Appendix K Results Letters – March and June through July 2013

MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101 • www.mde.state.md.us

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Secretary

April 19, 2013

Mr. and Mrs. Benjamin and Heather Gray
11712 Serene Court
Monrovia MD 21770

RE: SAMPLE RESULTS AND PROPOSAL FOR ADDITIONAL SAMPLING
MDE-FCHD Groundwater Investigation
Green Valley / Monrovia
Frederick County, Maryland

Dear Mr. and Mrs. Gray:

On March 12, 2013, the Maryland Department of the Environment's (MDE) contractor, collected several samples from your drinking water supply system. Water samples were collected before and after purges of your pressure tank as described previously to you and as documented in the attached field notes. A portion of the sediments that emptied from the pressure tank during the purging process was also analyzed.

The full laboratory analytical reports are attached. The results for the water samples and the sediment sample are summarized in the tables below. If the specific substance was not detected, the detection limit value is preceded by a less than symbol ("<").

Summary of Detections – Pressure Tank Purge Water Results

	Pre-Purge	Duplicate (Pre-Purge)	1st Purge	2nd Purge	3rd Purge	MCL / Action Level / Recommended Range
Total Chromium	<1.0	<1.0	1.6	5.3	2.8	100
Dissolved Chromium	<1.0	<1.0	<1.0	<1.0	<1.0	-
Chromate / Hexavalent Chromium	<0.020	<0.020	<0.020	<0.020	<0.020	0.3
Total Lead	567	180	338	240	118	15
Dissolved Lead	82.1	85.5	43.0	35.8	25.2	-
MTBE	<0.5	<0.5	<0.5	<0.5	<0.5	20
pH	5.75	5.75	5.50	5.47	5.44	6.5 – 8.5
Temperature (°C)	19.4	19.4	18.5	18.1	17.8	-
ORP (mV)	138.1	138.1	141	130.8	126.4	-

- All results in µg/L, unless stated otherwise

Summary of Detections – Pressure Tank Sediments

	Sediment
Aluminum	4,500
Arsenic	9.6
Barium	10
Calcium	320
Chromium	120
Cobalt	13
Copper	220
Iron	430,000
Lead	46
Magnesium	1,500
Manganese	1,900
Nickel	41
Potassium	190
Sodium	140
Vanadium	5.4
Zinc	43

- All results in mg/kg

The results indicate that the pressure tank has been accumulating sediments. The sediment analysis indicates the material is over 40 percent iron with traces of several other metals including chromium and lead. The results also demonstrate that by purging the pressure tank, the total lead concentrations reduced by approximately 80 percent and the dissolved lead concentrations reduced by approximately 70 percent.

As part of its continuing study of certain metals in some water supplies in the Monrovia / Green Valley area, the Department is requesting to conduct additional sampling at your residence using the following procedure:

- A sample will be collected from the kitchen sink.
- A sample will be collected from the pressure tank spigot.
- A garden hose will be connected to the spigot at the base of the pressure tank.
- The isolation valve after the pressure tank will be closed.
- The end of the hose will be directed out of the home and to a suitable drainage area on the property.
- Your well pump will be allowed to discharge water for approximately 3 hours. This time will allow for between two and three well volumes to be purged from the well (calculated based on the installation records for your well to be roughly 230 gallons).
- Samples will be collected intermittently during this time.
- Once the samples have been collected, your plumbing service will be returned to its normal operating condition.
- The total time expected to be at your residence is 4 hours.
- All samples will be analyzed by the laboratory used in previous sampling events for certain inorganic constituents including lead and hexavalent chromium and the results will be provided to you.

This revised sampling procedure replaces the MDE's previous proposal involving the removal of your well pump. We expect this procedure will provide a similar understanding of the groundwater conditions and will not involve the inconvenience to your family that the previous proposal would have. This additional work is completely voluntary and will be at no cost to you. We welcome the opportunity to answer your questions and discuss these plans in more detail with you and/or your counsel.

The Department appreciates your cooperation in the investigation of the groundwater resources in the Monrovia / Green Valley area, and is interested in conducting this work at your earliest convenience. I will call in approximately a week or so to see if you have any questions and to see whether we can move forward with scheduling the work.

Sincerely,

Christopher Ralston, Administrator
Oil Control Program

CHR/nln

Enclosures

cc: Dr. Barbara Brookmyer, FCHD Health Officer
Mr. Jay Sakai, Director, MDE Water Management Administration
Mr. Horacio Tablada, Director, MDE Land Management Administration
Priscilla Carroll, Esq., Assistant Attorney General
Francesca Gibbs, Esq., Assistant Attorney General
Theodore Flerlage, Esq., Law Offices of Peter G. Angelos
M. Albert Figinski, Esq., Law Offices of Peter G. Angelos
Dwight Stone, Esq., Whiteford Taylor Preston
Heather S. Deane, Esq., Bonner Kiernan

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-001 SAMPLE ID- 11712 Serene-PT1 Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 10:25 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	<1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	567	µg/L	1.0

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5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-002 SAMPLE ID- 11712 Serene-PT1 Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 10:25 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 18:54	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	82.1	µg/L	1.0

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Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-003 SAMPLE ID- 11712 Serene-PT1DB Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	<1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	180	µg/L	1.0

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Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-004 SAMPLE ID- 11712 Serene-PT1DB Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 19:51	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	85.5	µg/L	1.0

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5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13
REPORT NUMBER: 5044

LAB#- ECL028223-005 SAMPLE ID- 11712 Serene-PT2 Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:10 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	1.6	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	338	µg/L	1.0

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Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-006 SAMPLE ID- 11712 Serene-PT2 Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:10 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 20:10	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	43.0	µg/L	1.0

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5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-007 SAMPLE ID- 11712 Serene-PT3 Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:33 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	5.3	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	240	µg/L	1.0

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5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-008 SAMPLE ID- 11712 Serene-PT3 Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:33 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 20:29	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	35.8	µg/L	1.0

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-009 SAMPLE ID- 11712 Serene-PT4 Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:55 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	2.8	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	118	µg/L	1.0

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13
REPORT NUMBER: 5044

LAB#- ECL028223-010 SAMPLE ID- 11712 Serene-PT4 Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 11:55 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 20:47	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	25.2	µg/L	1.0

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Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13
REPORT NUMBER: 5044

LAB#- ECL028223-011 SAMPLE ID- 11712 Serene-FB Total
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 12:22 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromium	EPA 200.8	3/15/2013 11:29	CHK	<1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	<1.0	µg/L	1.0

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Mornovia BP
REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-012 SAMPLE ID- 11712 Serene-FB Dissolved
LOCATION-
DATE SAMPLED- 3/12/2013 TIME SAMPLED- 12:22 SAMPLER- Bennett/Emery
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40
DELIVERED BY- M. Emery RECEIVED BY- JRB

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		DETECTION LIMIT
Chromate	EPA 218.7	3/15/2013 21:06	SES	< 0.020	ug/L Cr	0.020
Chromium	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0
Lead	EPA 200.8	3/15/2013 11:29	CHK	< 1.0	µg/L	1.0

LABORATORY DIRECTOR

Sample Chain of Custody

((NH4)2 SO4) +(NH4OH)

Enviro-Chem Laboratories, Inc. 47 Loveton Circle, Suite K Sparks, MD 21152

Client: Chesapeake Geo Sciences, Inc. (CGS) Phone No.: (410) 740-1911 x102

Project Manager: Sean Daniel Fax No.: (410) 740 3299

Sampler: Lara Bennett + Matt Emery Email: sdaniel@cgs.us.com

Project Name: Monrovia BP/ Former Green Valley Chip Project Number: CG-12-0788.04

P.O.Number: CG120788

ECL Log in Batch Number

Page 1 of

Preservative Key: NA = Nitric Acid, pH <2; SA = Sulfuric Acid, pH <2; OH = NaOH, pH >12; TI = Thiosulfate; Zn = Zinc Acetate; N = None, Chilled; X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Sample Type C = Comp. G = Grab	Preservative	N	NA							Remarks
							Total Lead / EPA 200.8	Total Chromium	Dissolved Lead EPA 200.8	Hexavalent Chromium	Hexavalent Chromium 218.7					
ECL028223-001 TOTAL 002 DISS	11712Serene-PT1	3/12/13	10:25	DW	3	G	X	X	X							
003 TOTAL 004 DISS	11712Serene-PT1DB		00:00	DW	3	G	X	X	X							
005 TOTAL 006 DISS	11712Serene-PT2		11:10	DW	3	G	X	X	X							
007 TOTAL 008 DISS	11712Serene-PT3		11:33	DW	3	G	X	X	X							
009 TOTAL 010 DISS	11712Serene-PT4		11:55	DW	3	G	X	X	X							
011 TOTAL 012 DISS	11712Serene-FB	3/12/13	12:22	DW	3	G	X	X	X							

Collected / Relinquished By: Matt Emery	Date: 3/12/13	Time: 14:40	Received By:
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

Deliverables Required

Due Date

Coolers Seal

Ice Present Temp: 8.6

Turnaround Requested: STD 1-Day Other Rush?

Special instructions, Comments: Deliverable - Level 4

COC/Labels match Y N # of Samples # of Bottles

Bottles intact/appropriate Y N Preserved correctly Y N NA

Explain any "NO" answers

ECL Doc 1 (11/03/10)

Analytical Report for

Chesapeake GeoSciences, Inc.

Certificate of Analysis No.: 13031213

Project Manager: Sean Daniel

Project Name : Monrovia BP/Former Green Valley Citgo

Project ID : CG-12-0788.04

March 26, 2013

Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.

March 26, 2013

Sean Daniel
Chesapeake GeoSciences, Inc.
5405 Twin Knolls Road, Suite 1
Columbia, MD 21045

Reference: PSS Work Order(s) No: **13031213**
Project Name: Monrovia BP/Former Green Valley Citgo
Project Location: N/A
Project ID.: CG-12-0788.04

Dear Sean Daniel :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **13031213**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 16, 2013. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt , the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Dan Prucnal
Laboratory Manager

Sample Summary

Client Name: Chesapeake GeoSciences, Inc.

Project Name: Monrovia BP/Former Green Valley Citgo

Work Order Number(s): 13031213

Project ID: CG-12-0788.04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/12/2013 at 03:25 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13031213-001	11712 Serene-TB	WATER	03/12/13 08:15
13031213-002	11712 Serene-PT1	WATER	03/12/13 10:25
13031213-003	11712 Serene-PT1DB	WATER	03/12/13 00:00
13031213-004	11712 Serene-PT2	WATER	03/12/13 11:10
13031213-005	11712 Serene-PT3	WATER	03/12/13 11:33
13031213-006	11712 Serene-PT4	WATER	03/12/13 11:55
13031213-007	11712 Serene-FB	WATER	03/12/13 12:22

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. The following analytical results are never reported on a dry weight basis: pH, flashpoint, moisture and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Case Narrative Summary

Client Name: Chesapeake GeoSciences, Inc.

Project Name: Monrovia BP/Former Green Valley Citgo

Work Order Number(s): 13031213
Project ID: CG-12-0788.04

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

EPA 524.2: 1,2-Dibromo-3-Chloropropane, 1,2-Dibromoethane

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-TB **Date/Time Sampled: 03/12/2013 08:15** **PSS Sample ID: 13031213-001**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:54	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:54	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:54	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-TB **Date/Time Sampled: 03/12/2013 08:15** **PSS Sample ID: 13031213-001**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:54	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 16:54	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:54	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 16:54	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:54	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT1 **Date/Time Sampled: 03/12/2013 10:25** **PSS Sample ID: 13031213-002**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 17:34	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 17:34	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 17:34	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT1 **Date/Time Sampled: 03/12/2013 10:25** **PSS Sample ID: 13031213-002**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 17:34	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 17:34	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 17:34	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 17:34	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 17:34	1014

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CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT1DB **Date/Time Sampled: 03/12/2013 00:00** **PSS Sample ID: 13031213-003**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:15	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:15	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:15	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT1DB **Date/Time Sampled: 03/12/2013 00:00** **PSS Sample ID: 13031213-003**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:15	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 18:15	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:15	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 18:15	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:15	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT2 **Date/Time Sampled: 03/12/2013 11:10** **PSS Sample ID: 13031213-004**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:56	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:56	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:56	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT2 **Date/Time Sampled: 03/12/2013 11:10** **PSS Sample ID: 13031213-004**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 18:56	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 18:56	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:56	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 18:56	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 18:56	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT3 **Date/Time Sampled: 03/12/2013 11:33** **PSS Sample ID: 13031213-005**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 19:36	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 19:36	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 19:36	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014

Final 1.000

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT3 **Date/Time Sampled: 03/12/2013 11:33** **PSS Sample ID: 13031213-005**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 19:36	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 19:36	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 19:36	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 19:36	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 19:36	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT4 **Date/Time Sampled: 03/12/2013 11:55** **PSS Sample ID: 13031213-006**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 20:17	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 20:17	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 20:17	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT4 **Date/Time Sampled: 03/12/2013 11:55** **PSS Sample ID: 13031213-006**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 20:17	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 20:17	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 20:17	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 20:17	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 20:17	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-FB **Date/Time Sampled: 03/12/2013 12:22** **PSS Sample ID: 13031213-007**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Bromodichloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Bromoform	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:13	1014
Bromomethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Carbon Tetrachloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Chlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Chloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Chloroform	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Chloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:13	1014
Dibromochloromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2-Dibromoethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Dichlorodifluoromethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,1-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,1-Dichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichloropropane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Ethylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Isopropylbenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Methyl-t-butyl ether	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Naphthalene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Styrene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Diisopropyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:13	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Tetrachloroethylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014

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PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-FB **Date/Time Sampled: 03/12/2013 12:22** **PSS Sample ID: 13031213-007**

Matrix: WATER **Date/Time Received: 03/12/2013 15:25**

VOC In Drinking Water plus Oxygenates Analytical Method: EPA 524.2 Preparation Method: 524.2

Library search was performed and TICs (if any) are listed below, values of TICs are estimated

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,1,1-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
1,1,2-Trichloroethane	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Trichloroethene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
Vinyl Chloride	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
o-Xylene	ND	ug/L	0.50		1	0.5	03/13/13	03/13/13 16:13	1014
m,p-Xylenes	ND	ug/L	1.0		1	1	03/13/13	03/13/13 16:13	1014
tert-Butyl ethyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:13	1014
tert-Butyl alcohol	ND	ug/L	20		1	20	03/13/13	03/13/13 16:13	1014
tert-Amyl methyl ether	ND	ug/L	5.0		1	5	03/13/13	03/13/13 16:13	1014

Company Name: Chesapeake GeoSciences, Inc.	Project Manager: Sean Daniel
Project Name: Monrovia BP /Former Green Valley Citgo (FGVC) (2005-0834FR)	Project ID: CG-12-0788.09
Sampler(s): Lara Bennett & Matt Emery	P.O. Number: CG120788SD

CHAIN-OF-CUSTODY RECORD

13031213

Phase Separation Science, Inc.
6630 Baltimore National Pike, Suite 104-A
Baltimore, MD 21228
(410) 747-8770

Field Sample ID	Date	Time	Water	Soil	Other	No. of Containers	Parameters: VOCs via EPA 524.2	Parameters: 1	Preservative/Remarks	PSS Lab ID
11712Serene - TB	3/12/13	08:15	X			3	X		HCl 1:1 +4°C	
11712 Serene - PT1		10:25	X			3	X		HCl 1:1 +4°C	
11712 Serene - PT1 OB		0:00	X			3	X		HCl 1:1 +4°C	
11712 Serene - PT2		11:10	X			3	X		HCl 1:1 +4°C	
11712 Serene - PT3		11:33	X			3	X		HCl 1:1 +4°C	
11712 Serene - PT4		11:55	X			3	X		HCl 1:1 +4°C	
11712 Serene - FB	3/12/13	12:22	X			3	X		HCl 1:1 +4°C	

# of Coolers: 1
Custody Seal: ABS
Ice Present: PRES Temp: 4°c
Shipping Carrier: CLIENT

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
(Printed) Matt Emery	3/12/13 15:25	(Printed) R. DAVIS	(Printed)		(Printed)
Relinquished by: (Signature)	Date/Time	Received by Laboratory: (Signature)	Date/Time		
(Printed)		(Printed)			

Remarks: MDE-OCP Level 4 Deliverables/Rates **RMS 2008 Rates**
Please include BTEX, Naphthalene, MTBE, TAME, TBA, ETBE, DIPE, 1,2-DCA, and 1,2-Dibromoethane in EPA 524.2 & 8260 Analyses.
E-mail results to sdaniel@cgs.us.com, memery@cgs.us.com, & lbennett@cgs.us.com

Final 1.000

Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13031213	**Received By**	Rachel Davis
Client Name	Chesapeake GeoSciences, Inc.	**Date Received**	03/12/2013 03:25:00 PM
Project Name	Monrovia BP/Former Green Valley C	**Delivered By**	Client
Project Number	CG-12-0788.04	**Tracking No**	Not Applicable
Disposal Date	04/16/2013	**Logged In By**	Rachel Davis

Shipping Container(s)

No. of Coolers	1	Ice	Present
		Temp (deg C)	4
Custody Seal(s) Intact?	N/A	Temp Blank Present	No
Seal(s) Signed / Dated?	N/A		
		Sampler Name	Lara Bennett
Documentation		MD DW Cert. No.	N/A
COC agrees with sample labels?	Yes		
Chain of Custody	Yes		
		Custody Seal(s) Intact?	Not Applicable
Sample Container		Seal(s) Signed / Dated	Not Applicable
Appropriate for Specified Analysis?	Yes		
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Total No. of Samples Received 7

Total No. of Containers Received 21

Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(ph<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Rachel Davis — Date: 03/12/2013

Rachel Davis

PM Review and Approval: Lynn Moran — Date: 03/13/2013

Lynn Moran

Analytical Report for

Chesapeake GeoSciences, Inc.

Certificate of Analysis No.: 13031516

Project Manager: Sean Daniel

Project Name : Monrovia BP/Former Green Valley Citgo

Project ID : CG-12-0788

March 27, 2013

Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.

March 27, 2013

Sean Daniel
Chesapeake GeoSciences, Inc.
5405 Twin Knolls Road, Suite 1
Columbia, MD 21045

Reference: PSS Work Order(s) No: **13031516**
Project Name: Monrovia BP/Former Green Valley Citgo

Project ID.: CG-12-0788

Dear Sean Daniel :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **13031516**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 19, 2013. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt , the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Dan Prucnal
Laboratory Manager

Sample Summary

Client Name: Chesapeake GeoSciences, Inc.

Project Name: Monrovia BP/Former Green Valley Citgo

Work Order Number(s): 13031516

Project ID: CG-12-0788

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/15/2013 at 12:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
13031516-001	11712Serene-PTSediment	SOIL	03/12/13 12:34

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. The following analytical results are never reported on a dry weight basis: pH, flashpoint, moisture and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for non-potable water samples tested for compliance for Virginia Pollution Discharge Elimination System (VDPES) permits and Virginia Pollutant Abatement (VPA) permits, have a maximum holding time of 15 minutes established by 40CFR136.3.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Case Narrative Summary

Client Name: Chesapeake GeoSciences, Inc.

Project Name: Monrovia BP/Former Green Valley Citgo

Work Order Number(s): 13031516
Project ID: CG-12-0788

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:
Per client email, change TAT to eight days.

Analytical:

Total Metals

Batch: 104838
Closing CCV had an Antimony recovery of 89%. Limits are 90-110%.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
410-747-8770
800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS

No: 13031516

Chesapeake GeoSciences, Inc., Columbia, MD

March 27, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788

Sample ID: 11712Serene-PTSediment **Date/Time Sampled: 03/12/2013 12:34** **PSS Sample ID: 13031516-001**

Matrix: SOIL **Date/Time Received: 03/15/2013 12:15** **% Solids: 90**

TAL Metals | Analytical Method: SW-846 6020 A | Preparation Method: 3050B

	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
Aluminum	**4,500**	mg/kg	520		10	260	03/19/13	03/22/13 16:36	1033
Antimony	ND	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Arsenic	**9.6**	mg/kg	0.52		1	0.26	03/19/13	03/21/13 17:59	1033
Barium	**10**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Beryllium	ND	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Cadmium	ND	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Calcium	**320**	mg/kg	52		1	26	03/19/13	03/21/13 17:59	1033
Chromium	**120**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Cobalt	**13**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Copper	**220**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Iron	**430,000**	mg/kg	52,000		1000	26,000	03/19/13	03/22/13 17:25	1033
Lead	**46**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Magnesium	**1,500**	mg/kg	52		1	26	03/19/13	03/21/13 17:59	1033
Manganese	**1,900**	mg/kg	26		10	13	03/19/13	03/22/13 16:36	1033
Mercury	ND	mg/kg	0.10		1	0.052	03/19/13	03/21/13 17:59	1033
Nickel	**41**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Potassium	**190**	mg/kg	52		1	26	03/19/13	03/21/13 17:59	1033
Selenium	ND	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Silver	ND	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Sodium	**140**	mg/kg	52		1	26	03/19/13	03/22/13 16:48	1033
Thallium	ND	mg/kg	2.1		1	1	03/19/13	03/21/13 17:59	1033
Vanadium	**5.4**	mg/kg	2.6		1	1.3	03/19/13	03/21/13 17:59	1033
Zinc	**43**	mg/kg	21		2	10	03/19/13	03/22/13 16:42	1033

Company Name: Chesapeake GeoSciences, Inc.	Project Manager: Sean Daniel
Project Name: Monrovia BP /Former Green Valley Citgo (FGVC) **(2005-0834FR)**	Project ID: CG-12-0788
Sampler(s): Lara Bennett & Sean Daniel	P.O. Number: CG120788SD

CHAIN-OF-CUSTODY RECORD

1303151G

Phase Separation Science, Inc.
6630 Baltimore National Pike, Suite 104-A
Baltimore, MD 21228
(410) 747-8770

Field Sample ID	Date	Time	Water	Soil	Other	No. of Containers	Parameters: Metals SW6020	Preservative/Remarks	PSS Lab ID
11712Serene-PTSediment	3/12/13	12:34		X		1	X		

# of Coolers: 1
Custody Seal: ABS
Ice Present: YES Temp: 5°C
Shipping Carrier: CLIENT

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
(Printed) Sean P. Daniel	3/15/13 0000	(Printed) Lara Bennett	(Printed) Lara Bennett	3/15/13 12:15	(Printed) R-DAVIS
Relinquished by: (Signature)	Date/Time	Received by Laboratory: (Signature)	Date/Time	Remarks: MDE-OCP Level 4 Deliverables/Rates **RMS 2008 Rates** Please include BTEX, Naphthalene, MTBE, TAME, TBA, ETBE, DIPE, 1,2-DCA, and 1,2-Dibromoethane in EPA 524.2 & 8260 Analyses. E-mail results to sdaniel@cgs.us.com, memery@cgs.us.com, & lbennett@cgs.us.com		
(Printed)		(Printed)			

Final 1.000

Phase Separation Science, Inc

Sample Receipt Checklist

Work Order #	13031516	**Received By**	Rachel Davis
Client Name	Chesapeake GeoSciences, Inc.	**Date Received**	03/15/2013 12:15:00 PM
Project Name	Monrovia BP/Former Green Valley C	**Delivered By**	Client
Project Number	CG-12-0788	**Tracking No**	Not Applicable
Disposal Date	04/19/2013	**Logged In By**	Rachel Davis

Shipping Container(s)

No. of Coolers	1	Ice	Present
		Temp (deg C)	5
Custody Seal(s) Intact?	N/A	Temp Blank Present	No
Seal(s) Signed / Dated?	N/A		

Documentation

		Sampler Name	Lara Bennett
		MD DW Cert. No.	N/A
COC agrees with sample labels?	Yes		
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Total No. of Samples Received 1

Total No. of Containers Received 1

Preservation

Metals	(pH<2)	N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, COD, Phenols	(ph<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Rachel Davis — Date: 03/15/2013

Rachel Davis

PM Review and Approval: Lynn Moran — Date: 03/18/2013

Lynn Moran

FIELD SAMPLING FORM
Former Green Valley Citgo (11712 Serene Court)
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Date: 3/12/13

Arrival Time: 10:00

Departure Time: 12:50

CGS Staff: Matt Emery, Sean Daniel, Lara Bennett

Property Owner: Benjamin Gray and Heather Gray

When was the last time water was used ? All morning

Where and what was the purpose of recent water use? Kitchen sink, showers, etc.

Is a totalizer meter present? No totalizer meter present

If yes, what is the totalizer meter reading prior to sampling? N/A

ORP/PH Meter: Oakton pH 310 Series

Sample Locations and IDs

				Check to indicate sample collection				Enter reading		
Sample Type	Sample ID	Location	Sample Time	Total Lead / Chromium	Dissolved Lead / Chromium	Hexavalent Chromium	VOCs	pH	Temperature	ORP
Trip Blank	11712SereneTB	Office	8:15				X	N/A	N/A	N/A
First Draw	11712-Serene-PT1	Site	10:25	X	X	X	X	5.75	19.4	138.1
Second Draw	11712Serene-PT2	Site	11:10	X	X	X	X	5.50	18.5	141.0
Third Draw	11712SerenePT3	Site	11:33	X	X	X	X	5.47	18.1	130.8
Fourth Draw	11712Serene-PT4	Site	11:55	X	X	X	X	5.44	17.8	126.4
Duplicate	11712SerenePT1DB	Site	00:00	X	X	X	X	5.75	19.4	138.1
Field Blank	11712Serene-FB	Site	12:22	X	X	X	X	8.59	16.5	73.8

First Pressure Tank Purge

Purge time begin: 10:59

Purge time end: 11:01

Total gallons purged: ~15 gallons

Before pump is shut off- pressure tank has a pressure of 39 PSI. Pump is shut off. Water is continuously clear during purge. Pressure tank was less than 20 PSI following initial purge.

Second Pressure Tank Purge

Purge time begin: 11:22

Purge time end: 11:27

Total gallons purged: ~12 gallons

Before pump is shut off, pressure tank has a pressure of 38 PSI. Pump is shut off. Purge water begins clear. Water is light gray/gray and contains black silt towards the end of purging. Pressure after purge is 5PSI.

Third Pressure Tank Purge

Purge time begin: 11:46

Purge time end: 11:51

Total gallons purged: ~11.5-12 gallons

Before pump is shut off, pressure tank has a pressure is 38 PSI. Pump is shut off, purge water is clear in beginning. Water contains black colored silt towards the end of purging. Pressure after purge is 5PSI.

pH/Temperature/ORP Meter Calibration

Pressure tank is restored to 40 PSI after tank is refilled.

Provide notes on calibration including date, time, standards used and results of calibration

pH Calibration: Meter was pre-calibrated by FEI. Field calibration check at 12:10 pm.

ORP Calibration: Meter was pre-calibrated by FEI. Field Calibration check at 12:10pm.

pH calcheck: -10pH → read 10.12 pH ORP- 235.0 mV

-4pH → read 4.08pH

-7pH → read 7.11 pH

FIELD SAMPLING FORM
Former Green Valley Citgo (11712 Serene Court)
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Additional Field Notes

10:00 CGS arrives on-site. Mr. Gray (property owner) shows CGS the circuit breaker with the well pump. Pressure tank is located in basement closest. The inline valve (located after the sediment filter) is shut off. The well pump electricity (breaker) is also shut off.

Mr. Gray indicated that the water may become cloudy/silty after the pump has been shut-off for awhile. CGS will check water condition prior to leaving.

10:25 Collected Firstdraw sample from Pressure Tank (11712Serene-PT1). Duplicate sample is collected. Dissolved Lead/Chromium are field filtered for each sample collected. Following sampling, a hose is connected to the spigot (located at the bottom of the pressure tank) and run to the adjacent bathroom shower drain for purging.

10:59 Began 1st purge of pressure tank. Water appears clear with no odors present. (Please see p. 1 for purge volumes, time and tank pressure readings).

11:01 All water is drained from pressure tank. The well pump is turned back on. *Note - pressure tank gauge is half filled with water and is likely not working properly* The pressure tank refills.

11:10 Second sample is collected from the spigot at the bottom of the pressure tank.

11:22 After the 2nd sample is collected, CGS reconnects the hose and begins the 2nd purging of the pressure tank (once the power to the pump is again shut off.) Gray/black silt is noted in the purge water towards the end of purging.

11:27 The power is restored to the well pump. The pressure tank is refilled.

11:33 The third sample is collected from the pressure tank spigot. Power is again shut off.

11:46 - 11:51 The final (third) purge of the pressure tank is conducted. An increase in silt is noted. 11:55 The fourth sample is collected once the pressure tank is refilled.

12:15 - 12:30 Pressure tank is continuously purged with the pump running. A hose is attached to the spigot at the bottom of the pressure tank and run out through the back door. The well pump cycled at least 10 times during purging event.

12:22 While the pressure tank is cycling (to ensure the water is returned to service w/out sediment), the field blank sample is collected using lab-grade distilled water.

Pressure Tank Information: Pressure tank information: "ProFlo" manufactured by AMTROL
James Mattee - plumbing + heating (301) 831-9626
Date code - 36611645 / Model #: PF-32 / Date of manufacture 06/13/2005
Max pressure 100 PSI

12:30 The basement is cleaned up. The purging is concluded. Mr. Gray is shown the area around the pressure tank to insure it is cleaned to his liking. Mr. Gray is satisfied with the area.

FIELD SAMPLING FORM
Former Green Valley Citgo (11712 Serene Court)
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Additional Field Notes

The in-line valve is re-opened to return the water system to normal service. The basement bathroom sink and shower are run for a few minutes to check everything is working properly and to remove any remaining sediment from purging. All equipment is loaded into the truck.

12:50 All personnel off-site.

(FEI)
FIELD ENVIRONMENTAL INSTRUMENTS, INC.
www.fieldenvironmental.com

301 Brushton Avenue
Suite A
Pittsburgh PA 15221
800-393-4009 Toll Free
(412) 436-2600 Local
(412) 436-2615 Fax

pH/Con/Temp Meter Calibration Certificate

	Lot #	Expiration	Pre Cal Reading	Acceptable Range
Cal Standard PH 4 @ 25C	B319-15	11/19/2014	3.89	
		Post-Cal	4.02	(3.85 - 4.15)

	Lot #	Expiration	Pre Cal Reading	Acceptable Range
Cal Standard PH 7 @ 25C	B314-14	11/14/2014	7.23	
		Post-Cal	7.01	(6.85 - 7.15)

	Lot #	Expiration	Pre Cal Reading	Acceptable Range
Cal Standard PH 10 @ 25C	B296-17	10/23/2013	10.13	
		Post-Cal	9.98	(9.85 - 10.15)

	Lot #	Expiration	Reading umho/cm	Acceptable Range
Cal Standard Conductivity	B250-08	9/7/2014		
		Post-Cal		(1394 - 1423)

	Temp ©	Relative Reading	Acceptable Range
Check Standard ORP	26.0	237.0	(+/- 20mV)

*Solutions provided by LabChem (412-826-5230)

Model	Oakton pH/ORP 310
Cable Length	
S/N	
Barcode	U46882X
Order #	217857

Calibrated By: Terrance Collington

Date of Calibration: 3/1/2013

All calibrations performed by F-E-I conform to manufacturer's specifications. Please report any issues within 24 hours of receiving equipment.

All calibration solutions used are traceable to NIST. Additional documentation is available upon request.

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719
410-537-3442 410-537-3092 (fax) 1-800-633-6101, ext. 3442

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Secretary

August 19, 2013

Mr. Christopher Hull
Ms. Ann-Marie Luciano
11821 Silent Valley Lane
North Potomac MD 20878-2431

RE: DRINKING WATER SAMPLE RESULTS
MDE-FCHD Groundwater Investigation
Green Valley / Monrovia
Frederick County, Maryland

Dear Mr. Hull and Ms. Luciano:

On June 21, 2013, the Maryland Department of the Environment's contractor collected several samples from the drinking water supply system at 11713 Serene Court. Water samples were collected from the kitchen sink, before and after purges of your pressure tank, and after successive purges of your well as described previously to you and as documented in the attached field notes. There were insufficient sediments in the purge water from the pressure tank to analyze. A summary table and the full laboratory analytical reports are attached.

The federal and State maximum contaminant level (MCL) for total chromium is 100 µg/L. There is no separate federal or State MCL for hexavalent chromium or for dissolved chromium. The Department uses 0.3 µg/L as an action level for hexavalent chromium for private drinking water wells because it represents a conservative lifetime exposure health based standard that is calculated from the most current drinking water risk assessment evaluations available from the U.S. EPA. The federal and State action level that warrants additional investigation for total lead in public drinking water supplies is 15 µg/L, so the MDE follows this standard as an action level for private water supplies. There is no separate level for dissolved lead. The U.S. EPA's recommended pH range for drinking water is 6.5 to 8.5.

Hexavalent chromium and lead are metals that can be hazardous to human health, but a meaningful assessment of potential health risks from exposure to hexavalent chromium and/or lead involves the consideration of multiple factors, including the type of exposure (e.g. ingestion, inhalation, dermal contact), the concentration in water, the duration of exposure, and other factors specific to individuals. Both metals can occur naturally in the environment or may be generated by human activity. Home water pumps, piping, and faucets also are known to be sources of lead in drinking water.

The results from the recent investigation indicate that there is no appreciable accumulation of lead and/or chromium in your plumbing system or present in your well above applicable levels. The results that you shared with the Department from samples collected in September 2012 were likely related to sediments that had accumulated in the former pressure tank. Therefore, it is recommended that you continue to maintain the plumbing system according to manufacturer recommendations and to continue to maintain any treatment systems that are installed. At this point, the Department is concluding its investigation into the occurrence of certain metals on your property. A report of the Department's more comprehensive Green Valley/Monrovia groundwater investigation will be made available to you once completed. It is anticipated to be complete within the next several months.

The Frederick County Health Department and the Maryland Department of the Environment appreciate your cooperation in the investigation of groundwater resources in the Monrovia/Green Valley area. If you have any questions about the attached information or the results, please do not hesitate to call me at 410-537-3442 (chris.ralston@maryland.gov).

Sincerely,

Christopher Ralston, Administrator
Oil Control Program

CHR/nln

Enclosures

cc: Dr. Barbara Brookmyer, FCHD Health Officer
Mr. Jay Sakai, Director, MDE Water Management Administration
Mr. Horacio Tablada, Director, MDE Land Management Administration
Priscilla Carroll, Esq., Assistant Attorney General
Francesca Gibbs, Esq., Assistant Attorney General
Theodore Flerlage, Esq., Law Offices of Peter G. Angelos
M. Albert Figinski, Esq., Law Offices of Peter G. Angelos
Dwight Stone, Esq., Whiteford Taylor Preston
Heather S. Deane, Esq., Bonner Kiernan

Inorganic Laboratory Analytical Data / Field Measurements

MDE-FCHD Groundwater Investigavtion
Green Valley / Monrovia
Frederick County, Maryland

11713 Serene Court
June 21, 2013

Sample I.D. Sample Location	11713 Serene-POU Reverse Osmosis tap at Kitchen Sink	11713 Serene-PT1 Pressure Tank drain (prior to 1st purge)	11713 Serene-PT1DB Pressure Tank drain (prior to 1st purge)	11713 Serene-PT2 Pressure Tank drain (after 1st purge)	11713 Serene-PT3 Pressure Tank drain (after 2nd purge)	11713 Serene-PT4 Pressure Tank drain (after 3rd purge)	11713 Serene-FB Field Blank	11713 Serene-WP1 Garden hose connected to pressure tank drain (after ~1 well volume)	11713 Serene-WP2 Garden hose connected to pressure tank drain (after ~2 well volumes)	11713 Serene-WP3 Garden hose connected to pressure tank drain (after ~3 well volumes)	MDE Groundwater Standard
Analyte	**Concentration (ug/L)**										
Total Chromium	1.0 U	**10.5**	**6.5**	**17.9**	**6.5**	**7.0**	1.0 U	**14.7**	**3.9**	**3.3**	1.0E+02
Total Lead	1.0 U	1.0 U	1.0 U	**3.9**	1.0 U	1.0 U	1.0 U	**3.5**	**2.3**	**3.4**	1.5E+01
Dissolved Chromium	1.0 U	**4.4**	**4.6**	**3.4**	**2.9**	**2.8**	1.0 U	1.0 U	1.0 U	1.0 U	na
Dissolved Lead	1.0 U	1.0 U	1.0 U	**1.3**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	na
Hexavalent Chromium (Chromate)	0.020 U	**0.111**	**0.112**	**0.128**	**0.112**	**0.110**	0.020 U	**0.032**	**0.030**	0.020 U	na
Parameter	**Field Measurement**										
pH	**5.89**	**5.51**	**5.51**	**5.30**	**5.27**	**5.30**	na	**4.96**	**5.53**	**5.34**	na
Temperature (°C)	**19.76**	**14.74**	**14.74**	**14.96**	**14.47**	**14.50**	na	**14.41**	**15.64**	**15.69**	na
Oxidation-Reduction Potential (ORP) (mV)	**211.2**	**129.7**	**129.7**	**144.0**	**153.3**	**149.5**	na	**239.5**	**138.6**	**-120.8**	na

Table Notes
Total and Dissolved Lead and Chromium Analytical Method: EPA Method 200.8
Hexavalent Chromium Analytical Method: EPA Method 218.7
ug/L - micrograms per liter or parts per billion (ppb)
MDE Groundwater Standard Type I and II Aquifers (June 2008)
U - Analyte Not Detected Above Specified Reporting Limit (RL)
Bold - Detected analyte concentration
Bold and underline - Detected analyte concentration exceeds respective standard
na - not applicable
YSI 556 Water Quality Meter used to measure pH, temperature, and ORP
°C - degrees Celsius
mV - millivolts

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Date: 6/21/13
Arrival Time: 09:06
Departure Time: 15:15
Property Owner: Ann Marie Luciano
Address: 11713 Serene Court, Monrovia, MD
CGS Staff: Matt Emery and Lara Bennett

When was the last time water was used ? N/A
Where and what was the purpose of recent water use? N/A
Is a totalizer meter present? No
If yes, what is the totalizer meter reading prior to sampling? N/A

Sample Locations and IDs Well Tag #: FR-94-0639 - Well located in backyard on SE side of property

Sample Type	Sample ID	Location	Sample Time	Check to indicate sample collection: Total Lead / Chromium	Dissolved Lead / Chromium	Hexavalent Chromium	VOCs	Enter reading: pH	Temperature	(mV) ORP
~~Trip Blank~~										
PT #1	11713Serene-PT1		10:03	X	X	X		5.51	14.74	129.7
PT #2	11713Serene-PT2		10:26	X	X	X		5.30	14.96	141.0
PT #3	11713Serene-PT3		10:39	X	X	X		5.27	14.47	153.3
PT #4	11713Serene-PT4		11:00	X	X	X		5.30	14.50	149.5
Duplicate	11713Serene-PT1DB		00:00	X	X	X		5.51	14.74	129.7
Field Blank	11713Serene-FB		14:10	X	X	X				

First Pressure Tank Purge
Purge time begin: 10:20
Purge time end: 10:22
Total gallons purged: 5 gallons

Second Pressure Tank Purge
Purge time begin: 10:34
Purge time end: 10:36
Total gallons purged: 9 gallons

Third Pressure Tank Purge
Purge time begin: 10:55
Purge time end: 10:57
Total gallons purged: 10 gallons

11713Serene - POU 6/21/13 9:41
Purge Time begin: 9:20
Purge Time end: 9:30
- Sampled from reverse osmosis filtered kitchen sink faucet as directed by Jim Richmond (ran water from regular kitchen sink for 10 minutes, then purged R-O faucet for 4 minutes)
↳ Water stopped allowed time to recharge
Temp - 19.76 °C / ORP - 211.2 mV
pH - 5.89

pH/Temperature/ORP Meter Calibration
Provide notes on calibration including date, time, standards used and results of calibration
pH Calibration: Recalibrated at 8:00 am 6/21/13
ORP Calibration: Calibration Checked in AM 6/21/13 - Parameter within 0.5%

11713Serene-PTSediment 11:05 6/21/13 → Not submitted to lab; not enough sediment to analyze

Old Well Tag #: FR-88-2817 → old well located behind house in front of shed

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR
11713 Serene Court - 3 hour Purge

Well Purge:
Purge time begin: 11:45
Purge time end: 14:54
Total gallons purged: ~1,500 gallons (Estimated)

Well Depth: 400 feet
Well Diameter: 6 inches
Well Volume: 514.15 gallons
3 Well Volumes: 1,542.45 gallons

Time	Pumping Rate (Gallons/Minute)	pH	(°C) Temp	(mV) ORP	Comments
11:45	9.5				Began Purge
12:00	8.3				
12:15	8.1				
12:30	7.1				
12:45	7.46	4.96	14.41	239.5	11713Serene-WP1
13:00	6.38				
13:15	6.52				
13:30	6.33				
13:45	7.1	5.53	15.64	138.6	11713Serene-WP2
14:00	6.67				
14:15	6.67				
14:30	6.67				
14:45	8.67	5.34	15.69	-120.8	11713Serene-WP3
14:54	6.67				Stopped Purge

TABLE OF CONTENTS

Table of Contents	1
Case Narrative	2
Chain of Custody	4
Analytical Reports	6
QC Summary Table	27
Instrument Blanks	30
Calibration Data	32
Metals Digestion Logs	38
Raw Data	40

Case Narrative

Case Narrative

The following samples were received by Enviro-Chem Laboratories, Inc. from Chesapeake Geo-Science in support of their Green Valley Citgo Project.

