.a.	Fluoride	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		20.0	n.a.	3.52	0.007	0.075	FALSE	n.a.
3	Chloride	20.0	95.863	4.98	1.451	11.979	FALSE	n.a.
n.a.	Nitrite	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		20.0	n.a.	7.42	0.130	0.254	FALSE	n.a.
n.a.	Bromide	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	20.0	79.363	9.64	0.736	2.949	FALSE	n.a.
6	Nitrate	20.0	5.896	10.60	0.224	0.590	FALSE	n.a.
n.a.	Phosphate	20.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ94 A5*	Inject Number:	33
Vial Number:	*26*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 21:14*		



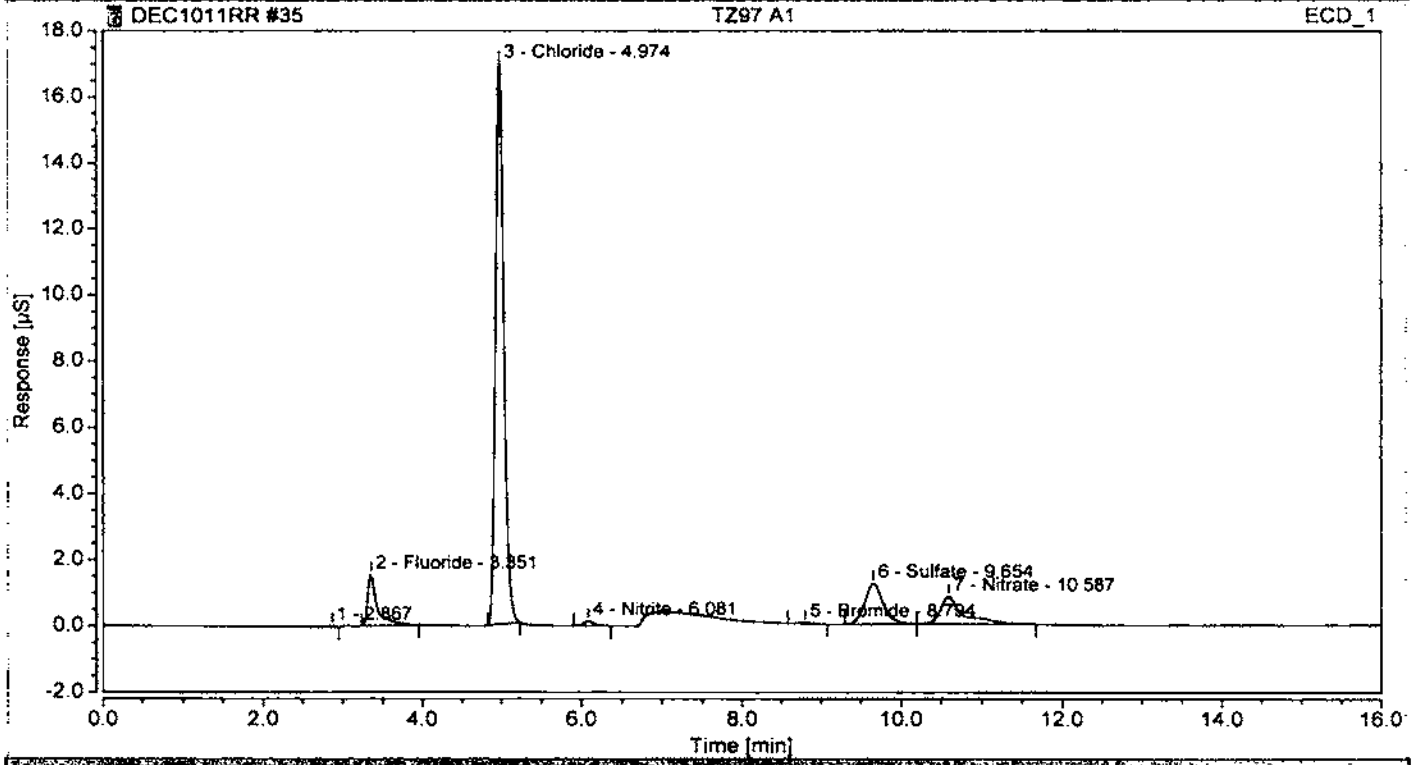
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.048	0.045	FALSE	n.a.
n.a.	Fluoride	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		5.0	n.a.	3.52	0.006	0.071	FALSE	n.a.
3	Chloride	5.0	19.341	4.98	1.171	9.676	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.44	0.114	0.237	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	22.507	9.63	0.835	3.375	FALSE	n.a.
6	Nitrate	5.0	4.648	10.55	0.705	2.908	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ94 B5*	Inject Number:	34
Vial Number:	*27*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 21:34*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.048	0.044	FALSE	n.a.
2	Fluoride	1.0	0.022	3.34	0.011	0.129	FALSE	n.a.
3		1.0	n.a.	3.54	0.006	0.025	FALSE	n.a.
4	Chloride	1.0	6.795	4.98	2.057	16.982	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5		1.0	n.a.	7.28	0.225	0.324	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
6	Sulfate	1.0	4.839	9.62	0.897	3.644	FALSE	n.a.
7	Nitrate	1.0	0.860	10.55	0.653	2.674	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

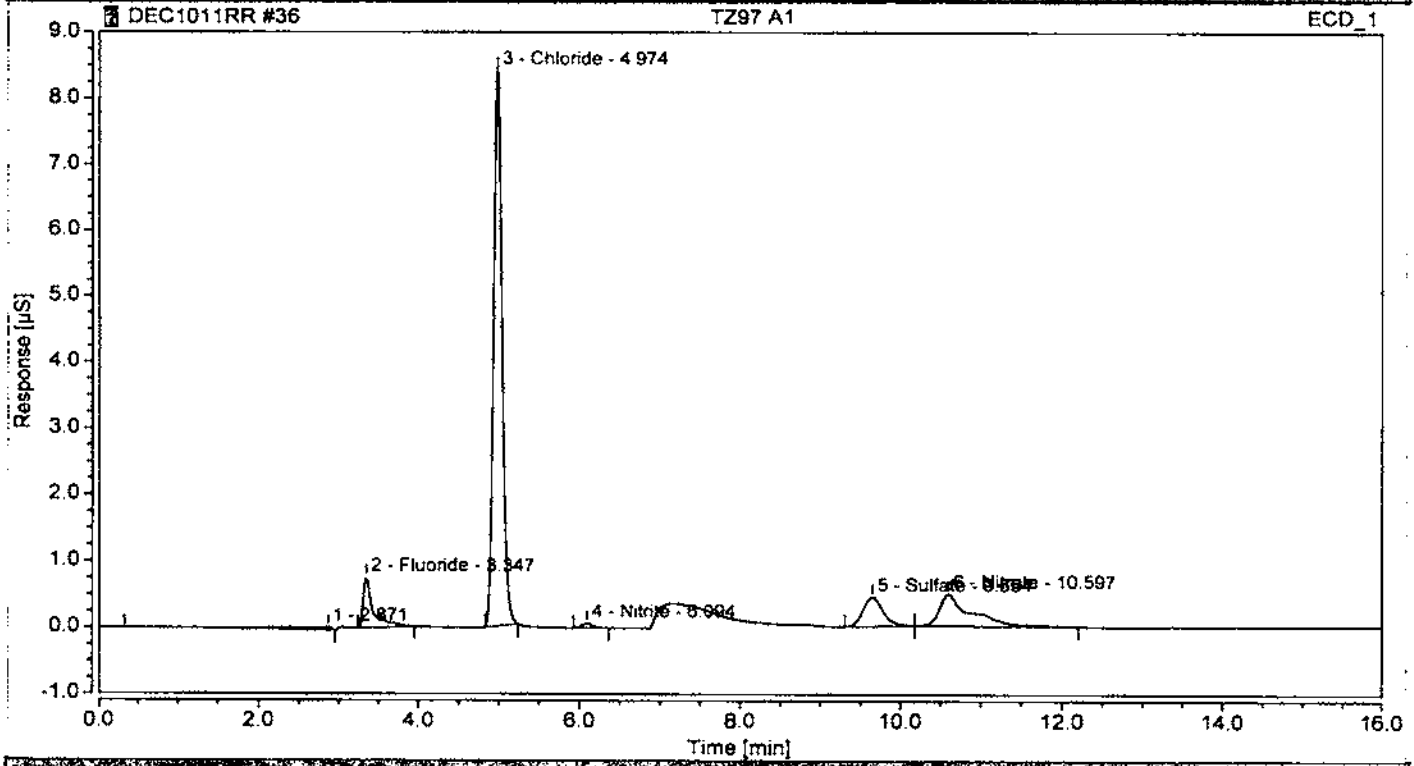
Injection Name:	*TZ97 A1*	Inject Number:	35
Vial Number:	*28*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 21:55*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.048	0.042	FALSE	n.a.
2	Fluoride	1.0	0.469	3.35	0.222	1.549	FALSE	n.a.
3	Chloride	1.0	6.770	4.97	2.050	16.959	FALSE	n.a.
4	Nitrite	1.0	0.029	6.08	0.020	0.144	FALSE	n.a.
5	Bromide	1.0	0.050	8.79	0.006	0.032	FALSE	n.a.
6	Sulfate	1.0	1.780	9.65	0.330	1.228	FALSE	n.a.
7	Nitrate	1.0	0.355	10.59	0.270	0.820	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

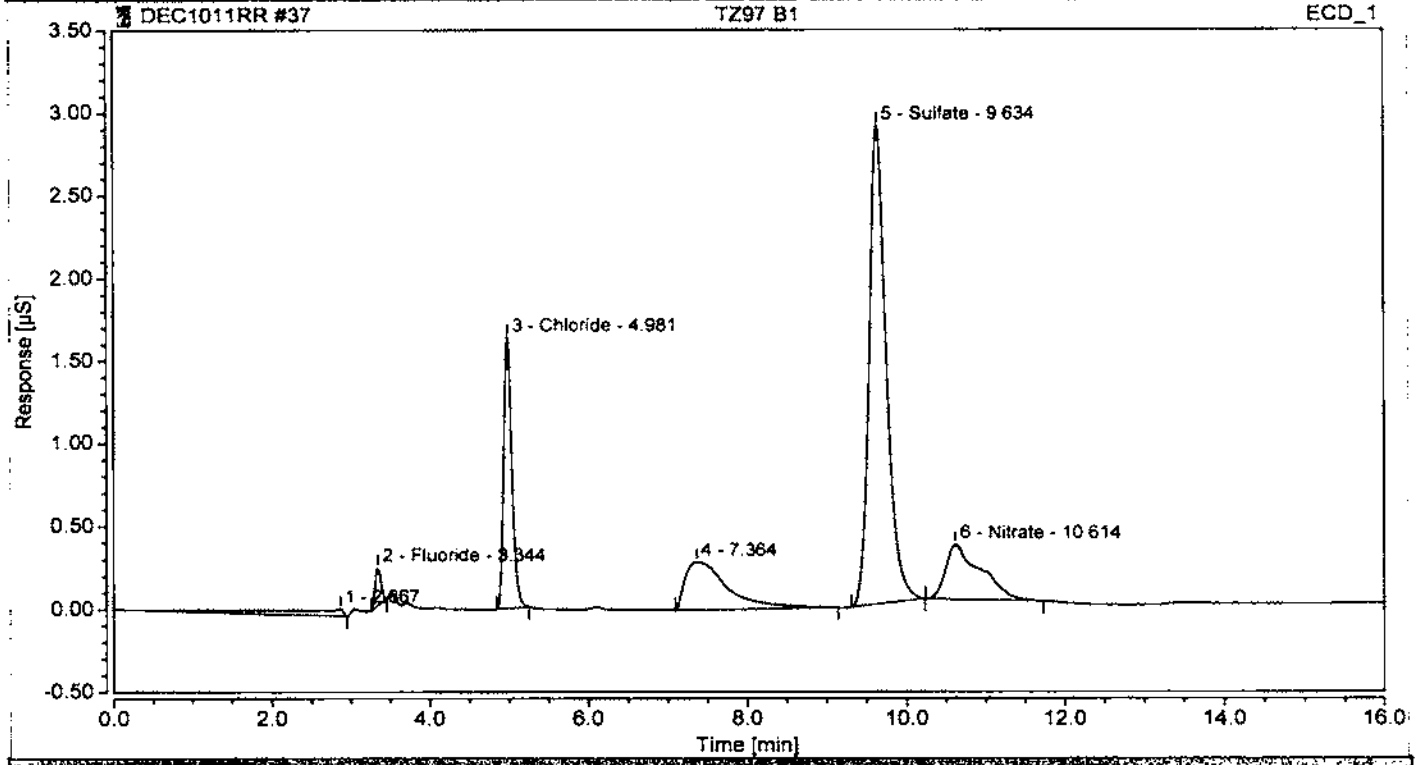
UA17 : 00479

Injection Name:	*TZ97 A1*	Inject Number:	36
Vial Number:	*29*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*2.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 22:15*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		2.0	n.a.	2.87	0.045	0.043	FALSE	n.a.
2	Fluoride	2.0	0.474	3.35	0.112	0.761	FALSE	n.a.
3	Chloride	2.0	6.694	4.97	1.014	8.397	FALSE	n.a.
4	Nitrite	2.0	0.028	6.09	0.010	0.070	FALSE	n.a.
n.a.	Bromide	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	2.0	1.999	9.65	0.129	0.443	FALSE	n.a.
6	Nitrate	2.0	0.588	10.60	0.223	0.486	FALSE	n.a.
n.a.	Phosphate	2.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ97 B1*	Inject Number:	37
Vial Number:	*30*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 22:36*		

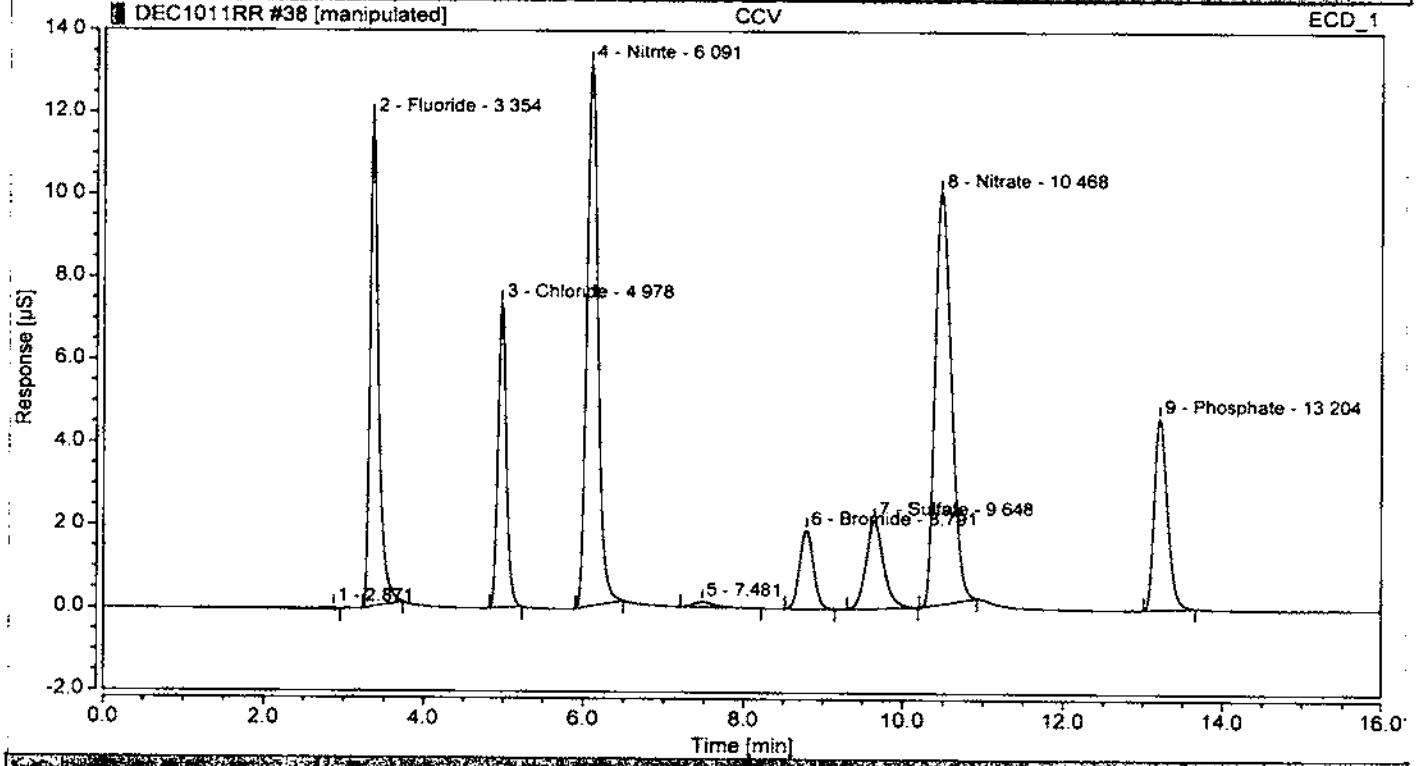


No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.047	0.043	FALSE	n.a.
2	Fluoride	5.0	0.202	3.34	0.019	0.228	FALSE	n.a.
3	Chloride	5.0	3.248	4.98	0.197	1.636	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.36	0.182	0.288	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	19.374	9.63	0.718	2.890	FALSE	n.a.
6	Nitrate	5.0	1.100	10.61	0.167	0.327	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

[redacted]

Injection Name:	*CCV*	Inject Number:	38
Vial Number:	*31*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 22:56*		

[redacted]

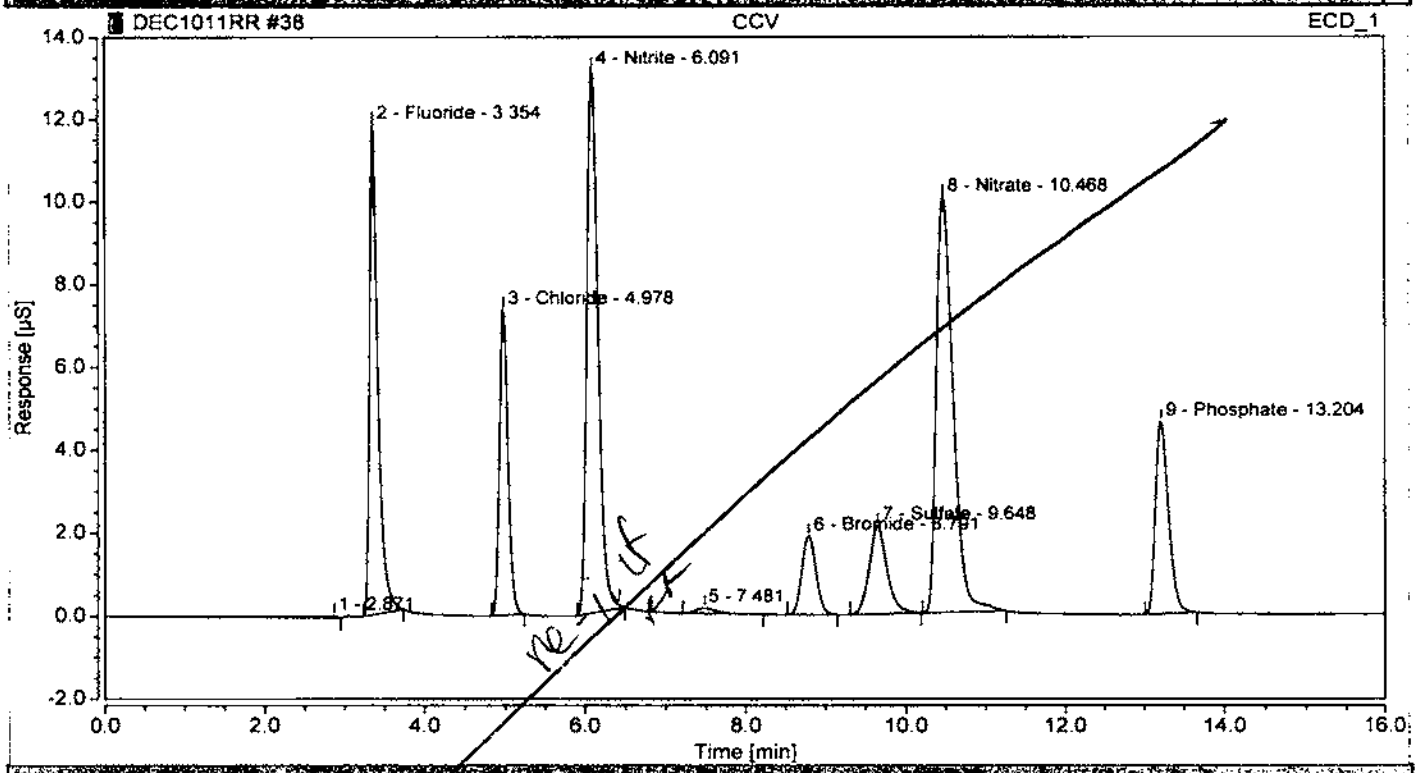


[redacted]

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.047	0.043	FALSE	n.a.
2	Fluoride	1.0	3.039	3.35	1.440	11.843	FALSE	1.30
3	Chloride	1.0	2.949	4.98	0.893	7.362	FALSE	-1.68
4	Nitrite	1.0	3.036	6.09	2.113	13.134	FALSE	1.19
5		1.0	n.a.	7.48	0.038	0.125	FALSE	n.a.
6	Bromide	1.0	3.009	8.79	0.387	1.887	FALSE	0.32
7	Sulfate	1.0	2.908	9.65	0.539	2.123	FALSE	-3.06
8	Nitrate	1.0	3.054	10.47	2.317	9.940	TRUE	1.80
9	Phosphate	1.0	2.979	13.20	0.881	4.619	FALSE	-0.70

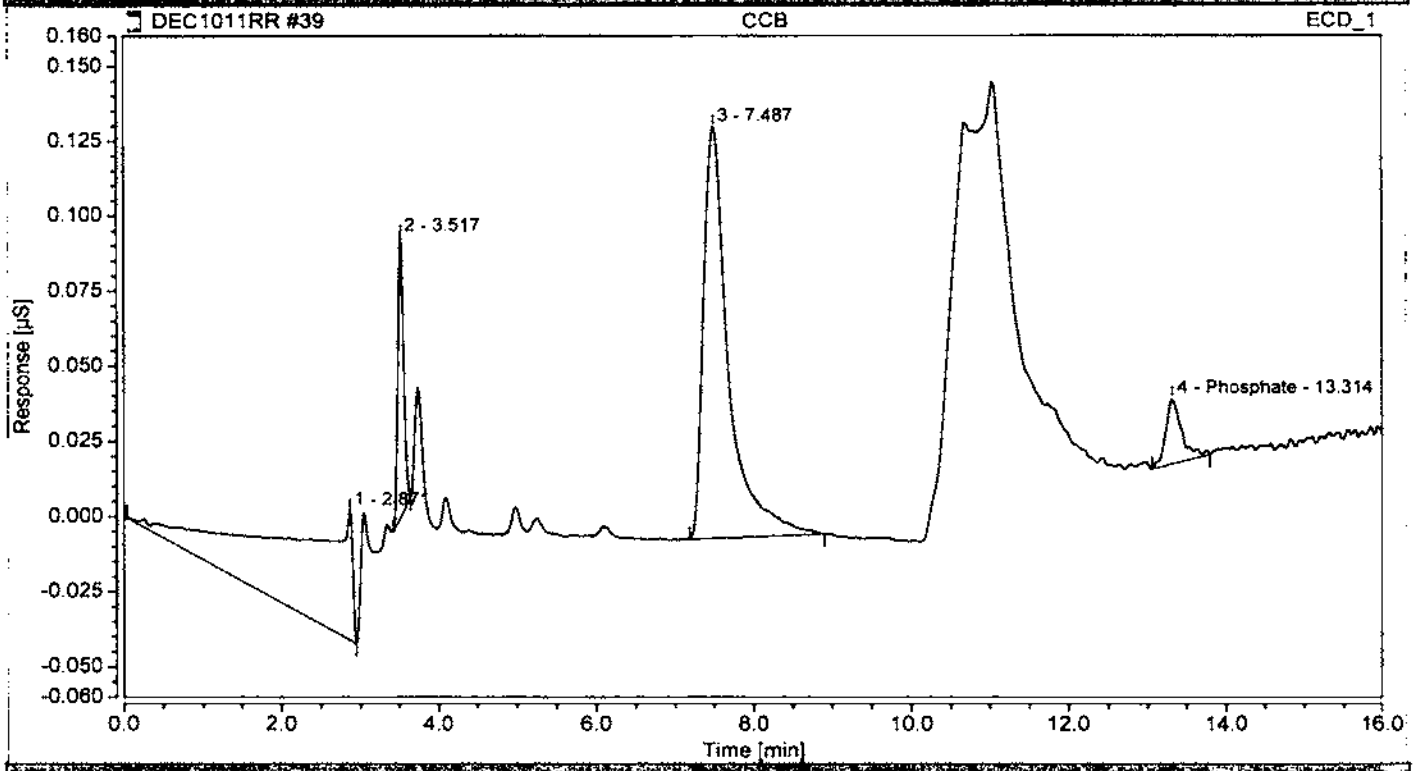
UA17 : 00482

Injection Name:	*CCV*	Inject Number:	38
Vial Number:	*31*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 22:56*		