ECL029318-001	11713 Serene-POU Total	6/21/2013	6/21/2013	9:41	Emery, Bennett
ECL029318-002	11713 Serene-POU Dissolved	6/21/2013	6/21/2013	9:41	Emery, Bennett
ECL029318-003	11713 Serene-PT1 Total	6/21/2013	6/21/2013	10:03	Emery, Bennett
ECL029318-004	11713 Serene-PT1 Dissolved	6/21/2013	6/21/2013	10:03	Emery, Bennett
ECL029318-005	11713 Serene-PT1DB Total	6/21/2013	6/21/2013	0:00	Emery, Bennett
ECL029318-006	11713 Serene-PT1DB Dissolved	6/21/2013	6/21/2013	0:00	Emery, Bennett
ECL029318-007	11713 Serene-PT2 Total	6/21/2013	6/21/2013	10:26	Emery, Bennett
ECL029318-008	11713 Serene-PT2 Dissolved	6/21/2013	6/21/2013	10:26	Emery, Bennett
ECL029318-009	11713 Serene-PT3 Total	6/21/2013	6/21/2013	10:39	Emery, Bennett
ECL029318-010	11713 Serene-PT3 Dissolved	6/21/2013	6/21/2013	10:39	Emery, Bennett
ECL029318-011	11713 Serene-PT4 Total	6/21/2013	6/21/2013	11:00	Emery, Bennett
ECL029318-012	11713 Serene-PT4 Dissolved	6/21/2013	6/21/2013	11:00	Emery, Bennett
ECL029318-013	11713 Serene-FB Total	6/21/2013	6/21/2013	14:10	Emery, Bennett
ECL029318-014	11713 Serene-FB Dissolved	6/21/2013	6/21/2013	14:10	Emery, Bennett
ECL029318-015	11713 Serene-WP1 Total	6/21/2013	6/21/2013	12:45	Emery, Bennett
ECL029318-016	11713 Serene-WP1 Dissolved	6/21/2013	6/21/2013	12:45	Emery, Bennett
ECL029318-017	11713 Serene-WP2 Total	6/21/2013	6/21/2013	13:45	Emery, Bennett
ECL029318-018	11713 Serene-WP2 Dissolved	6/21/2013	6/21/2013	13:45	Emery, Bennett
ECL029318-019	11713 Serene-WP3 Total	6/21/2013	6/21/2013	14:45	Emery, Bennett
ECL029318-020	11713 Serene-WP3 Dissolved	6/21/2013	6/21/2013	14:45	Emery, Bennett

Samples were analyzed by EPA 200.8 for total and dissolved Chromium and Lead, and by EPA Method 218.7 for Hexavalent Chromium. All Quality Control criteria for these analyses were met.

Stephen E. Shelley
Laboratory Director
Enviro-Chem Laboratories, Inc.

Chain of Custody

Sample Chain of Custody

((NH4)2SO4) + (NH4OH)

Enviro-Chem Laboratories, Inc. | **47 Loveton Circle, Suite K** | **Sparks, MD 21152**

Client: Chesapeake GeoSciences, Inc. (CGS) Phone No.: (410) 740-1911

Project Manager: Sean Daniel Fax No.: (410) 740 3299

Sampler: Matt Emery + Lara Bennett Email: sdaniel@cgs.us.com

Project Name: Green Valley Citgo Project Number: CG-12-0788.06

P.O.Number: CG120788.06 SD

ECL Log in Batch Number | Page of

Preservative Key: NA = Nitric Acid, pH <2; SA = Sulfuric Acid, pH <2; OH = NaOH, pH >12; TI = Thiosulfate; Zn = Zinc Acetate; N = None, Chilled; X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Sample Type C = Comp. G = Grab	Preservative	N	NA						Remarks
							Total Lead / Chromium 200.8	Dissolved Lead / Chromium 200.8	Hexavalent Chromium 218.7						
ECL029318-001 TOTAL ECL029318-002 DISS	11713Serene-POU	6/21/13	9:41	DW	3	G	X	X	X						
ECL029318-003 TOTAL ECL029318-004 DISS	11713Serene-PT1		10:03	DW	3	G	X	X	X						
ECL029318-005 TOTAL ECL029318-006 DISS	11713Serene-PTDUP		00:00	DW	3	G	X	X	X						
ECL029318-007 TOTAL ECL029318-008 DISS	11713Serene-PT2		10:26	DW	3	G	X	X	X						
ECL029318-009 TOTAL ECL029318-010 DISS	11713Serene-PT3		10:39	DW	3	G	X	X	X						
ECL029318-011 TOTAL ECL029318-012 DISS	11713Serene-PT4		11:00	DW	3	G	X	X	X						
ECL029318-013 TOTAL ECL029318-014 DISS	11713Serene-FB		14:10	DW	3	G	X	X	X						
ECL029318-015 TOTAL ECL029318-016 DISS	11713Serene-WP1		12:45	DW	3	G	X	X	X						
ECL029318-017 ECL029318-018	11713Serene-WP2		13:45	DW	3	G	X	X	X						
ECL029318-019 ECL029318-020	11713Serene-WP3	6/21/13	14:45	DW	3	G	X	X	X						

Collected / Relinquished By	Date 6/21/13	Time 16:47	Received By	Deliverables Required	# Coolers 1 / Seal
Relinquished By	Date	Time	Received By	Due Date	Ice Present Y / Temp
Relinquished By	Date	Time	Received By	Turnaround Requested: STD / 1-Day / Other	Rush?
Relinquished By	Date	Time	Received By	Special instructions, Comments:	

COC/Labels match Y N | # of Samples | # of Bottles

Bottles intact/appropriate Y N | Preserved correctly Y N NA

Explain any "NO" answers

Analytical Reports

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-001 SAMPLE ID- 11713 Serene-POU Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 9:41 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.5	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-002 SAMPLE ID- 11713 Serene-POU Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 9:41 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.6	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 01:38	SES	< 0.020	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-003 SAMPLE ID- 11713 Serene-PT1 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:03 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	11.8	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Valley Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-004 SAMPLE ID- 11713 Serene-PT1 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:03 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	6.7	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 01:57	SES	0.111	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Valley Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-005 SAMPLE ID- 11713 Serene-PT1DB Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 0:00 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	8.5	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-006 SAMPLE ID- 11713 Serene-PT1DB Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 0:00 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	6.5	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 02:16	SES	0.112	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13
REPORT NUMBER: 6524

LAB#- ECL029318-007 SAMPLE ID- 11713 Serene-PT2 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:26 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	18.9	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	4.3	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-008 SAMPLE ID- 11713 Serene-PT2 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:26 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	5.4	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	1.4	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 02:35	SES	0.128	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-009 SAMPLE ID- 11713 Serene-PT3 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:39 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	8.4	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-010 SAMPLE ID- 11713 Serene-PT3 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:39 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	4.8	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 02:53	SES	0.112	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-011 SAMPLE ID- 11713 Serene-PT4 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 11:00 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	8.7	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-012 SAMPLE ID- 11713 Serene-PT4 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 11:00 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	4.5	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 03:50	SES	0.110	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13
REPORT NUMBER: 6524

LAB#- ECL029318-013 SAMPLE ID- 11713 Serene-FB Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 14:10 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.2	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-014 SAMPLE ID- 11713 Serene-FB Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 14:10 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.3	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 04:09	SES	< 0.020	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Valley Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-015 SAMPLE ID- 11713 Serene-WP1 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 12:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	15.6	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	3.8	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall.Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-016 SAMPLE ID- 11713 Serene-WP1 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 12:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.4	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 04:28	SES	0.032	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13
REPORT NUMBER: 6524

LAB#- ECL029318-017 SAMPLE ID- 11713 Serene-WP2 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 13:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	5.5	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	2.5	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-018 SAMPLE ID- 11713 Serene-WP2 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 13:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.2	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 05:25	SES	0.030	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-019 SAMPLE ID- 11713 Serene-WP3 Total
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 14:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	4.8	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	3.8	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 15-Jul-13

REPORT NUMBER: 6524

LAB#- ECL029318-020 SAMPLE ID- 11713 Serene-WP3 Dissolved
LOCATION-
DATE SAMPLED- 6/21/2013 TIME SAMPLED- 14:45 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/8/2013 09:29	CHK	2.0	µg/L	1.0	
Lead*#	EPA 200.8	7/8/2013 09:29	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 05:44	SES	< 0.020	ug/L Cr	0.020	

Stephen Shelley
LABORATORY DIRECTOR

State of Maryland Certified Parameter
* NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
ECL029318-013D	Duplicate	Chromium	2.7	µg/L		2.2	21.6	0	20	*
ECL029318-003D	Duplicate	Chromium	11.5	µg/L		11.8	2.7	0	20	
ECL029318-003D	Duplicate	Lead	< 1.0	µg/L		< 1.0	7.2	0	20	
ECL029318-013D	Duplicate	Lead	< 1.0	µg/L		< 1.0	14.6	0	20	
LCS5058R	LCS	Chromium	54.8	µg/L	50		109.6	85	115	
LCS5058R	LCS	Lead	49.4	µg/L	50		98.7	85	115	
LPB5058R	Prep Blank	Chromium	< 1.0	µg/L			0.33717		1	
LPB5058R	Prep Blank	Lead	< 1.0	µg/L			0.00035		1	
ECL029318-003S	Spike	Chromium	60.2	µg/L	50	11.8	96.8	70	130	
ECL029318-013S	Spike	Chromium	51.0	µg/L	50	2.2	97.7	70	130	
ECL029318-003S	Spike	Lead	51.6	µg/L	50	< 1.0	101.9	70	130	
ECL029318-013S	Spike	Lead	49.9	µg/L	50	< 1.0	99.9	70	130	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
CCC-HIGH 2	CCC-HIGH	Chromate	5.01	ug/L	5		100.2	85	115	

28

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
CCC-HIGH 1	CCC-HIGH	Chromate	4.97	ug/L	5		99.4	85	115	
CCC-LOW 2	CCC-LOW	Chromate	0.022	ug/L	0.02		109.5	50	150	
CCC-LOW 1	CCC-LOW	Chromate	0.026	ug/L	0.02		127.5	50	150	
CCC-MID 1	CCC-MID	Chromate	0.989	ug/L	1		98.9	85	115	
CCC-MID 2	CCC-MID	Chromate	0.998	ug/L	1		99.8	85	115	
ECL029303-002SD	MSD	Chromate	1.02	ug/L	1	< 0.020	101.8	85	115	
ECL029303-018SD	MSD	Chromate	1.02	ug/L	1	0.033	98.3	85	115	
ECL029318-016SD	MSD	Chromate	0.998	ug/L	1	0.032	96.6	85	115	
ECL029324-008SD	MSD	Chromate	0.965	ug/L	1	0.021	94.4	85	115	
ECL029303-002S	Spike	Chromate	1.01	ug/L	1	< 0.020	100.6	85	115	
ECL029303-018S	Spike	Chromate	1.00	ug/L	1	0.033	97.2	85	115	
ECL029318-016S	Spike	Chromate	1.03	ug/L	1	0.032	100.1	85	115	
ECL029324-008S	Spike	Chromate	0.971	ug/L	1	0.021	95	85	115	
ECL029324-008SD	Spike Dup	Chromate	0.965	ug/L	1	0.021	94.4	85	115	
ECL029303-002SD	Spike Dup	Chromate	1.02	ug/L	1	< 0.020	101.8	85	115	
ECL029303-018SD	Spike Dup	Chromate	1.02	ug/L	1	0.033	98.3	85	115	
ECL029318-016SD	Spike Dup	Chromate	0.998	ug/L	1	0.032	96.6	85	115	

Instrument Blanks

INSTRUMENT BLANKS

Analytical Run **F130708A** **Date of Analysis** **7/8/2013**

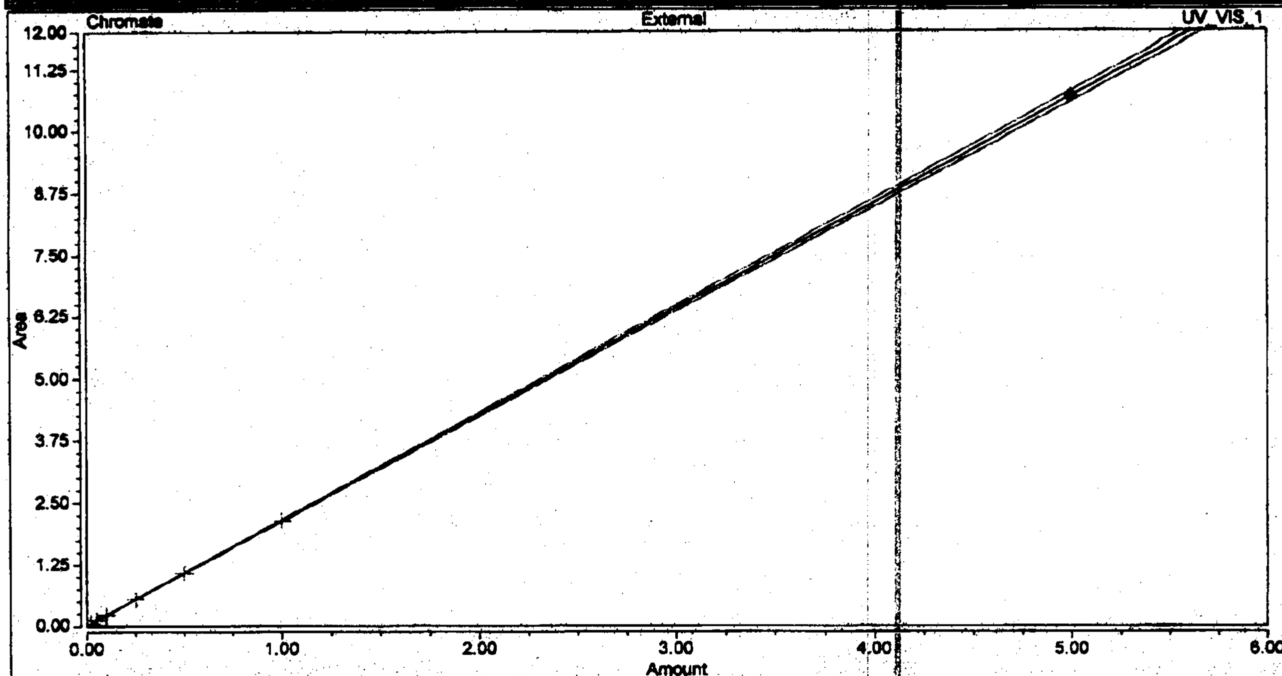
	Cr	Pb
ICB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L

Analytical Run **CR6-1306024** **Date of Analysis** **6/24-25/2013**

	CrO4
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L

Calibration Data

Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0089
Evaluation Type	Area	*Slope (C1)*	2.1346
Number of Calibration Points	7	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000



No.	Injection Name	Calibration Level	X-Value Chromate UV_VIS_1	Y-Value Chromate UV_VIS_1	Value Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

calibration 6/24/13

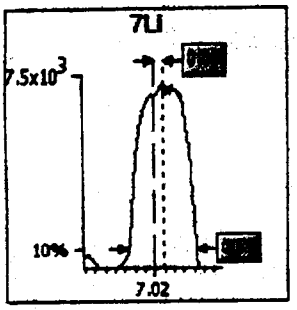
33

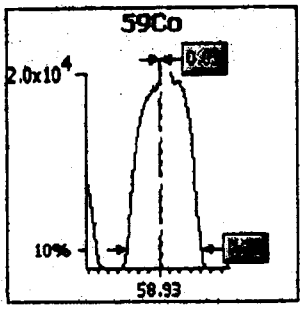
Performance Report

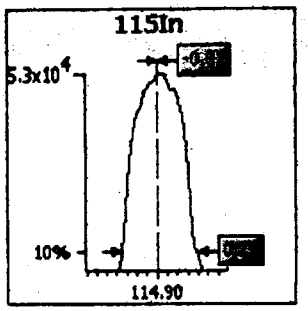
Sample details
Acquired at : 7/8/2013 8:40:35 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

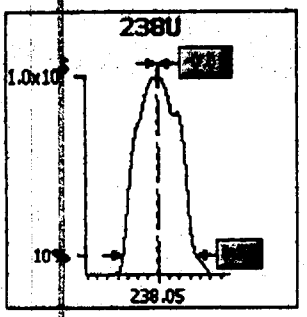
Mass Calibration verification

Acquisition parameters
Sweeps : 10
Dwell : 5.0 mSecs
Point spacing : 0.02 amu
Peak width measured at 10% of the peak maximum









Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.69	0.09
59Co	0.85	0.65	0.10	0.73	0.03
115In	0.85	0.65	0.10	0.75	-0.01
238U	0.85	0.65	0.10	0.73	-0.01

Sample details
Acquired at : 7/8/2013 8:40:35 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Tune conditions

Major	
Extraction	-164.7
Lens 1	-1224
Lens 2	-77.6
Focus	10.2
D1	-45.5
D2	-140
Pole Bias	-2.0
Hexapole Bias	-6.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	62
Vertical	643
DA	-35.3
Cool	13.0
Auxiliary	1.20
Sampling Depth	165

Global	
Standard resolution	115
High resolution	125
Analogue Detector	1951
PC Detector	3784

Add. Gases	
CCT-He/H2	0.00
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 130

Run	Time	5Bkg	7Li	56Ar O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Dwell (mSecs)		100.0	10.0	10.0	10.0	30.0	30.0	100.0	10.0	10.0
Limits	%RSD	-	2.0%	-	2.0%	-	-	-	2.0%	-
	Countrate	-	>4000	-	>10000	-	-	-	>40000	-
1	8:40:55 AM	0.000	6727.602	442591.63	19512.176	86.923	623.859	0.000	53916.715	5788.764
2	8:42:04 AM	0.077	6779.163	434174.19	19442.859	90.000	635.654	0.000	52713.384	5722.586
3	8:43:14 AM	0.154	6582.925	427025.01	19241.070	95.898	641.039	0.154	52820.864	5680.263
4	8:44:23 AM	0.154	6632.176	429956.87	19420.523	87.693	631.551	0.077	53214.309	5550.216
5	8:45:32 AM	0.000	6764.541	429939.47	19319.629	100.513	610.525	0.077	53001.279	5757.984
x		0.077	6697.281	432737.43	19387.251	92.205	628.525	0.062	52873.310	5699.963
σ		0.08	85.83	6069.62	106.94	5.83	11.86	0.06	309.64	92.97
%RSD		100.000	1.281	1.403	0.552	6.319	1.886	104.583	0.586	1.631

Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
Dwell (mSecs)		10.0	10.0	30.0	100.0	10.0
Limits	%RSD	-	-	-	-	2.0%
	Countrate	-	-	-	<1	>80000
1	8:40:55 AM	37142.555	47475.863	904.898	0.000	103485.41
2	8:42:04 AM	37076.244	46714.343	937.977	0.077	103322.80
3	8:43:14 AM	36710.767	46968.950	892.590	0.077	103332.87
4	8:44:23 AM	37342.261	46574.696	948.747	0.000	104131.99
5	8:45:32 AM	36820.255	46887.938	889.000	0.077	103050.24
x		37018.417	46924.358	914.642	0.046	103464.66
σ		253.74	344.18	27.14	0.04	404.66
%RSD		0.685	0.733	2.967	91.287	0.391

Ratio results

Run	Time	137Ba++/137Ba	115In/220Bkg	156Ce O/140Ce
Ratio limits		<0.0300	>80000.0000	<0.0200
1	8:40:55 AM	0.015	INF	0.019
2	8:42:04 AM	0.016	685273.99	0.020
3	8:43:14 AM	0.017	681471.23	0.019
4	8:44:23 AM	0.016	INF	0.020
5	8:45:32 AM	0.017	689016.62	0.019
x		0.0162	685253.95	0.0195
σ		0.00	375338.53	0.00
%RSD		6.0470	54.7736	3.4638

Result : The performance report passed.

Performance Report

Sample details
Acquired at : 7/8/2013 8:52:52 AM
Report name : CCT-KED-WITHAR2 [11/17/2010 9:50:45 AM]

Tune conditions

Major	
Extraction	-66.7
Lens 1	-1208
Lens 2	-80.8
Focus	-12.0
D1	-57.3
D2	-140
Pole Bias	-14.0
Hexapole Bias	-17.0
Nebuliser	0.80

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	62
Vertical	643
DA	-20.4
Cool	13.0
Auxiliary	1.00
Sampling Depth	150

Global	
Standard resolution	115
High resolution	125
Analogue Detector	1951
PC Detector	3784

Add. Gases	
CCT-He/H2	5.02
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 100

Run	Time	78Se	80Ar2	115In	140Ce	156Ce O
Dwell (mSecs)		30.0	10.0	10.0	10.0	10.0
Limits	%RSD	-	-	2.0%	-	-
	Countrate	<20	<200	>2000	-	-
1	8:52:52 AM	0.333	186.001	5011.804	9595.946	54.000
2	8:53:02 AM	0.000	200.001	5058.819	9732.030	61.000
3	8:53:12 AM	0.667	199.001	5110.836	9310.773	61.000
4	8:53:23 AM	0.667	213.001	5057.818	9390.821	68.000
5	8:53:33 AM	0.667	200.001	5140.846	9673.994	66.000
x		0.467	199.601	5076.024	9540.713	62.000
σ		0.30	9.56	50.41	182.18	5.43
%RSD		63.888	4.787	0.993	1.909	8.760

Ratio results

Run	Time	156Ce O/140Ce
	Ratio limits	-
1	8:52:52 AM	0.006
2	8:53:02 AM	0.006
3	8:53:12 AM	0.007
4	8:53:23 AM	0.007
5	8:53:33 AM	0.007
x		0.0065
σ		0.00
%RSD		9.3271

Result : The performance report passed.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Analytical Run **F130708A** **Date of Analysis** **7/8/2013**

	Cr			Pb		
	TRUE	Found	%recovery	TRUE	Found	% recovery
ICV	100	99.9	99.86	100	102.3	102.30
CCV	200	200.1	100.05	200	194.4	97.20
CCV	200	191.0	95.50	200	213.2	106.60
CCV	200	193.2	96.60	200	214.4	107.20
CCV	200	190.7	95.35	200	202.1	101.05

Metals Digestion Logs

ENVIRO-CHEM LABORATORIES INC.
METALS DIGESTION LOG

Digestion Batch: 5058R
Date: ~~8~~ 7/5/13
Analyst: CHK
Microwave or Hotblock? 200.8 Time in: 15:55
SOP: M-10.) Rev5 Temp in: 84.6

Spiking Solution(s) added to LCS/MS/MSD: 25 µL ICG100-19 (C0431)
Acids added: (C0444) (AX0427) 1.0 mL HNO3, 1.0 mL 1:1 HCl
Final volume (mL): 50mL Time out: 18:00 Temp: 83.7

Sample ID:	weight (g)/initial volume (l)	Sample ID:	weight (g)/initial volume (l)
LPB5058R	50mL DI	29318-010	50mL
LCS5058R	50mL DI +	29318-011	↓
29318-001	50mL	29318-012	
29318-002	↓	29318-013	
29318-003		29318-013D	
29318-003D		29318-013S	+
29318-003S	+	29318-014	
29318-004		29318-015	
29318-005		29318-016	
29318-006		29318-017	
29318-007		29318-018	
29318-008		29318-019	
29318-009		29318-020	

Comments:

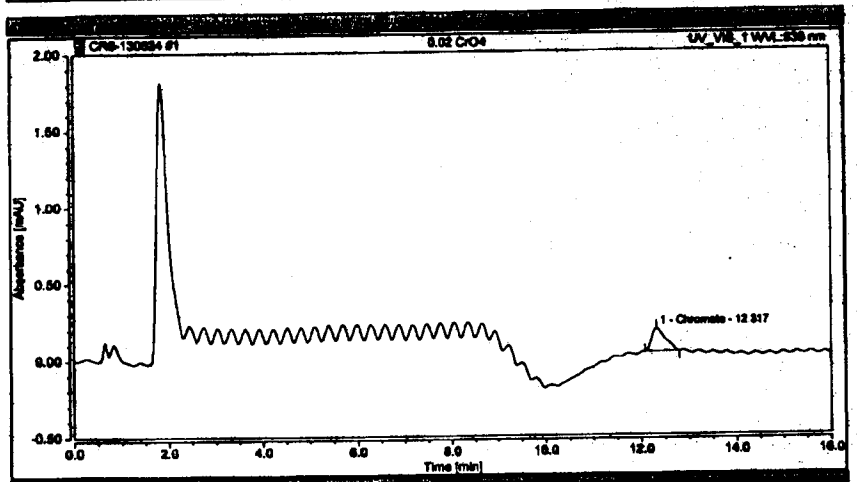
39

Raw Data

Name:	CR6-130624	*Created On:*	26/Apr/11 09:00:46
Directory:	Instrument Data\Chrome_VI\Sequences\CR6-	*Created By:*	Enviro Chem
Data Vault:	ChromeleonLocal	*Updated On:*	25/Jun/13 00:00:20
No. of Injections:	22	*Updated By:*	Enviro Chem

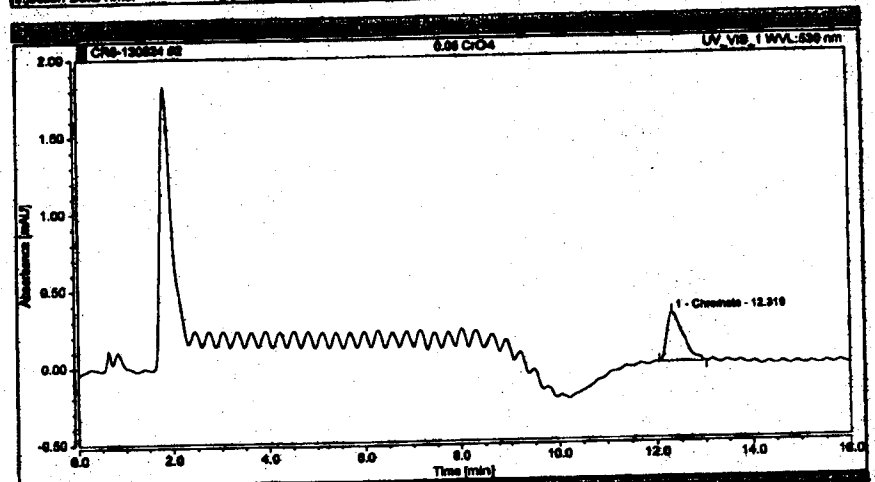
No.	Injection Name	Ret.Time min Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1	Amount ppb Chromate UV_VIS_1	Inject Time Chromate	Peak Type Chromate UV_VIS_1
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Injection Name:	0.02 CrO4	Run Time (min):	16.00
Vial Number:	1	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	01	Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:04	Sample Weight:	1.0000



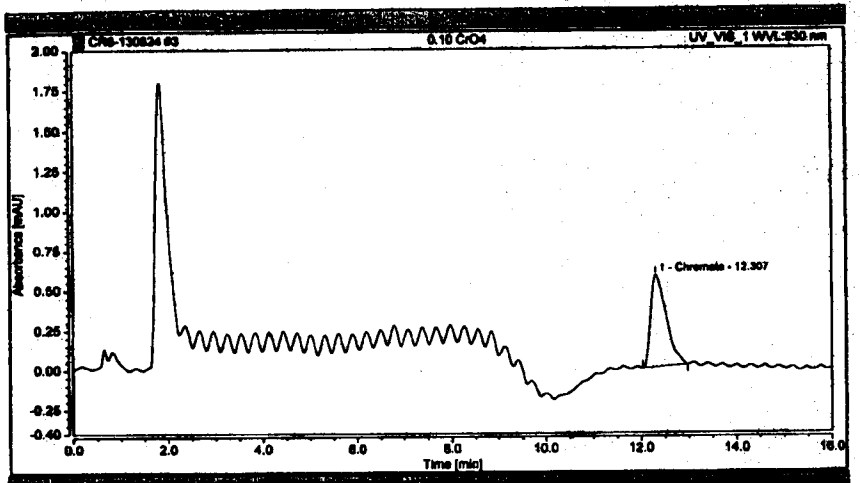
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.317	0.061	0.153	100.00	100.00	
Total:			0.061	0.153	100.00	100.00	

Injection Name:	0.05 CrO4	Run Time (min):	16.00
Vial Number:	2	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	02	Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:23	Sample Weight:	1.0000



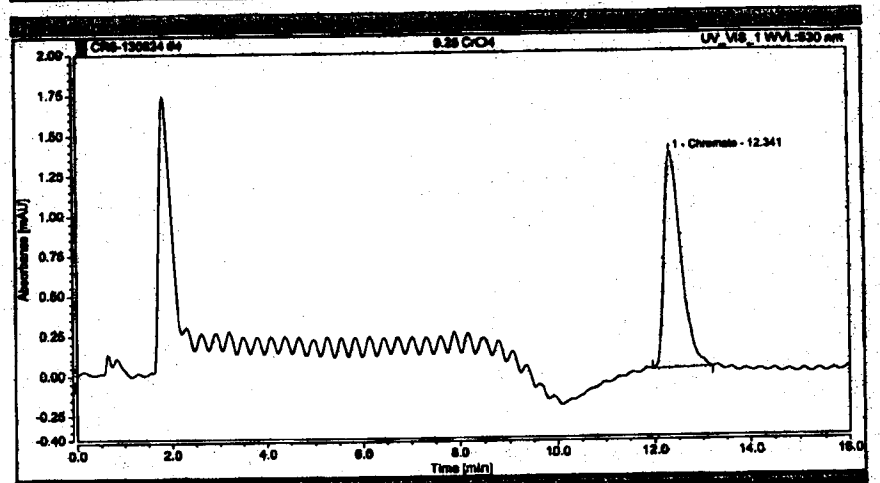
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.319	0.121	0.317	100.00	100.00	
Total:			0.121	0.317	100.00	100.00	

Injection Name:	0.10 CrO4	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	03	Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:43	Sample Weight:	1.0000



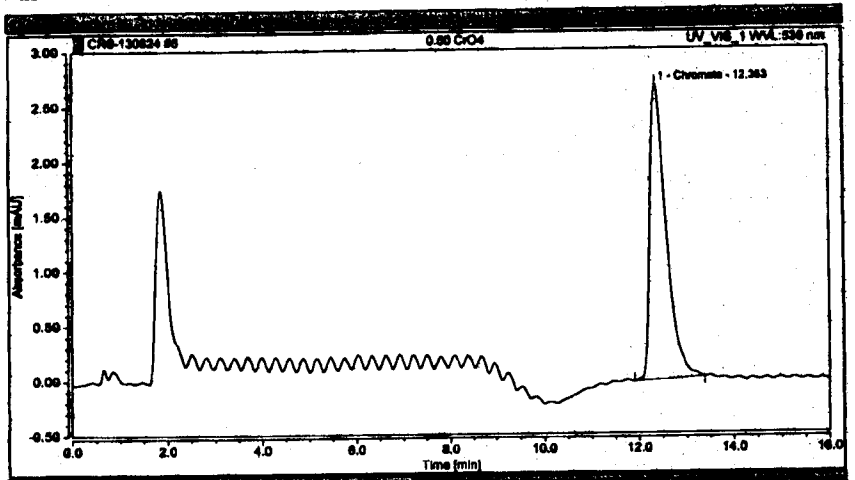
		min	mAU*min	mAU	%	%	ppb
Total:			0.216	0.573	100.00	100.00	

Injection Name:	0.25 CrO4	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	04	Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 18:09	Sample Weight:	1.0000



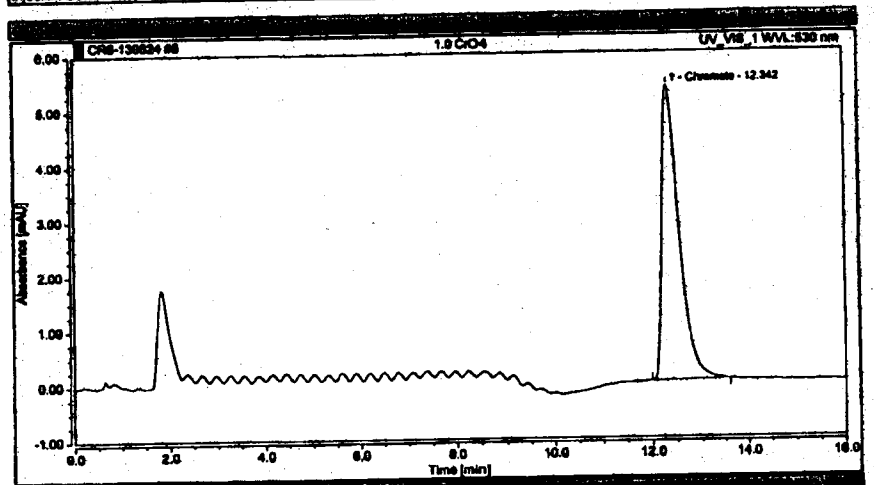
		min	mAU*min	mAU	%	%	ppb
Total:			0.544	1.347	100.00	100.00	

Injection Name:	0.50 CrO4	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	05	Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 18:19	Sample Weight:	1.0000



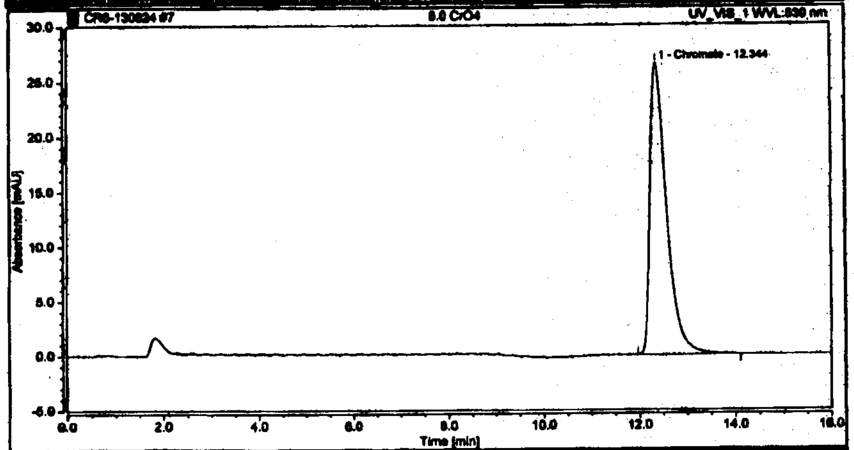
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.363	1.000	2.005	100.00	100.00	
Totals:			1.000	2.005	100.00	100.00	

Injection Name:	1.0 CrO4	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	06	Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 18:38	Sample Weight:	1.0000