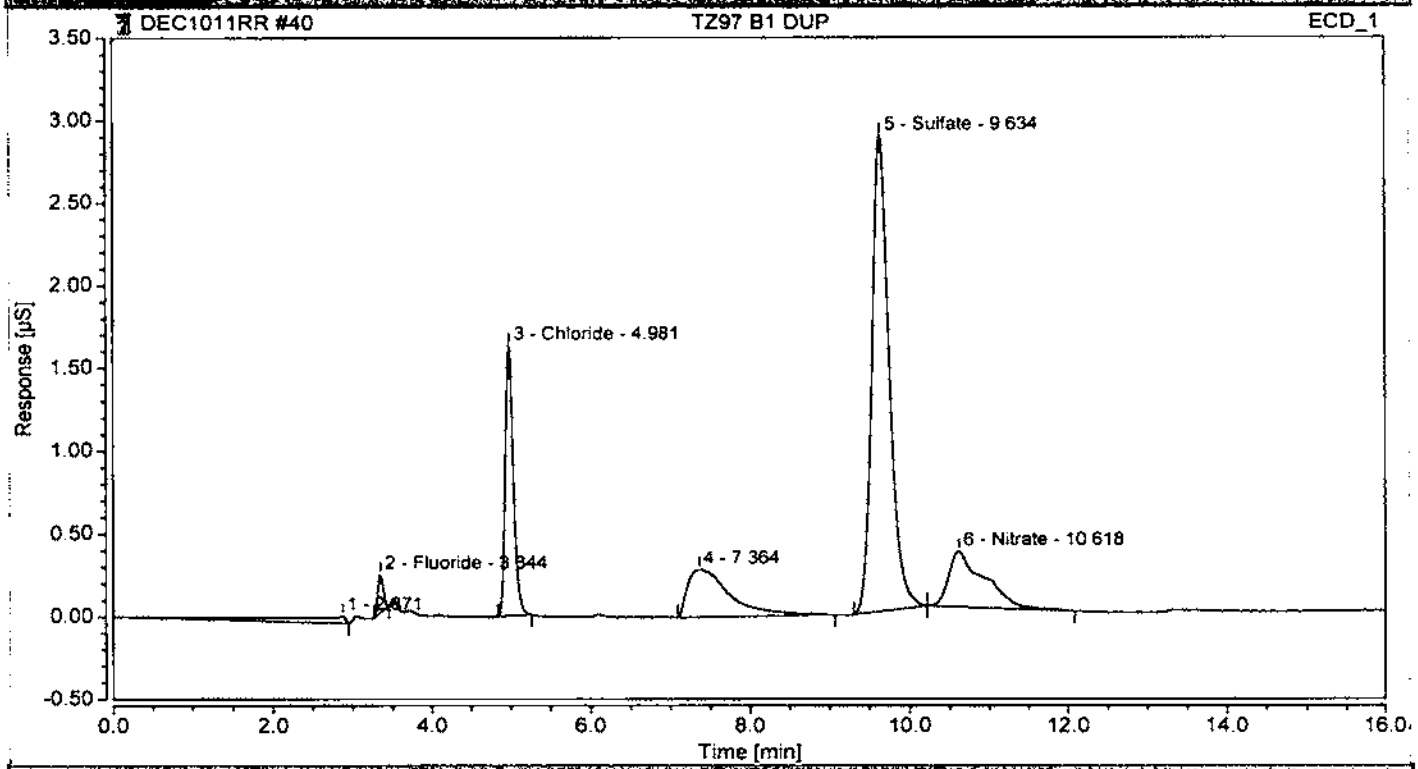
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.047	0.043	FALSE	n.a.
2	Fluoride	1.0	3.039	3.35	1.440	11.843	FALSE	1.30
3	Chloride	1.0	2.949	4.98	0.893	7.362	FALSE	-1.68
4	Nitrite	1.0	3.036	6.09	2.113	13.134	FALSE	1.19
5		1.0	n.a.	7.48	0.038	0.125	FALSE	n.a.
6	Bromide	1.0	3.009	8.79	0.387	1.887	FALSE	0.32
7	Sulfate	1.0	2.908	9.65	0.539	2.123	FALSE	-3.06
8	Nitrate	1.0	3.188	10.47	2.419	10.012	FALSE	6.28
9	Phosphate	1.0	2.979	13.20	0.681	4.619	FALSE	-0.70

Injection Name:	*CCB*	Inject Number:	39
Vial Number:	*32*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 23:17*		



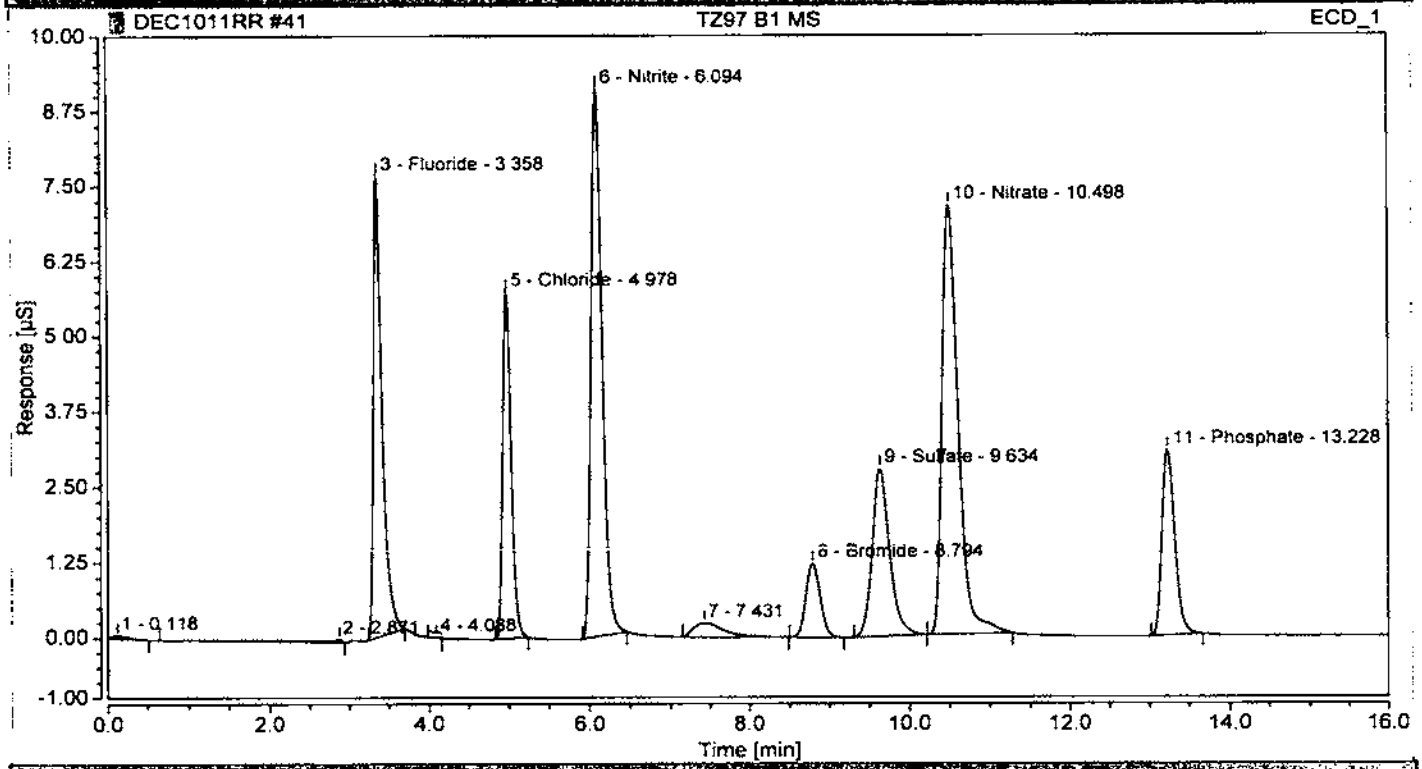
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.045	0.043	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		1.0	n.a.	3.52	0.008	0.093	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	7.49	0.051	0.137	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Phosphate	1.0	0.017	13.31	0.005	0.021	FALSE	n.a.

Injection Name:	*TZ97 B1 DUP*	Inject Number:	40
Vial Number:	*33*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*10/12/11 23:37*		



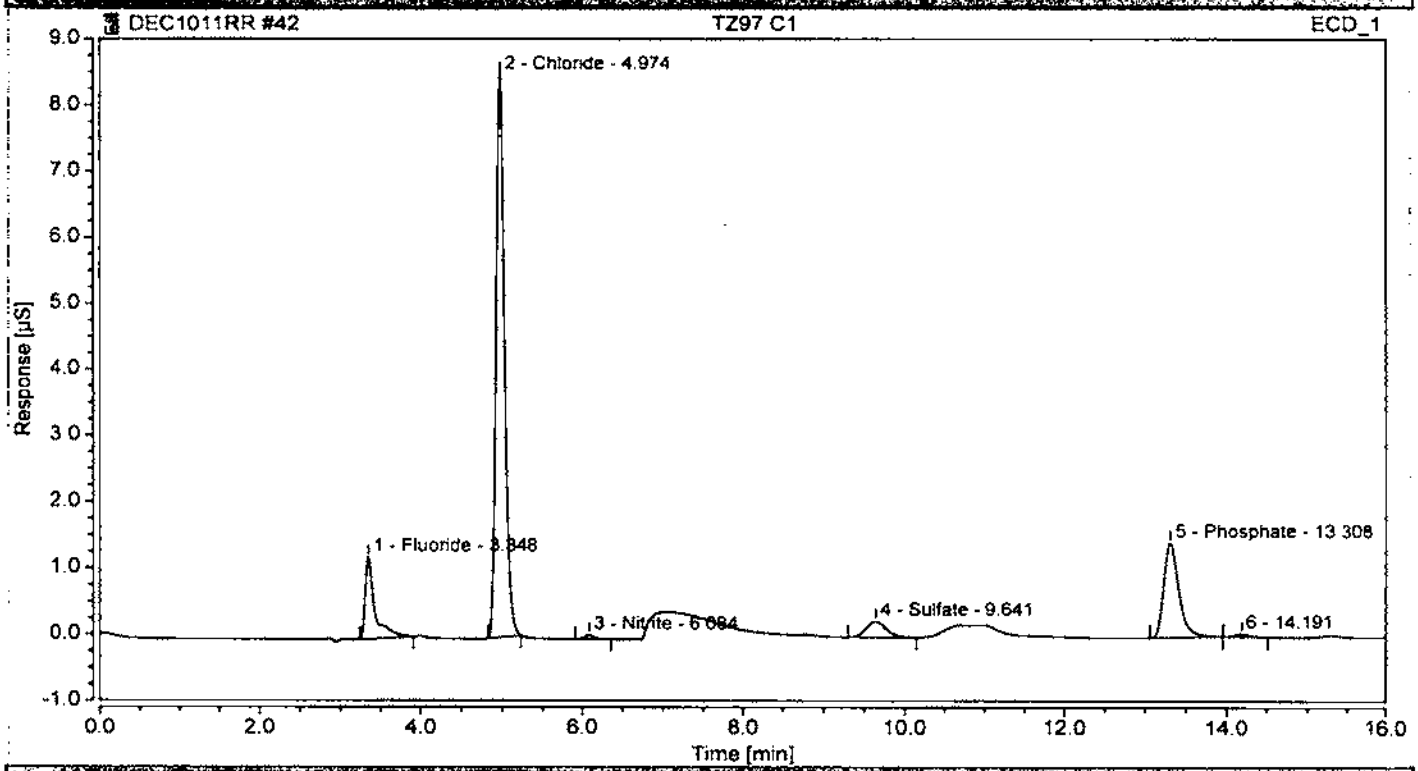
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.046	0.042	FALSE	n.a.
2	Fluoride	5.0	0.202	3.34	0.019	0.229	FALSE	n.a.
3	Chloride	5.0	3.239	4.98	0.196	1.631	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.36	0.179	0.287	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	19.278	9.63	0.715	2.874	FALSE	n.a.
6	Nitrate	5.0	1.151	10.62	0.175	0.336	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ97 B1 MS*	Inject Number:	41
Vial Number:	*34*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*10.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*10/12/11 23:58*		