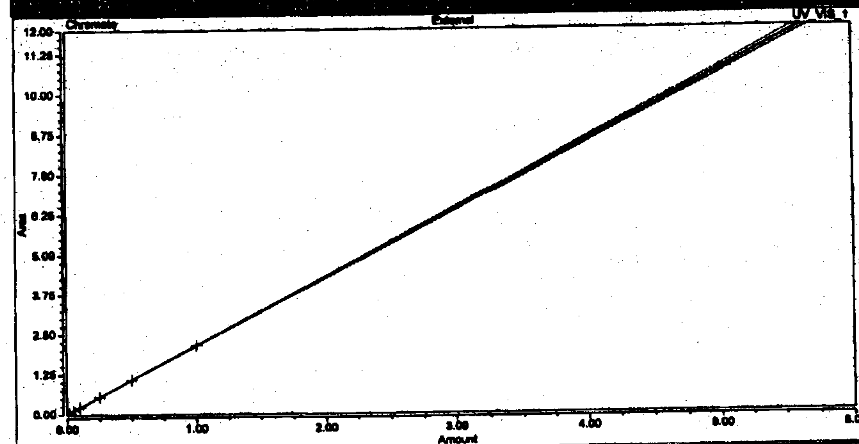
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.342	2.143	5.263	100.00	100.00	
Totals:			2.143	5.263	100.00	100.00	

Injection Name:	8.0 CrO4	Run Time (min):	16.00
Vial Number:	7	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	07	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 18:57	Sample Weight:	1.0000



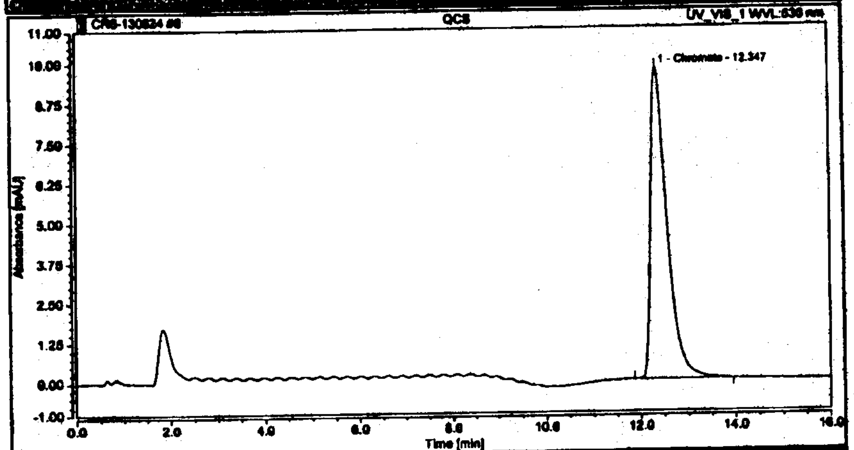
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.344	[illegible]	28.528	100.00	100.00	[illegible]
Total:			16.686	28.528	100.00	100.00	

Calibration Type	Lin, WithOffset, 1/A	Offset (C0)	0.0069
Evaluation Type	Area	Slope (C1)	2.1346
Number of Calibration Points	7	Curve (C2)	0.0000
Number of disabled Calibration Points	0	R-Square	1.0000



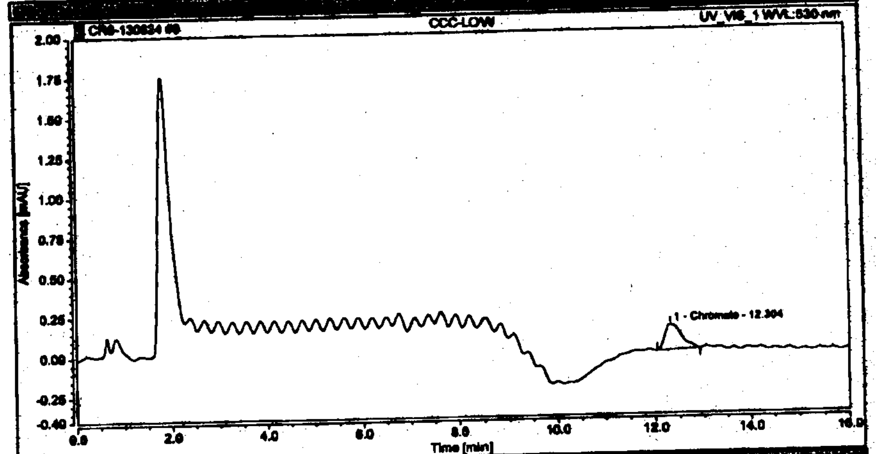
No.	Injection Name	Calibration Level	X-Value Chromate UV_VIS_1	Y-Value Chromate UV_VIS_1	Y-Value Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Injection Name:	QCS	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:16	Sample Weight:	1.0000



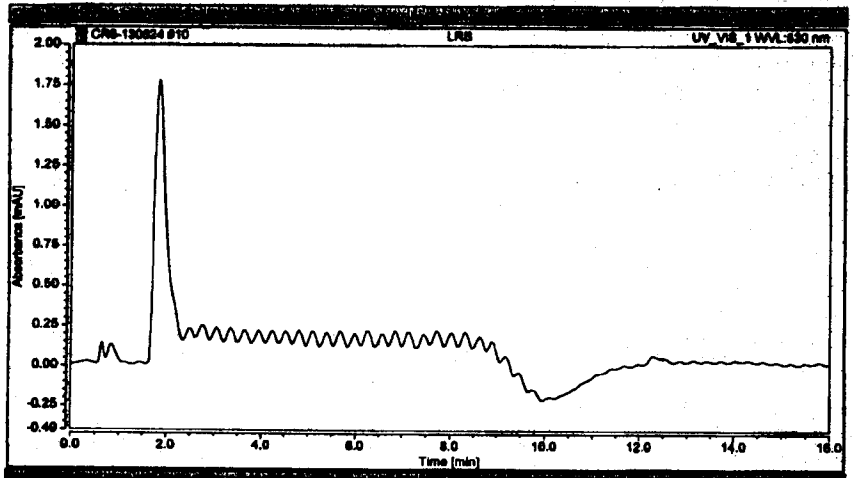
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			3.098	9.752	100.00	100.00	

Injection Name:	CCC-LOW	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:35	Sample Weight:	1.0000



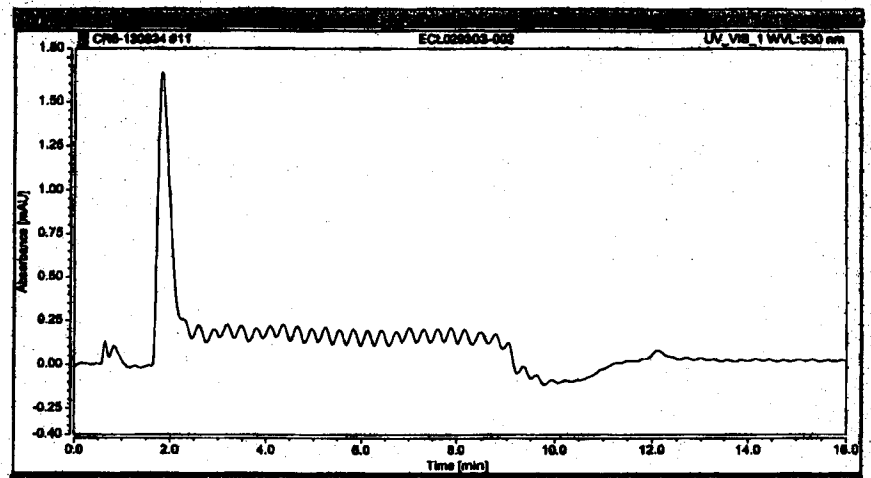
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.063	0.158	100.00	100.00	

Injection Name:	LAB	Run Time (min):	16.00
Vial Number:	10	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:54	Sample Weight:	1.0000



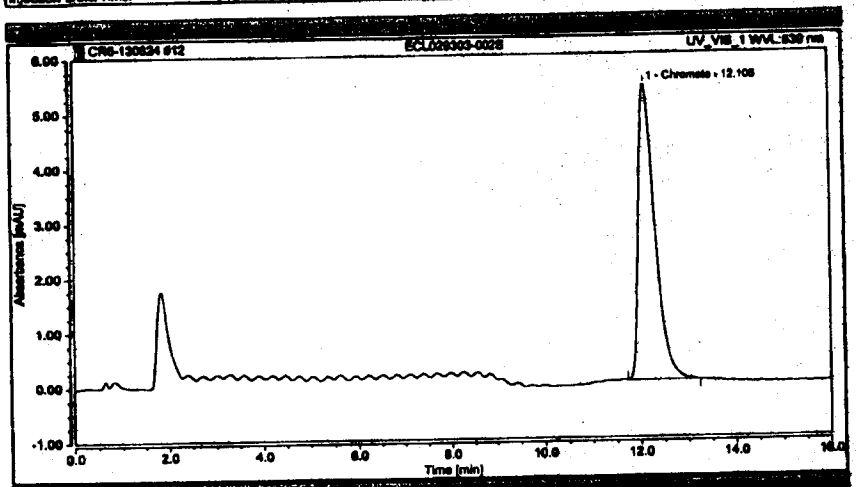
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL028803-002	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:13	Sample Weight:	1.0000



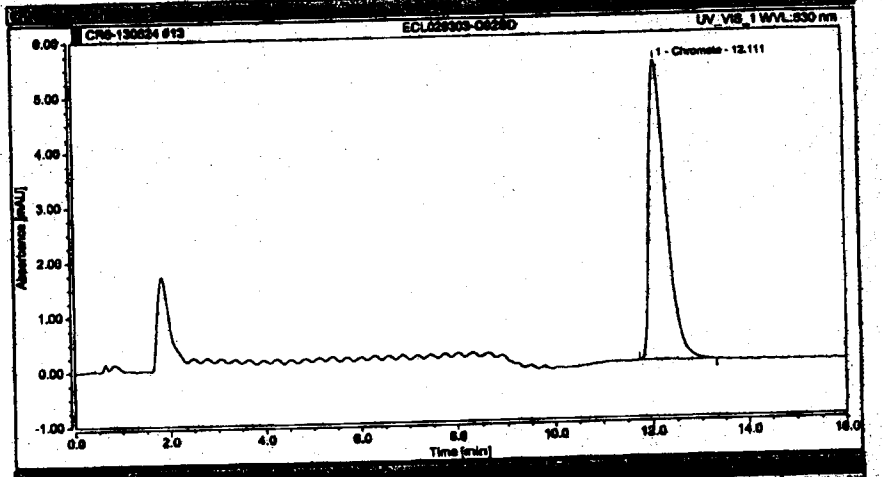
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-0026	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:32	Sample Weight:	1.0000



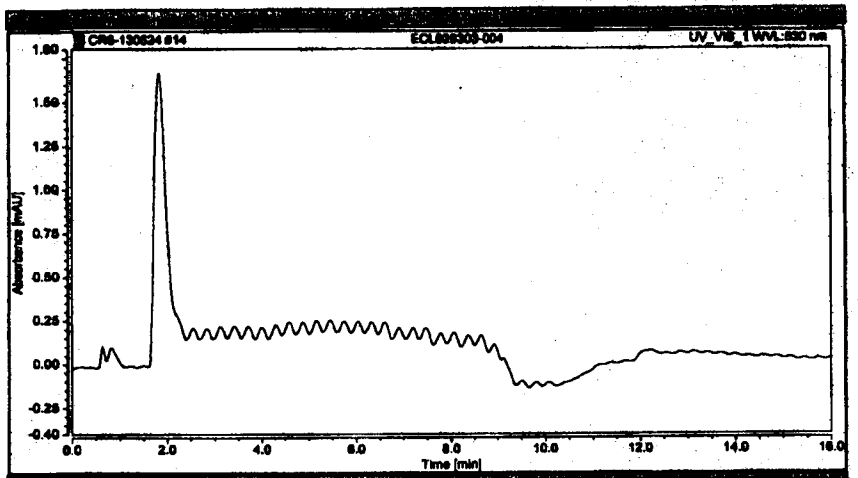
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Response ppb
1	Chromate	12.108	2.157	5.464	100.00	100.00	[illegible]
Total:			2.157	5.464	100.00	100.00	

Injection Name:	ECL029303-0026D	Run Time (min):	16.00
Vial Number:	13	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:51	Sample Weight:	1.0000



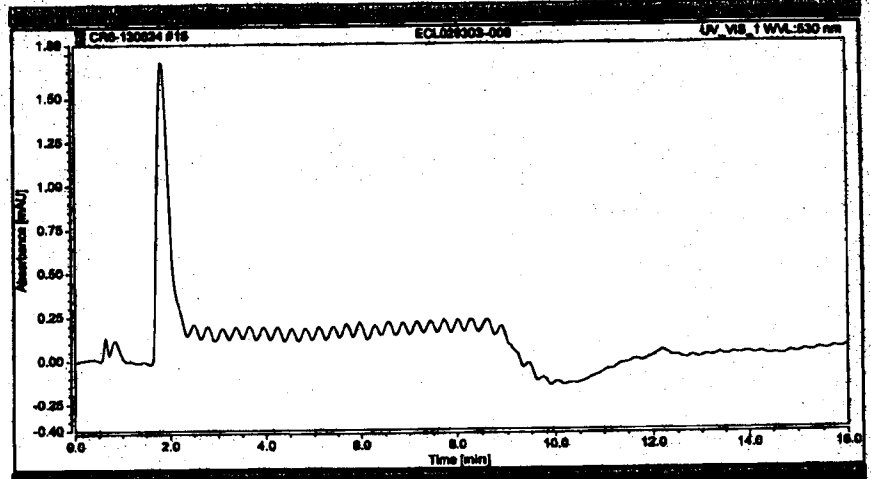
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Response ppb
1	Chromate	12.111	2.182	5.464	100.00	100.00	[illegible]
Total:			2.182	5.464	100.00	100.00	

Injection Name:	ECL000303-004	Run Time (min):	16.00
Vial Number:	14	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:19	Sample Weight:	1.0000



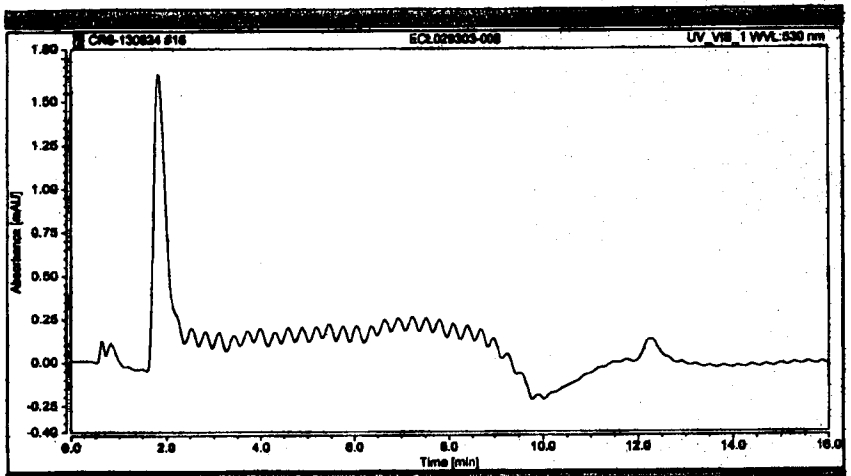
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Unknown						
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL000303-005	Run Time (min):	16.00
Vial Number:	15	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:39	Sample Weight:	1.0000



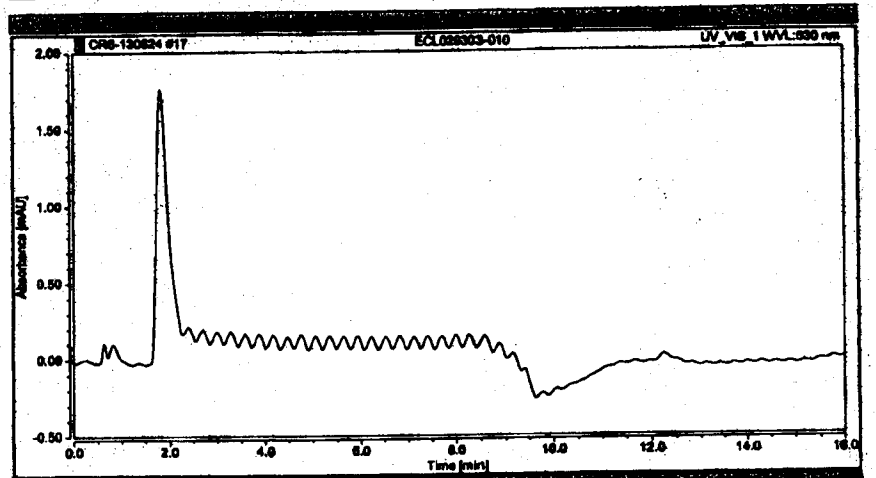
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Unknown						
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-008	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:47	Sample Weight:	1.0000



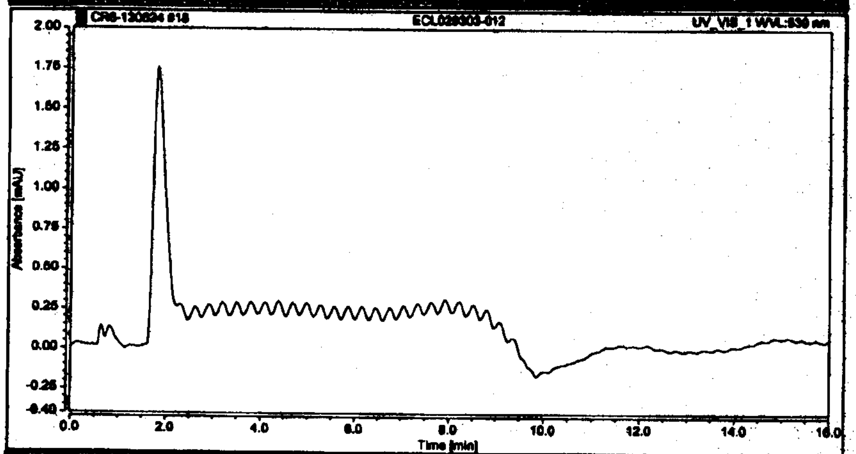
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Channel: UV_VIS_1							
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-010	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:06	Sample Weight:	1.0000



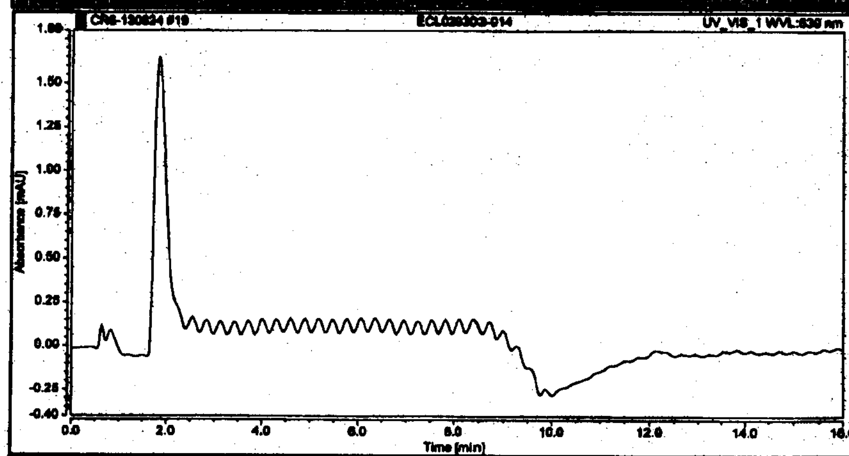
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Channel: UV_VIS_1							
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL030303-012	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:25	Sample Weight:	1.0000



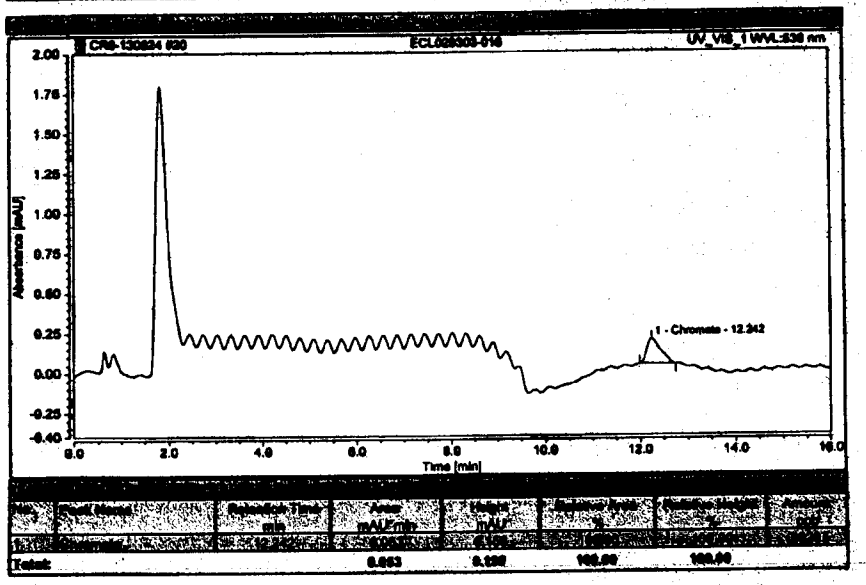
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL030303-014	Run Time (min):	16.00
Vial Number:	19	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:44	Sample Weight:	1.0000



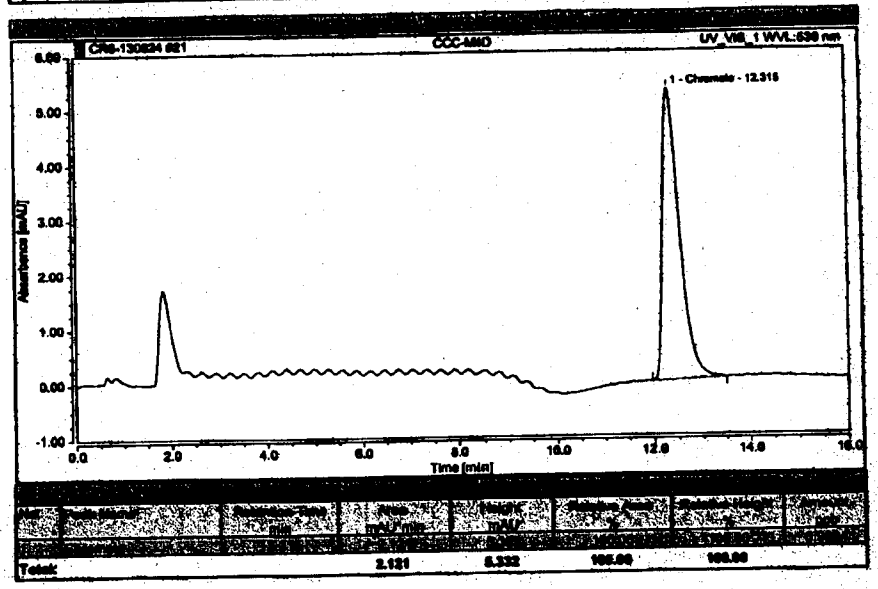
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL005308-016	Run Time (min):	16.00
Vial Number:	20	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:03	Sample Weight:	1.0000



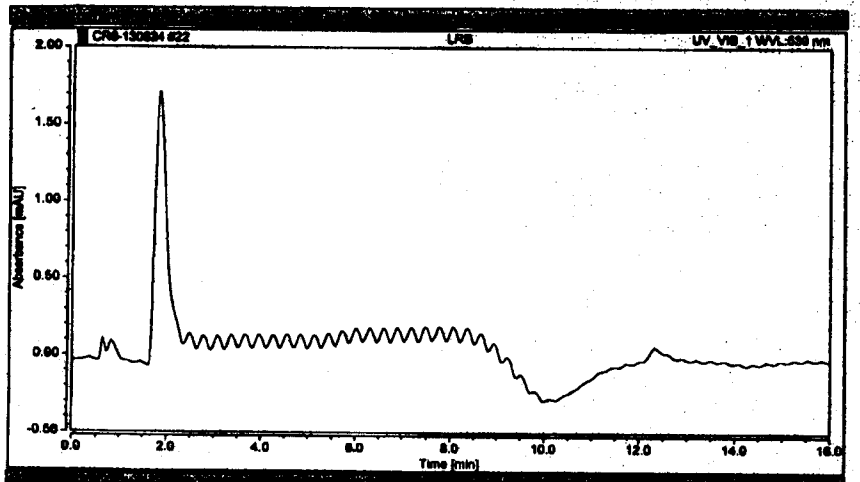
Nr.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount mg/l
1	Chromate	12.342	6.653	0.199	100.00	100.00	
Total:			6.653	0.199	100.00	100.00	

Injection Name:	CCC-MID	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:22	Sample Weight:	1.0000



Nr.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount mg/l
1	Chromate	12.315	2.121	0.332	100.00	100.00	
Total:			2.121	0.332	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:41	Sample Weight:	1.0000



No.	Peak Name	Retention Time [min]	Area [mAU*min]	Height [mAU]	Relative Area [%]	Relative Height [%]	Amount [mg/l]
Total:			0.000	0.000	0.00	0.00	

Name:	CR6-130624A	*Created On:*	26/Apr/11 09:00:46
Directory:	Instrument Data\Chrome_VI\Sequences\CR6-	*Created By:*	Enviro Chem
Data Vault:	ChromeleonLocal	*Updated On:*	25/Jun/13 12:21:30
No. of Injections:	46	*Updated By:*	Enviro Chem

No.	Injection Name	Ret.Time min Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1	Amount ppb Chromate UV_VIS_1	Inject Time Chromate	Peak Type Chromate UV_VIS_1
1							
2							
3							
4							
5							
6							
7							
8							
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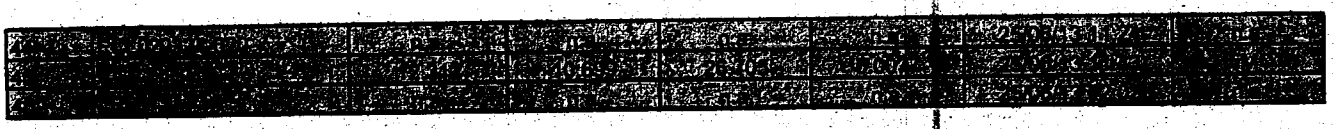
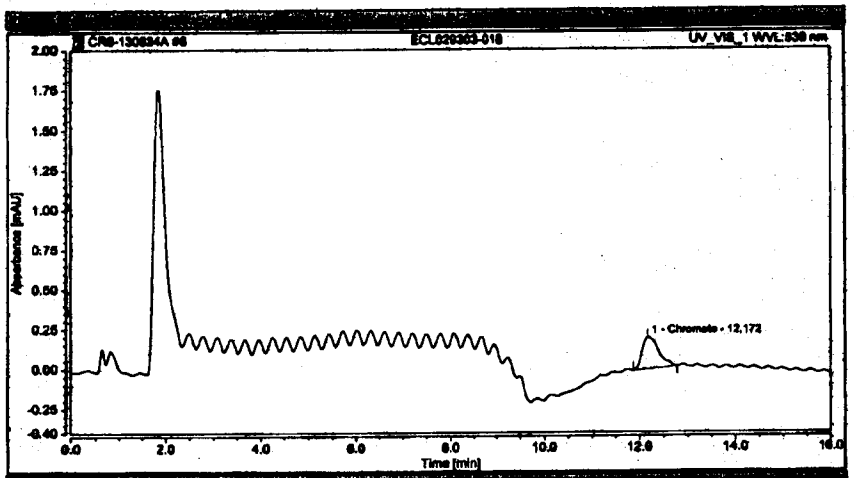
43							

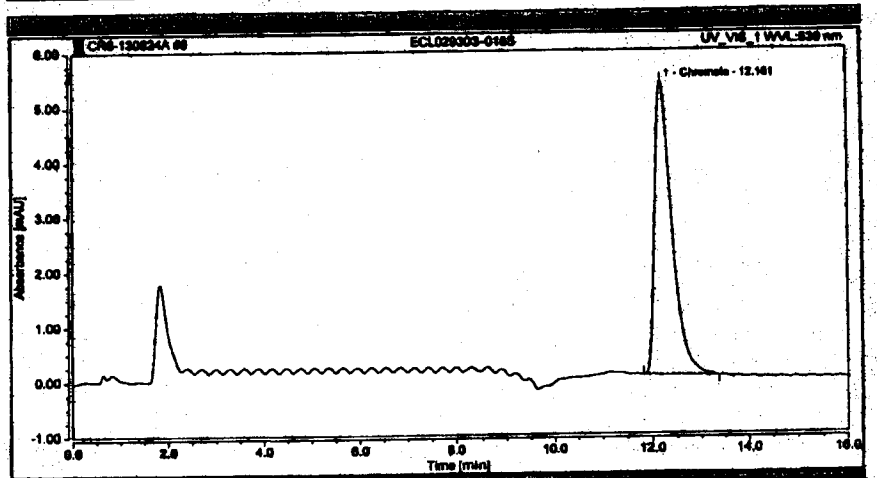


Injection Name:	ECL029303-016	Run Time (min):	16.00
Vial Number:	1	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:04	Sample Weight:	1.0000



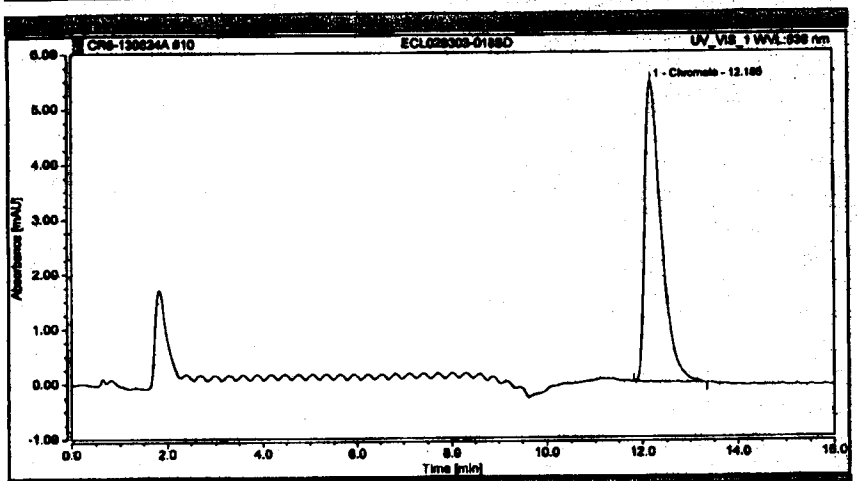
Name	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Chromate	1	12.172	0.878	0.199	100.00	100.00	
Totals:			0.878	0.199	100.00	100.00	

Injection Name:	ECL029303-0165	Run Time (min):	16.00
Vial Number:	2	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:22	Sample Weight:	1.0000



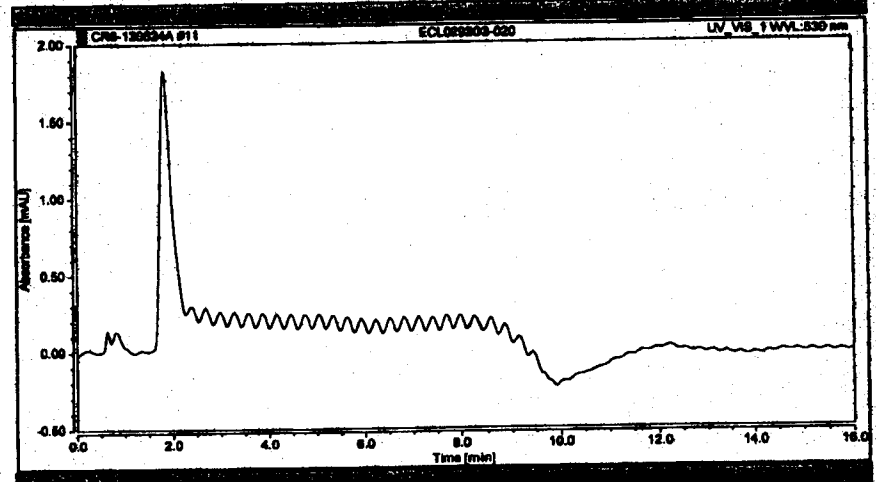
Name	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Chromate	1	12.161	2.154	0.364	100.00	100.00	
Totals:			2.154	0.364	100.00	100.00	

Injection Name:	ECL029309-0189D	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:41	Sample Weight:	1.0000



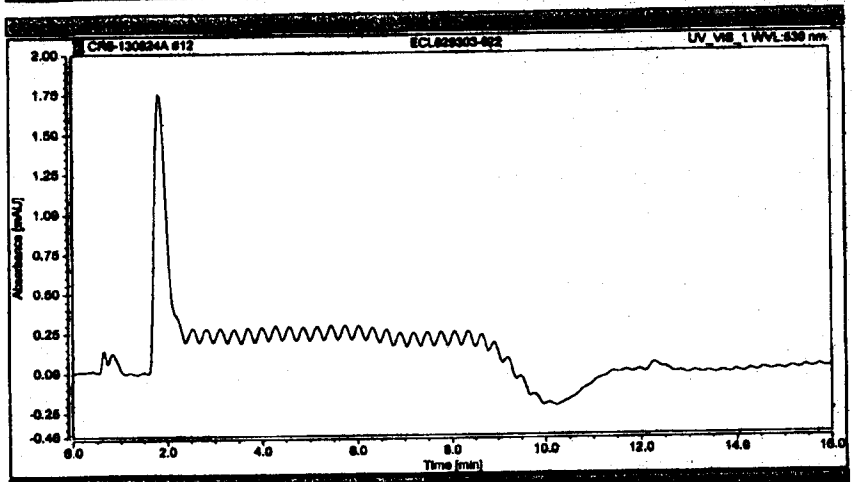
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			2.176	5.478	100.00	100.00	

Injection Name:	ECL029309-020	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:00	Sample Weight:	1.0000



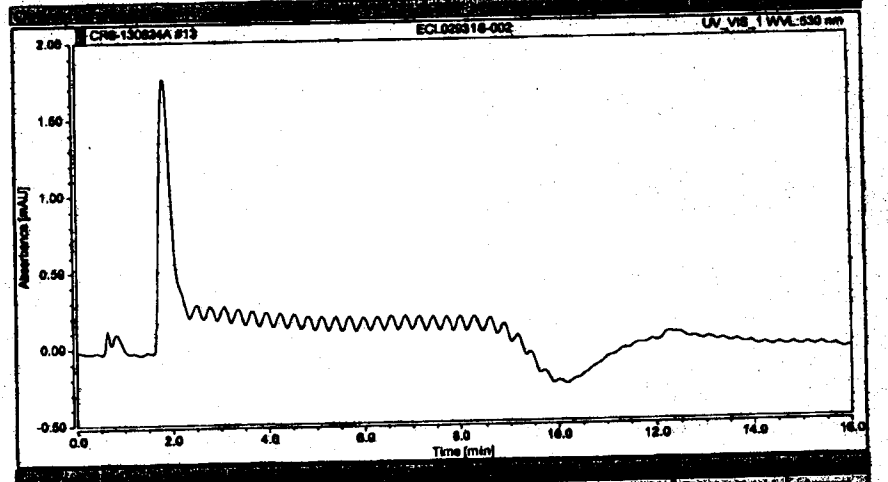
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-002	Run Time [min]:	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:19	Sample Weight:	1.0000



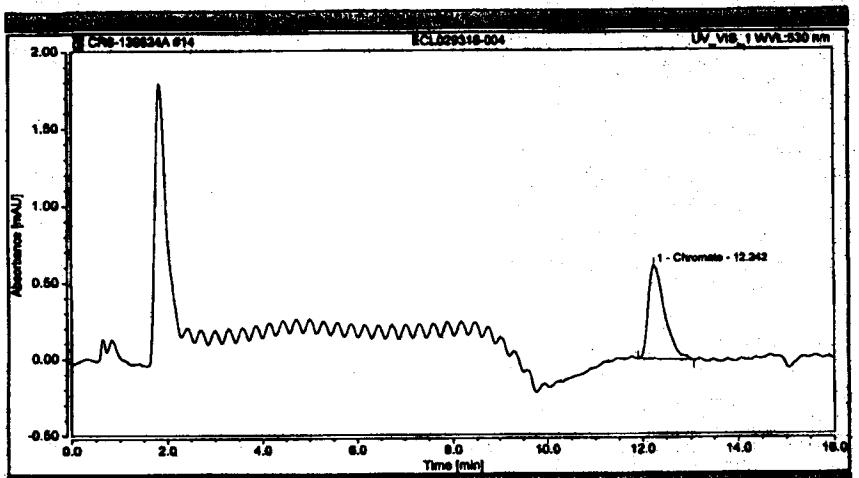
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/l
2	Chromium						
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029316-002	Run Time [min]:	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:38	Sample Weight:	1.0000



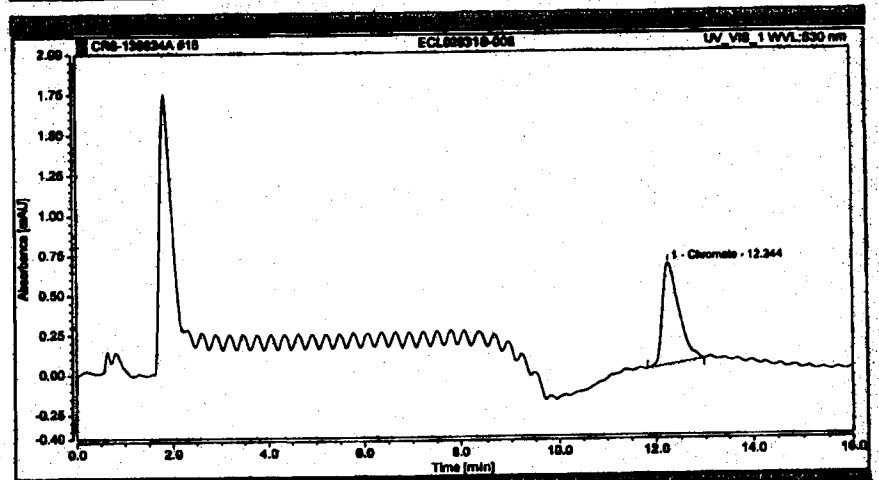
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/l
2	Chromium						
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029316-004	Run Time (min):	16.00
Vial Number:	7	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:57	Sample Weight:	1.0000