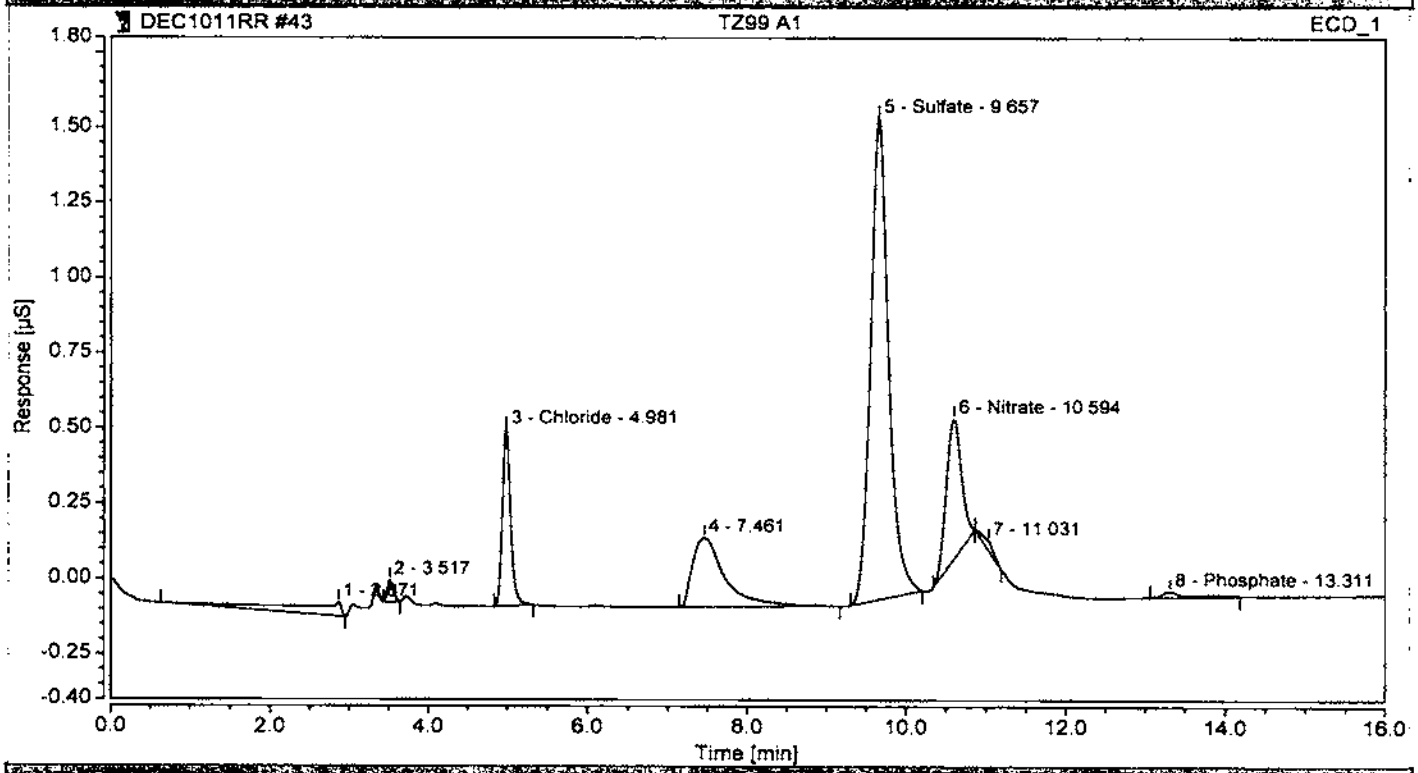
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		10.0	n.a.	0.12	0.011	0.050	FALSE	n.a.
2		10.0	n.a.	2.87	0.035	0.045	FALSE	n.a.
3	Fluoride	10.0	20.125	3.36	0.953	7.666	FALSE	n.a.
4		10.0	n.a.	4.09	0.016	0.085	FALSE	n.a.
5	Chloride	10.0	23.038	4.98	0.698	5.753	FALSE	n.a.
6	Nitrite	10.0	20.445	6.09	1.423	9.099	FALSE	n.a.
7		10.0	n.a.	7.43	0.105	0.230	FALSE	n.a.
8	Bromide	10.0	19.597	8.79	0.252	1.228	FALSE	n.a.
9	Sulfate	10.0	37.545	9.63	0.696	2.782	FALSE	n.a.
10	Nitrate	10.0	22.066	10.50	1.674	7.124	FALSE	n.a.
11	Phosphate	10.0	19.094	13.23	0.565	3.064	FALSE	n.a.

Injection Name:	*TZ97 C1*	Inject Number:	42
Vial Number:	*35*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*11/12/11 00:17*		



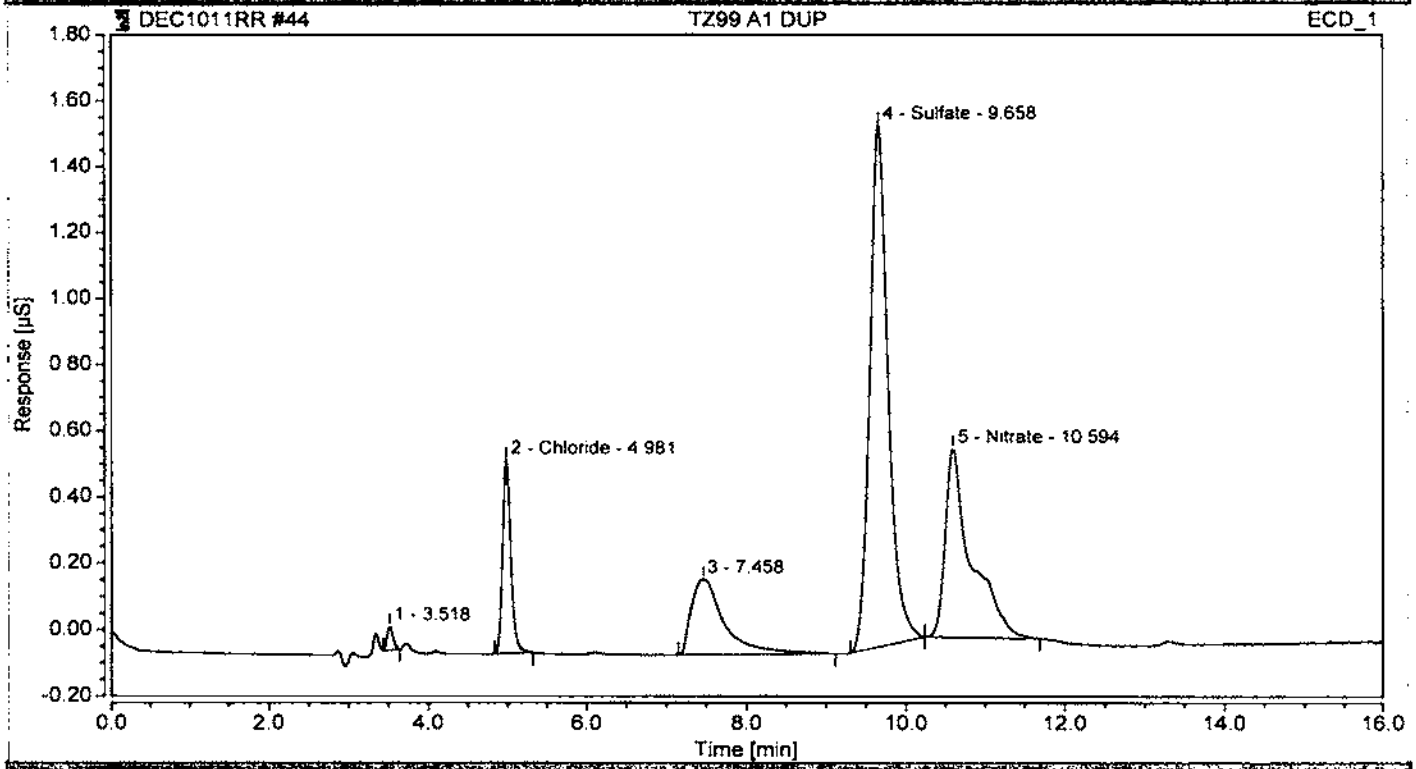
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1	Fluoride	1.0	0.384	3.35	0.172	1.227	FALSE	n.a.
2	Chloride	1.0	3.393	4.97	1.027	8.499	FALSE	n.a.
3	Nitrite	1.0	0.012	6.08	0.008	0.058	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	1.0	0.376	9.64	0.070	0.242	FALSE	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Phosphate	1.0	1.031	13.31	0.305	1.416	FALSE	n.a.
6		1.0	n.a.	14.19	0.009	0.042	FALSE	n.a.