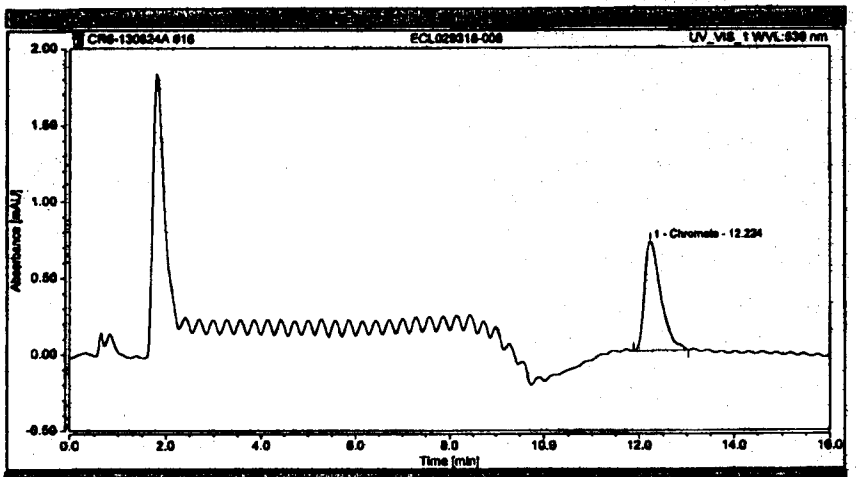
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Amount [ppb] %	Retention Index
1	Chromate	12.342	0.246	0.613	100.00	100.00	
Total:			0.246	0.613	100.00	100.00	

Injection Name:	ECL029316-006	Run Time (min):	16.00
Vial Number:	8	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 02:16	Sample Weight:	1.0000



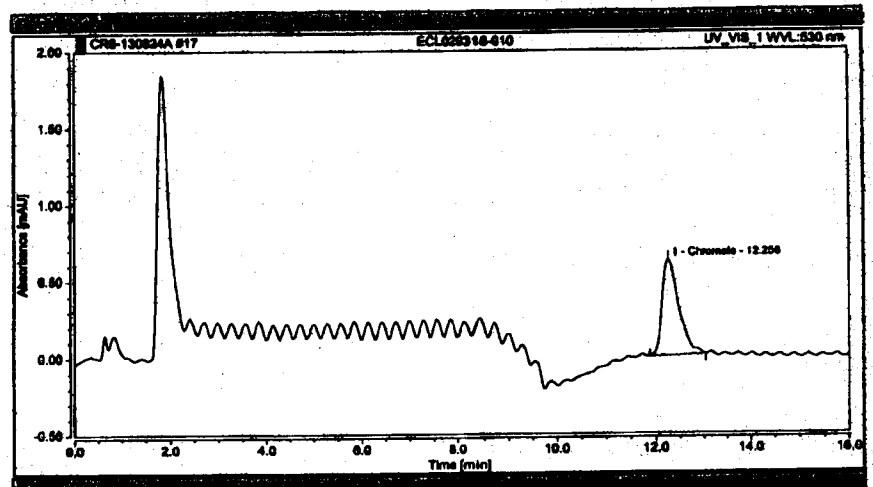
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Amount [ppb] %	Retention Index
1	Chromate	12.344	0.247	0.636	100.00	100.00	
Total:			0.247	0.636	100.00	100.00	

Injection Name:	[illegible]	Run Time (min):	[illegible]
Vial Number:	9	Injection Volume:	[illegible]
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	[illegible]
Injection Date/Time:	25/Jun/13 02:35	Sample Weight:	[illegible]



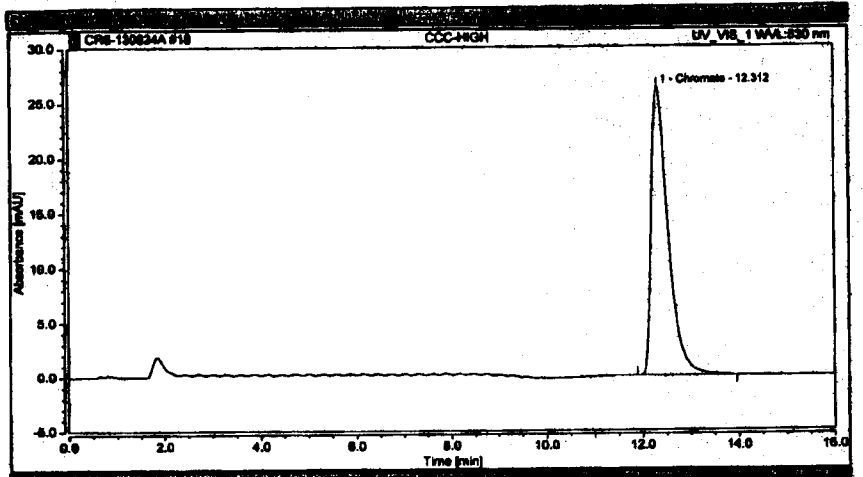
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.224	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.283	0.712	100.00	100.00	

Injection Name:	[illegible]	Run Time (min):	[illegible]
Vial Number:	10	Injection Volume:	[illegible]
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	[illegible]
Injection Date/Time:	25/Jun/13 02:53	Sample Weight:	[illegible]



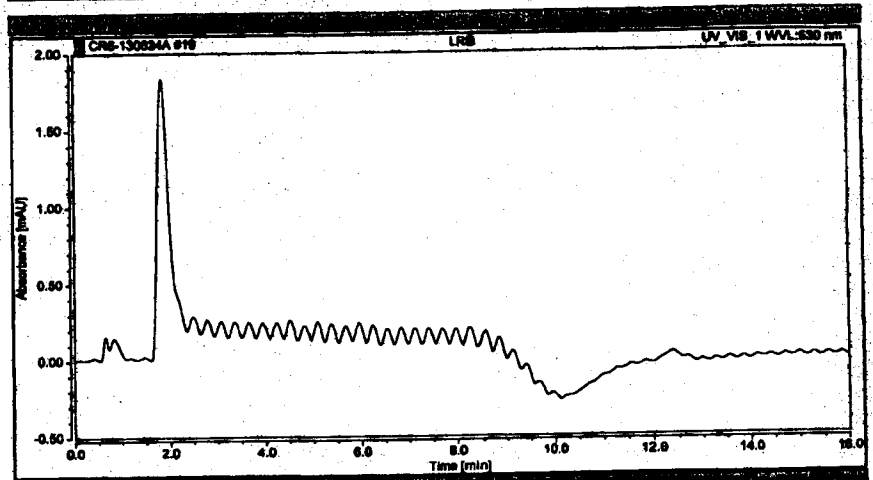
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.340	0.839	100.00	100.00	

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:12	Sample Weight:	1.0000



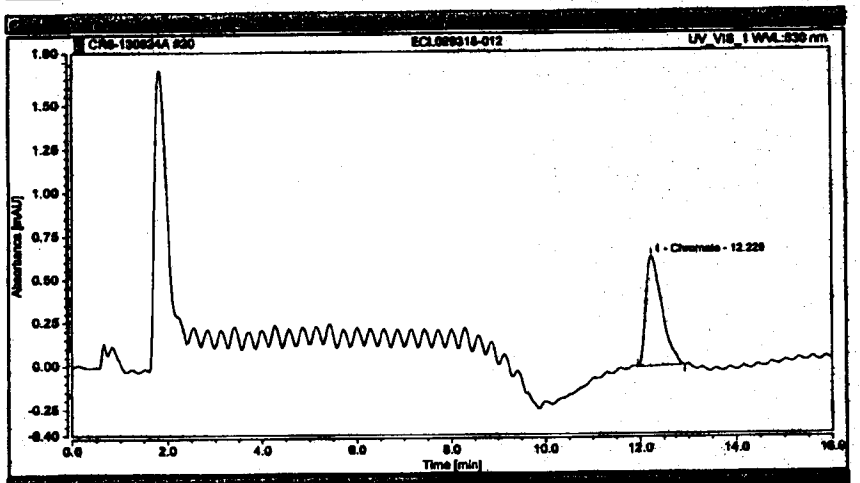
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.312	28.326	100.00	100.00	100.00	
Total:			28.326	100.00	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:31	Sample Weight:	1.0000



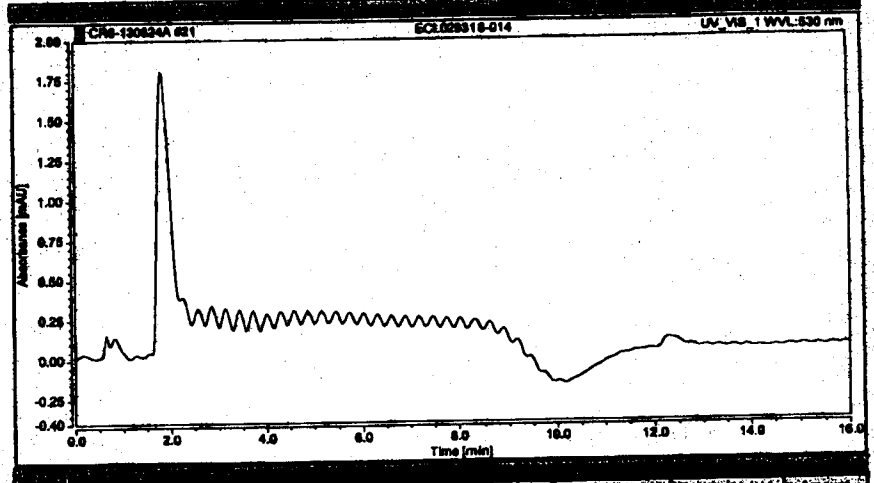
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029318-012	Run Time (min):	16.00
Vial Number:	13	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:59	Sample Weight:	1.0000



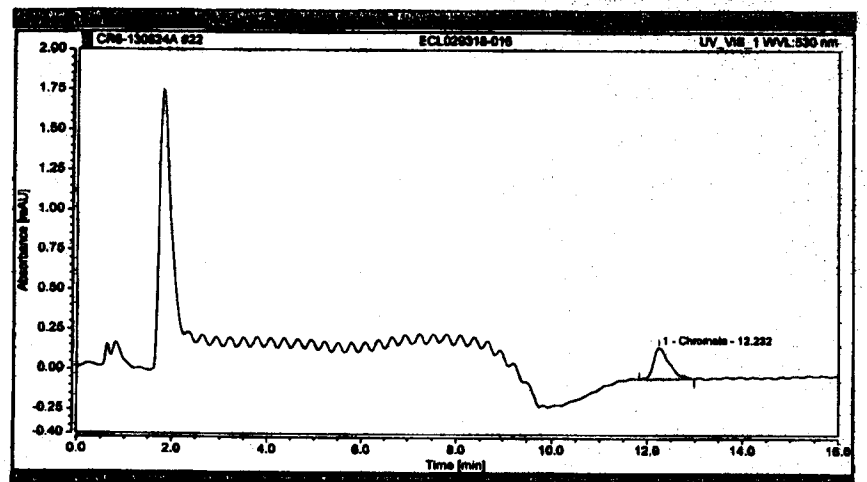
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Percent Area %	Percent Height %	Amount ppb
Total:			0.343	0.028	100.00	100.00	

Injection Name:	ECL029318-014	Run Time (min):	16.00
Vial Number:	14	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:59	Sample Weight:	1.0000



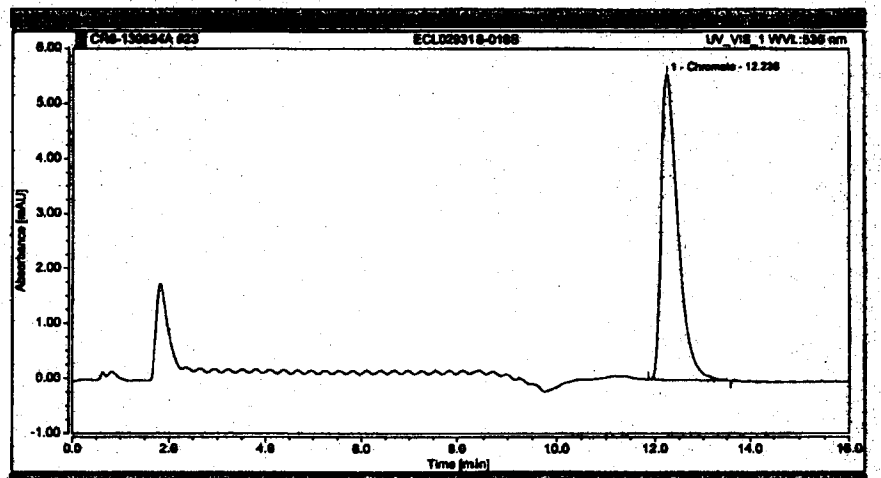
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Percent Area %	Percent Height %	Amount ppb
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029318-016	Run Time (min):	16.00
Vial Number:	15	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:26	Sample Weight:	1.0000



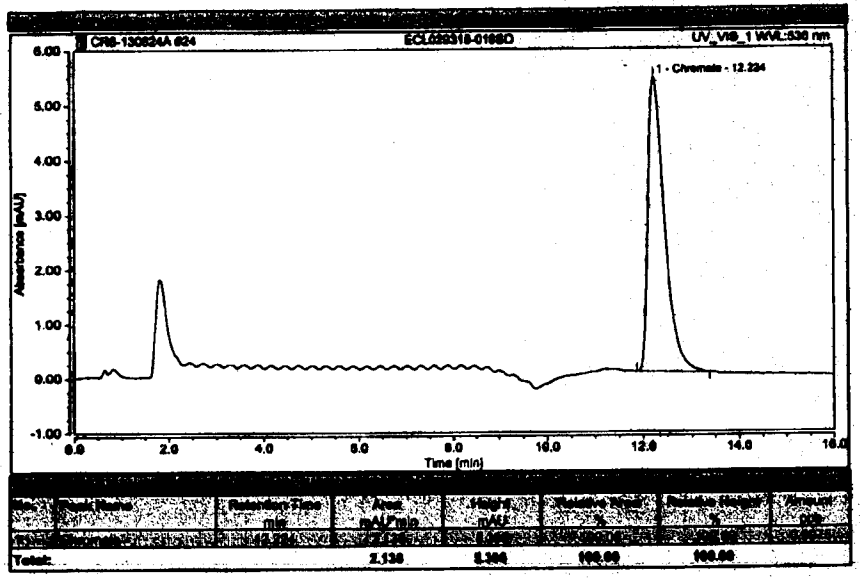
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.232	8.877	6.166	100.00	100.00	
Total:			8.877	6.166	100.00	100.00	

Injection Name:	ECL029318-016S	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:47	Sample Weight:	1.0000



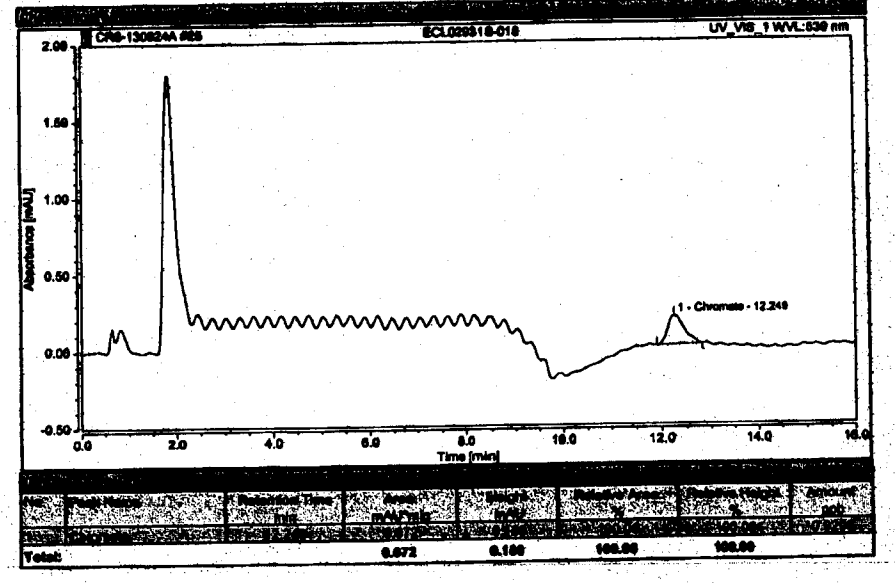
Peak	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.236	2.213	5.564	100.00	100.00	
Total:			2.213	5.564	100.00	100.00	

Injection Name:	ECL020318-0166D	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:06	Sample Weight:	1.0000



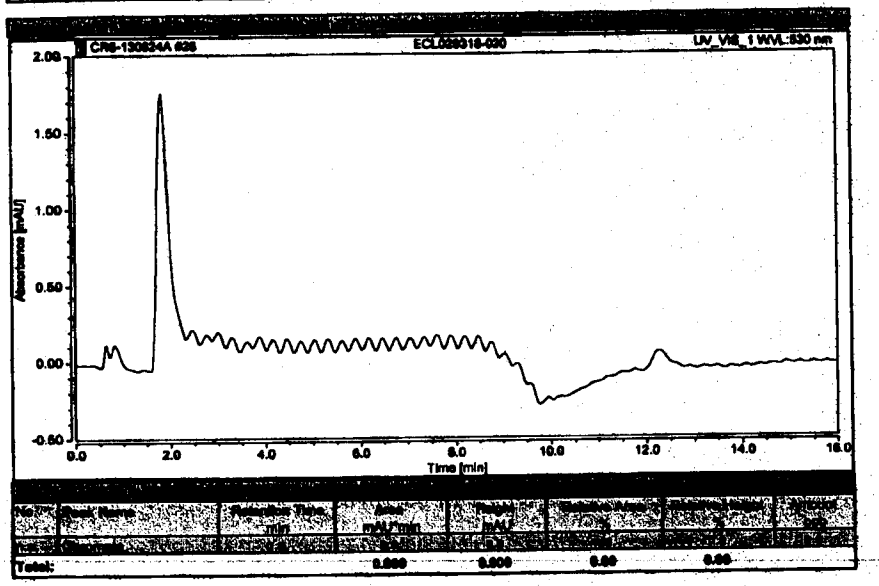
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			2.138	0.166	100.00	100.00	

Injection Name:	ECL020318-016	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:25	Sample Weight:	1.0000



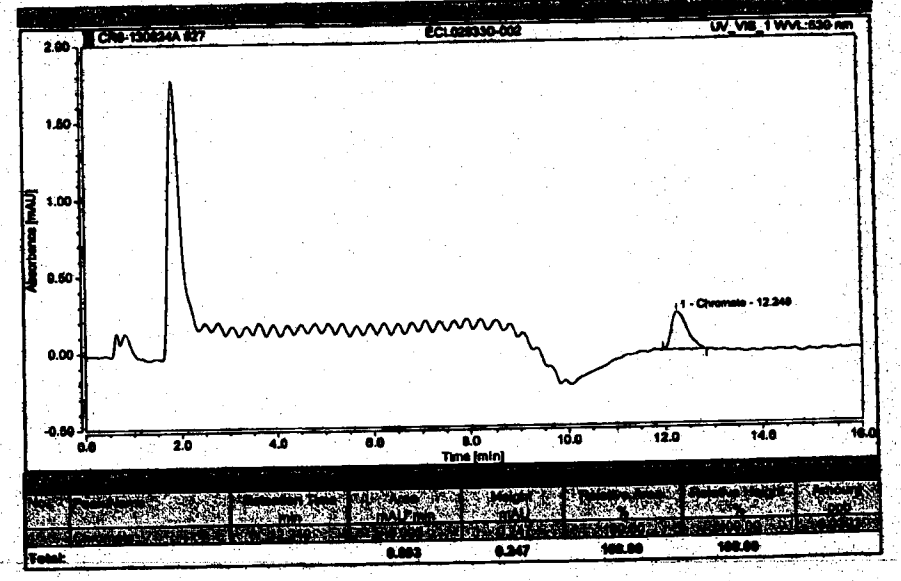
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.072	0.166	100.00	100.00	

Injection Name:	ECL029316-030	Run Time (min):	16.00
Vial Number:	19	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:44	Sample Weight:	1.0000



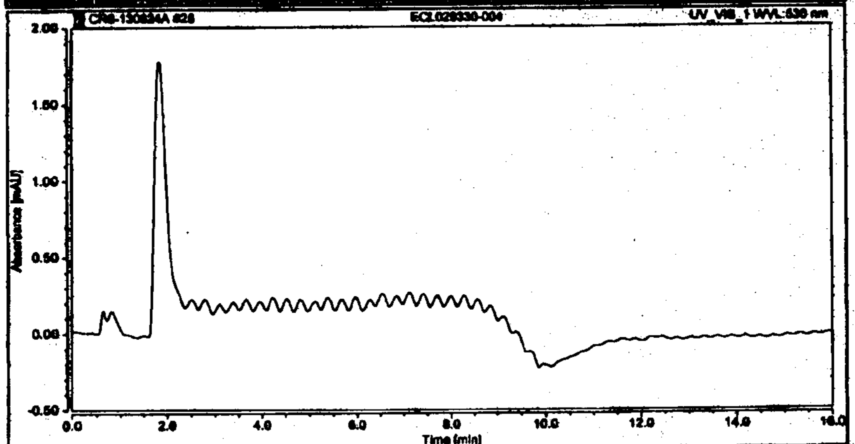
Number	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/l
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029330-002	Run Time (min):	16.00
Vial Number:	20	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:03	Sample Weight:	1.0000



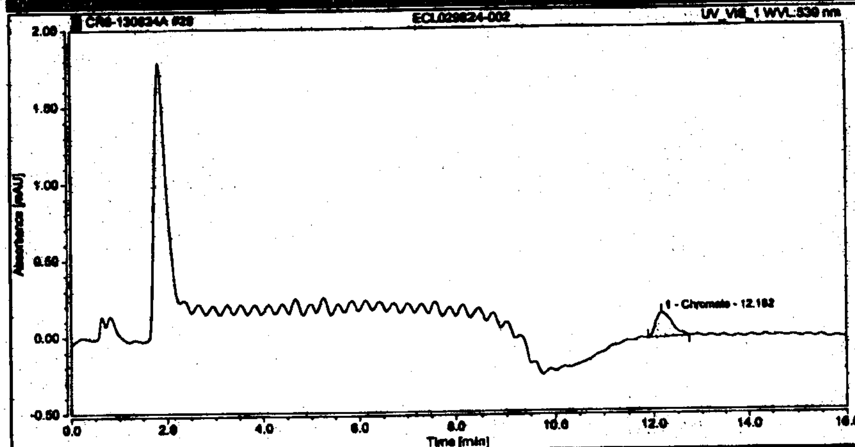
Number	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/l
Total:			0.893	0.347	100.00	100.00	

Injection Name:	ECL020330-004	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:22	Sample Weight:	1.0000



No.	[illegible]	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.000	0.000	0.00	0.00	

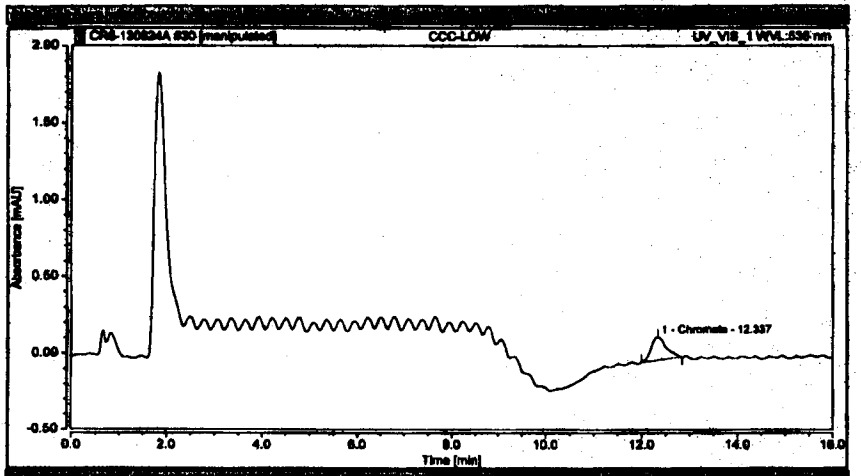
Injection Name:	ECL020624-002	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:40	Sample Weight:	1.0000



No.	[illegible]	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.008	0.156	100.00	100.00	

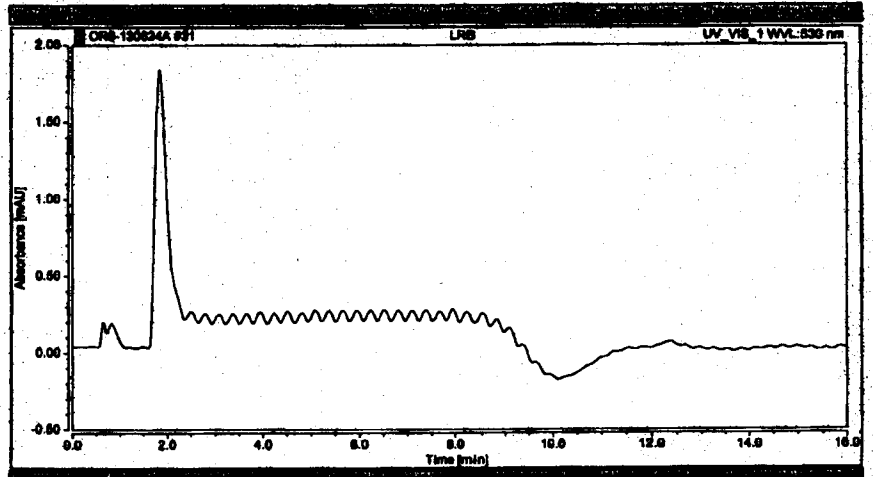
66

Injection Name:	CCC-LOW	Run Time (min):	16.00
Vial Number:	23	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	26/Jun/13 06:59	Sample Weight:	1.0000



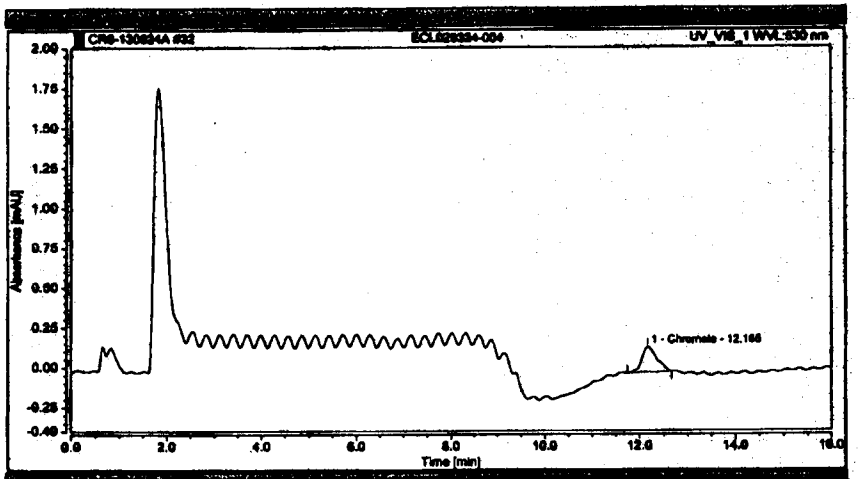
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount mg/L
1	Chromate	12.337	0.056	0.152	100.00	100.00	
Total:			0.056	0.152	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	24	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	26/Jun/13 07:16	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount mg/L
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL669384-004	Run Time (min):	16.00
Vial Number:	28	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 07:37	Sample Weight:	1.0000

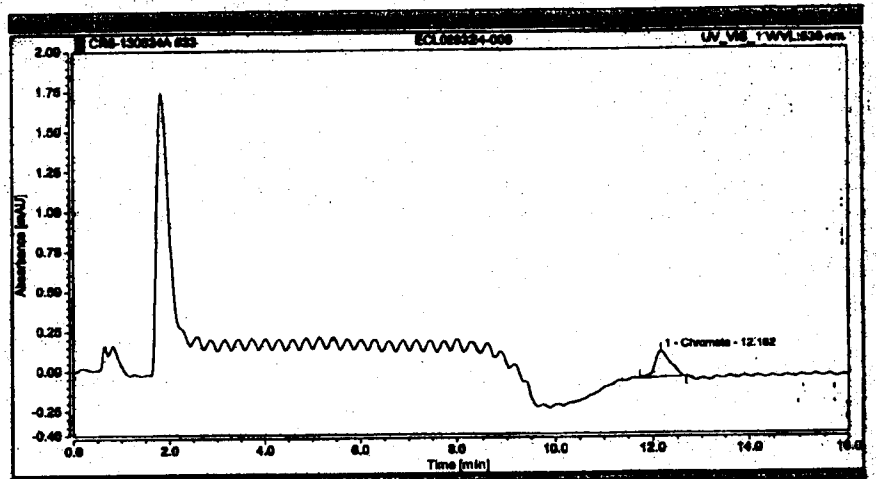


No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Amount Units %	Type
1	Chromate	12.166	0.668	0.162	100.00	100.00	BV
Total:			0.668	0.162	100.00	100.00	

Instrument:Chroma_VI Sequence:CR6-130624A

Page 28 of 41

Injection Name:	ECL669384-006	Run Time (min):	16.00
Vial Number:	28	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 07:58	Sample Weight:	1.0000

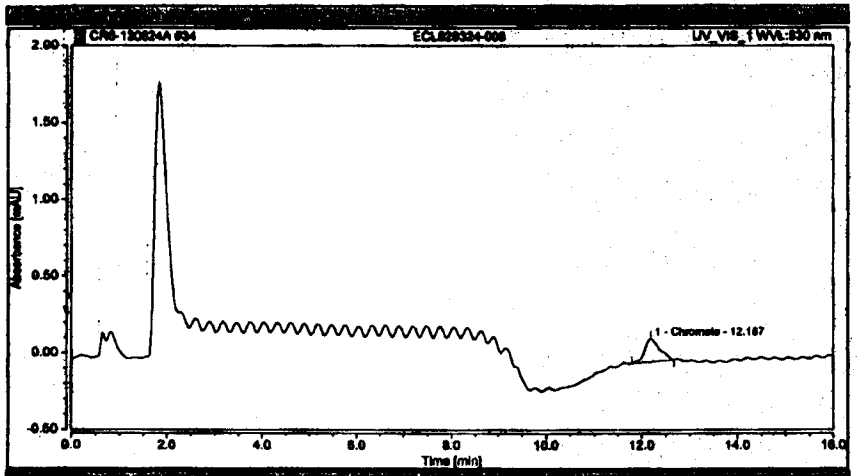


No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Amount Units %	Type
1	Chromate	12.162	0.669	0.165	100.00	100.00	BV
Total:			0.669	0.165	100.00	100.00	

Default/Integration

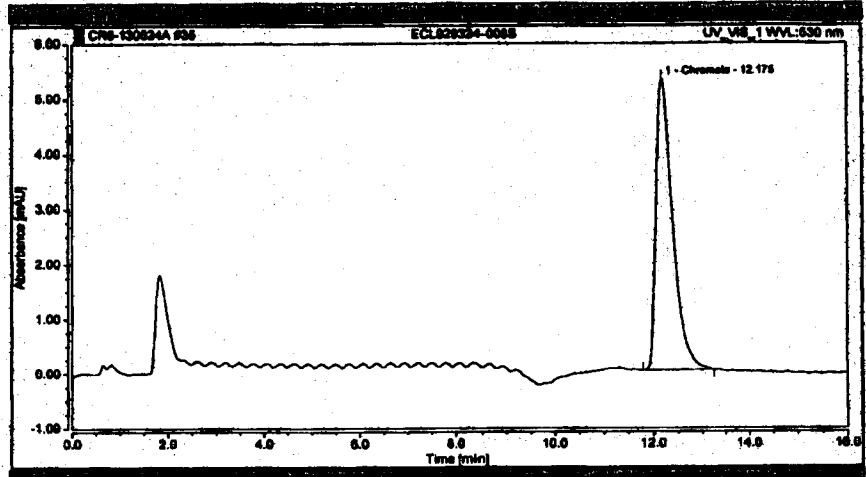
Chromeleon (c) Dionex
Version 7.1.1.1127

Injection Name:	ECL629334-006	Run Time (min):	16.00
Vial Number:	27	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	28/Jun/13 09:15	Sample Weight:	1.0000



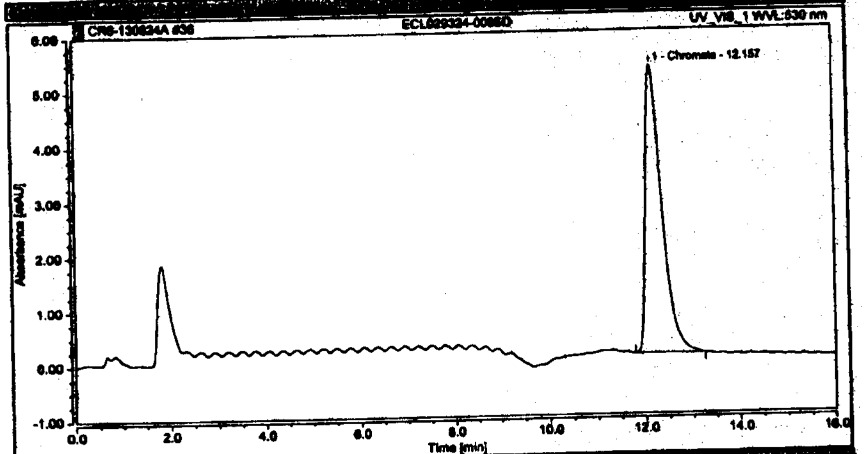
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.167	0.664	0.149	100.00	100.00	
Total:			0.664	0.149	100.00	100.00	

Injection Name:	ECL629334-0065	Run Time (min):	16.00
Vial Number:	28	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	28/Jun/13 09:34	Sample Weight:	1.0000



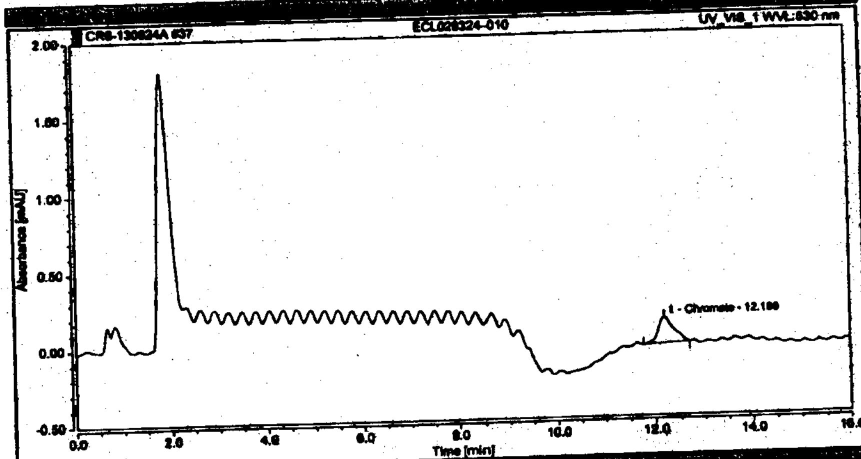
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.175	2.661	5.307	100.00	100.00	
Total:			2.661	5.307	100.00	100.00	

Injection Name:	ECL020324-008SD	Run Time (min):	16.00
Vial Number:	29	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 08:53	Sample Weight:	1.0000



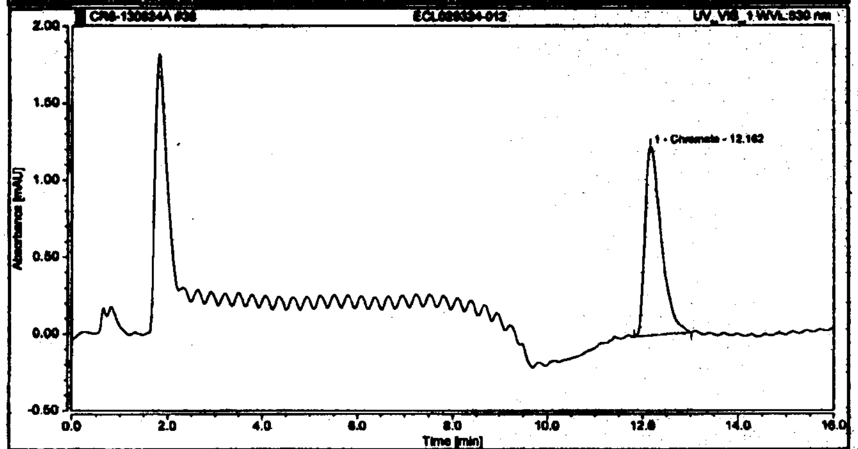
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			2.069	5.258	100.00	100.00	

Injection Name:	ECL020324-010	Run Time (min):	16.00
Vial Number:	30	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:12	Sample Weight:	1.0000



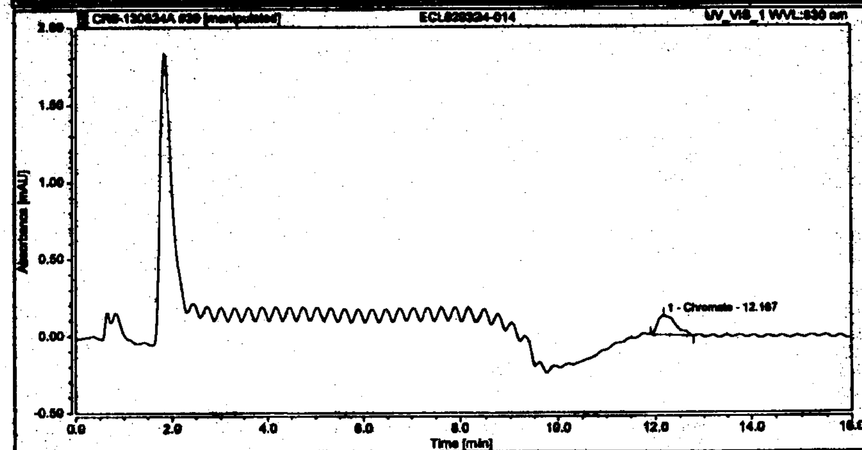
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.066	0.166	100.00	100.00	

Injection Name:	ECL020324-012	Run Time (min):	16.00
Vial Number:	31	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:31	Sample Weight:	1.0000



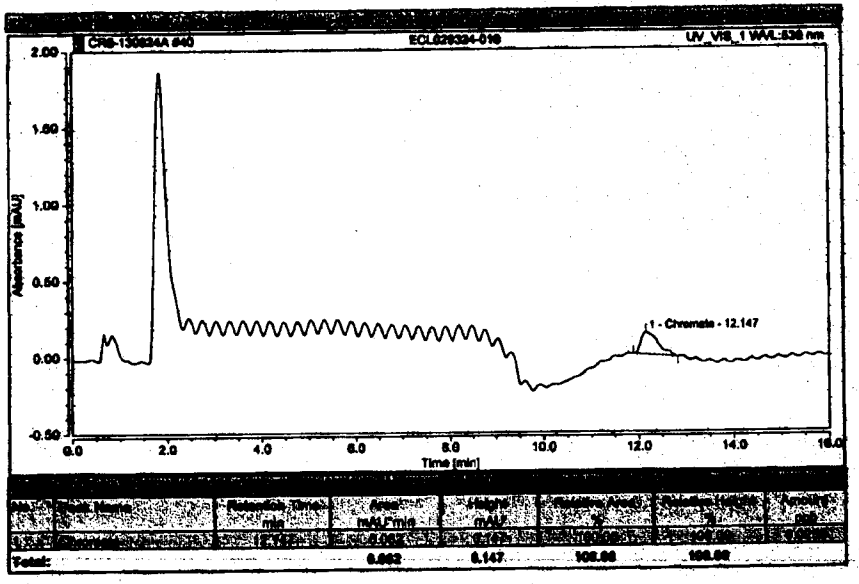
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	Chromate	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.480	1.230	100.00	100.00	

Injection Name:	ECL020324-014	Run Time (min):	16.00
Vial Number:	32	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:50	Sample Weight:	1.0000



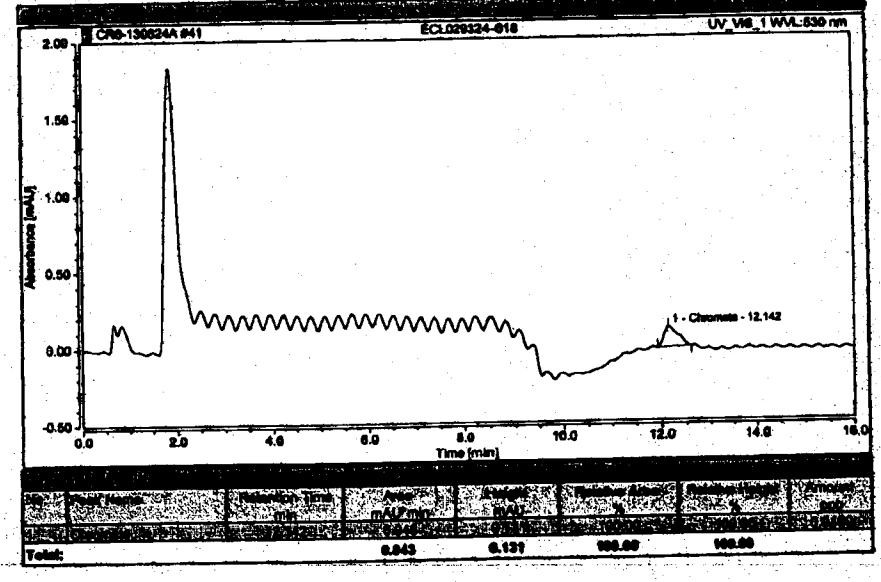
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			0.053	0.126	100.00	100.00	

Injection Name:	ECL029324-016	Run Time (min):	16.00
Vial Number:	33	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 16:00	Sample Weight:	1.0000



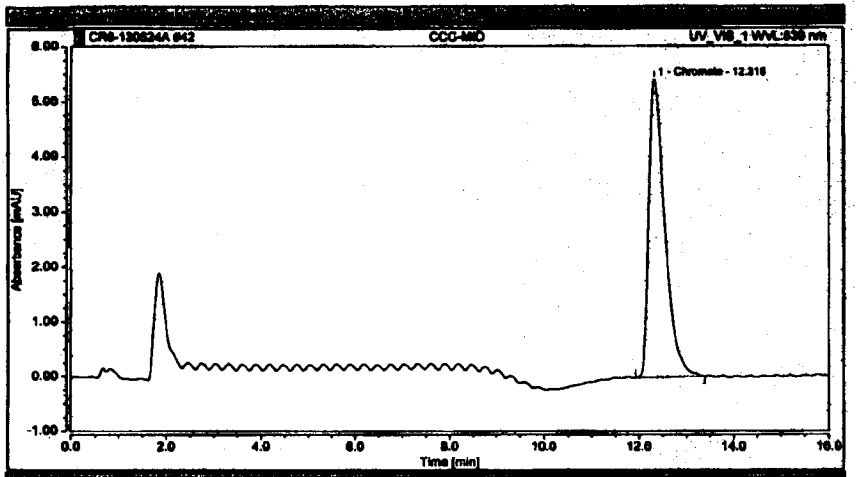
Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Peak Type min
Total:		0.662	0.147	100.00	100.00	

Injection Name:	ECL029324-018	Run Time (min):	16.00
Vial Number:	34	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 16:27	Sample Weight:	1.0000



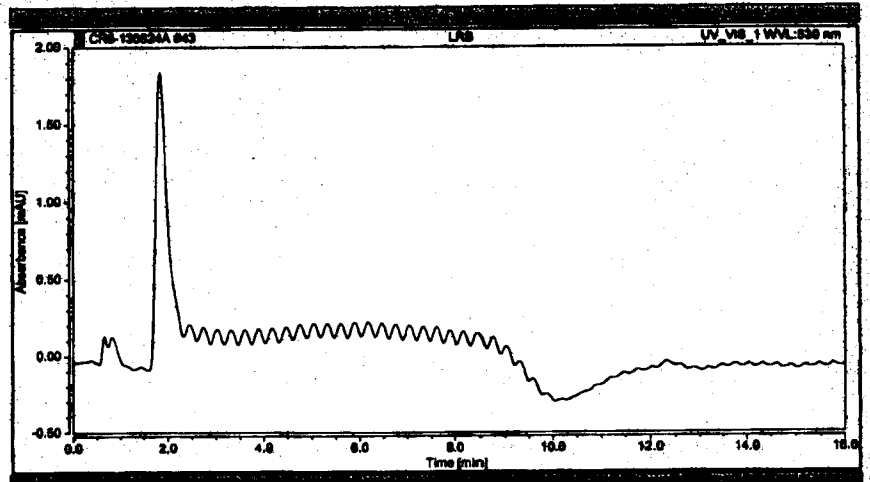
Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Peak Type min
Total:		0.643	0.131	100.00	100.00	

Injection Name:	CCC-MID	Run Time (min):	16.00
Vial Number:	36	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	26/Jun/13 10:46	Sample Weight:	1.0000



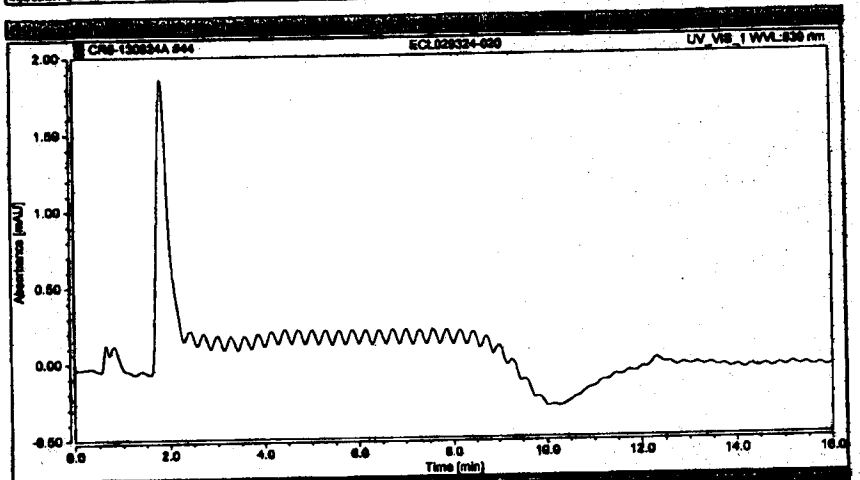
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Percent ppb
1							
Total:			2.140	5.423	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	35	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	26/Jun/13 11:26	Sample Weight:	1.0000



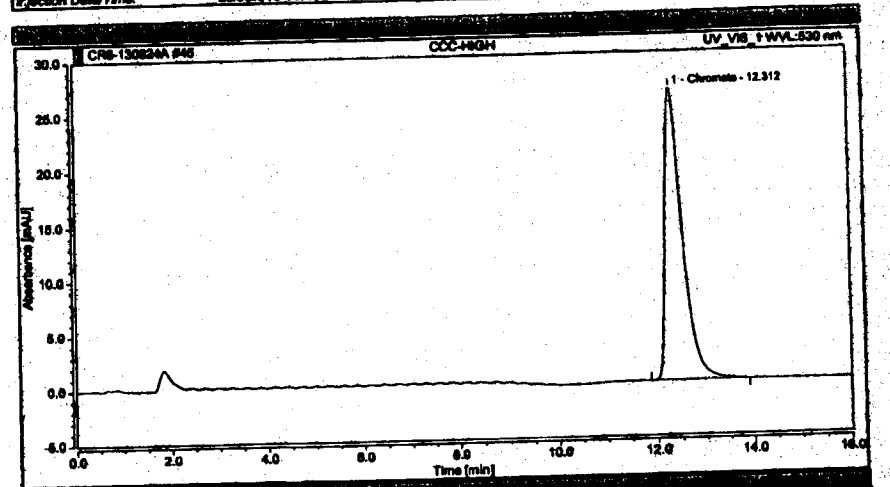
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Percent ppb
1							
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029324-030	Run Time (min):	16.00
Vial Number:	37	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 11:24	Sample Weight:	1.0000



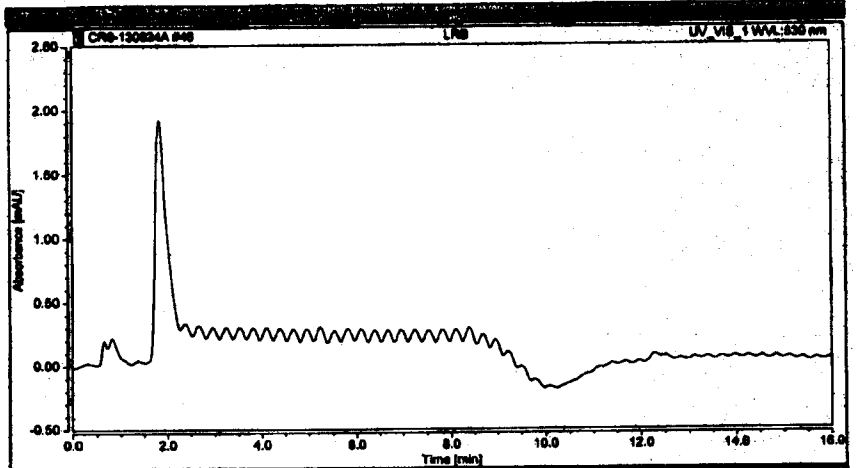
Peak #	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Totals:			0.000	0.000	0.00	0.00	

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	38	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 11:43	Sample Weight:	1.0000



Peak #	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.312	26.705	100.00	100.00		
Totals:			26.705	100.00	100.00		

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	39	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 12:02	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Peak Area %	Peak Height %	Type
Total:			0.000	0.000	0.00	0.00	

Dilution Corrected Concentrations

F130708A
conc 7/8/13
WS-20728

RINSE 7/8/2013 9:16:35 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:16:47	99.644%	-0.016	99.727%	100.163%	0.014	98.653%
2	09:17:00	99.578%	-0.012	99.679%	99.494%	-0.002	99.396%
3	09:17:12	100.778%	-0.008	100.594%	100.343%	-0.007	101.951%
x		100.000%	-0.012	100.000%	100.000%	0.002	100.000%
σ		0.674%	0.004	0.515%	0.447%	0.011	1.730%
%RSD		0.674	33.970	0.515	0.447	587.300	1.730

RINSE 7/8/2013 9:18:51 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:19:04	97.989%	-0.009	98.343%	99.839%	-0.003	99.588%
2	09:19:16	97.515%	-0.013	97.800%	100.173%	-0.005	100.942%
3	09:19:29	97.211%	-0.037	97.485%	99.242%	-0.014	102.432%
x		97.571%	-0.020	97.876%	99.751%	-0.007	100.988%
σ		0.392%	0.015	0.434%	0.472%	0.006	1.423%
%RSD		0.402	75.230	0.444	0.473	83.940	1.409

BLANK 7/8/2013 9:21:06 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:21:19	98.723%	0.022	98.898%	99.815%	0.002	98.562%
2	09:21:31	100.281%	-0.020	100.014%	99.730%	0.004	99.418%
3	09:21:43	100.996%	-0.002	101.089%	100.455%	-0.007	102.021%
x		100.000%	0.000	100.000%	100.000%	0.000	100.000%
σ		1.162%	0.021	1.095%	0.397%	0.006	1.801%
%RSD		1.162	0.000	1.095	0.397	0.000	1.801

200 PPB 7/8/2013 9:23:18 AM

M03456

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:23:30	96.844%	199.400	96.549%	97.769%	TM 213.900	T 89.566%
2	09:23:42	96.817%	M 200.600	96.255%	97.614%	T 194.700	98.671%
3	09:23:55	96.077%	M 200.100	96.399%	97.461%	T 191.400	99.818%
x		96.580%	M 200.000	96.401%	97.615%	TM 200.000	T 96.018%
σ		0.435%	M 0.610	0.147%	0.154%	TM 12.180	T 5.617%
%RSD		0.450	M 0.305	0.153	0.158	TM 6.089	T 5.850

CCB 7/8/2013 9:25:30 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:25:42	97.365%	0.015	97.101%	98.249%	0.012	97.144%
2	09:25:55	98.243%	-0.010	98.039%	98.694%	0.008	99.655%
3	09:26:07	97.176%	-0.017	97.343%	98.334%	0.003	100.517%
x		97.595%	-0.004	97.494%	98.426%	0.007	99.105%
σ		0.569%	0.017	0.487%	0.237%	0.004	1.752%
%RSD		0.583	415.400	0.500	0.240	58.000	1.768

M03456
200ppb

CKS 7/8/2013 9:27:42 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:27:55	96.260%	199.900	95.202%	97.300%	r197.900	96.316%
2	09:28:07	95.955%	200.000	95.574%	96.963%	r194.200	98.284%
3	09:28:19	94.246%	n200.300	93.941%	96.722%	r191.200	99.640%
x		95.487%	n200.100	94.906%	96.995%	r194.400	98.080%
σ		1.086%	n0.240	0.856%	0.290%	r3.344	1.671%
%RSD		1.137	n0.120	0.902	0.299	r1.720	1.704

M03458
100ppb

ICV 7/8/2013 9:29:55 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:30:07	94.348%	99.900	94.657%	97.154%	104.300	96.183%
2	09:30:20	94.896%	99.940	94.996%	97.121%	101.700	98.303%
3	09:30:32	95.628%	99.730	95.568%	97.138%	100.800	99.958%
x		94.957%	99.860	95.073%	97.138%	102.300	98.148%
σ		0.642%	0.109	0.460%	0.016%	1.818	1.892%
%RSD		0.676	0.109	0.484	0.017	1.778	1.928

ICB 7/8/2013 9:32:07 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:32:20	96.810%	0.040	96.310%	97.773%	0.017	97.251%
2	09:32:32	96.810%	0.009	96.784%	97.706%	0.012	98.297%
3	09:32:45	98.958%	0.013	98.120%	98.054%	0.003	100.131%
x		97.526%	0.020	97.071%	97.844%	0.011	98.560%
σ		1.240%	0.017	0.939%	0.185%	0.007	1.458%
%RSD		1.272	82.650	0.967	0.189	65.960	1.479

50μL M03456
1.0ppb

LLQC-1 7/8/2013 9:34:22 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:34:34	95.778%	0.938	95.683%	96.817%	1.022	96.454%
2	09:34:47	96.831%	0.999	96.446%	97.607%	1.010	98.620%
3	09:34:59	97.655%	1.002	97.109%	97.475%	0.996	99.778%
x		96.754%	0.980	96.413%	97.299%	1.009	98.284%
σ		0.941%	0.036	0.714%	0.423%	0.013	1.688%
%RSD		0.972	3.675	0.740	0.435	1.314	1.717

LPBS05BR 7/8/2013 9:52:12 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:52:24	89.352%	0.370	89.234%	93.193%	0.006	93.063%
2	09:52:36	89.926%	0.331	90.089%	93.569%	0.001	94.868%
3	09:52:49	90.270%	0.311	90.108%	93.972%	-0.006	96.102%
x		89.849%	0.337	89.810%	93.578%	0.000	94.678%
σ		0.464%	0.030	0.500%	0.390%	0.006	1.528%
%RSD		0.516	8.937	0.556	0.416	1704.000	1.614

LCS90SSR 7/8/2013 9:54:23 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:54:35	84.954%	55.010	82.292%	86.784%	49.720	91.224%
2	09:54:48	84.028%	54.530	81.856%	87.029%	49.530	91.532%
3	09:55:00	84.154%	54.820	81.448%	86.801%	48.860	92.674%
x		84.379%	54.790	81.865%	86.871%	49.370	91.810%
σ		0.502%	0.240	0.422%	0.136%	0.452	0.764%
%RSD		0.595	0.439	0.516	0.157	0.916	0.832

TV: 50ppb

ECL029318-001 7/8/2013 9:56:34 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:56:47	83.908%	2.537	82.309%	88.807%	0.098	89.876%
2	09:56:59	83.127%	2.523	81.314%	88.621%	0.083	91.141%
3	09:57:11	82.956%	2.411	81.951%	88.766%	0.078	92.109%
x		83.330%	2.490	81.858%	88.731%	0.087	91.042%
σ		0.508%	0.069	0.504%	0.098%	0.011	1.120%
%RSD		0.610	2.777	0.616	0.110	12.140	1.230

ECL029318-002 7/8/2013 9:58:46 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	09:58:58	83.448%	2.627	82.064%	89.190%	0.039	90.382%
2	09:59:11	83.529%	2.591	81.851%	88.977%	0.035	91.697%
3	09:59:23	82.807%	2.508	81.508%	88.594%	0.029	92.225%
x		83.261%	2.575	81.808%	88.920%	0.034	91.435%
σ		0.396%	0.061	0.280%	0.302%	0.005	0.949%
%RSD		0.475	2.368	0.343	0.340	14.480	1.038

ECL029318-003 7/8/2013 10:00:57 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:01:10	81.107%	11.790	79.696%	87.209%	0.646	82.714%
2	10:01:23	80.037%	11.860	78.998%	86.545%	0.638	83.879%
3	10:01:35	79.457%	11.870	78.253%	86.557%	0.616	84.409%
x		80.200%	11.840	78.982%	86.771%	0.633	83.667%
σ		0.837%	0.041	0.721%	0.380%	0.015	0.867%
%RSD		1.043	0.343	0.913	0.438	2.434	1.036

ECL029318-003D 7/8/2013 10:03:10 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:03:22	76.932%	11.460	76.922%	85.587%	0.603	82.140%
2	10:03:35	77.514%	11.560	76.989%	85.163%	0.583	83.330%
3	10:03:47	77.246%	11.560	76.526%	85.144%	0.582	83.998%
x		77.230%	11.530	76.812%	85.298%	0.589	83.156%
σ		0.291%	0.059	0.250%	0.251%	0.012	0.941%
%RSD		0.377	0.512	0.326	0.294	1.977	1.132

ECL029318-003S 7/8/2013 10:05:22 AM

User Pre-dilution: 1.000

+ 50ppb

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:05:34	75.506%	60.140	74.818%	84.317%	52.300	80.848%
2	10:05:46	75.317%	60.370	74.595%	83.621%	51.430	81.419%
3	10:05:59	74.998%	60.200	74.176%	83.686%	51.050	82.029%
x		75.273%	60.240	74.530%	83.874%	51.600	81.432%
σ		0.256%	0.118	0.326%	0.384%	0.640	0.591%
%RSD		0.341	0.196	0.438	0.458	1.241	0.725

ECL029318-004 7/8/2013 10:07:34 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:07:47	73.794%	6.638	73.216%	83.675%	0.437	79.990%
2	10:07:59	72.587%	6.657	72.532%	82.651%	0.446	80.408%
3	10:08:11	72.546%	6.658	72.484%	82.668%	0.424	81.536%
x		72.975%	6.651	72.744%	82.998%	0.436	80.645%
σ		0.709%	0.012	0.410%	0.586%	0.011	0.800%
%RSD		0.971	0.173	0.563	0.707	2.493	0.992

ECL029318-005 7/8/2013 10:09:47 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:10:00	71.145%	8.601	70.642%	81.668%	0.726	78.954%
2	10:10:12	70.866%	8.469	70.202%	81.268%	0.708	79.633%
3	10:10:24	70.600%	8.540	70.353%	81.410%	0.701	80.695%
x		70.870%	8.536	70.399%	81.449%	0.711	79.760%
σ		0.273%	0.066	0.223%	0.203%	0.013	0.877%
%RSD		0.385	0.775	0.317	0.249	1.841	1.100

ECL029318-006 7/8/2013 10:12:00 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:12:13	69.663%	6.472	70.003%	81.894%	0.460	78.662%
2	10:12:25	69.379%	6.520	69.785%	81.404%	0.451	79.804%
3	10:12:37	68.959%	6.428	69.555%	80.723%	0.446	79.903%
x		69.334%	6.473	69.781%	81.340%	0.452	79.457%
σ		0.354%	0.046	0.224%	0.588%	0.007	0.690%
%RSD		0.511	0.710	0.321	0.723	1.633	0.868

CCB 7/8/2013 10:14:13 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:14:25	68.660%	0.186	71.679%	84.524%	0.019	85.402%
2	10:14:37	69.042%	0.159	71.787%	84.546%	0.011	87.160%
3	10:14:50	69.102%	0.163	72.038%	84.288%	0.007	89.041%
x		68.934%	0.169	71.835%	84.453%	0.012	87.201%
σ		0.240%	0.014	0.184%	0.143%	0.006	1.820%
%RSD		0.348	8.496	0.256	0.169	50.820	2.087

CICS 7/8/2013 10:16:25 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:16:37	65.009%	190.800	68.940%	82.192%	TM 217.700	T 76.429%
2	10:16:50	65.436%	190.700	68.692%	82.156%	TM 213.800	T 78.142%
3	10:17:02	65.819%	191.600	68.012%	81.776%	TM 208.300	T 80.159%
x		65.422%	191.000	68.548%	82.041%	TM 213.200	T 78.243%
σ		0.405%	0.505	0.480%	0.230%	TM 4.732	T 1.867%
%RSD		0.619	0.265	0.700	0.281	TM 2.219	T 2.387

ECL029318-007 7/8/2013 10:18:38 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:18:50	65.720%	19.070	65.610%	78.149%	4.330	75.500%
2	10:19:03	65.512%	18.700	65.736%	78.080%	4.291	76.527%
3	10:19:15	65.442%	18.890	65.432%	78.013%	4.247	77.029%
x		65.558%	18.890	65.593%	78.081%	4.289	76.352%
σ		0.145%	0.186	0.153%	0.068%	0.042	0.779%
%RSD		0.221	0.986	0.233	0.087	0.969	1.021

ECL029318-008 7/8/2013 10:20:52 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:21:05	64.799%	5.481	64.772%	77.950%	1.416	75.312%
2	10:21:17	64.012%	5.393	64.997%	77.831%	1.375	76.098%
3	10:21:30	64.423%	5.437	64.409%	77.428%	1.374	77.046%
x		64.411%	5.437	64.726%	77.736%	1.389	76.152%
σ		0.393%	0.044	0.297%	0.273%	0.024	0.869%
%RSD		0.611	0.809	0.458	0.352	1.717	1.141

ECL029318-009 7/8/2013 10:23:05 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:23:18	63.310%	8.345	64.272%	77.293%	0.950	74.990%
2	10:23:30	64.125%	8.401	64.703%	77.757%	0.923	76.383%
3	10:23:42	64.114%	8.374	64.329%	77.598%	0.913	76.933%
x		63.850%	8.373	64.435%	77.550%	0.929	76.102%
σ		0.467%	0.028	0.234%	0.236%	0.019	1.001%
%RSD		0.732	0.336	0.363	0.304	2.053	1.316

ECL029318-010 7/8/2013 10:25:16 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:25:29	63.678%	4.858	64.043%	77.346%	0.518	74.869%
2	10:25:41	63.390%	4.792	63.853%	77.652%	0.513	75.946%
3	10:25:53	62.816%	4.753	63.409%	76.776%	0.494	76.358%
x		63.295%	4.801	63.769%	77.258%	0.508	75.724%
σ		0.439%	0.053	0.325%	0.445%	0.013	0.769%
%RSD		0.694	1.103	0.510	0.576	2.505	1.016

ECL029318-011 7/8/2013 10:27:27 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:27:40	62.753%	8.649	63.635%	77.341%	0.739	74.828%
2	10:27:52	62.650%	8.610	63.778%	77.120%	0.723	75.933%
3	10:28:05	62.366%	8.737	63.346%	76.533%	0.718	76.417%
x		62.590%	8.665	63.586%	76.998%	0.727	75.726%
σ		0.201%	0.065	0.220%	0.418%	0.011	0.815%
%RSD		0.320	0.752	0.347	0.543	1.493	1.076

ECL029318-012 7/8/2013 10:29:39 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:29:52	63.034%	4.561	63.368%	77.535%	0.483	75.129%
2	10:30:04	62.318%	4.439	63.007%	77.084%	0.469	76.023%
3	10:30:17	62.387%	4.406	63.030%	77.098%	0.463	76.941%
x		62.580%	4.469	63.135%	77.239%	0.472	76.031%
σ		0.395%	0.081	0.202%	0.257%	0.010	0.906%
%RSD		0.631	1.818	0.320	0.332	2.147	1.192

ECL029318-013 7/8/2013 10:31:51 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:32:04	64.805%	2.211	65.502%	79.744%	-0.012	84.289%
2	10:32:16	64.450%	2.132	65.742%	79.444%	-0.015	85.442%
3	10:32:28	64.566%	2.161	65.840%	79.615%	-0.022	86.303%
x		64.607%	2.168	65.695%	79.601%	-0.017	85.344%
σ		0.181%	0.040	0.174%	0.150%	0.005	1.011%
%RSD		0.281	1.852	0.265	0.189	31.610	1.184

ECL029318-013D 7/8/2013 10:34:04 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:34:16	64.793%	2.747	65.346%	79.141%	-0.017	84.323%
2	10:34:29	64.945%	2.683	65.348%	79.488%	-0.009	85.573%
3	10:34:41	64.465%	2.652	65.501%	79.071%	-0.017	85.825%
x		64.734%	2.694	65.398%	79.233%	-0.014	85.240%
σ		0.245%	0.048	0.089%	0.223%	0.005	0.804%
%RSD		0.379	1.796	0.135	0.282	32.280	0.944

ECL029318-013S 7/8/2013 10:36:16 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:36:28	64.322%	51.150	65.394%	79.218%	50.650	83.878%
2	10:36:40	63.853%	51.030	64.803%	79.128%	49.710	84.997%
3	10:36:53	63.571%	50.910	65.167%	79.657%	49.450	85.999%
x		63.915%	51.030	65.121%	79.334%	49.940	84.958%
σ		0.380%	0.117	0.298%	0.283%	0.631	1.061%
%RSD		0.594	0.230	0.458	0.357	1.263	1.249

ECL029318-014 7/8/2013 10:38:28 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:38:41	64.415%	2.269	65.811%	79.786%	-0.023	84.180%
2	10:38:53	64.502%	2.334	65.467%	79.516%	-0.028	85.325%
3	10:39:06	64.357%	2.169	65.324%	79.408%	-0.025	85.537%
x		64.425%	2.257	65.534%	79.570%	-0.026	85.014%
σ		0.073%	0.083	0.250%	0.195%	0.002	0.730%
%RSD		0.114	3.668	0.381	0.245	9.163	0.859

CCB 7/8/2013 10:40:41 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:40:53	60.876%	0.161	64.257%	78.700%	0.017	81.243%
2	10:41:05	60.379%	0.193	64.155%	79.063%	0.012	82.551%
3	10:41:18	60.674%	0.125	64.234%	78.931%	0.007	83.975%
x		60.643%	0.160	64.216%	78.898%	0.012	82.589%
σ		0.250%	0.034	0.053%	0.184%	0.005	1.367%
%RSD		0.412	21.420	0.083	0.233	40.710	1.655

CICS 7/8/2013 10:42:53 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:43:06	58.490%	194.600	61.927%	77.371%	TM 213.900	T 75.510%
2	10:43:18	58.601%	191.800	61.942%	77.592%	TM 215.700	T 74.235%
3	10:43:31	58.477%	193.100	61.506%	77.036%	TM 213.600	T 75.109%
x		58.523%	193.200	61.792%	77.333%	TM 214.400	T 74.951%
σ		0.068%	1.437	0.247%	0.280%	TM 1.119	T 0.652%
%RSD		0.116	0.744	0.400	0.362	TM 0.522	T 0.870

ECL029318-015 7/8/2013 10:45:06 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:45:18	60.471%	15.590	61.284%	75.692%	3.894	74.278%
2	10:45:31	60.092%	15.570	60.945%	75.072%	3.832	75.067%
3	10:45:43	59.844%	15.560	60.846%	75.175%	3.807	75.348%
x		60.136%	15.580	61.025%	75.313%	3.844	74.898%
σ		0.316%	0.013	0.229%	0.333%	0.045	0.555%
%RSD		0.525	0.084	0.376	0.442	1.170	0.741

ECL029318-016 7/8/2013 10:47:20 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:47:33	60.178%	2.489	60.996%	75.785%	0.233	74.312%
2	10:47:45	60.324%	2.459	61.110%	75.708%	0.243	75.019%
3	10:47:57	60.343%	2.378	61.024%	75.532%	0.230	75.742%
x		60.282%	2.442	61.044%	75.675%	0.236	75.024%
σ		0.090%	0.057	0.059%	0.130%	0.007	0.715%
%RSD		0.150	2.350	0.097	0.171	2.871	0.953

ECL029318-017 7/8/2013 10:49:35 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:49:48	59.971%	5.517	60.395%	75.183%	2.505	73.572%
2	10:50:00	59.637%	5.476	60.600%	75.234%	2.449	75.017%
3	10:50:13	59.240%	5.424	59.883%	74.838%	2.439	75.280%
x		59.616%	5.472	60.293%	75.085%	2.465	74.623%
σ		0.366%	0.047	0.369%	0.215%	0.036	0.920%
%RSD		0.613	0.853	0.612	0.287	1.451	1.232

ECL029318-018 7/8/2013 10:51:49 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:52:02	60.140%	2.203	60.792%	75.831%	0.169	73.995%
2	10:52:14	59.701%	2.187	60.333%	75.647%	0.160	74.867%
3	10:52:26	59.645%	2.105	60.464%	75.613%	0.159	75.792%
x		59.829%	2.165	60.530%	75.697%	0.163	74.885%
σ		0.271%	0.053	0.236%	0.117%	0.005	0.898%
%RSD		0.453	2.443	0.390	0.155	3.149	1.200

ECL029318-019 7/8/2013 10:54:02 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:54:14	60.063%	4.868	60.985%	75.830%	3.851	74.057%
2	10:54:27	60.467%	4.825	60.930%	75.681%	3.803	75.158%
3	10:54:39	60.011%	4.786	60.913%	75.972%	3.756	75.637%
x		60.180%	4.826	60.942%	75.828%	3.804	74.951%
σ		0.250%	0.041	0.038%	0.145%	0.047	0.810%
%RSD		0.415	0.852	0.062	0.192	1.242	1.081

ECL029318-020 7/8/2013 10:56:13 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:56:25	59.706%	2.060	60.353%	75.837%	0.122	74.566%
2	10:56:38	59.405%	1.986	60.150%	75.893%	0.119	75.280%
3	10:56:50	59.735%	2.089	60.175%	76.108%	0.114	75.790%
x		59.615%	2.045	60.226%	75.946%	0.118	75.212%
σ		0.183%	0.053	0.111%	0.143%	0.004	0.615%
%RSD		0.307	2.594	0.184	0.188	3.199	0.818

CCB 7/8/2013 10:58:25 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:58:37	58.528%	0.092	61.780%	77.662%	0.021	79.126%
2	10:58:50	58.539%	0.050	61.838%	77.689%	0.013	80.831%
3	10:59:02	58.410%	0.078	61.721%	77.664%	0.007	82.306%
x		58.493%	0.073	61.779%	77.672%	0.014	80.754%
σ		0.072%	0.022	0.059%	0.015%	0.007	1.591%
%RSD		0.123	29.580	0.095	0.019	51.960	1.971

CICS 7/8/2013 11:00:37 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:00:50	58.119%	190.700	60.901%	76.723%	TM 201.200	78.419%
2	11:01:02	57.947%	190.700	60.560%	76.670%	T 196.800	79.943%
3	11:01:15	57.710%	190.800	60.313%	76.975%	TM 208.200	T 75.413%
x		57.925%	190.700	60.591%	76.789%	TM 202.100	T 77.925%
σ		0.206%	0.019	0.296%	0.163%	TM 5.736	T 2.305%
%RSD		0.355	0.010	0.488	0.213	TM 2.838	T 2.958

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719
410-537-3442 410-537-3092 (fax) 1-800-633-6101, ext. 3442

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Secretary

August 19, 2013

Mr. Christopher L. Jones
Mrs. Nicole M. Jones
3998 Farm Lane
Monrovia MD 21770

RE: DRINKING WATER SAMPLE RESULTS
MDE-FCHD Groundwater Investigation
Green Valley / Monrovia
Frederick County, Maryland

Dear Mr. and Mrs. Jones:

On July 9, 2013, the Maryland Department of the Environment's contractor collected several samples from your drinking water supply system. Water samples were collected from your kitchen sink, before and after purges of your pressure tank, and after purging your well. As you are aware, the sampling was not completed as originally planned due to complications with the well pump and well piping. Those complications were corrected and your plumbing system was returned to normal. There was sufficient volume of sediments in the purge water from the pressure tank to analyze. Summary tables of the sediment sample and the water samples, the full laboratory analytical reports, and field notes are attached.

The federal and State maximum contaminant level (MCL) for total chromium is 100 µg/L. There is no separate federal or State MCL for hexavalent chromium or for dissolved chromium. The Department uses 0.3 µg/L as an action level for hexavalent chromium for private drinking water wells because it represents a conservative lifetime exposure health based standard that is calculated from the most current drinking water risk assessment evaluations available from the U.S. EPA. The federal and State action level that warrants additional investigation for total lead in public drinking water supplies is 15 µg/L, so the MDE follows this standard as an action level for private water supplies. There is no separate level for dissolved lead. The U.S. EPA's recommended pH range for drinking water is 6.5 to 8.5.

Hexavalent chromium and lead are metals that can be hazardous to human health, but a meaningful assessment of potential health risks from exposure to hexavalent chromium and/or lead involves the consideration of multiple factors, including the type of exposure (e.g., ingestion, inhalation, dermal contact), the concentration in water, the duration of exposure, and other factors specific to individuals. Both metals can occur naturally in the environment or may be generated by human activity. Home water pumps, piping, and faucets also are known to be sources of lead in drinking water.

The results from the recent investigation indicate that there is an accumulation of chromium and lead in your pressure tank. The sample collected from the well also showed the presence of lead above applicable levels. However, there were no detections of any metals in the sample collected from the kitchen faucet. It is recommended that you maintain your plumbing system according to manufacturer recommendations and to continue to maintain any treatment systems that are installed.

It is the Department's opinion that the lead detections in the sample labeled as 3998 Farm-WP1 were not representative of the surrounding groundwater conditions due to several complications related to the well pump and well pipe. Because of this, the Departments are proposing to conduct additional sampling. The plan would be very similar to the previous work to better determine groundwater conditions. The plan is as follows.

- A hose will be connected to the spigot at the base of the pressure tank.
- The isolation valve after the pressure tank will be closed.
- The end of the hose will be directed out of the home and to a suitable drainage area on the property.
- The well pump will be allowed to discharge water for approximately 3 hours at a controlled rate. This time will allow for several hundred gallons to be purged from the well to better ensure representative groundwater samples.
- Samples will be collected intermittently during this time.
- Once the samples have been collected, your plumbing service will be returned to its normal operating condition.
- The total time expected to be at your residence is approximately 4 hours.
- All samples will be analyzed by a certified laboratory used in previous sampling events for certain inorganic constituents including lead and hexavalent chromium.
- The results will be provided to you.

This work is completely voluntary and will be conducted at no cost to you. We welcome the opportunity to answer your questions and discuss these plans in more detail. The Departments are interested in conducting this work at your earliest convenience. Please call our contractor, Chesapeake GeoSciences, Inc. at 410-740-1911, extension 102, to schedule an appointment to conduct this work.

Note that a report of the Department's more comprehensive Green Valley/Monrovia groundwater investigation will be made available to you once completed regardless of whether you opt to allow this additional sampling. It is anticipated to be completed within the next several months.

The Frederick County Health Department and the Maryland Department of the Environment appreciate your cooperation in the investigation of groundwater resources in the Monrovia/Green Valley area. If you have any questions about the attached information or the results, please do not hesitate to call me at 410-537-3442 (chris.ralston@maryland.gov).