Injection Name:	*TZ99 A1*	Inject Number:	43
Vial Number:	*36*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*10.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 00:37*		



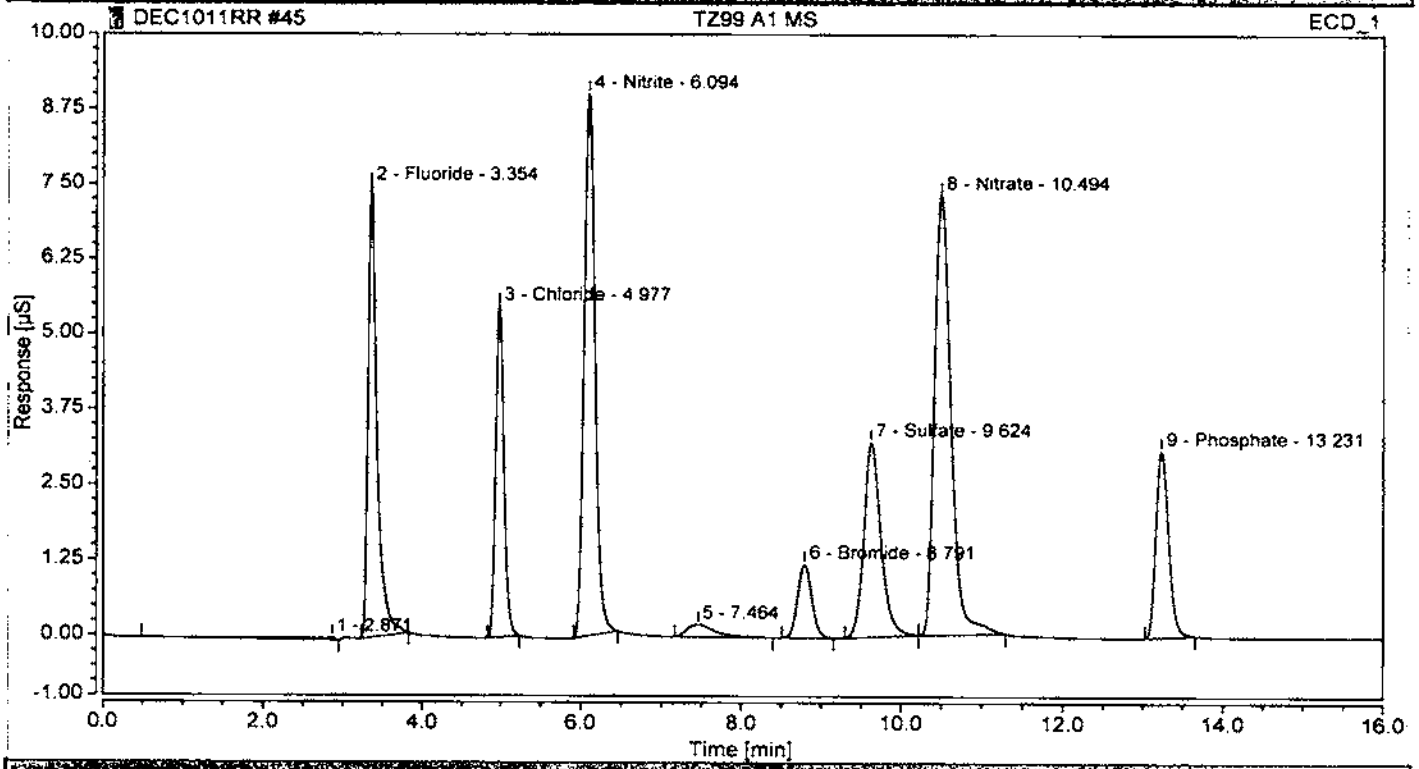
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		10.0	n.a.	2.87	0.035	0.045	FALSE	n.a.
n.a.	Fluoride	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		10.0	n.a.	3.52	0.006	0.071	FALSE	n.a.
3	Chloride	10.0	2.342	4.98	0.071	0.585	FALSE	n.a.
n.a.	Nitrite	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		10.0	n.a.	7.46	0.110	0.227	FALSE	n.a.
n.a.	Bromide	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	10.0	22.657	9.66	0.420	1.598	FALSE	n.a.
6	Nitrate	10.0	1.330	10.59	0.101	0.465	FALSE	n.a.
7		10.0	n.a.	11.03	0.006	0.033	FALSE	n.a.
8	Phosphate	10.0	0.272	13.31	0.008	0.019	FALSE	n.a.

Injection Name:	*TZ99 A1 DUP*	Inject Number:	44
Vial Number:	*37*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*10.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 00:56*		



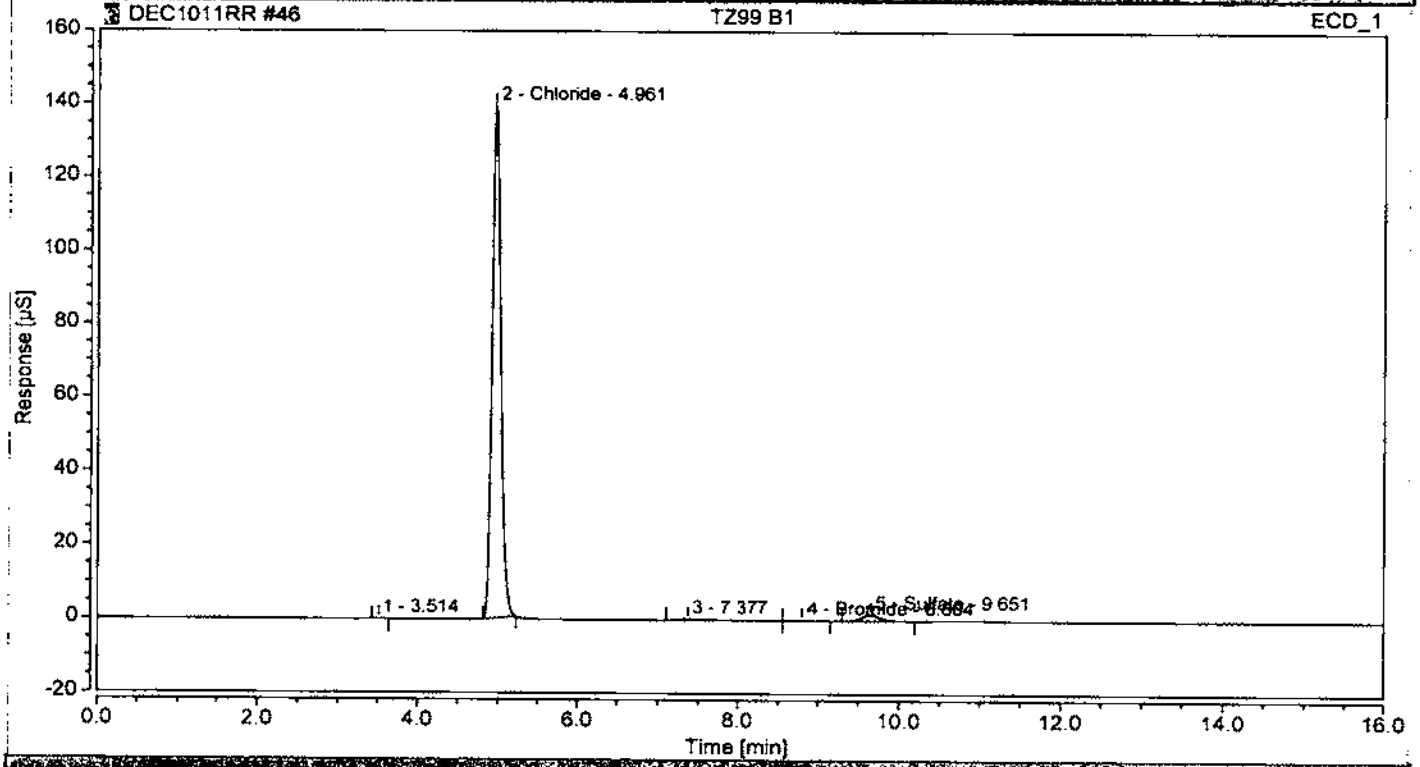
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
n.a.	Fluoride	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		10.0	n.a.	3.52	0.006	0.072	FALSE	n.a.
2	Chloride	10.0	2.341	4.98	0.071	0.585	FALSE	n.a.
n.a.	Nitrite	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		10.0	n.a.	7.46	0.110	0.228	FALSE	n.a.
n.a.	Bromide	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	10.0	22.528	9.68	0.418	1.577	FALSE	n.a.
5	Nitrate	10.0	2.889	10.59	0.219	0.569	FALSE	n.a.
n.a.	Phosphate	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*TZ99 A1 MS*	Inject Number:	45
Vial Number:	*38*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*10.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 01:15*		



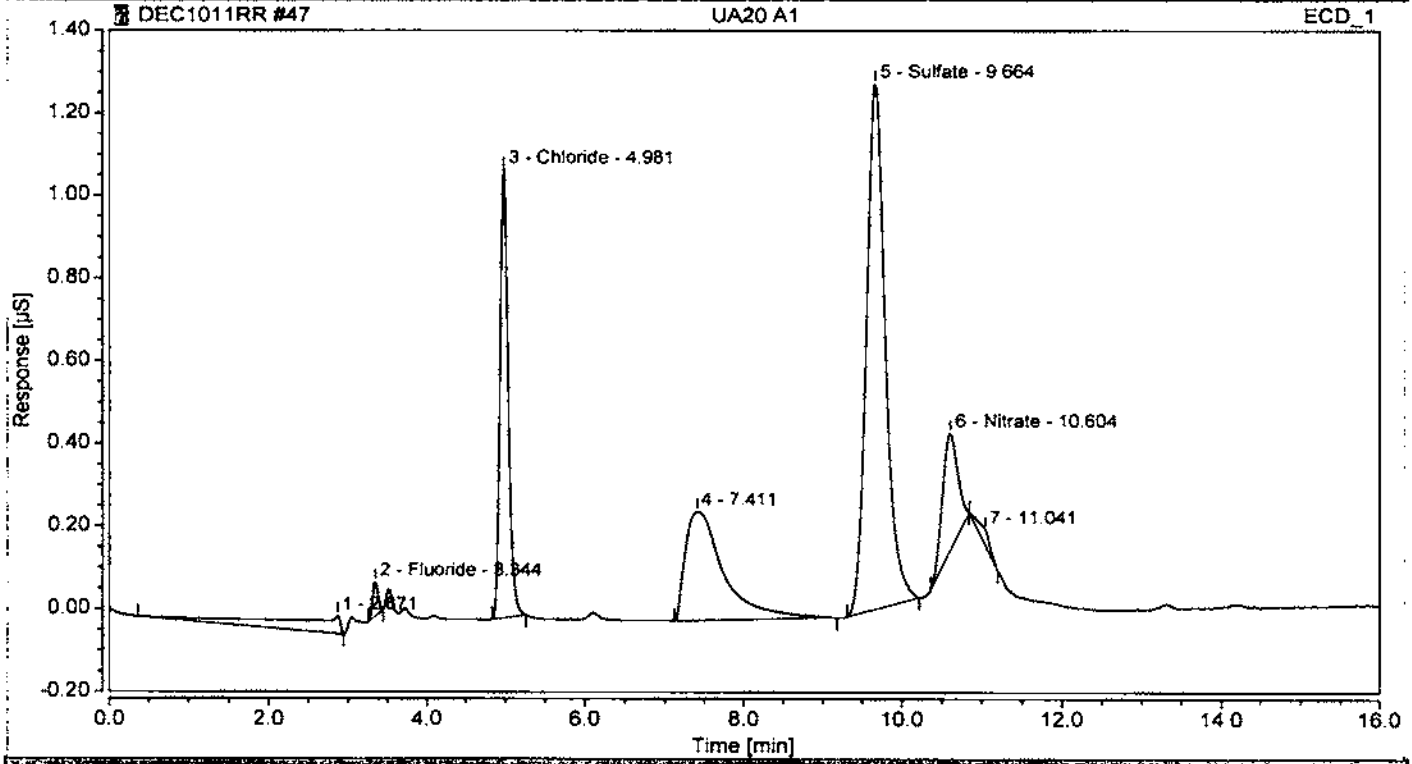
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		10.0	n.a.	2.87	0.037	0.044	FALSE	n.a.
2	Fluoride	10.0	20.509	3.35	0.972	7.508	FALSE	n.a.
3	Chloride	10.0	21.988	4.98	0.666	5.492	FALSE	n.a.
4	Nitrite	10.0	20.249	6.09	1.410	9.007	FALSE	n.a.
5		10.0	n.a.	7.46	0.086	0.208	FALSE	n.a.
6	Bromide	10.0	19.428	8.79	0.250	1.219	FALSE	n.a.
7	Sulfate	10.0	43.303	9.62	0.803	3.236	FALSE	n.a.
8	Nitrate	10.0	22.755	10.49	1.726	7.306	FALSE	n.a.
9	Phosphate	10.0	19.203	13.23	0.568	3.098	FALSE	n.a.

Injection Name:	*TZ99 B1*	Inject Number:	46
Vial Number:	*39*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*10.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodai*		
Injection Date/Time:	*11/12/11 01:35*		



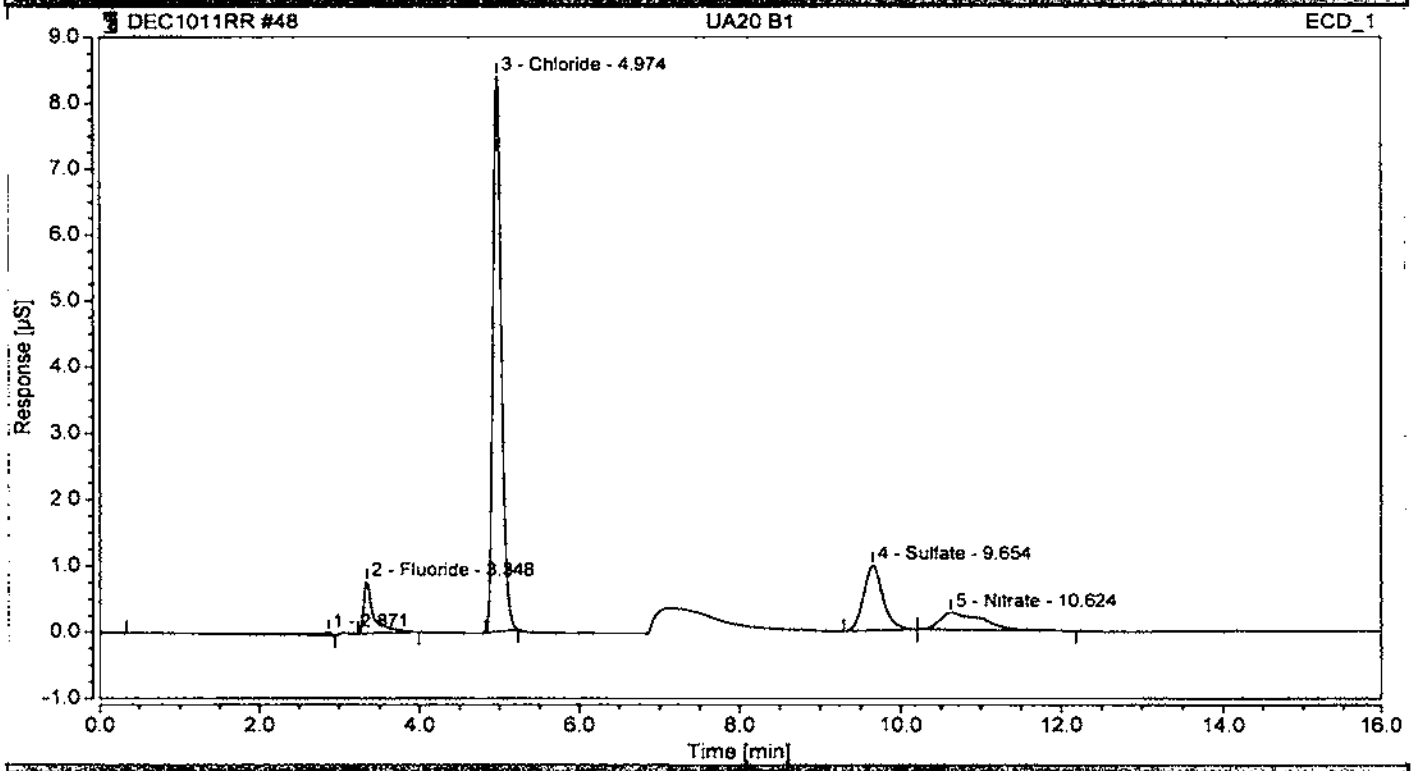
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
n.a.	Fluoride	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		10.0	n.a.	3.51	0.006	0.074	FALSE	n.a.
2	Chloride	10.0	571.775	4.96	17.313	139.396	FALSE	n.a.
n.a.	Nitrite	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		10.0	n.a.	7.38	0.151	0.276	FALSE	n.a.
4	Bromide	10.0	1.701	8.80	0.022	0.106	FALSE	n.a.
5	Sulfate	10.0	23.966	9.65	0.444	1.692	FALSE	n.a.
n.a.	Nitrate	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Phosphate	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA20 A1*	Inject Number:	47
Vial Number:	*40*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*5.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 01:55*		



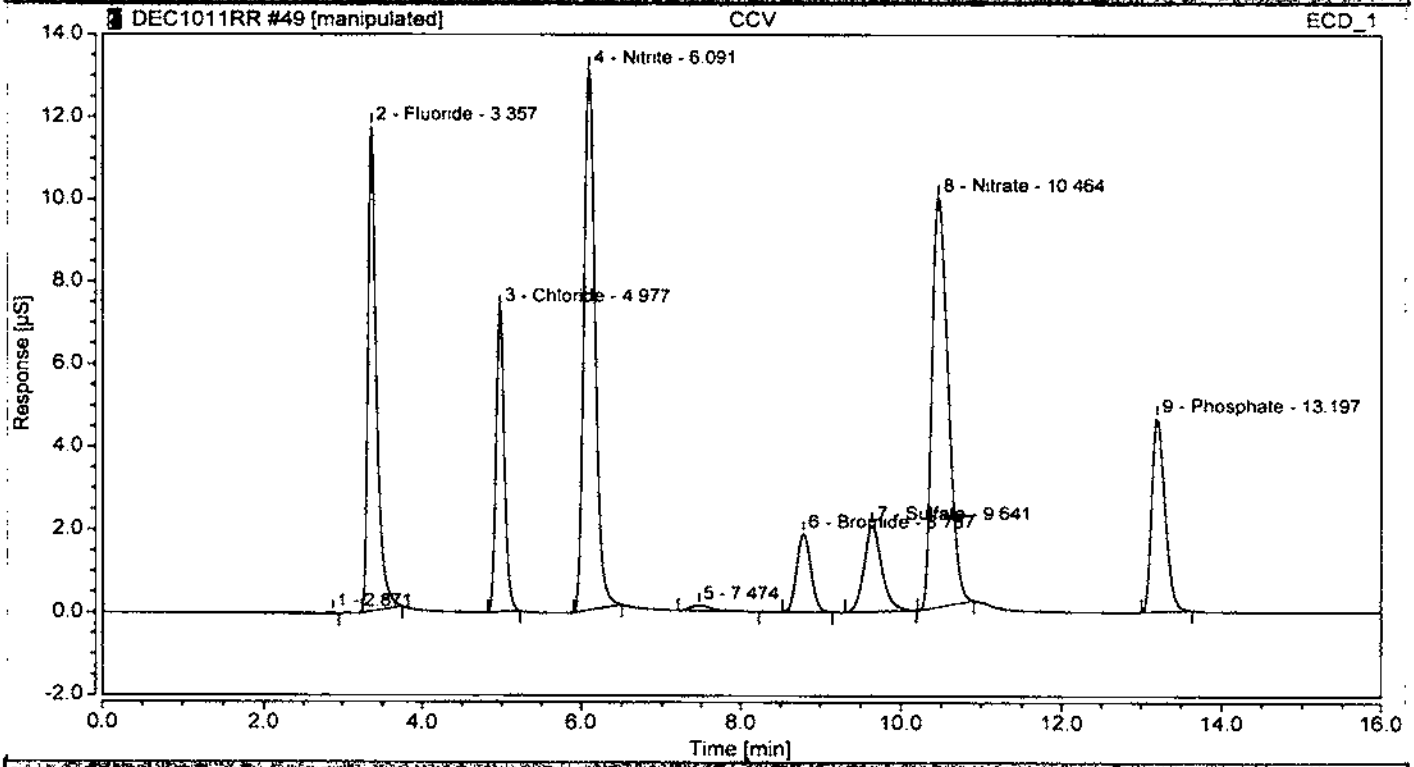
No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		5.0	n.a.	2.87	0.039	0.043	FALSE	n.a.
2	Fluoride	5.0	0.070	3.34	0.007	0.083	FALSE	n.a.
3	Chloride	5.0	2.158	4.98	0.131	1.085	FALSE	n.a.
n.a.	Nitrite	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		5.0	n.a.	7.41	0.149	0.263	FALSE	n.a.
n.a.	Bromide	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
5	Sulfate	5.0	9.372	9.66	0.347	1.272	FALSE	n.a.
6	Nitrate	5.0	0.414	10.60	0.063	0.284	FALSE	n.a.
7		5.0	n.a.	11.04	0.007	0.038	FALSE	n.a.
n.a.	Phosphate	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Injection Name:	*UA20 B1*	Inject Number:	48
Vial Number:	*41*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 02:14*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.041	0.042	FALSE	n.a.
2	Fluoride	1.0	0.240	3.35	0.114	0.784	FALSE	n.a.
3	Chloride	1.0	3.355	4.97	1.016	8.396	FALSE	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4	Sulfate	1.0	1.483	9.65	0.275	0.984	FALSE	n.a.
5	Nitrate	1.0	0.218	10.62	0.165	0.260	FALSE	n.a.
n.a.	Phosphate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

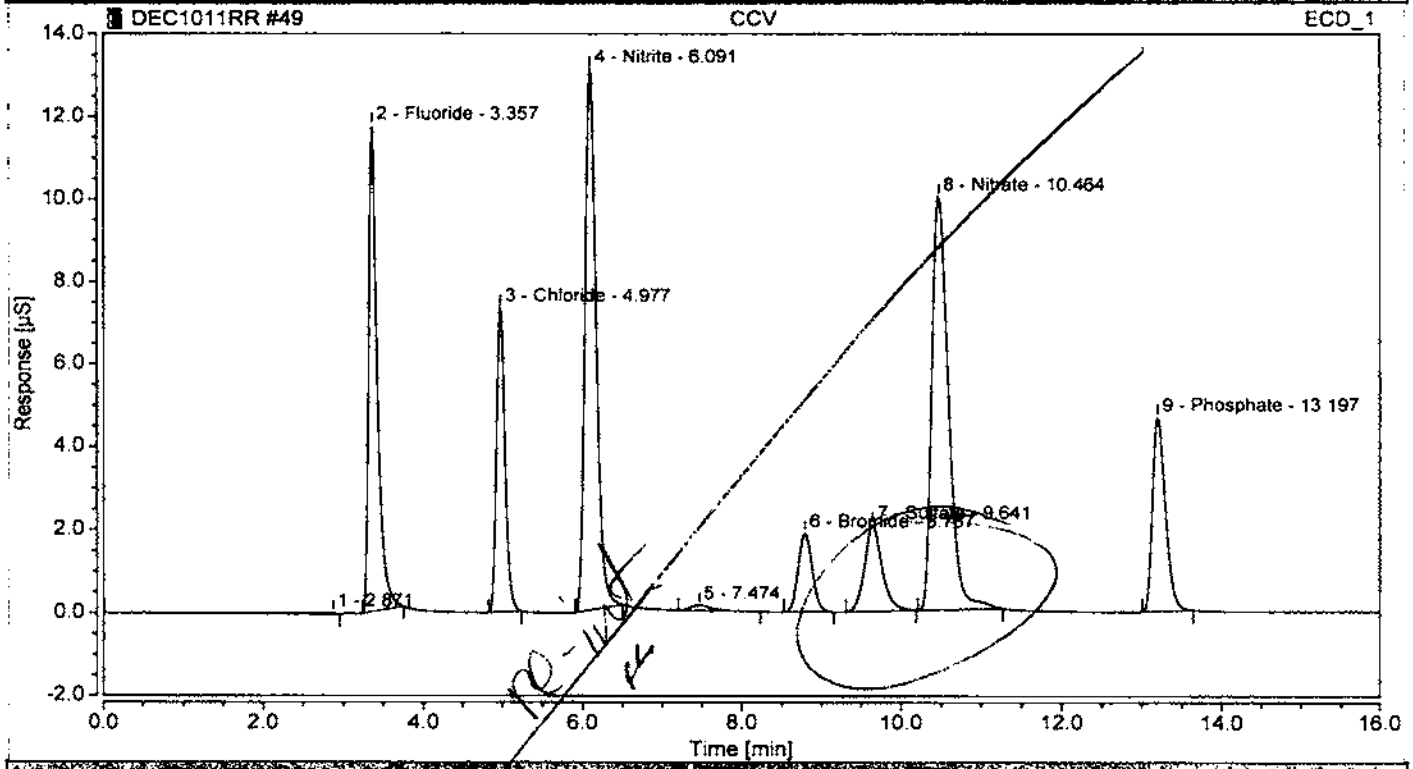
Injection Name:	*CCV*	Inject Number:	49
Vial Number:	*31*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 02:34*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.043	0.041	FALSE	n.a.
2	Fluoride	1.0	3.047	3.36	1.444	11.752	FALSE	1.58
3	Chloride	1.0	2.952	4.98	0.894	7.352	FALSE	-1.60
4	Nitrite	1.0	3.030	6.09	2.109	13.090	FALSE	1.00
5		1.0	n.a.	7.47	0.041	0.130	FALSE	n.a.
6	Bromide	1.0	3.009	8.79	0.387	1.885	FALSE	0.31
7	Sulfate	1.0	2.868	9.64	0.532	2.078	FALSE	-4.40
8	Nitrate	1.0	3.041	10.46	2.307	9.897	TRUE	1.38
9	Phosphate	1.0	3.000	13.20	0.887	4.677	FALSE	-0.02