Sincerely,

Christopher Ralston, Administrator
Oil Control Program

CHR/nln

Enclosures

cc: Dr. Barbara Brookmyer, FCHD Health Officer
Mr. Jay Sakai, Director, MDE Water Management Administration
Mr. Horacio Tablada, Director, MDE Land Management Administration
Priscilla Carroll, Esq., Assistant Attorney General
Francesca Gibbs, Esq., Assistant Attorney General
Theodore Flerlage, Esq., Law Offices of Peter G. Angelos
M. Albert Figinski, Esq., Law Offices of Peter G. Angelos
Dwight Stone, Esq., Whiteford Taylor Preston
Heather S. Deane, Esq., Bonner Kiernan

Summary of Detections – Pressure Tank Sediments

	Sediment
Aluminum	14,300
Antimony	2.45
Arsenic	12.2
Barium	32.3
Calcium	664
Chromium	431
Cobalt	36.8
Copper	318
Iron	176,000
Lead	61.9
Magnesium	3,510
Manganese	2,220
Mercury	0.130
Nickel	239
Potassium	798
Selenium	1.94
Sodium	318
Vanadium	11.5
Zinc	93.3

- All results in mg/kg

Inorganic Laboratory Analytical Data / Field Measurements

MDE-FCHD Groundwater Investigavtion
Green Valley / Monrovia
Frederick County, Maryland

3998 Farm Lane
July 9, 2013

Sample I.D. Sample Location	**3998 Farm-POU** Cold Water tap at Kitchen Sink	**3998 Farm-PT1** Pressure Tank drain (prior to 1st purge)	**3998 Farm-PT1DB** Pressure Tank drain (prior to 1st purge)	**3998 Farm-PT2** Pressure Tank drain (after 1st purge)	**3998 Farm-PT3** Pressure Tank drain (after 2nd purge)	**3998 Farm-PT4** Pressure Tank drain (after 3rd purge)	**3998 Farm-WP1** Garden hose connected to pressure tank drain (after ~1.0 well volume)	**3991 Farm-FB** Field Blank	**MDE Groundwater Standard**
Analyte	**Concentration (ug/L)**								
Total Chromium	1.0 U	1.0 U	1.0 U	**165**	**66.8**	**44.0**	**12.7**	1.0 U	1.0E+02
Total Lead	1.0 U	**10.2**	**6.7**	**47.4**	**39.7**	**112**	**38.9**	1.0 U	1.5E+01
Dissolved Chromium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	na
Dissolved Lead	1.0 U	**4.7**	**4.7**	**2.5**	**3.3**	**4.4**	**6.6**	1.0 U	na
Hexavalent Chromium (Chromate)	0.020 U	**0.024**	**0.025**	0.020 U	0.020 U	0.020 U	**0.023**	0.020 U	na

Parameter	**Field Measurement**								
pH	**5.35**	**3.80**	**3.80**	**5.27**	**4.99**	**4.89**	**5.31**	**6.11**	na
Temperature (°C)	**22.35**	**17.81**	**17.81**	**15.87**	**15.35**	**15.19**	**19.74**	**21.64**	na
Oxidation-Reduction Potential (ORP) (mV)	**283.7**	**365.1**	**365.1**	**309.0**	**323.4**	**335.1**	**285.5**	**360.2**	na

Table Notes:
Total and Dissolved Lead and Chromium Analytical Method: EPA Method 200.8
Hexavalent Chromium Analytical Method: EPA Method 218.7
ug/L - micrograms per liter or parts per billion (ppb)
MDE Groundwater Standard Type I and II Aquifers (June 2008)
U - Analyte Not Detected Above Specified Reporting Limit (RL)
Bold - Detected analyte concentration
Bold and underline - Detected analyte concentration exceeds respective standard
na - not applicable
YSI 556 Water Quality Meter used to measure pH, temperature, and ORP
°C - degrees Celsius
mV - millivolts

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 02-Aug-13

REPORT NUMBER: 6757

LAB#- ECL029478-001 SAMPLE ID- 3998 Farm-Sed1
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 10:00 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS- Insufficient sample for % Solids determination. Sample was air dried before analysis.

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Aluminum	EPA 6010C	7/15/2013 16:04	CHK	14300	mg/kg(dry)	94.3	
Antimony*	EPA 6020A	7/22/2013 16:07	CHK	2.45	mg/kg(dry)	0.472	S
Arsenic*	EPA 6020A	7/22/2013 16:07	CHK	12.2	mg/kg(dry)	0.472	S
Barium*	EPA 6020A	7/22/2013 16:07	CHK	32.3	mg/kg(dry)	0.472	S
Beryllium*	EPA 6020A	7/25/2013 15:03	CHK	< 0.472	mg/kg(dry)	0.472	
Cadmium*	EPA 6020A	7/22/2013 16:07	CHK	< 0.472	mg/kg(dry)	0.472	
Calcium	EPA 6010C	7/17/2013 10:57	CHK	664	mg/kg(dry)	9.43	
Chromium*	EPA 6020A	7/22/2013 16:07	CHK	431	mg/kg(dry)	9.43	S
Cobalt	EPA 6020A	7/22/2013 16:07	CHK	36.8	mg/kg(dry)	0.472	S
Copper*	EPA 6020A	7/22/2013 16:07	CHK	318	mg/kg(dry)	9.43	
Iron	EPA 6010C	7/15/2013 16:38	CHK	176000	mg/kg(dry)	9430	
Lead*	EPA 6020A	7/22/2013 16:07	CHK	61.9	mg/kg(dry)	0.472	
Magnesium	EPA 6010C	7/17/2013 11:39	CHK	3510	mg/kg(dry)	94.3	
Manganese	EPA 6020A	7/22/2013 16:07	CHK	2220	mg/kg(dry)	47.2	
Mercury*	EPA 6020A	7/22/2013 16:07	CHK	0.130	mg/kg(dry)	0.094	
Nickel*	EPA 6020A	7/22/2013 16:07	CHK	239	mg/kg(dry)	9.43	S
Potassium	EPA 6010C	7/17/2013 10:57	CHK	798	mg/kg(dry)	47.2	
Selenium*	EPA 6020A	7/22/2013 16:07	CHK	1.94	mg/kg(dry)	0.472	S
Silver*	EPA 6020A	7/22/2013 16:07	CHK	< 0.472	mg/kg(dry)	0.472	S
Sodium	EPA 6010C	7/17/2013 10:57	CHK	318	mg/kg(dry)	47.2	
Thallium*	EPA 6020A	7/22/2013 16:07	CHK	< 0.472	mg/kg(dry)	0.472	
Vanadium	EPA 6020A	7/22/2013 16:07	CHK	11.5	mg/kg(dry)	0.472	S
Zinc*	EPA 6020A	7/22/2013 16:07	CHK	93.3	mg/kg(dry)	2.36	

Stephen Shelley
LABORATORY DIRECTOR

State of Maryland Certified Parameter
* NELAC Certified Parameter

Sample Chain of Custody

Enviro-Chem Laboratories, Inc. — **47 Loveton Circle, Suite K** — **Sparks, MD 21152**

Client: ChesapeakeGeoSciences, Inc. (CGS) Phone No.: (410) 740-1911 x102
ECL Log in Batch Number — Page 2 of 2

Project Manager: Sean Daniel Fax No.: (410) 740-3299

Sampler: Lara Bennett + Devin Glancey Email: sdaniel@cgs.us.com

Project Name: Green Valley Citgo Project Number: CG-12-0788.06

P.O.Number: CG120788.065D

Preservative Key:
NA = Nitric Acid, pH <2
SA = Sulfuric Acid, pH <2
OH = NaOH, pH >12
TI = Thiosulfate
Zn = Zinc Acetate
N = None, Chilled
X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Sample Type C = Comp. G = Grab	TAL Metals Method 6020 (Preservative: N)							Remarks
ECL029478-001	3998 Farm-Sed 1	7/9/13	10:00	SS	1	G	X							Hold for more information

Collected / Relinquished By	Date	Time	Received By
[signature]	7/10/13	9:18	[signature]
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By

Deliverables Required — # Coolers — Seal

Due Date — Ice Present — Temp

Turnaround Requested — Rush?
STD — 1-Day — Other

Special instructions, Comments:
* Level IV Data Package Deliverable *

COC/Labels match Y N — # of Samples — # of Bottles
Bottles intact/appropriate Y N — Preserved correctly Y N NA

Explain any "NO" answers

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Date: 7/9/2013
Arrival Time: 8:20
Departure Time: 17:30
Property Owner: Nicole Jones

Address: 3998 Farm Lane
Monrovia, MD
CGS Staff: Lara Bennett, Sean Daniel, Devin Glance

When was the last time water was used ? N/A
Where and what was the purpose of recent water use? N/A
Is a totalizer meter present? No meter present
If yes, what is the totalizer meter reading prior to sampling? N/A

Sample Locations and IDs

Sample Type	Sample ID	Location	Sample Time	Check to indicate sample collection: Total Lead / Chromium	Dissolved Lead / Chromium	Hexavalent Chromium	Enter reading: pH	Temperature (° C)	ORP (mV)
Point of Use	3998Farm-POU	kitchen sink	8:49	X	X	X	5.35	22.35	283.7
PT#1	3998Farm-PT1	Pressure Tank	9:05	X	X	X	3.80	17.81	365.1
PT#2	3998Farm-PT2	↓	9:27	X	X	X	5.27	15.87	309.0
PT#3	3998Farm-PT3	↓	9:42	X	X	X	4.99	15.35	323.4
PT#4	3998Farm-PT4	↓	9:53	X	X	X	4.89	15.19	335.1
Duplicate	3998Farm-PT1DP	Pressure Tank	00:00	X	X	X	3.80	17.81	365.1
Field Blank	3998Farm-FB	N/A	10:30	X	X	X	6.11	21.64	360.2

Point of Use Purge - Collected from Kitchen Sink Tap
Purge time begin: 8:38
Purge time end: 8:48
* Carbon filter socket present at Kitchen Sink, but Ms. Jones does not use it.

First Pressure Tank Purge
Purge time begin: 9:20
Purge time end: 9:24
Total gallons purged: 13 gallons

Second Pressure Tank Purge
Purge time begin: 9:34
Purge time end: 9:37
Total gallons purged: 14 gallons

Third Pressure Tank Purge
Purge time begin: 9:47
Purge time end: 9:51
Total gallons purged: 14 gallons

pH/Temperature/ORP Meter Calibration

Provide notes on calibration including date, time, standards used and results of calibration.

pH Calibration: Calibrated 7/8/13 at 16:00 by CDG
ORP Calibration: Calibrated 7/8/13 at 16:00 by CDG

Well Tag Number: FR-73-2623
Well Location: Located in backyard in NW corner

→ Ms. Jones buys water to use for cooking *

3998Farm-Sed1 - Sediment Sample collected at 10:00 from purge water

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Well Purge:
Purge time begin: 10:07
Purge time end: 11:05
Total gallons purged: ~530 (Estimated)

Well Depth: 400 ft BG
Well Diameter: 6 inches
One Well Volume (gallons): 528.84
Three Well Volumes (gallons): 1,586.52

Time	Pumping Rate (Gallons/Minute)	Temperature (° C)	pH	ORP (mV)	Comments
10:07	12.20	—	—	—	Flow rate is fast
10:14	11.54	—	—	—	Water is mostly clear
10:20	10.00	—	—	—	Flow rate is slowed by
10:22	9.38	—	—	—	closing PT valve slightly
10:25	9.38	—	—	—	Little sediment is visible
10:30	9.38	—	—	—	FB sample is collected
10:37	7.14	—	—	—	Flow rate is slowed by
10:40	8.11	—	—	—	closing PT valve again.
10:50	7.51	—	—	—	Flow rate is steady.
10:52	7.51	—	—	—	
11:05	0	—	—	—	Water suddenly stops;
					well has gone dry.
					Water is immediately shut
					off. CGS allows well to
					recharge for approx. 20mins.
11:25	0	—	—	—	Little water has filled the
					pressure tank so pump
					is shut off again for 15
					additional minutes. PM
					is contacted to keep him
					informed of progress.
12:00	0	—	—	—	Pump is turned on again.
					Water does not fill PT.
					PM is called to access
					situation. Pump is shut
					off again for 30 more mins.
12:30	0	—	—	—	Pump is turned on again.
					No water is heard filling
					PT. No water drains from
					PT spigot. CGS personnel
					wait for PM to arrive
					in order to check electronics
					on pump.

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Field Notes:

12:55 PM (Sean Daniel) arrives on-site and access well electronic box and circuits with a volt reader. Pump appears to have the correct amount of power, PM discusses problem with home owner (Nicole Jones). Ms. Jones informs CGS that the well has gone dry before when they used to top off the pool. The well would usually recharge within an hour to an hour and a half. The pump in the well has been replaced twice since the Jones moved in 2002. The original pump was a 3/4 horsepower pump. The Jones replaced it with a 1 horsepower pump. The current well pump was installed on June 4th, 2013 (~approx. 1 month ago) after the previous pump burned out. The pump was set at 200 and some feet in the well, Pump is again shut off. Water Doctor is contacted for advise.

13:00/13:30/14:15 Pump is turned on and the PT is checked for water. Each time a small amount of water fills the PT but quickly stops, Each time the pump is shut off and the well is left to recharge. PM calls Water Doctor to make an emergency visit.

15:00 Pump is turned on again. A bit more water fills the PT. CGS is able to collect a sample (3998Farm-WP1) at 15:05. Temperature-19.74°C / ORP-285.5mV / pH-5.31
The valve after the PT is double checked to make sure it is closed and that the water collected for the sample is not backwash from the house. The pressure tank (PT) still will

15:15 not fill. The pump is shut off until Water Doctor arrives.

16:30 Water Doctor arrives at the site. Ted from Water Doctor access the pump and the well. Ted notes that the pump should be working based on the volt readings. The decision is made to let the well recharge over night and see if there is water in the AM. If there is still no water, Water Doctor will pull the pump in the morning.

17:30 All personnel off-site.

TABLE OF CONTENTS

Table of Contents	1
Case Narrative	2
Chain of Custody	4
Analytical Reports	6
QC Summary Table	23
Instrument Blanks	26
Calibration Data	28
Metals Digestion Logs	34
Raw Data	36

Case Narrative

Case Narrative

The following samples were received by Enviro-Chem Laboratories, Inc. from Chesapeake Geo-Science in support of their Green Valley Citgo Project.

Lab#	SampleID	Received Date	Collection	Collector
ECL029474-001	3998 Farm-POU Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-002	3998 Farm-POU Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-003	3998 Farm-PT1 Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-004	3998 Farm-PT1 Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-005	3998 Farm-PT1DB Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-006	3998 Farm-PT1DB Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-007	3998 Farm-PT2 Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-008	3998 Farm-PT2 Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-009	3998 Farm-PT3 Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-010	3998 Farm-PT3 Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-011	3998 Farm-PT4 Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-012	3998 Farm-PT4 Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-013	3998 Farm-WP1 Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-014	3998 Farm-WP1 Dissolved	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-015	3998 Farm-FB Total	7/10/2013	7/9/2013	Bennett, Glancey
ECL029474-016	3998 Farm-FB Dissolved	7/10/2013	7/9/2013	Bennett, Glancey

Samples were analyzed by EPA 200.8 for total and dissolved Chromium and Lead, and by EPA Method 218.7 for Hexavalent Chromium. The spike recoveries for the matrix spike and matrix spike duplicate analysis for Chromate by Method 218.7 were below the 85-115 % control limits, All other Quality Control criteria for these analyses were met.

Stephen E. Shelley
Laboratory Director
Enviro-Chem Laboratories, Inc.

Chain of Custody

Sample Chain of Custody

$(NH_4)_2SO_4 + NH_4OH$

Enviro-Chem Laboratories, Inc. | **47 Loveton Circle, Suite K** | **Sparks, MD 21152**

Client: Chesapeake GeoSciences, Inc. (CGS) Phone No.: (410) 740-1911 x102

ECL Log in Batch Number: 29474 Page 1 of 2

Project Manager: Sean Daniel Fax No.: (410) 740-3299

Sampler: Lara Bennett & Devin Glancey Email: sdaniel@cgs.us.com

Project Name: Green Valley Citgo Project Number: CG-12-0788.06

P.O.Number: CG120788.065D

Preservative Key: NA = Nitric Acid, pH <2; SA = Sulfuric Acid, pH <2; OH = NaOH, pH >12; TI = Thiosulfate; Zn = Zinc Acetate; N = None, Chilled; X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Preservative	Sample Type C = Comp. G = Grab	Total Lead/Chromium EPA Method 200.8	Dissolved Lead/Chromium EPA Method 200.8	Hexavalent Chromium EPA Method 218.7	N	NA						Remarks
ECL029474-001 ECL029474-002	3998Farm-POU	7/9/13	8:49	DW	3		G	X	X	X								
ECL029474-003 ECL029474-004	3998Farm-PT1		9:05	DW	3		G	X	X	X								
ECL029474-005 ECL029474-006	3998Farm-PT1DB		00:00	DW	3		G	X	X	X								
ECL029474-007 ECL029474-008	3998Farm-PT2		9:27	DW	3		G	X	X	X								
ECL029474-009 ECL029474-010	3998Farm-PT3		9:42	DW	3		G	X	X	X								
ECL029474-011 ECL029474-012	3998Farm-PT4		9:53	DW	3		G	X	X	X								
ECL029474-013 ECL029474-014	3998Farm-WP1	7/9/13	15:05	DW	3		G	X	X	X								
ECL029474-015 ECL029474-016	[redacted]																	
	[redacted]																	
ECL029474-017 ECL029474-018	3998Farm-FB	7/9/13	10:30	DW	3		G	X	X	X								

Collected / Relinquished By	Date 7/10/13	Time 9:18	Received By	Deliverables Required
Relinquished By	Date	Time	Received By	Due Date
Relinquished By	Date	Time	Received By	Turnaround Requested: STD / 1-Day / Other; Rush?
Relinquished By	Date	Time	Received By	Special instructions, Comments: * Level IV Data Package * Deliverables

# of Coolers: Seal:

Ice Present: Temp:

COC/Labels match Y N	# of Samples	# of Bottles	Explain any "NO" answers	
Bottles intact/appropriate Y N	Preserved correctly Y N NA			

ECL Doc: 1 (11/07/10)

Analytical Reports

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-001 SAMPLE ID- 3998 Farm-POU Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 8:49 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

Page 1 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-002 SAMPLE ID- 3998 Farm-POU Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 8:49 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/16/2013 23:45	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-003 SAMPLE ID- 3998 Farm-PT1 Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:05 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	10.2	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-004 SAMPLE ID- 3998 Farm-PT1 Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:05 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	4.7	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 00:41	SES	0.024	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-005 SAMPLE ID- 3998 Farm-PT1DB Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	6.7	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-006 SAMPLE ID- 3998 Farm-PT1DB Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	4.7	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 01:00	SES	0.025	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-007 SAMPLE ID- 3998 Farm-PT2 Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:27 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	165	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	47.4	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-008 SAMPLE ID- 3998 Farm-PT2 Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:27 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	2.5	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 01:19	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-009 SAMPLE ID- 3998 Farm-PT3 Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:42 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	66.8	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	39.7	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-010 SAMPLE ID- 3998 Farm-PT3 Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:42 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	3.3	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 01:38	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-011 SAMPLE ID- 3998 Farm-PT4 Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:53 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	44.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	112	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-012 SAMPLE ID- 3998 Farm-PT4 Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 9:53 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	4.4	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 01:57	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-013 SAMPLE ID- 3998 Farm-WP1 Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 15:05 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	12.7	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	38.9	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-014 SAMPLE ID- 3998 Farm-WP1 Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 15:05 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	6.6	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 02:16	SES	0.023	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-015 SAMPLE ID- 3998 Farm-FB Total
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 10:30 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-016 SAMPLE ID- 3998 Farm-FB Dissolved
LOCATION-
DATE SAMPLED- 7/9/2013 TIME SAMPLED- 10:30 SAMPLER- Bennett, Glancey
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 10:58	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 02:35	SES	< 0.020	ug/L Cr	0.020	S

Stephen Shelley
LABORATORY DIRECTOR

State of Maryland Certified Parameter
* NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
ECL029474-011D	Duplicate	Chromium	36.5	µg/L		44.0	18.6	0	20	
ECL029474-001D	Duplicate	Chromium	< 1.0	µg/L		< 1.0	6.7	0	20	
ECL029474-001D	Duplicate	Lead	< 1.0	µg/L		< 1.0	18	0	20	
ECL029474-011D	Duplicate	Lead	112	µg/L		112	0.3	0	20	
LCS5093	LCS	Chromium	45.8	µg/L	50		91.5	85	115	
LCS5093	LCS	Lead	46.5	µg/L	50		93	85	115	
LPB5093	Prep Blank	Chromium	< 1.0	µg/L					1	
LPB5093	Prep Blank	Lead	< 1.0	µg/L					1	
ECL029474-011S	Spike	Chromium	83.4	µg/L	50	44.0	78.8	70	130	
ECL029474-001S	Spike	Chromium	47.0	µg/L	50	< 1.0	93.7	70	130	
ECL029474-001S	Spike	Lead	46.1	µg/L	50	< 1.0	90.9	70	130	
ECL029474-011S	Spike	Lead	156	µg/L	50	112	88.8	70	130	

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
CCC-HIGH	CCC-HIGH	Chromate	5.176	ug/L	5		103.5	85	115	
CCC-LOW	CCC-LOW	Chromate	< 0.020	ug/L	0.02		86.5	50	150	
CCC-MID	CCC-MID	Chromate	1.053	ug/L	1		105.3	85	115	
ECL029474-002SD	MSD	Chromate	0.763	ug/L	1	< 0.020	76.3	85	115	*
ECL029474-002S	Spike	Chromate	0.747	ug/L	1	< 0.020	74.7	85	115	*
ECL029474-002SD	Spike Dup	Chromate	0.763	ug/L	1		2.1	0	20	

Instrument Blanks

INSTRUMENT BLANKS

Analytical Run **F130722B** **Date of Analysis** **7/22/2013**

	Cr	Pb
ICB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L

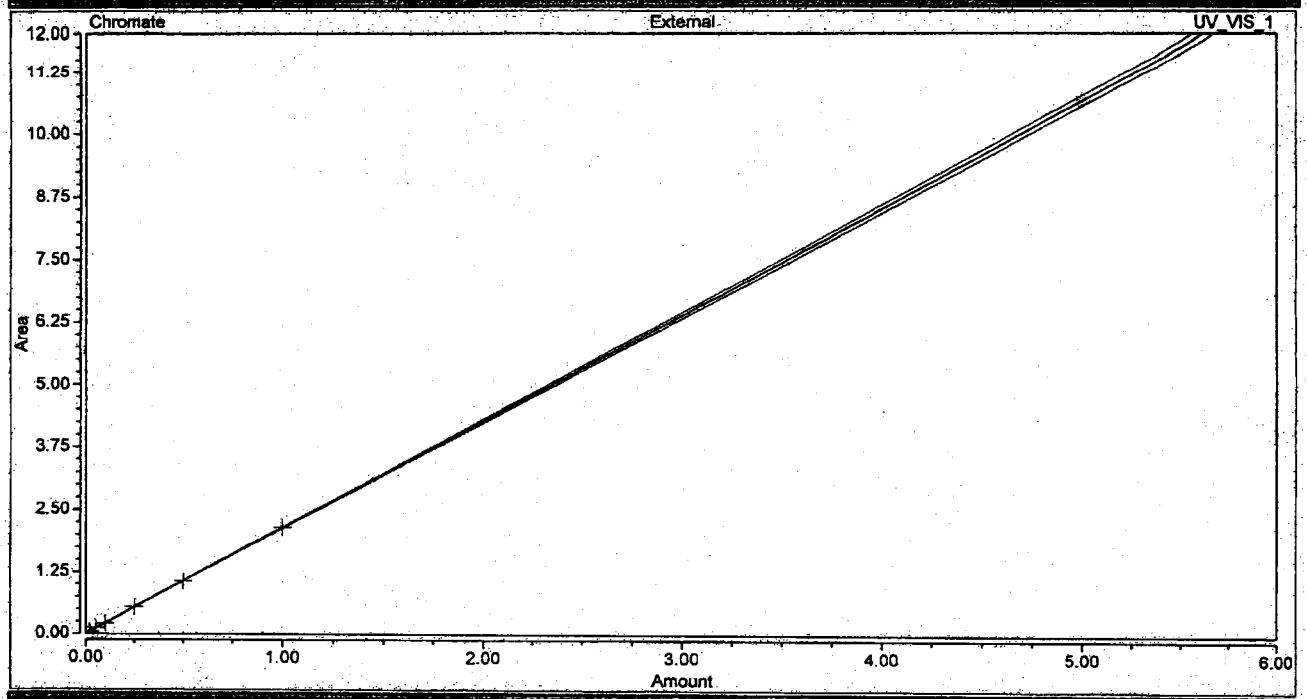
Analytical Run **CR6-130716** **Date of Analysis** **7/16/2013**

	CrO4
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L

Calibration Data

Calibration

Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0089
Evaluation Type	Area	*Slope (C1)*	2.1346
Number of Calibration Points	7	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000



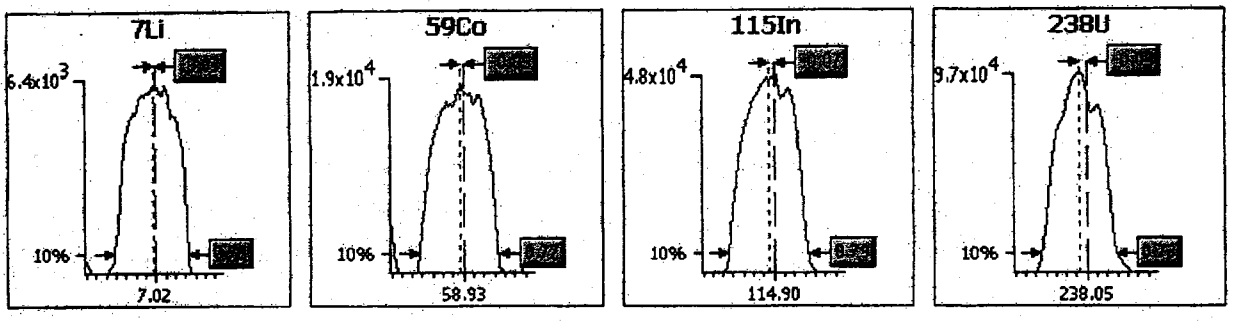
No.	Injection Name	Calibration Level	X Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
1	0.02 CrO4	01	0.0200	0.0506	0.0506	0.051	0.153
2	0.06 CrO4	02	0.0600	0.1208	0.1208	0.121	0.317
3	0.10 CrO4	03	0.1000	0.2176	0.2176	0.218	0.573
4	0.25 CrO4	04	0.2500	0.5440	0.5440	0.544	1.347
5	0.50 CrO4	05	0.5000	1.0689	1.0689	1.069	2.695
6	1.00 CrO4	06	1.0000	2.1432	2.1432	2.143	5.363
7	5.00 CrO4	07	5.0000	10.6889	10.6889	10.689	26.528

Performance Report

Sample details
Acquired at : 7/22/2013 9:33:28 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Mass Calibration verification

Acquisition parameters
Sweeps : 10
Dwell : 5.0 mSecs
Point spacing : 0.02 amu
Peak width measured at 10% of the peak maximum



Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.75	-0.03
59Co	0.85	0.65	0.10	0.77	-0.05
115In	0.85	0.65	0.10	0.79	-0.07
238U	0.85	0.65	0.10	0.73	-0.09

Sample details
Acquired at : 7/22/2013 9:33:28 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Tune conditions

Major	
Extraction	-160.8
Lens 1	-1286
Lens 2	-79.2
Focus	8.0
D1	-47.1
D2	-140
Pole Bias	-2.0
Hexapole Bias	-11.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3127

Add. Gases	
CCT-He/H2	0.00
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 130

Run	Time	5Bkg	7Li	56Ar O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Dwell (mSecs)		100.0	10.0	10.0	10.0	30.0	30.0	100.0	10.0	10.0
Limits	%RSD	-	2.0%	-	2.0%	-	-	-	2.0%	-
	Countrate	-	>4000	-	>10000	-	-	-	>40000	-
1	9:33:49 AM	0.000	5718.739	349017.27	18151.306	68.205	515.650	0.154	49135.598	4856.139
2	9:34:58 AM	0.000	5865.716	347823.40	17858.662	67.949	493.854	0.000	49369.410	4876.145
3	9:36:07 AM	0.000	5669.490	349617.39	17953.385	85.128	476.674	0.077	49472.042	4820.744
4	9:37:16 AM	0.000	5708.735	346900.92	18111.260	76.923	481.289	0.000	49249.803	4846.136
5	9:38:26 AM	0.077	5785.686	348263.81	17961.857	72.564	467.443	0.000	49773.767	4931.547
x		0.015	5749.673	348324.56	18007.294	74.154	486.982	0.046	49400.124	4866.142
σ		0.03	77.18	1052.72	121.05	7.15	18.64	0.07	244.08	41.65
%RSD		223.607	1.342	0.302	0.672	9.643	3.827	149.071	0.494	0.856

Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
Dwell (mSecs)		10.0	10.0	30.0	100.0	10.0
Limits	%RSD	-	-	-	-	2.0%
	Countrate	-	-	-	<1	>80000
1	9:33:49 AM	31406.147	41876.040	760.018	0.077	92609.793
2	9:34:58 AM	31395.356	41604.547	732.838	0.077	93261.344
3	9:36:07 AM	31525.618	42140.596	758.480	0.077	94587.743
4	9:37:16 AM	31429.270	42064.237	748.992	0.000	94569.169
5	9:38:26 AM	31521.764	42040.327	743.351	0.077	95646.466
x		31455.631	41945.149	748.736	0.062	94134.903
σ		63.34	213.44	11.23	0.03	1200.79
%RSD		0.201	0.509	1.499	55.902	1.276

Ratio results

Run	Time	137Ba++/137Ba	115In/220Bkg	156Ce O/140Ce
Ratio limits		<0.0300	>80000.0000	<0.0200
1	9:33:49 AM	0.014	638762.77	0.018
2	9:34:58 AM	0.014	641802.33	0.018
3	9:36:07 AM	0.018	643136.54	0.018
4	9:37:16 AM	0.016	INF	0.018
5	9:38:26 AM	0.015	647058.97	0.018
x		0.0152	642690.15	0.0179
σ		0.00	287435.21	0.00
%RSD		10.1926	44.7238	1.2446

Result : The performance report passed.

Performance Report

Sample details

Acquired at : 7/22/2013 9:45:18 AM
Report name : CCT-KED-WITHAR2 [11/17/2010 9:50:45 AM]

Tune conditions

Major	
Extraction	-160.8
Lens 1	-1286
Lens 2	-79.2
Focus	-9.4
D1	-62.0
D2	-140
Pole Bias	-16.0
Hexapole Bias	-20.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3127

Add. Gases	
CCT-He/H2	5.14
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters

Sweeps : 100

Run	Time	78Se	80Ar2	115In	140Ce	156Ce O
Dwell (mSecs)		30.0	10.0	10.0	10.0	10.0
Limits	%RSD	-	-	2.0%	-	-
	Countrate	<20	<200	>2000	-	-
1	9:45:19 AM	0.333	93.000	6296.268	13606.922	84.000
2	9:45:29 AM	0.333	82.000	6283.263	13836.123	71.000
3	9:45:39 AM	0.667	96.000	6228.241	13667.975	78.000
4	9:45:49 AM	1.333	82.000	6308.273	13893.174	96.000
5	9:45:59 AM	0.000	75.000	6115.196	13648.959	74.000
x		0.533	85.600	6246.248	13730.631	80.600
σ		0.51	8.68	79.40	125.95	9.89
%RSD		94.786	10.137	1.271	0.917	12.270

Ratio results

Run	Time	156Ce O/140Ce
	Ratio limits	-
1	9:45:19 AM	0.006
2	9:45:29 AM	0.005
3	9:45:39 AM	0.006
4	9:45:49 AM	0.007
5	9:45:59 AM	0.005
x		0.0059
σ		0.00
%RSD		11.8863

Result : The performance report passed.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Analytical Run **F130722B** **Date of Analysis** **7/22/2013**

	Cr			Pb		
	TRUE	Found	%recovery	TRUE	Found	% recovery
ICV	100	99.0	98.99	100	97.68	97.68
CCV	200	200.2	100.10	200	201.3	100.65
CCV	200	193.4	96.70	200	195.7	97.85
CCV	200	190.6	95.30	200	192.3	96.15
CCV	200	189.7	94.85	200	198	99.00

Metals Digestion Logs

ENVIRO-CHEM LABORATORIES INC.

METALS DIGESTION LOG

Digestion Batch: 5093

Date: 7/12/13

Analyst: MAP

Microwave or Hotblock? 200.8 Time in: 8:10

SOP: M-100 Rev 5 Temp in: 84.4

Spiking Solution(s) added to LCS/MS/MSD: 25µl ICV100-19 (CO481)

Acids added: 1ml HNO3 (CO444) 1ml 1:1 HCl (MR0423)

Final volume (mL): 50ml Time out: 10:10 Temp: 85.3

Sample ID:	weight (g)/initial volume (l)
LPB5093	50ml DI
LCS 5093	↓ +
29474-001	50ml
29474-001D	
29474-001S	
29474-002	
29474-003	
29474-004	
29474-005	
29474-006	
29474-007	
29474-008	
29474-009	
29474-010	50ml
29474-011	
29474-011D	
29474-011S	
29474-012	
29474-013	
29474-014	
29474-015	
29474-016	

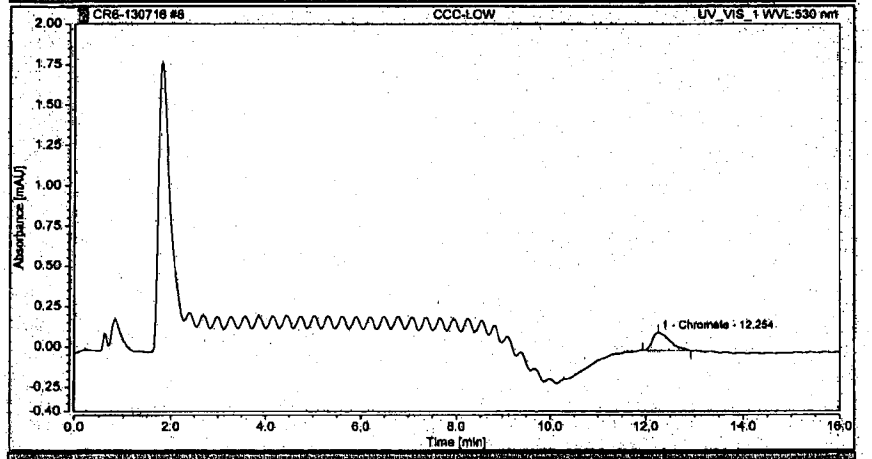
Comments:

Raw Data

Chromatogram and Results

Injection Name:	CCC-LOW	*Run Time (min):*	16.00
Vial Number:	1	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	16/Jul/13 23:07	*Sample Weight:*	1.0000

Chromatogram



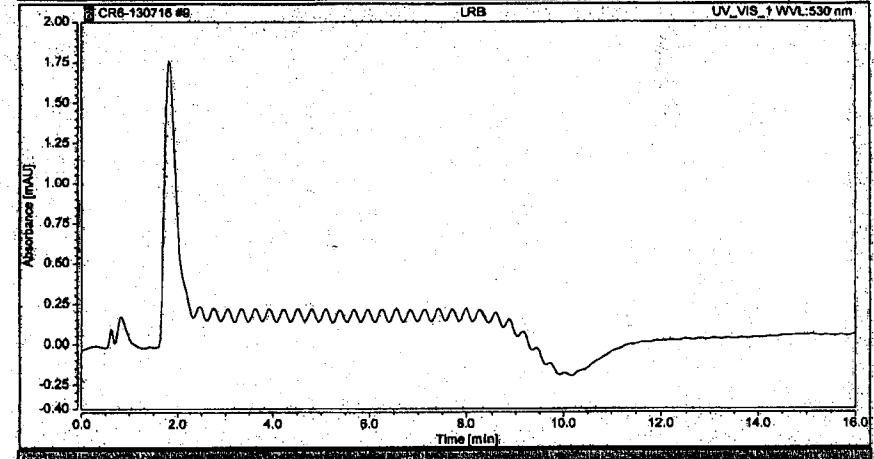
Peak Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.254	0.048	0.112	100.00	100.00	0.0173
Total:			0.048	0.112	100.00	100.00	

Chromatogram and Results

Injection Name:	LRB	*Run Time (min):*	16.00
Vial Number:	2	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	16/Jul/13 23:26	*Sample Weight:*	1.0000

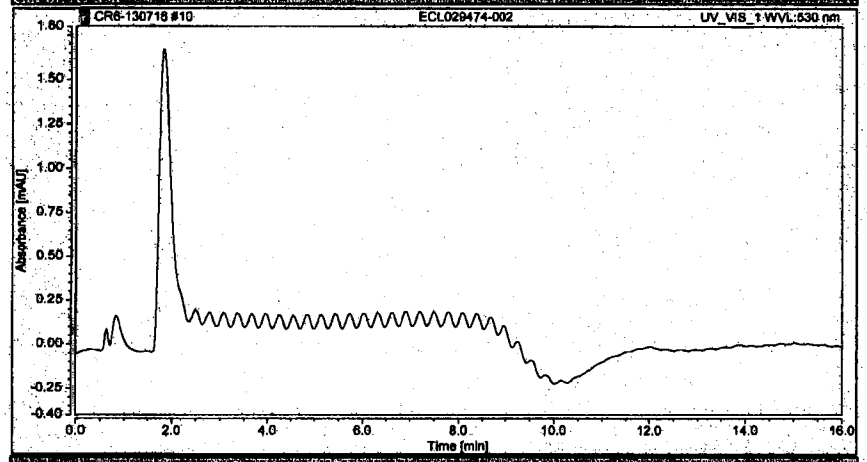
Chromatogram



Peak Results

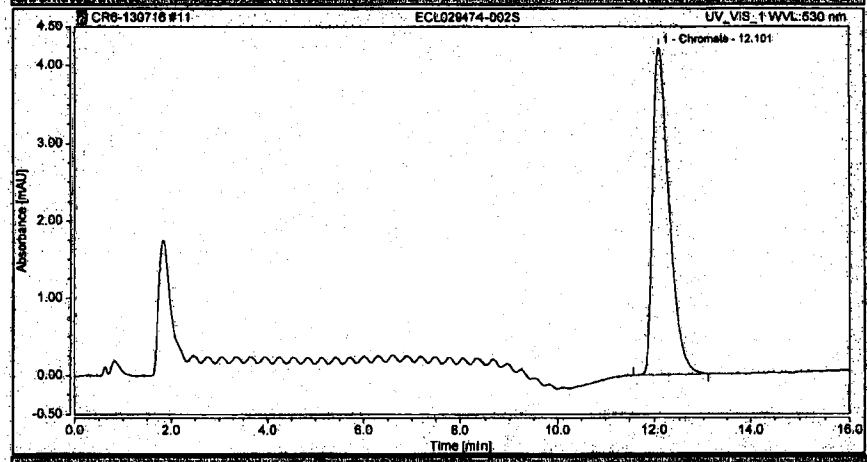
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029474-002	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	16/Jul/13 23:45	Sample Weight:	1.0000



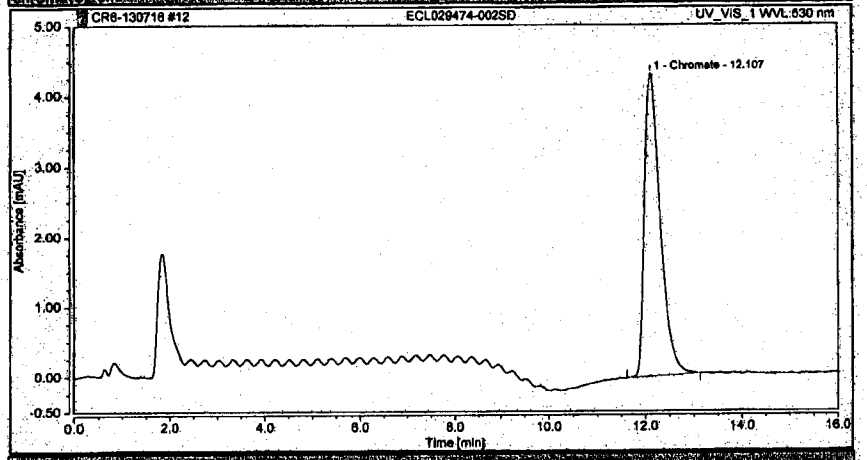
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029474-002S	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 00:03	Sample Weight:	1.0000



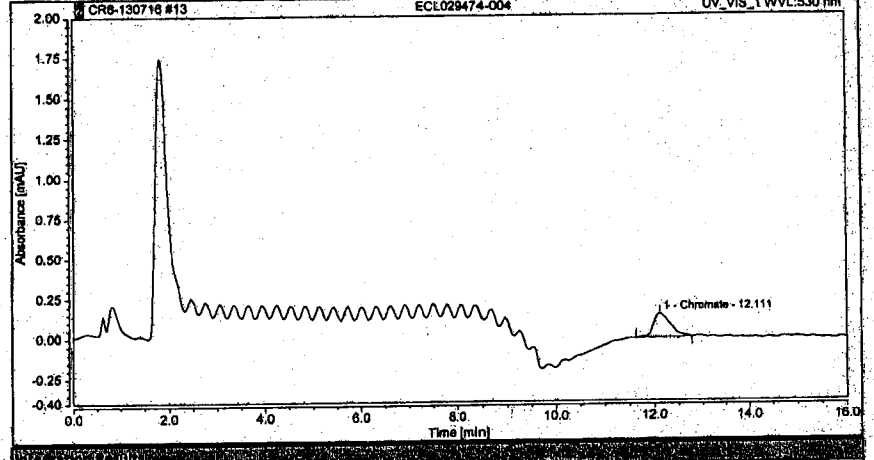
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.101	1.604	4.238	100.00	100.00	0.7472
Total:			1.604	4.238	100.00	100.00	

Injection Name:	ECL029474-002SD	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 00:22	Sample Weight:	1.0000



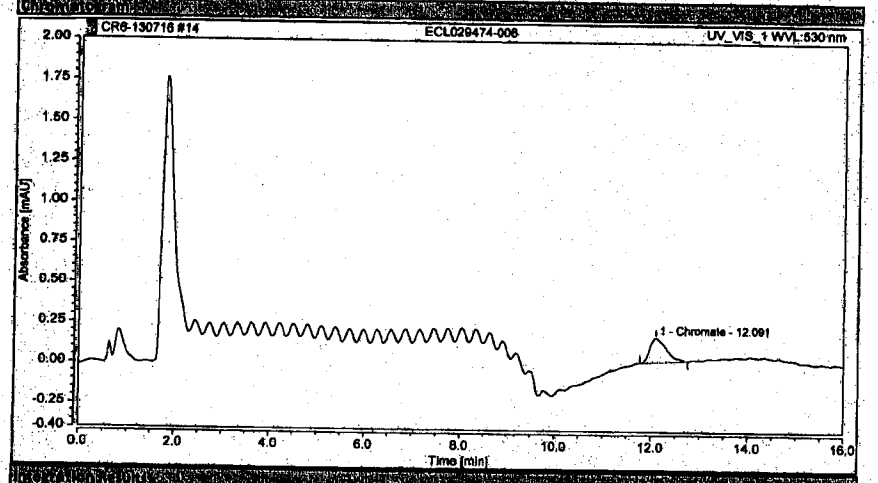
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.107	1.638	4.316	100.00	100.00	0.7630
Total:			1.638	4.316	100.00	100.00	

Injection Name:	ECL029474-004	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 00:41	Sample Weight:	1.0000



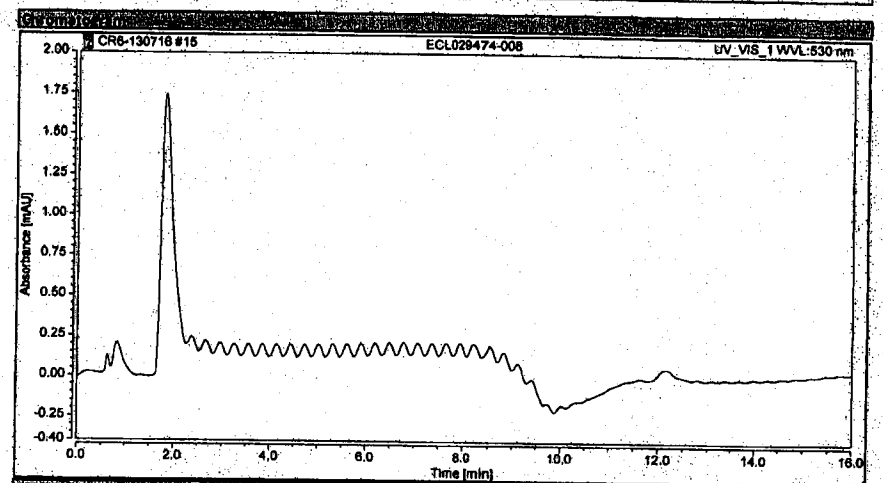
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.111	0.060	0.149	100.00	100.00	0.0239
Total:			0.060	0.149	100.00	100.00	

Injection Name:	ECL029474-006	Run Time (min):	16.00
Vial Number:	7	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:00	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.091	0.062	0.154	100.00	100.00	0.0247
Total:			0.062	0.154	100.00	100.00	

Injection Name:	ECL029474-008	Run Time (min):	16.00
Vial Number:	8	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:19	Sample Weight:	1.0000



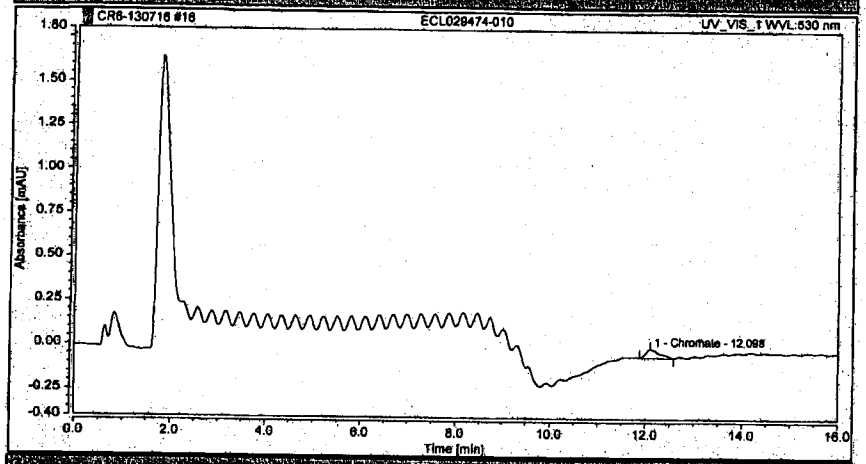
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n/a	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram Results

Injection Info

Injection Name:	ECL029474-010	*Run Time (min):*	16.00
Vial Number:	9	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI Instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	17/Jul/13 01:38	*Sample Weight:*	1.0000

Chromatogram



Peak Results

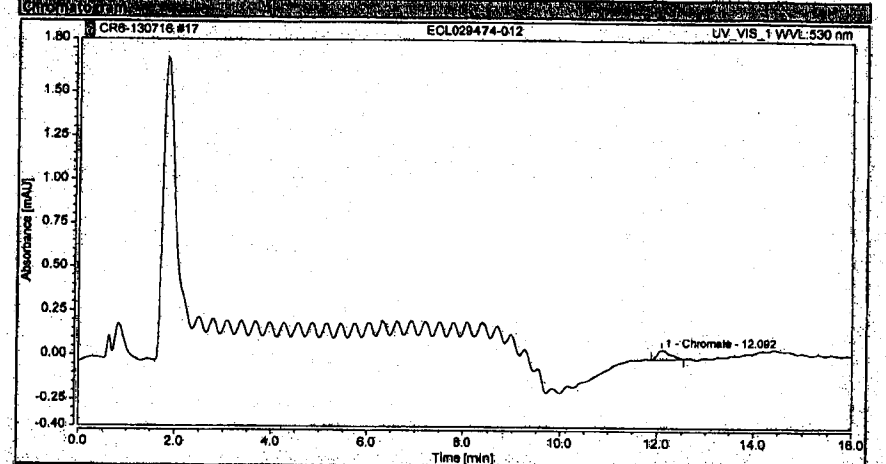
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.088	0.016	0.050	100.00	100.00	0.0035
Total:			0.016	0.050	100.00	100.00	

Chromatogram Results

Injection Info

Injection Name:	ECL029474-012	*Run Time (min):*	16.00
Vial Number:	10	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI Instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	17/Jul/13 01:57	*Sample Weight:*	1.0000

Chromatogram

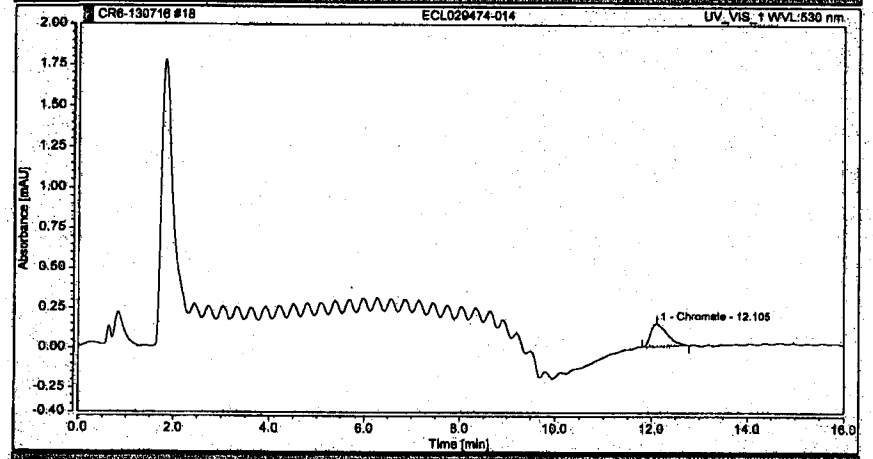


Peak Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.092	0.016	0.053	100.00	100.00	0.0035
Total:			0.016	0.053	100.00	100.00	

Chromatogram Peak Results

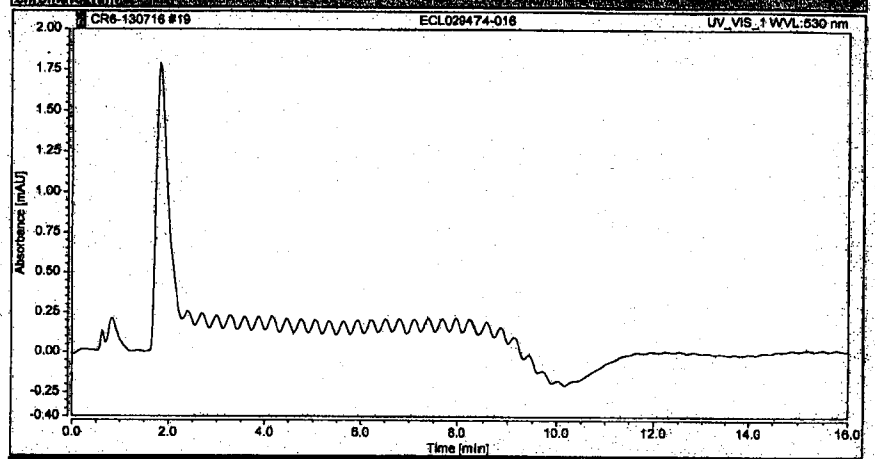
Injection Name:	ECL029474-014	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 02:16	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.105	0.059	0.144	100.00	100.00	0.0234
Total:			0.059	0.144	100.00	100.00	

Chromatogram Peak Results

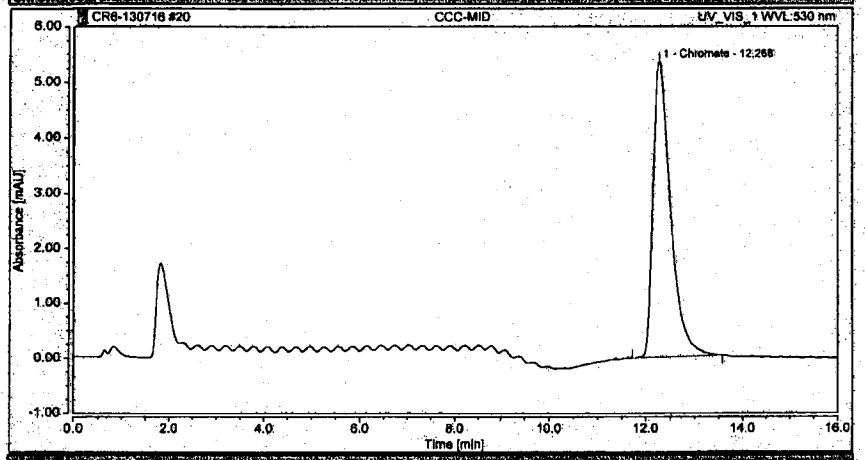
Injection Name:	ECL029474-016	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 02:35	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram and Results

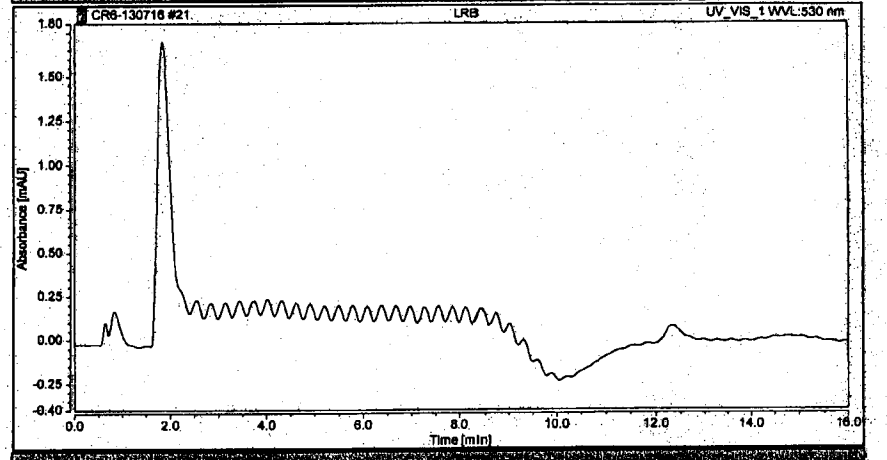
Injection Name:	CCC-MID	*Run Time (min):*	16.00
Vial Number:	13	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	17/Jul/13 02:54	*Sample Weight:*	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.268	2.257	5.361	100.00	100.00	10533.0
Total:			2.257	5.361	100.00	100.00	

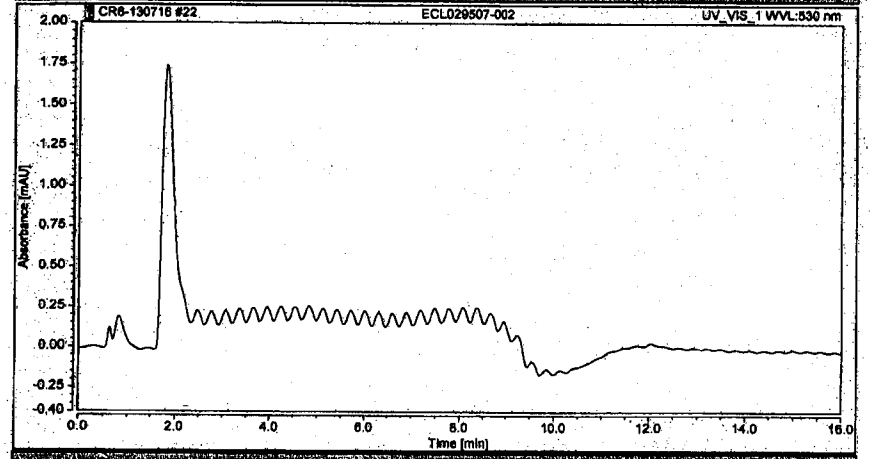
Chromatogram and Results

Injection Name:	LRB	*Run Time (min):*	16.00
Vial Number:	14	*Injection Volume:*	5.00
Injection Type:	Unknown	*Channel:*	UV_VIS_1
Calibration Level:		*Wavelength:*	530.0
Instrument Method:	Chrome VI instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	17/Jul/13 03:13	*Sample Weight:*	1.0000



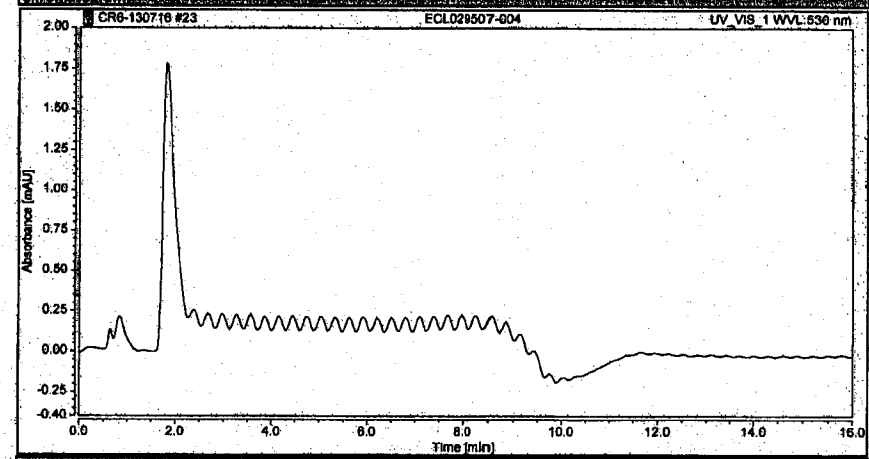
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029507-002	Run Time (min):	16.00
Vial Number:	15	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 03:32	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

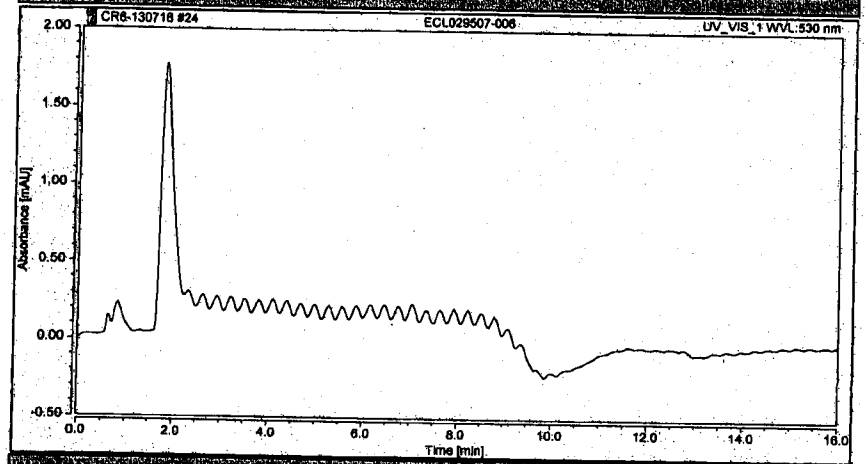
Injection Name:	ECL029507-004	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 03:50	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram and Results

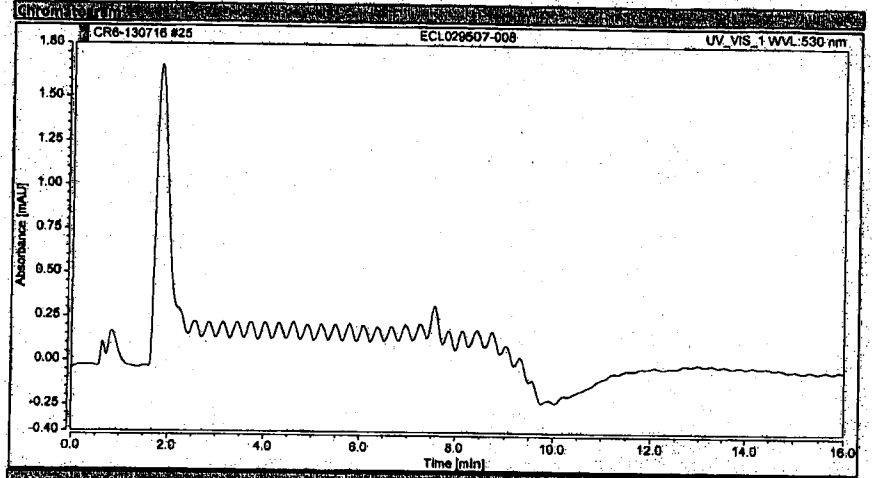
Injection Name:	ECL029507-006	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:09	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram and Results

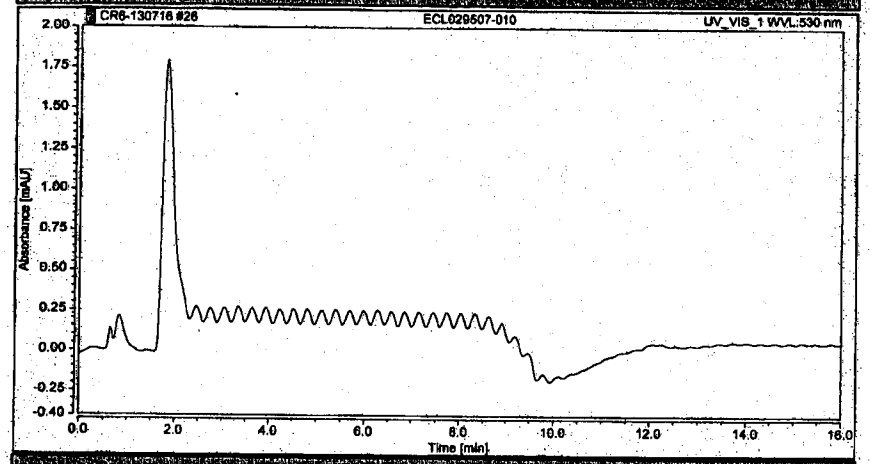
Injection Name:	ECL029507-008	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:28	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram and Results

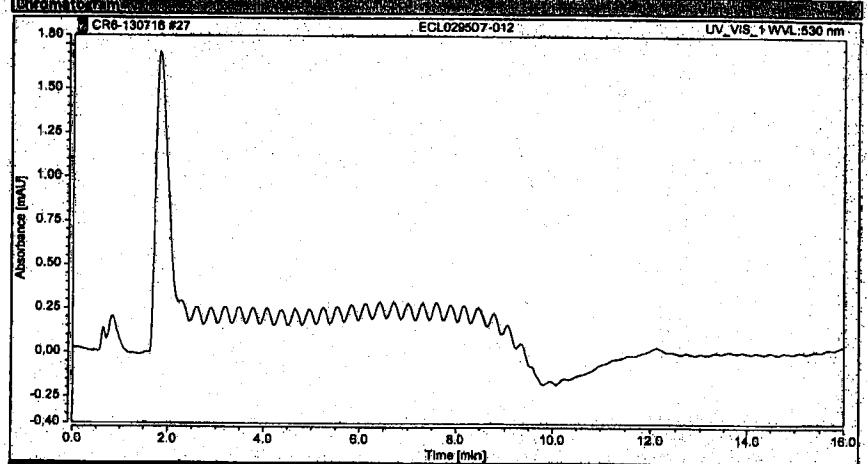
Injection Name:	ECL029507-010	Run Time (min):	16.00
Vial Number:	19	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:47	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatogram and Results

Injection Name:	ECL029507-012	Run Time (min):	16.00
Vial Number:	20	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 05:06	Sample Weight:	1.0000

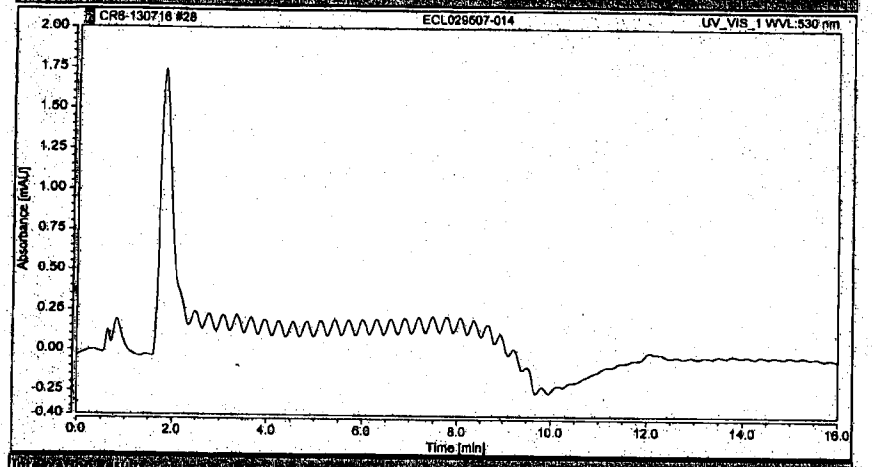


No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Sample Information

Injection Name:	ECL029507-014	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 05:25	Sample Weight:	1.0000

Chromatogram



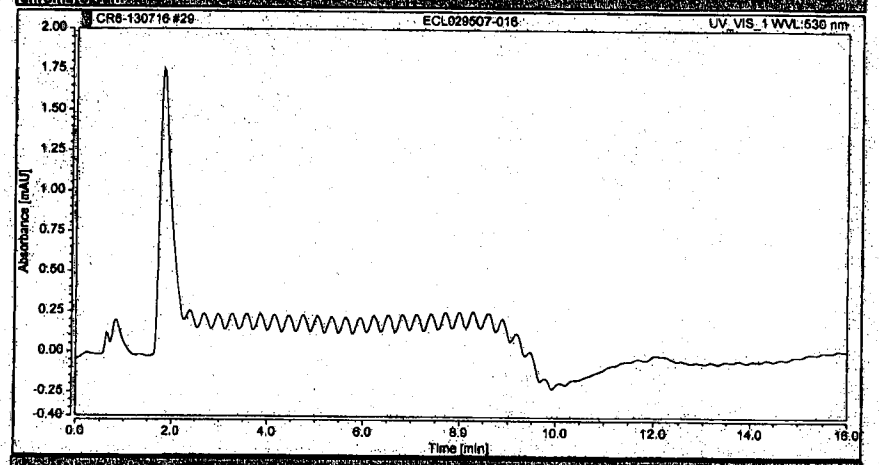
Peak Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Sample Information

Injection Name:	ECL029507-016	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 05:44	Sample Weight:	1.0000

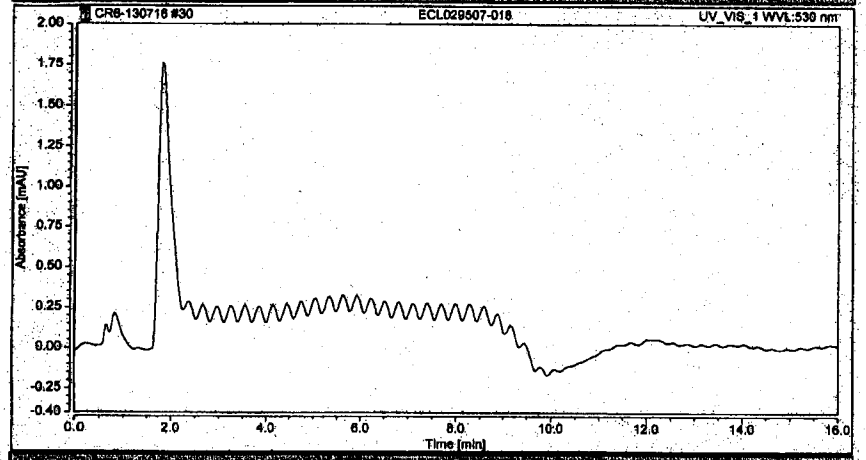
Chromatogram



Peak Results

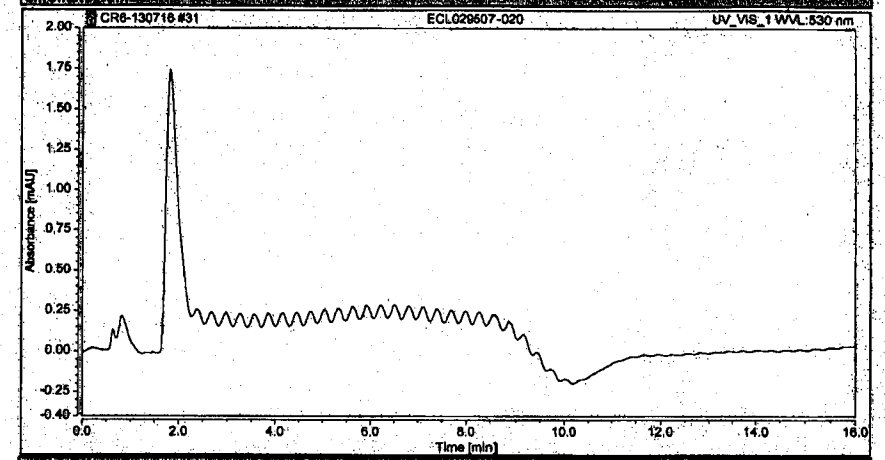
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029507-018	Run Time (min):	16.00
Vial Number:	23	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:03	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029507-020	Run Time (min):	16.00
Vial Number:	24	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:22	Sample Weight:	1.0000

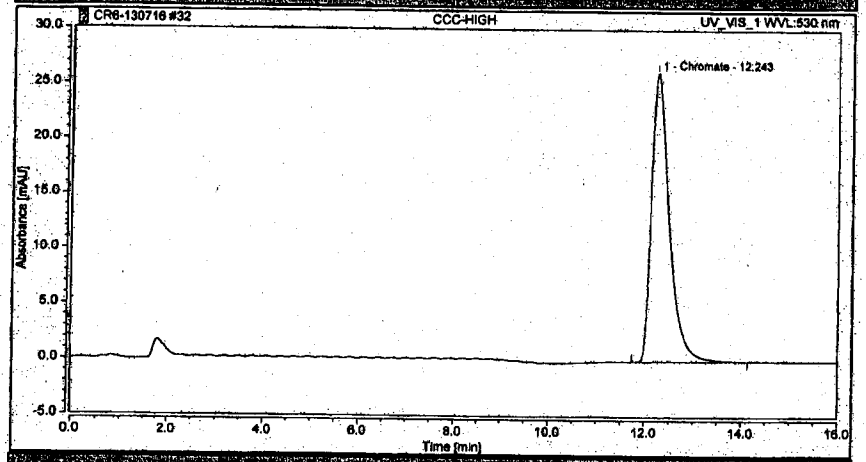


No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Chromatographic Results

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	25	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:41	Sample Weight:	1.0000

Chromatogram

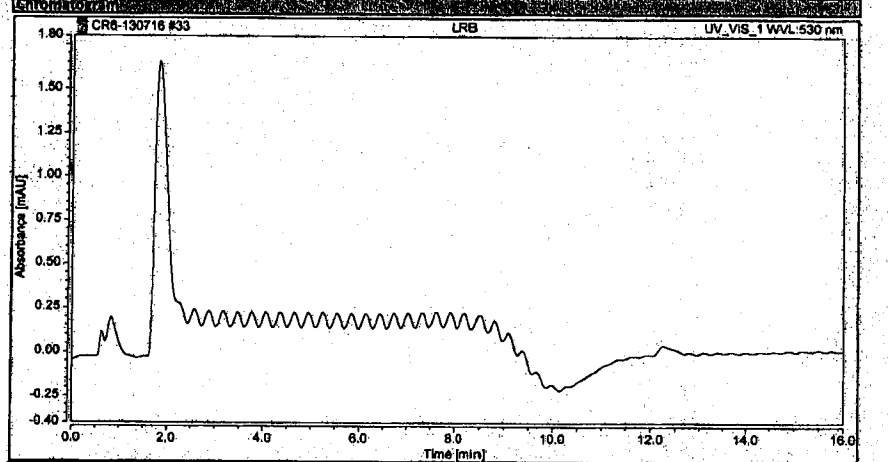


No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.243	11.058	26.223	100.00	100.00	5.1759
Total:			11.058	26.223	100.00	100.00	

Chromatographic Results

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	26	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 07:00	Sample Weight:	1.0000

Chromatogram



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Dilution Corrected Concentrations

F130722B
CAK 7/22/13
WS-20858

RINSE 7/22/2013 10:42:22 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:41:28	99.651%	0.195	97.698%	104.573%	0.077	102.546%
2	10:41:33	100.776%	0.179	101.422%	99.164%	0.079	99.580%
3	10:41:39	99.573%	0.148	100.880%	96.264%	0.082	97.874%
x		100.000%	0.174	100.000%	100.000%	0.079	100.000%
σ		0.673%	0.024	2.012%	4.217%	0.003	2.364%
%RSD		0.673	13.700	2.012	4.217	3.323	2.364

RINSE 7/22/2013 10:45:11 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:44:17	112.515%	0.181	110.763%	104.713%	0.073	113.718%
2	10:44:22	110.972%	0.189	111.124%	100.282%	0.078	109.263%
3	10:44:27	116.541%	0.156	111.426%	96.737%	0.076	105.852%
x		113.343%	0.175	111.104%	100.577%	0.076	109.611%
σ		2.875%	0.018	0.332%	3.996%	0.003	3.945%
%RSD		2.537	10.040	0.299	3.974	3.387	3.599

BLANK 7/22/2013 10:47:57 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:47:03	100.507%	0.004	99.989%	103.735%	-0.000	103.609%
2	10:47:08	98.986%	0.005	99.583%	99.203%	-0.002	99.131%
3	10:47:13	100.507%	-0.008	100.428%	97.062%	0.002	97.261%
x		100.000%	0.000	100.000%	100.000%	-0.000	100.000%
σ		0.878%	0.007	0.423%	3.407%	0.002	3.262%
%RSD		0.878	0.000	0.423	3.407	0.000	3.262

200 PPB 7/22/2013 10:50:41 AM M03479

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:49:46	105.647%	196.400	103.838%	96.971%	TM 201.200	91.113%
2	10:49:52	105.739%	M 202.200	102.381%	92.817%	T 199.300	T 89.283%
3	10:49:57	105.739%	M 201.500	103.753%	90.313%	T 199.500	T 87.813%
x		105.709%	M 200.000	103.324%	93.367%	TM 200.000	T 89.403%
σ		0.053%	M 3.175	0.818%	3.363%	TM 1.032	T 1.653%
%RSD		0.050	M 1.588	0.791	3.602	TM 0.516	T 1.849

CCB 7/22/2013 10:53:25 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:52:30	104.080%	0.017	101.169%	105.604%	0.017	104.699%
2	10:52:35	103.342%	0.025	102.139%	101.650%	0.014	101.044%
3	10:52:41	101.452%	0.023	105.730%	98.854%	0.014	98.539%
x		102.958%	0.022	103.013%	102.036%	0.015	101.427%
σ		1.355%	0.004	2.403%	3.392%	0.002	3.098%
%RSD		1.316	18.610	2.332	3.324	12.710	3.054

M03479

CKS 7/22/2013 10:56:09 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:55:15	107.653%	196.900	106.758%	97.734%	T 197.200	93.642%
2	10:55:20	108.736%	M 201.600	105.911%	92.853%	T 197.400	T 91.080%
3	10:55:25	110.280%	M 202.000	106.144%	86.805%	TM 209.300	T 118.773%
x		108.890%	M 200.200	106.271%	92.464%	TM 201.300	T 101.165%
σ		1.321%	M 2.818	0.437%	5.475%	TM 6.966	T 15.303%
%RSD		1.213	M 1.408	0.412	5.921	TM 3.461	T 15.126

ICV 7/22/2013 10:58:55 AM M03481 100 ppb

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	10:58:00	111.687%	97.680	104.629%	98.474%	97.110	95.106%
2	10:58:06	110.073%	100.100	104.353%	93.540%	97.650	91.537%
3	10:58:11	103.919%	99.150	105.438%	90.937%	98.280	89.175%
x		108.559%	98.990	104.807%	94.317%	97.680	91.939%
σ		4.099%	1.239	0.564%	3.828%	0.587	2.986%
%RSD		3.776	1.252	0.538	4.059	0.601	3.248

ICB 7/22/2013 11:01:39 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:00:44	108.321%	0.017	103.884%	102.891%	0.016	102.372%
2	11:00:50	101.521%	0.007	103.250%	99.374%	0.014	99.249%
3	11:00:55	100.899%	0.008	103.770%	96.759%	0.015	96.572%
x		103.580%	0.011	103.635%	99.675%	0.015	99.398%
σ		4.117%	0.006	0.338%	3.077%	0.001	2.903%
%RSD		3.975	50.700	0.326	3.087	4.319	2.920