UA17 : 00494

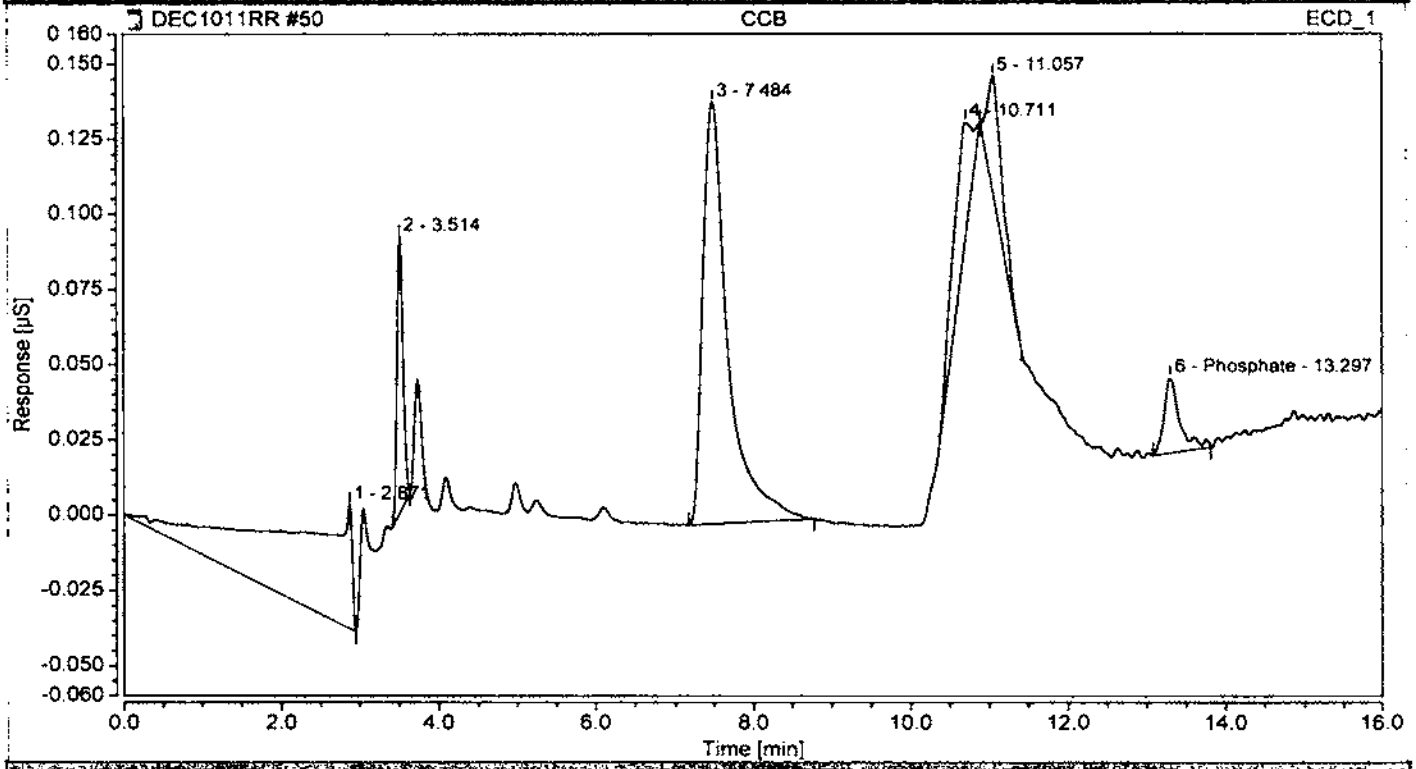
Injection Name:	*CCV*	Inject Number:	49
Vial Number:	*31*	User:	pat
Injection Type:	*Check Standard*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodat*		
Injection Date/Time:	*11/12/11 02:34*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.043	0.041	FALSE	n.a.
2	Fluoride	1.0	3.047	3.36	1.444	11.752	FALSE	1.58
3	Chloride	1.0	2.952	4.98	0.894	7.352	FALSE	-1.60
4	Nitrite	1.0	3.030	6.09	2.109	13.090	FALSE	1.00
5		1.0	n.a.	7.47	0.041	0.130	FALSE	n.a.
6	Bromide	1.0	3.009	8.79	0.387	1.885	FALSE	0.31
7	Sulfate	1.0	2.868	9.64	0.532	2.078	FALSE	-4.40
8	Nitrate	1.0	3.190	10.46	2.420	9.976	FALSE	6.34
9	Phosphate	1.0	3.000	13.20	0.887	4.677	FALSE	-0.02

re-inj

Injection Name:	*CCB*	Inject Number:	50
Vial Number:	*32*	User:	pat
Injection Type:	*Blank*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*INSTRMETH*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 02:54*		



No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			mg/l	min	µS*min	µS		mg/l
1		1.0	n.a.	2.87	0.043	0.041	FALSE	n.a.
n.a.	Fluoride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2		1.0	n.a.	3.51	0.008	0.092	FALSE	n.a.
n.a.	Chloride	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrite	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3		1.0	n.a.	7.48	0.052	0.140	FALSE	n.a.
n.a.	Bromide	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Sulfate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
n.a.	Nitrate	1.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
4		1.0	n.a.	10.71	0.012	0.038	FALSE	n.a.
5		1.0	n.a.	11.06	0.008	0.039	FALSE	n.a.
6	Phosphate	1.0	0.020	13.30	0.006	0.025	FALSE	n.a.

Injection Name:	*STOP*	Inject Number:	51
Vial Number:	*1*	User:	pat
Injection Type:	*Unknown*	Sequence:	DEC1011RR
Dilution Factor:	*1.0*		
Instrument Method:	*SHUTDOWN*		
Processing Method:	*processmethodal*		
Injection Date/Time:	*11/12/11 03:15*		

Can't read channel ECD_1 from injection #51 - STOP
Channel is not available

No.	Peak Name	Dilution	Amount	Retention	Area	Height	anipulated	Amnt.Dev.
			n.a.	min	natogram in con	matogram in		n.a.

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.4737
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9997

No.	Injection Name	Calibration Level	X Value Fluoride	Y Value Fluoride	Amount mg/l Fluoride	Area µS*min Fluoride	Height µS Fluoride
1	STD1	01	0.1000	0.0399	0.0843	0.040	0.301
2	STD2	02	0.5000	0.2347	0.4955	0.235	1.688
3	STD3	03	1.0000	0.4982	1.0516	0.498	3.502
4	STD4	04	2.5000	1.1985	2.5298	1.198	9.167
5	STD5	05	5.0000	2.3571	4.9755	2.357	19.418

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	n.a.	*Slope (C1)*	0.3028
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9998

No.	Injection Name	Calibration Level	X Value Chloride	Y Value Chloride	Amount mg/l Chloride	Area µS*min Chloride	Height µS Chloride
1	STD1	01	0.1000	0.0295	0.0975	0.030	0.248
2	STD2	02	0.5000	0.1435	0.4739	0.144	1.203
3	STD3	03	1.0000	0.2953	0.9752	0.295	2.473
4	STD4	04	2.5000	0.7452	2.4609	0.745	6.210
5	STD5	05	5.0000	1.5222	5.0272	1.522	12.630

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.6962
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9998

No.	Injection Name	Calibration Level	X Value Nitrite	Y Value Nitrite	Amount mg/l Nitrite	Area µS*min Nitrite	Height µS Nitrite
1	STD1	01	0.1000	0.0619	0.0890	0.062	0.424
2	STD2	02	0.5000	0.3528	0.5068	0.353	2.375
3	STD3	03	1.0000	0.7198	1.0339	0.720	4.752
4	STD4	04	2.5000	1.7599	2.5280	1.760	11.100
5	STD5	05	5.0000	3.4660	4.9788	3.466	20.655

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.1286
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9994

No.	Injection Name	Calibration Level	X Value Bromide	Y Value Bromide	Amount mg/l Bromide	Area µS*min Bromide	Height µS Bromide
1	STD1	01	0.1000	0.0113	0.0878	0.011	0.054
2	STD2	02	0.5000	0.0591	0.4601	0.059	0.283
3	STD3	03	1.0000	0.1225	0.9528	0.122	0.590
4	STD4	04	2.5000	0.3133	2.4372	0.313	1.521
5	STD5	05	5.0000	0.6486	5.0451	0.649	3.160

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.1854
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9861

No.	Injection Name	Calibration Level	X Value Sulfate	Y Value Sulfate	Amount mg/l Sulfate	Area µS*min Sulfate	Height µS Sulfate
1	STD1	01	0.1000	0.0089	0.0480	0.009	0.032
2	STD2	02	0.5000	0.0512	0.2761	0.051	0.175
3	STD3	03	1.0000	0.1271	0.6865	0.127	0.417
4	STD4	04	2.5000	0.4181	2.2550	0.418	1.514
5	STD5	05	5.0000	0.9657	5.2089	0.966	3.775

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.7586
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9999

No.	Injection Name	Calibration Level	X Value Nitrate	Y Value Nitrate	Amount mg/l Nitrate	Area µS*min Nitrate	Height µS Nitrate
1	STD1	01	0.1000	0.0714	0.0941	0.071	0.362
2	STD2	02	0.5000	0.3658	0.4822	0.366	1.823
3	STD3	03	1.0000	0.7513	0.9904	0.751	3.664
4	STD4	04	2.5000	1.8769	2.4741	1.877	8.565
5	STD5	05	5.0000	3.8058	5.0168	3.806	15.377

Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2958
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9995

No.	Injection Name	Calibration Level	X Value Phosphate	Y Value Phosphate	Amount mg/l Phosphate	Area µS*min Phosphate	Height µS Phosphate
1	STD1	01	0.1000	0.0239	0.0809	0.024	0.127
2	STD2	02	0.5000	0.1351	0.4566	0.135	0.741
3	STD3	03	1.0000	0.2837	0.9589	0.284	1.575
4	STD4	04	2.5000	0.7228	2.4434	0.723	3.903
5	STD5	05	5.0000	1.4912	5.0413	1.491	7.383

W
12-19-11

PHOSPHORUS BENCHSHEET, Aqueous				Digested:	Analyzed:
Soluble Reactive P (SRP) by EPA 365.2, SM 450			Date	12/15/11 15:00	12/16/11 18:55
Indicate "Total" or "SRP"	total		Analyst	CDE	CDE
Total P by digestion (indicate procedure used)				SM 4500-P B5-99, Acid persulfate	
NOTE: curve standards must be digested !				SM 4500-P B4-99, Sulfuric-Nitric Acid	

Curve Standards — *make no entries to shaded cells, they are calculated !!*

Prep date:	6/1/2011	Stock #:	00116/8			
Weight KH2PO4:	0.2197	grams in	1000	mL		
Conc =	50.00	mg/L P				
Intermediate Std =	5	mL stk to	50	mL DI =	5.00	mg P/L