LLQC-1 7/22/2013 11:04:26 AM 50µL M03479 → 10mL 1.0 ppb

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:03:32	102.904%	0.925	104.067%	103.956%	1.015	103.583%
2	11:03:37	106.085%	0.981	105.124%	100.165%	1.003	100.184%
3	11:03:42	104.725%	0.983	106.236%	97.685%	1.015	97.622%
x		104.572%	0.963	105.142%	100.602%	1.011	100.463%
σ		1.596%	0.033	1.085%	3.158%	0.007	2.990%
%RSD		1.526	3.383	1.031	3.139	0.680	2.977

LPB5093 7/22/2013 11:07:12 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:06:18	109.612%	0.387	106.689%	99.697%	0.192	97.884%
2	11:06:23	106.984%	0.411	106.853%	95.562%	0.189	93.940%
3	11:06:28	109.428%	0.436	107.171%	92.898%	0.190	91.899%
x		108.675%	0.411	106.904%	96.053%	0.191	94.574%
σ		1.467%	0.024	0.245%	3.426%	0.001	3.042%
%RSD		1.350	5.843	0.229	3.567	0.744	3.217

LCS5093 7/22/2013 11:09:56 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:09:02	112.609%	44.960	107.187%	99.667%	46.320	97.152%
2	11:09:07	108.252%	46.270	107.416%	95.188%	46.590	93.323%
3	11:09:12	106.316%	46.050	107.544%	92.980%	46.520	91.731%
x		109.059%	45.760	107.382%	95.945%	46.480	94.068%
σ		3.223%	0.701	0.181%	3.407%	0.140	2.786%
%RSD		2.955	1.531	0.168	3.551	0.300	2.962

ECL029474-001 7/22/2013 11:12:40 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:11:45	108.667%	0.138	107.597%	99.669%	0.627	88.022%
2	11:11:51	112.816%	0.113	108.520%	94.089%	0.638	84.455%
3	11:11:56	110.188%	0.115	108.782%	91.717%	0.623	82.440%
x		110.557%	0.122	108.299%	95.159%	0.629	84.972%
σ		2.099%	0.014	0.622%	4.083%	0.008	2.827%
%RSD		1.899	11.130	0.575	4.290	1.222	3.326

ECL029474-001D 7/22/2013 11:15:23 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:14:29	123.765%	0.149	116.649%	100.319%	0.518	88.756%
2	11:14:34	121.714%	0.106	116.697%	94.685%	0.532	84.355%
3	11:14:39	120.215%	0.136	116.885%	91.213%	0.525	82.152%
x		121.898%	0.130	116.744%	95.406%	0.525	85.088%
σ		1.782%	0.022	0.125%	4.596%	0.007	3.363%
%RSD		1.462	17.240	0.107	4.817	1.285	3.952

ECL029474-001S 7/22/2013 11:18:08 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:17:13	118.348%	46.740	116.031%	99.508%	45.810	88.072%
2	11:17:19	122.359%	47.080	115.808%	93.723%	46.250	83.959%
3	11:17:24	121.506%	47.060	116.505%	91.619%	46.120	82.181%
x		120.738%	46.960	116.115%	94.950%	46.060	84.737%
σ		2.113%	0.193	0.356%	4.085%	0.228	3.022%
%RSD		1.750	0.411	0.307	4.302	0.495	3.566

ECL029474-002 7/22/2013 11:20:52 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:19:58	121.207%	0.217	117.451%	100.730%	0.500	89.220%
2	11:20:03	117.495%	0.233	118.110%	95.278%	0.513	84.660%
3	11:20:08	118.464%	0.234	118.129%	92.158%	0.513	83.058%
x		119.055%	0.228	117.896%	96.055%	0.509	85.646%
σ		1.925%	0.009	0.386%	4.338%	0.008	3.197%
%RSD		1.617	4.121	0.327	4.517	1.540	3.733

ECL029474-003 7/22/2013 11:23:37 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:22:42	119.939%	0.550	117.207%	101.228%	10.160	91.046%
2	11:22:48	120.676%	0.465	117.622%	95.582%	10.180	87.139%
3	11:22:53	120.838%	0.491	117.027%	93.096%	10.210	85.000%
x		120.484%	0.502	117.285%	96.635%	10.180	87.728%
σ		0.479%	0.044	0.305%	4.167%	0.026	3.066%
%RSD		0.398	8.665	0.260	4.312	0.257	3.495

ECL029474-004 7/22/2013 11:26:22 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:25:28	115.743%	0.278	112.280%	100.958%	4.680	91.028%
2	11:25:33	115.743%	0.282	113.858%	96.207%	4.695	87.162%
3	11:25:38	113.415%	0.268	113.354%	93.153%	4.693	84.629%
x		114.967%	0.276	113.164%	96.773%	4.690	87.606%
σ		1.344%	0.007	0.806%	3.933%	0.008	3.222%
%RSD		1.169	2.679	0.712	4.064	0.176	3.678

ECL029474-005 7/22/2013 11:29:08 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:28:13	111.594%	0.356	108.253%	99.395%	6.779	87.408%
2	11:28:18	107.146%	0.341	110.820%	94.458%	6.747	83.672%
3	11:28:24	111.871%	0.345	111.065%	92.054%	6.723	82.526%
x		110.204%	0.347	110.046%	95.302%	6.749	84.536%
σ		2.652%	0.008	1.557%	3.743%	0.028	2.553%
%RSD		2.406	2.251	1.415	3.927	0.416	3.020

ECL029474-006 7/22/2013 11:31:54 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:30:59	110.880%	0.344	109.255%	99.522%	4.746	89.807%
2	11:31:04	110.718%	0.325	109.666%	94.889%	4.726	85.749%
3	11:31:10	108.644%	0.391	108.912%	92.075%	4.742	84.029%
x		110.081%	0.353	109.278%	95.495%	4.738	86.528%
σ		1.247%	0.034	0.377%	3.760%	0.011	2.967%
%RSD		1.133	9.581	0.345	3.938	0.227	3.429

CCB 7/22/2013 11:34:39 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:33:44	111.179%	-0.002	110.361%	104.990%	0.004	103.280%
2	11:33:49	113.922%	-0.005	111.359%	100.847%	0.003	99.927%
3	11:33:55	110.949%	-0.011	111.832%	98.271%	0.003	97.910%
x		112.017%	-0.006	111.184%	101.369%	0.003	100.372%
σ		1.654%	0.005	0.751%	3.390%	0.000	2.712%
%RSD		1.477	76.440	0.676	3.344	8.476	2.702

CKS 7/22/2013 11:37:23 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:36:29	112.078%	191.200	109.986%	97.638%	↑195.700	↑95.301%
2	11:36:34	109.981%	193.400	110.460%	93.376%	↑195.700	90.376%
3	11:36:39	110.788%	195.700	109.712%	90.528%	↑195.700	↑88.864%
x		110.949%	193.400	110.053%	93.847%	↑195.700	↑91.514%
σ		1.058%	2.247	0.378%	3.578%	↑0.007	↑3.366%
%RSD		0.954	1.162	0.344	3.813	↑0.004	↑3.678

ECL029474-007 7/22/2013 11:40:09 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:39:13	107.560%	163.100	103.171%	95.936%	47.200	104.507%
2	11:39:18	103.250%	167.500	102.805%	91.243%	47.420	100.140%
3	11:39:24	102.743%	165.600	103.516%	88.805%	47.680	97.820%
x		104.518%	165.400	103.164%	91.995%	47.430	100.822%
σ		2.647%	2.239	0.355%	3.624%	0.238	3.395%
%RSD		2.533	1.354	0.344	3.940	0.503	3.368

ECL029474-008 7/22/2013 11:42:54 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:41:59	101.683%	0.423	101.474%	97.384%	2.483	88.116%
2	11:42:05	104.910%	0.370	102.120%	93.334%	2.496	84.980%
3	11:42:10	104.979%	0.354	102.600%	90.858%	2.493	82.928%
x		103.857%	0.382	102.065%	93.858%	2.491	85.341%
σ		1.883%	0.036	0.565%	3.295%	0.007	2.613%
%RSD		1.813	9.409	0.553	3.510	0.289	3.062

ECL029474-009 7/22/2013 11:45:38 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:44:44	105.440%	65.220	104.265%	96.694%	39.600	97.430%
2	11:44:49	102.651%	67.320	103.539%	92.019%	39.770	93.333%
3	11:44:54	104.979%	67.760	103.981%	89.493%	39.860	91.359%
x		104.356%	66.760	103.928%	92.735%	39.740	94.041%
σ		1.495%	1.357	0.365%	3.653%	0.128	3.097%
%RSD		1.433	2.033	0.352	3.940	0.321	3.293

ECL029474-010 7/22/2013 11:48:22 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:47:28	103.066%	0.406	102.927%	98.713%	3.310	89.741%
2	11:47:33	104.011%	0.396	103.129%	94.370%	3.315	86.409%
3	11:47:38	101.752%	0.379	103.372%	91.793%	3.305	84.780%
x		102.943%	0.394	103.142%	94.959%	3.310	86.977%
σ		1.134%	0.014	0.223%	3.498%	0.005	2.529%
%RSD		1.102	3.488	0.216	3.684	0.149	2.907

ECL029474-011 7/22/2013 11:51:06 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:50:11	100.115%	43.490	101.467%	97.949%	112.200	115.136%
2	11:50:16	99.562%	44.310	101.303%	94.197%	111.900	111.549%
3	11:50:22	99.401%	44.280	101.282%	91.687%	112.100	108.929%
x		99.693%	44.030	101.351%	94.611%	112.100	111.871%
σ		0.375%	0.465	0.101%	3.151%	0.155	3.116%
%RSD		0.376	1.057	0.100	3.331	0.138	2.786

ECL029474-011D 7/22/2013 11:53:50 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:52:55	97.649%	36.150	100.695%	97.966%	111.700	106.019%
2	11:53:00	96.911%	37.080	100.739%	94.335%	111.800	102.424%
3	11:53:06	99.009%	36.350	100.556%	91.464%	111.800	99.854%
x		97.856%	36.530	100.663%	94.588%	111.700	102.766%
σ		1.064%	0.489	0.095%	3.259%	0.071	3.097%
%RSD		1.087	1.340	0.095	3.445	0.063	3.014

ECL029474-011S 7/22/2013 11:56:34 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:55:39	96.773%	82.630	101.800%	98.852%	156.000	106.792%
2	11:55:44	96.980%	83.710	101.437%	94.203%	156.600	102.817%
3	11:55:50	99.608%	83.940	101.161%	91.984%	↑156.800	100.505%
x		97.787%	83.430	101.466%	95.013%	↑156.500	103.371%
σ		1.580%	0.700	0.320%	3.505%	↑0.445	3.180%
%RSD		1.616	0.839	0.316	3.689	↑0.284	3.076

ECL029474-012 7/22/2013 11:59:20 AM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	11:58:25	100.553%	0.566	101.850%	100.689%	4.358	91.979%
2	11:58:30	98.871%	0.510	103.957%	95.732%	4.369	87.766%
3	11:58:36	101.083%	0.549	103.423%	93.337%	4.400	86.249%
x		100.169%	0.541	103.077%	96.586%	4.376	88.664%
σ		1.155%	0.028	1.095%	3.750%	0.022	2.969%
%RSD		1.153	5.241	1.063	3.882	0.501	3.348

ECL029474-013 7/22/2013 12:02:05 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:01:10	107.514%	12.510	105.271%	99.929%	38.760	90.809%
2	12:01:16	99.493%	12.840	105.524%	94.717%	38.920	86.386%
3	12:01:21	105.071%	12.700	105.345%	91.958%	38.930	84.377%
x		104.026%	12.680	105.380%	95.535%	38.870	87.191%
σ		4.112%	0.168	0.130%	4.048%	0.098	3.290%
%RSD		3.952	1.321	0.124	4.237	0.251	3.774

ECL029474-014 7/22/2013 12:04:51 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:03:56	106.892%	0.333	105.193%	99.117%	6.563	90.088%
2	12:04:02	104.933%	0.343	105.648%	94.118%	6.596	85.682%
3	12:04:07	106.961%	0.370	106.759%	91.581%	6.591	83.832%
x		106.262%	0.349	105.867%	94.939%	6.583	86.534%
σ		1.152%	0.019	0.806%	3.835%	0.017	3.214%
%RSD		1.084	5.510	0.761	4.039	0.265	3.714

CCB 7/22/2013 12:07:36 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:06:41	112.539%	-0.008	111.640%	105.821%	0.008	103.711%
2	12:06:47	112.009%	-0.003	112.550%	101.385%	0.008	99.814%
3	12:06:52	109.912%	0.002	113.110%	99.393%	0.009	98.578%
x		111.487%	-0.003	112.433%	102.200%	0.009	100.701%
σ		1.390%	0.005	0.741%	3.291%	0.001	2.679%
%RSD		1.246	192.900	0.659	3.220	9.494	2.660

CKS 7/22/2013 12:10:19 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:09:25	110.857%	188.200	107.916%	99.496%	₸191.900	95.616%
2	12:09:30	109.036%	192.000	106.890%	94.853%	₸192.800	92.059%
3	12:09:36	107.284%	191.500	108.654%	92.368%	₸192.200	90.087%
x		109.059%	190.600	107.820%	95.572%	₸192.300	92.587%
σ		1.787%	2.061	0.886%	3.618%	₸0.466	2.802%
%RSD		1.638	1.081	0.822	3.786	₸0.242	3.026

ECL029474-015 7/22/2013 12:13:04 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:12:10	110.303%	0.076	106.200%	100.008%	0.210	98.082%
2	12:12:15	106.869%	0.069	106.613%	95.774%	0.214	94.037%
3	12:12:20	104.956%	0.055	106.942%	93.762%	0.212	92.396%
x		107.376%	0.067	106.585%	96.514%	0.212	94.838%
σ		2.710%	0.011	0.372%	3.188%	0.002	2.927%
%RSD		2.524	15.800	0.349	3.303	1.040	3.086

ECL029474-016 7/22/2013 12:15:49 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:14:55	104.841%	0.314	107.138%	100.426%	0.314	98.486%
2	12:15:00	108.874%	0.359	107.886%	95.977%	0.326	94.790%
3	12:15:05	109.105%	0.325	107.786%	94.137%	0.324	92.972%
x		107.607%	0.332	107.604%	96.847%	0.321	95.416%
σ		2.398%	0.023	0.406%	3.233%	0.006	2.810%
%RSD		2.229	7.057	0.377	3.339	1.874	2.945

CCB 7/22/2013 12:18:34 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:17:40	112.217%	0.005	107.715%	104.186%	0.006	102.761%
2	12:17:45	107.699%	0.007	108.053%	99.775%	0.007	99.486%
3	12:17:50	105.763%	0.009	107.744%	97.534%	0.008	97.328%
x		108.559%	0.007	107.837%	100.499%	0.007	99.858%
σ		3.312%	0.002	0.187%	3.385%	0.001	2.736%
%RSD		3.051	31.160	0.174	3.368	12.130	2.740

CKS 7/22/2013 12:21:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:20:23	109.704%	187.300	107.079%	96.670%	TM 201.900	87.373%
2	12:20:29	107.560%	191.300	106.666%	94.059%	T 195.800	86.488%
3	12:20:34	106.339%	190.500	107.558%	91.238%	T 196.300	T 85.603%
x		107.868%	189.700	107.101%	93.989%	TM 198.000	T 86.488%
σ		1.704%	2.133	0.446%	2.717%	TM 3.400	T 0.885%
%RSD		1.579	1.124	0.417	2.890	TM 1.717	T 1.023

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719
410-537-3442 410-537-3092 (fax) 1-800-633-6101, ext. 3442

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Secretary

August 19, 2013

Mr. Roy J. Miller
Mrs. Christine D. Miller
3740 Blueberry Court
Monrovia MD 21770

RE: DRINKING WATER SAMPLE RESULTS
MDE-FCHD Groundwater Investigation
Green Valley / Monrovia
Frederick County, Maryland

Dear Mr. and Mrs. Miller:

On July 11, 2013, the Maryland Department of the Environment's contractor collected several samples from your drinking water supply system. Water samples were collected from your kitchen sink, before and after purges of your pressure tank, and after successive purges of your well as described previously to you and as documented in the attached field notes. There were insufficient sediments in the purge water from the pressure tank to analyze. A summary table and the full laboratory analytical reports are attached.

The federal and State maximum contaminant level (MCL) for total chromium is 100 µg/L. There is no separate federal or State MCL for hexavalent chromium or for dissolved chromium. The Department uses 0.3 µg/L as an action level for hexavalent chromium for private drinking water wells because it represents a conservative lifetime exposure health based standard that is calculated from the most current drinking water risk assessment evaluations available from the U.S. EPA. The federal and State action level that warrants additional investigation for total lead in public drinking water supplies is 15 µg/L, so the MDE follows this standard as an action level for private water supplies. There is no separate level for dissolved lead. The U.S. EPA's recommended pH range for drinking water is 6.5 to 8.5.

Hexavalent chromium and lead are metals that can be hazardous to human health, but a meaningful assessment of potential health risks from exposure to hexavalent chromium and/or lead involves the consideration of multiple factors, including the type of exposure (e.g. ingestion, inhalation, dermal contact), the concentration in water, the duration of exposure, and other factors specific to individuals. Both metals can occur naturally in the environment or may be generated by human activity. Home water pumps, piping, and faucets also are known to be sources of lead in drinking water.

The results from the recent investigation indicate that there is an accumulation of lead in your pressure tank above applicable levels. However, there are no detections at the kitchen faucet or in the well water. It is recommended that you maintain your plumbing system according to manufacturer recommendations and to continue to maintain any treatment systems that are installed. At this point, the Department is concluding its investigation into the occurrence of certain metals at your property. A report of the Department's more comprehensive Green Valley/Monrovia groundwater investigation will be made available to you once completed. It is anticipated to be complete within the next several months.

The Frederick County Health Department and the Maryland Department of the Environment appreciate your cooperation in the investigation of groundwater resources in the Monrovia/Green Valley area. If you have any questions about the attached information or the results, please do not hesitate to call me at 410-537-3442 (chris.ralston@maryland.gov).

Sincerely,

Christopher Ralston, Administrator
Oil Control Program

CHR/nln

Enclosures

cc: Dr. Barbara Brookmyer, FCHD Health Officer
Mr. Jay Sakai, Director, MDE Water Management Administration
Mr. Horacio Tablada, Director, MDE Land Management Administration
Priscilla Carroll, Esq., Assistant Attorney General
Francesca Gibbs, Esq., Assistant Attorney General
Theodore Flerlage, Esq., Law Offices of Peter G. Angelos
M. Albert Figinski, Esq., Law Offices of Peter G. Angelos
Dwight Stone, Esq., Whiteford Taylor Preston
Heather S. Deane, Esq., Bonner Kiernan

Inorganic Laboratory Analytical Data / Field Measurements

MDE-FCHD Groundwater Investigavtion
Green Valley / Monrovia
Frederick County, Maryland

3740 Blueberry Court
July 11, 2013

Sample I.D. Sample Location	3740 Blueberry-POU Cold water tap at kitchen sink	3740 Blueberry-PT1 Pressure tank drain (prior to 1st purge)	3740 Blueberry-PT1DB Pressure tank drain (prior to 1st purge)	3740 Blueberry-PT2 Pressure tank drain (after 1st purge)	3740 Blueberry-PT3 Pressure tank drain (after 2nd purge)	3740 Blueberry-PT4 Pressure tank drain (after 3rd purge)	3740 Blueberry-WP1 Garden hose connected to pressure tank drain (after ~1 well volume)	3740 Blueberry-WP2 Garden hose connected to pressure tank drain (after ~2 well volumes)	3740 Blueberry-WP3 Garden hose connected to pressure tank drain (after ~3 well volumes)	3740 Blueberry-FB Field Blank	MDE Groundwater Standard
Analyte	**Concentration (ug/L)**										
Total Chromium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0E+02
Total Lead	1.0 U	**32.3**	**41.5**	**58.3**	**14.7**	**24.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.5E+01
Dissolved Chromium	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	na
Dissolved Lead	1.0 U	**16.8**	**16.6**	**8.6**	**9.8**	**6.4**	1.0 U	1.0 U	1.0 U	1.0 U	na
Hexavalent Chromium (Chromate)	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	na

Parameter	Field Measurement										
pH	**4.91**	**5.10**	**5.10**	**5.25**	**5.08**	**5.20**	**5.16**	**5.07**	**5.09**	**5.48**	na
Temperature (°C)	**15.77**	**15.58**	**15.58**	**14.52**	**14.75**	**14.55**	**15.81**	**15.11**	**15.25**	**16.24**	na
Oxidation-Reduction Potential (ORP) (mV)	**312.7**	**275.5**	**275.5**	**276.2**	**280.7**	**277.2**	**262.2**	**242.7**	**227.5**	**248.2**	na

Table Notes
Total and Dissolved Lead and Chromium Analytical Method: EPA Method 200.8
Hexavalent Chromium Analytical Method: EPA Method 218.7
ug/L - micrograms per liter or parts per billion (ppb)
MDE Groundwater Standard Type I and II Aquifers (June 2008)
U - Analyte Not Detected Above Specified Reporting Limit (RL)
Bold - Detected analyte concentration
Bold and underline - Detected analyte concentration exceeds respective standard
na - not applicable
YSI 556 Water Quality Meter used to measure pH, temperature, and ORP
°C - degrees Celsius
mV - millivolts

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Date: 7/11/2013
Arrival Time: 8:30
Departure Time: 14:00
Property Owner: Roay + Christine Miller

Address: 3740 Blueberry Court
Monrovia, MD 21770
CGS Staff: Lara Bennett and Devin Glancey

When was the last time water was used ? This morning prior to sampling
Where and what was the purpose of recent water use? Kitchen Sink + bathrooms - Fill coffee pot + buckets
Is a totalizer meter present? N/A - No Meter present
If yes, what is the totalizer meter reading prior to sampling? N/A

Sample Locations and IDs

				Check to indicate sample collection			Enter reading		
Sample Type	Sample ID	Location	Sample Time	Total Lead / Chromium	Dissolved Lead / Chromium	Hexavalent Chromium	pH	Temperature (° C)	ORP (mV)
Point of Use	3740 Blueberry-POU	kitchen sink	8:46	X	X	X	4.91	15.77	312.7
PT#1	3740 Blueberry-PT1		9:06	X	X	X	5.10	15.58	275.5
PT#2	3740 Blueberry-PT2		9:21	X	X	X	5.25	14.52	276.2
PT#3	3740 Blueberry-PT3		9:28	X	X	X	5.08	14.75	280.7
PT#4	3740 Blueberry-PT4		9:33	X	X	X	5.20	14.55	277.2
Duplicate	3740 Blueberry-PT1DR		00:00	X	X	X	5.10	15.58	275.5
Field Blank	3740 Blueberry-FB		11:15	X	X	X	5.48	16.24	248.2

Point of Use Purge
Purge time begin: 8:35
Purge time end: 8:45

First Pressure Tank Purge
Purge time begin: 9:16
Purge time end: 9:17
Total gallons purged: 6 gallons

Second Pressure Tank Purge
Purge time begin: 9:25
Purge time end: 9:27
Total gallons purged: 9 gallons

Third Pressure Tank Purge
Purge time begin: 9:35
Purge time end: 9:36
Total gallons purged: 10 gallons

pH/Temperature/ORP Meter Calibration

Provide notes on calibration including date, time, standards used and results of calibration.

pH Calibration: Calibration Checked at 14:00 on 7/10/13 All calibration levels are correct. Checked by CDG
ORP Calibration: Calibrated on 7/8/13 by CDG

Well Tag Number: FR-72-0717 (Tag not present on well)
Well Location: Located behind the house near the parking area toward the north

* No sediment sample collected. Little to no sediment present in purge water *

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Well Purge:
Purge time begin: 9:55
Purge time end: 13:45
Total gallons purged: ~910 (Estimated)

Well Depth: 240 ft BG
Well Diameter: 6 inches
One Well Volume (gallons): 293.8
Three Well Volumes (gallons): 881.4
For 3 well volumes, at a rate of 4gpm, pumping must run ~220 minutes.

Time	Pumping Rate (Gallons/Minute)	Temperature (° C)	pH	ORP (mV)	Comments
9:55	3.95	—	—	—	Approx. 73-74 mins btwn Samples Water is clear
10:05	3.09	—	—	—	Adjusted pumping rate to
10:10	4.11	—	—	—	4 gpm
10:20	4.00	—	—	—	Steady Flow
10:30	4.00	—	—	—	
10:40	4.00	—	—	—	
10:50	3.90	—	—	—	Increased flow rate to 4-5gpm
11:00	3.84	—	—	—	
11:05	4.60	—	—	—	
11:09	4.50	15.81	5.16	262.2	3740 Blueberry-WP1 sampled
11:20	4.60	—	—	—	FB collected at 11:15
11:25	4.00	—	—	—	Adjusted pumping rate to slower rate
11:35	3.90	—	—	—	
11:45	4.00	—	—	—	Steady Flow
11:55	4.00	—	—	—	
12:05	4.00	—	—	—	
12:15	3.90	—	—	—	
12:25	3.50	—	—	—	Increased rate slightly
12:30	4.34	—	—	—	
12:32	4.30	15.11	5.07	242.7	3740 Blueberry-WP2 sampled
12:40	4.30	—	—	—	
12:50	4.00	—	—	—	
13:00	4.25	—	—	—	Flow rate is steady
13:10	4.06	—	—	—	
13:20	4.05	—	—	—	
13:30	4.00	—	—	—	
13:40	4.00	—	—	—	
13:45	4.00	15.25	5.09	227.5	Stopped Purge after ~3 well volumes have been purged

TABLE OF CONTENTS

Table of Contents	1
Case Narrative	2
Chain of Custody	4
Analytical Reports	6
QC Summary Table	27
Instrument Blanks	30
Calibration Data	32
Metals Digestion Logs	38
Raw Data	40

Case Narrative

Case Narrative

The following samples were received by Enviro-Chem Laboratories, Inc. from Chesapeake Geo-Science in support of their Green Valley Citgo Project.

ECL029507-001	3740 Blueberry - POU total	7/11/2013	7/11/2013	Bennett
ECL029507-002	3740 Blueberry - POU dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-003	3740 Blueberry - PT1 total	7/11/2013	7/11/2013	Bennett
ECL029507-004	3740 Blueberry - PT1 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-005	3740 Blueberry - PT/DB total	7/11/2013	7/11/2013	Bennett
ECL029507-006	3740 Blueberry - PT/DB dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-007	3740 Blueberry - PT2 total	7/11/2013	7/11/2013	Bennett
ECL029507-008	3740 Blueberry - PT2 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-009	3740 Blueberry - PT3 total	7/11/2013	7/11/2013	Bennett
ECL029507-010	3740 Blueberry - PT3 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-011	3740 Blueberry - PT4 total	7/11/2013	7/11/2013	Bennett
ECL029507-012	3740 Blueberry - PT4 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-013	3740 Blueberry - WP1 total	7/11/2013	7/11/2013	Bennett
ECL029507-014	3740 Blueberry - WP1 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-015	3740 Blueberry - WP2 total	7/11/2013	7/11/2013	Bennett
ECL029507-016	3740 Blueberry - WP2 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-017	3740 Blueberry - WP3 total	7/11/2013	7/11/2013	Bennett
ECL029507-018	3740 Blueberry - WP3 dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-019	3740 Blueberry -FB total	7/11/2013	7/11/2013	Bennett
ECL029507-020	3740 Blueberry -FB dissolved	7/11/2013	7/11/2013	Bennett

Samples were analyzed by EPA 200.8 for total and dissolved Chromium and Lead, and by EPA Method 218.7 for Hexavalent Chromium. The spike recoveries for the matrix spike and matrix spike duplicate analysis for Chromate by Method 218.7 were below the 85-115 % control limits. All other Quality Control criteria for these analyses were met.

Stephen E. Shelley
Laboratory Director
Enviro-Chem Laboratories, Inc.

Chain of Custody

29507

Sample Chain of Custody

(NH4)2SO4 + NH4OH

Enviro-Chem Laboratories, Inc. | **47 Loveton Circle, Suite K** | **Sparks, MD 21152**

Client: Chesapeake GeoSciences, Inc. (CGS) Phone No.: (410) 740-1911 x102

Project Manager: Sean Daniel Fax No.: (410)740-3299

Sampler: Lara Bennett Email: sdaniel@cgs.us.com

Project Name: Green Valley Citgo Project Number: CG-120788.06

P.O.Number: CG120788.06SD

ECL Log in Batch Number | Page | of

Preservative Key: NA = Nitric Acid, pH <2; SA = Sulfuric Acid, pH <2; OH = NaOH, pH >12; TI = Thiosulfate; Zn = Zinc Acetate; N = None, Chilled; X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Sample Type C = Comp. G = Grab	Preservative N	Preservative NA	Total Lead/Chromium EPA Method 200.8	Dissolved Lead/Chromium EPA Method 200.8	Hexavalent Chromium EPA Method 218.7	Remarks
EC029507-001 EC029507-002	3740 Blueberry-POU	7/11/13	8:46	DW	3	G			X	X	X	
EC029507-003 EC029507-004	3740 Blueberry-PT1		9:06	DW	3	G			X	X	X	
EC029507-005 EC029507-006	3740 Blueberry-PTDB		00:00	DW	3	G			X	X	X	
EC029507-007 EC029507-008	3740 Blueberry-PT2		9:21	DW	3	G			X	X	X	
EC029507-009 EC029507-010	3740 Blueberry-PT3		9:28	DW	3	G			X	X	X	
EC029507-011 EC029507-012	3740 Blueberry-PT4		9:38	DW	3	G			X	X	X	
EC029507-013 EC029507-014	3740 Blueberry-WP1		11:09	DW	3	G			X	X	X	
EC029507-015 EC029507-016	3740 Blueberry-WP2		12:32	DW	3	G			X	X	X	
EC029507-017 EC029507-018	3740 Blueberry-WP3		13:45	DW	3	G			X	X	X	
EC029507-019 EC029507-020	3740 Blueberry-FB	7/11/13	11:15	DW	3	G			X	X	X	

	Date	Time	Received By
Collected / Relinquished By	7/11/13	1515	
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By

Deliverables Required

Due Date

Coolers 1 Seal

Ice Present Yes Temp 7.1

Turnaround Requested STD 1-Day Other Rush?

Special instructions, Comments:
Level III Data Package Deliverables

COC/Labels match (Y) N # of Samples 10 # of Bottles 30

Bottles intact/appropriate (Y) N Preserved correctly (Y) N NA

Explain any "NO" answers

CK

ECL Doc 1 (11/01/13)

Analytical Reports

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-001 SAMPLE ID- 3740 Blueberry - POU total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 8:46 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-002 SAMPLE ID- 3740 Blueberry - POU dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 8:46 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 03:32	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-003 SAMPLE ID- 3740 Blueberry - PT1 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:06 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	32.3	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-004 SAMPLE ID- 3740 Blueberry - PT1 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:06 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	16.8	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 03:50	SES	< 0.020	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-005 SAMPLE ID- 3740 Blueberry - PT/DB total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	41.5	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-006 SAMPLE ID- 3740 Blueberry - PT/DB dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 0:00 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	16.6	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 04:09	SES	< 0.020	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-007 SAMPLE ID- 3740 Blueberry - PT2 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:21 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	58.3	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-008 SAMPLE ID- 3740 Blueberry - PT2 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:21 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	8.6	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 04:28	SES	< 0.020	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-010 SAMPLE ID- 3740 Blueberry - PT3 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:28 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	9.8	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 04:47	SES	< 0.020	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-009 SAMPLE ID- 3740 Blueberry - PT3 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:28 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	14.7	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-011 SAMPLE ID- 3740 Blueberry - PT4 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:38 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	24.9	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-012 SAMPLE ID- 3740 Blueberry - PT4 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:38 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	6.4	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 05:06	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-013 SAMPLE ID- 3740 Blueberry - WP1 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:09 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-014 SAMPLE ID- 3740 Blueberry - WP1 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:09 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 05:25	SES	< 0.020	ug/L Cr	0.020	S

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-015 SAMPLE ID- 3740 Blueberry - WP2 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 12:32 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-016 SAMPLE ID- 3740 Blueberry - WP2 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 12:32 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 05:44	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-017 SAMPLE ID- 3740 Blueberry - WP3 total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 13:45 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-018 SAMPLE ID- 3740 Blueberry - WP3 dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 13:45 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 06:03	SES	< 0.020	ug/L Cr	0.020	S

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-019 SAMPLE ID- 3740 Blueberry -FB total
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:15 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Green Valley
REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-020 SAMPLE ID- 3740 Blueberry -FB dissolved
LOCATION-
DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:15 SAMPLER- Bennett
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	7/17/2013 06:22	SES	< 0.020	ug/L Cr	0.020	S

Stephen Shelley
LABORATORY DIRECTOR

State of Maryland Certified Parameter

* NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
ECL029507-001D	Duplicate		< 1.0	µg/L		< 1.0	0.7			
ECL029507-011D	Duplicate		< 1.0	µg/L		< 1.0	35			
ECL029507-011D	Duplicate		25.0	µg/L		24.9	0.2			
ECL029507-001D	Duplicate		< 1.0	µg/L		< 1.0	73.4			
LCS5106	LCS	Chromium	49.2	µg/L	50		98.3	85	115	
LCS5106	LCS	Lead	51.4	µg/L	50		102.8	85	115	
LPB5106	Prep Blank	Chromium	< 1.0	µg/L					1	
LPB5106	Prep Blank	Lead	< 1.0	µg/L					1	
ECL029507-011S	Spike	Chromium	48.3	µg/L	50	< 1.0	96.1	70	130	
ECL029507-001S	Spike	Chromium	48.7	µg/L	50	< 1.0	97.2	70	130	
ECL029507-001S	Spike	Lead	49.3	µg/L	50	< 1.0	97.6	70	130	
ECL029507-011S	Spike	Lead	74.1	µg/L	50	24.9	98.3	70	130	

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192										
CCC-HIGH	CCC-HIGH	Chromate	5.176	ug/L	5		103.5	85	115	
CCC-LOW	CCC-LOW	Chromate	< 0.020	ug/L	0.02		86.5	50	150	
CCC-MID	CCC-MID	Chromate	1.053	ug/L	1		105.3	85	115	
ECL029474-002SD	MSD	Chromate	0.763	ug/L	1	< 0.020	76.3	85	115	*
ECL029474-002S	Spike	Chromate	0.747	ug/L	1	< 0.020	74.7	85	115	*
ECL029474-002SD	Spike Dup	Chromate	0.763	ug/L	1	< 0.020	2.1	0	20	

Instrument Blanks

INSTRUMENT BLANKS

Analytical Run **F130722C** **Date of Analysis** **7/22/2013**

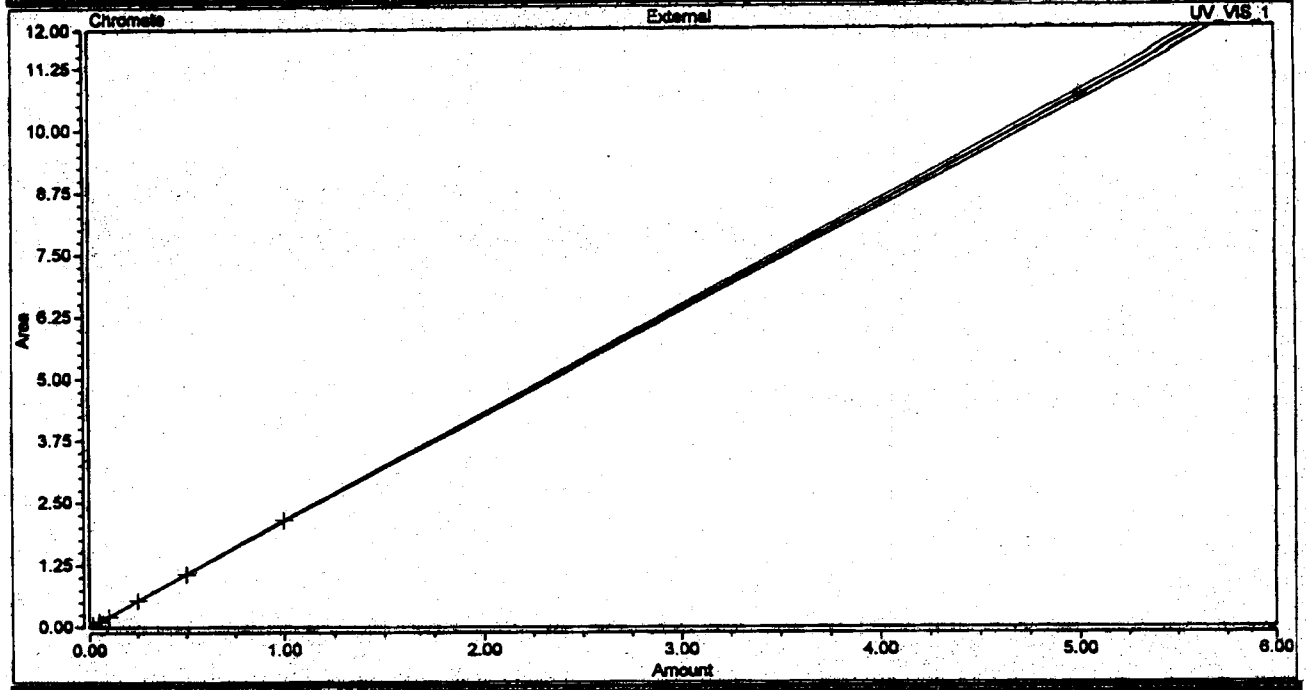
	Cr	Pb
ICB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L

Analytical Run **CR6-130716** **Date of Analysis** **7/16/2013**

	CrO4
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L

Calibration Data

Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0089
Evaluation Type	Area	*Slope (C1)*	2.1346
Number of Calibration Points	7	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000