Calibration Curve — std make-up volume (mL) = 50; for Digested Curve: mL digest = 50; final vol (mL) = 50

ml int Std		CONC	UNITS	AVG	
SRP	Total P	(mg/L)	(ABS 880 nm 5cm cell)		mg/L
0.00	0.00	0.000	0.000	0.000	0.000
0.04	0.30	0.030	0.087	0.087	0.029
0.25	0.60	0.060	0.175	0.175	0.058
0.50	1.50	0.150	0.449	0.449	0.150
1.00	5.00	0.500	1.515	1.515	0.505
5.0	10.0	1.000	2.996	2.996	0.998

REGRESSION DATA

CONC = (ABS-intercept)/ slope

intercept = -0.0006
Slope = 3.0029
r = 1.0000

Comment: Calibration OK!

maxabs = 2.996

Verification Standards			Source: ERA # 200610		Conc (mg/L)	1000	
ICV dilution =	0.06	mL Int to	250	mL DI =	0.240	mg/L	CVS
Verification Standards		Source:	ERA # 3303093		Conc (mg/L)	1000	
Intermediate	0.50	mL to	50		mL DI =	10.0	mg/L
Tot P dilution =	0.40	mL Int to	25	mL DI =	0.160	mg/L	LCS

DQL Standard (low level)		Source:	Curve Intermediate		Conc (mg/L)	5.0
SRP	0.100	ml to	50	ml DI =	0.010	mg/L
Total P	0.400	ml to	25	ml DI =	0.080	mg/L
Total P	0.160	ml to	10	ml DI =	0.080	mg/L

Sample Data

1. For SRP, leave digest data blank!!
2. Spike with 10 mg/L Intermediate Standard — enter dilution as final vol / sample vol

SAMPLE ID	Tot P Digest		Analysis Data			TOT P	SRP	
	mL sample	mL digest	Abs	Dilution	(mg/L)	(mg/L)	(mg/L)	Notes
Calib Blank			0.000	1.0	0.0002		< 0.03	OK
ICV			0.755	1.0	0.2516		0.252	104.84%
MB total	25	50	0.035	1.0	0.0118	< 0.06		OK
DQL Total	25	50	0.155	1.0	0.0518	0.104		
LCS 1	25	50	0.269	1.0	0.0898	0.180		112.21%
TZ97 A8	25	50	1.834	1.0	0.6109	1.222		
TZ97 A8 dup	25	50	1.873	1.0	0.6239	1.248		RPD = 2.1
TZ97 A8 ms	25	50	2.216	1.0	0.7382	1.476		127.2% Rec
Spike =	0.5	ml of	10	mg/L to	25	ml sample =	0.200	
TZ97 B18	25	50	0.576	1.0	0.1920	0.384		
TZ97 C3	25	50	****	1.0	#VALUE!	#VALUE!		offscale
UA09 B5	25	50	0.169	1.0	0.0565	0.113		
UA17 A2	25	50	1.844	1.0	0.6143	1.229		
Calib Blank			0.000	1.0	0.0002		< 0.03	OK
CCV			0.753	1.0	0.2509		0.251	104.56%
UA20 A4	25	50	0.287	1.0	0.0958	0.192		
UA20 B3	25	50	0.378	1.0	0.1261	0.252		
UA50 A2	25	50	****	1.0	#VALUE!	#VALUE!		offscale
UB21 A1	25	50	0.111	1.0	0.0372	0.074		
UB21 B1	25	50	0.220	1.0	0.0735	0.147		
UB21 C1	25	50	0.189	1.0	0.0631	0.126		
UB22 A1	25	50	0.184	1.0	0.0615	0.123		

UB22 B1	25	50	0.148	1.0	0.0495	**0.099**		
UB22 C1	25	50	0.315	1.0	0.1051	**0.210**		
UB22 D1	25	50	0.238	1.0	0.0794	**0.159**		
Calib Blank			-0.001	1.0	-0.0001		**< 0.03**	*OK*
CCV			0.757	1.0	0.2523		**0.252**	*105.12%*
UB23 A1	25	50	0.576	1.0	0.1920	**0.384**		
UB23 B1	25	50	0.530	1.0	0.1767	**0.353**		
UB23 C1	25	50	0.105	1.0	0.0352	**0.070**		
UB23 D1	25	50	0.140	1.0	0.0468	**0.094**		
TZ97 C3	25	50	1.953	2.0	0.6506	**2.602**		
UA50 A2	25	50	1.801	2.0	0.5999	**2.400**		
Calib Blank			0.000	1.0	0.0002		**< 0.03**	*OK*
CCV			0.754	1.0	0.2513		**0.251**	*104.70%*

PHOSPHORUS BENCHSHEET, Aqueous

	Digested:	Analyzed:
Soluble Reactive P (SRP) by EPA 365.2, SM 450(Date	12-15-11 15:00	12-16-11 18:55
Indicate "Total" or "SRP" **total** Analyst	CPL	CPL

Total P by digestion (indicate procedure used) — ***SM 4500-P B5-99, Acid persulfate***

NOTE: *curve standards must be digested !* — ***SM 4500-P B4-99, Sulfuric-Nitric Acid***

Curve Standards — ***make no entries to shaded cells, they are calculated !!***

Prep date: 6-1-11 *Stock #:* 00116-8

Weight KH2PO4: 0.2197 *grams in* 1000 *mL*

Conc = 50.00 *mg/L P*

Intermediate Std = 5 *mL stk to* 50 *mL DI =* ***5.00*** ***mg P/L***

Calibration Curve — *std make-up volume (mL) =* 50

for Digested Curve *mL digest =* ~~25~~ 50 *final vol (mL) =* 50

REGRESSION DATA

CONC = (ABS-intercept)/ slope

ml int Std		CONC	UNITS		AVG	
SRP	Total P	(mg/L)	(ABS 880 nm 5cm cell)			*mg/L*
0.00	0.00	0.000	0.000			
0.04	0.30	0.015	0.087			
0.25	0.60	0.030	0.175			
0.50	1.50	0.075	0.449			
1.00	5.00	0.250	1.515			
5.0	10.0	0.500	2.996			

intercept =

Slope =

r =

Comment:

maxabs = 0.000

Verification Standards			*Source:*	*ERA #* 200610		*Conc (mg/L)*	1000	
Intermediate		~~0.50~~	*mL to*	~~50~~		*mL DI =*	***10.0***	***mg/L***
ICV	*dilution =*	~~1.250%~~	*mL Int to*	250	*mL DI =*	~~0.050~~ 0.24	***mg/L***	*CVS*
Verification Standards			*Source:*	*ERA #* 3303093		*Conc (mg/L)*	1000	
Intermediate		0.50	*mL to*	50		*mL DI =*	***10.0***	***mg/L***
Tot P LCS	*dilution =*	0.40	*mL Int to*	25	*mL DI =*	***0.160***	***mg/L***	*LCS*
DQL Standard (low level)			*Source:*	***Curve Intermediate***		*Conc (mg/L)*	5.0	
SRP	0.100	*ml to*	50	*ml DI =*	***0.010***	***mg/L***		
Total P	0.400	*ml to*	25	*ml DI =*	***0.080***	***mg/L***		

Sample Data

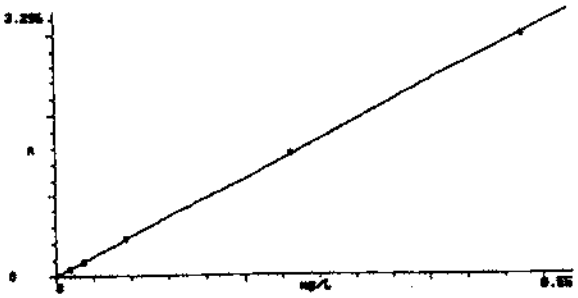
1. *For SRP, leave digest data blank!!*
2. *Spike with 10 mg/L Intermediate Standard* — *enter dilution as final vol / sample vol*

SAMPLE ID	Tot P Digest		Analysis Data			TOT P	SRP	
	mL sample	mL digest	Abs	Dilution	(mg/L)	(mg/L)	(mg/L)	*Notes*
Calib Blank			0.000	1.0				
ICV			0.755	1.0				
MB total	25	50	0.025	1.0				
~~LCS 1~~ DQL	25	50	0.155	1.0				
~~DQL Total~~ LCS	25	50	0.269	1.0				
T297 A8			1.834	1.0				
↓ A8 dup			1.873	1.0				
↓ A8 ms			2.216	1.0				0% Rec
Spike =	0.5	*ml of*	10	*mg/L to*	25	*ml sample =*	0.200	
T297 B3			0.576	1.0				
↓ C3				1.0				
UA09 B5			0.169	1.0				
UA17 A2			1.844	1.0				
CCB			0.000	1.0				
CCV			0.753	1.0				
UA28 A4			0.287	1.0				
↓ B3			0.378	1.0				
UA50 A2				1.0				
UB21 A1			0.111	1.0				
↓ B1			0.220	1.0				
↓ C1			0.189	1.0				
UB22 A1			0.184	1.0				

SAMPLE ID	Tot P Digest		Analysis Data			TOT P	SRP	Notes
	mL sample	mL digest	Abs	Dilution	(mg/L)	(mg/L)	(mg/L)	
UB22 B1			0.148	1.0				
C1			0.315	1.0				
D1			0.238	1.0				
CCB			-0.001	1.0				
CCV			0.757	1.0				
UB23 A1			0.576	1.0				
B1			0.530	1.0				
C1			0.105	1.0				
D1			0.140	1.0				
TZ97 C3			1.953	~~1.0~~ 2X				
UA50 A2			1.901	~~1.0~~ 2X				
CCB			0.000	1.0				
CCV			0.754	1.0				
				1.0				
				1.0				

TEST SETUP
GENESYS 10 v2.021 2G2G048006

Standard Curve	18:58 16Dec11
Test Name	TOTAL PHOS[Saved]
Date Standards Measured	16Dec11
Wavelength	880nm
Ref. Wavelength Correction	Off
Curve Fit	Linear
Number of Standards	6
Units	mg/L
ID# (0=OFF)	Off
Low/High Limits	0.000/0.800
Statistics	Off
Auto Print	On



Curve Fit	Linear
Slope	6.01
Intercept	-0.00056
Std Dev	0.008
Corr Coeff	1.000

Conc. mg/L	Abs 880nm
0.000	0.000
0.015	0.087
0.030	0.175
0.075	0.449
0.250	1.515
0.500	2.996

12-16-11 dpc

TEST SETUP
GENESYS 10 v2.021 2G2G048006

Advanced A-XT-C	18:59 16Dec11
Test Name	TOTAL PHOS[Saved]
Measurement Mode	Absorbance
Wavelength	880nm
Ref. Wavelength Correction	Off
Delay Time (min:sec)	0:00
ID# (0=OFF)	1
Low/High Limits	0.000/0.800
Statistics	Off
Auto Print	On

ID#	Abs 880nm
1	0.000
2	0.755
3	0.035
4	0.155
5	0.269
6	1.834
7	1.873
8	2.216
9	0.576
10	[*****]
11	0.169
12	1.844
13	0.000
14	0.753
15	0.207
16	0.378
17	[*****]
18	0.111
19	0.220
20	0.189
21	0.184
22	0.148
23	0.315
24	0.238
25	-0.001
26	0.757
27	0.576
28	0.530
29	0.105
30	0.140
31	1.953
32	1.801
33	0.000
34	0.754

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BC
Signature

December-16-2011
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

December 30, 2011

Michael F. Mendes
ERM-West, Inc.
1218 3rd Avenue, Suite 1412
Seattle, WA 98101

RE: RG Fall GW Sampling, 128296.07
ARI Job Nos.: TZ84 & TZ97

Dear Mr. Mendes:

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

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

Please note that current ARI control limits are available at www.arilabs.com.

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.

Cheronne Oreiro
Project Manager
-For-
Susan D. Dunnihoo
Director, Client Services
206-695-6207
sue@arilabs.com

Enclosures

cc: eFile TZ84_TZ97

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax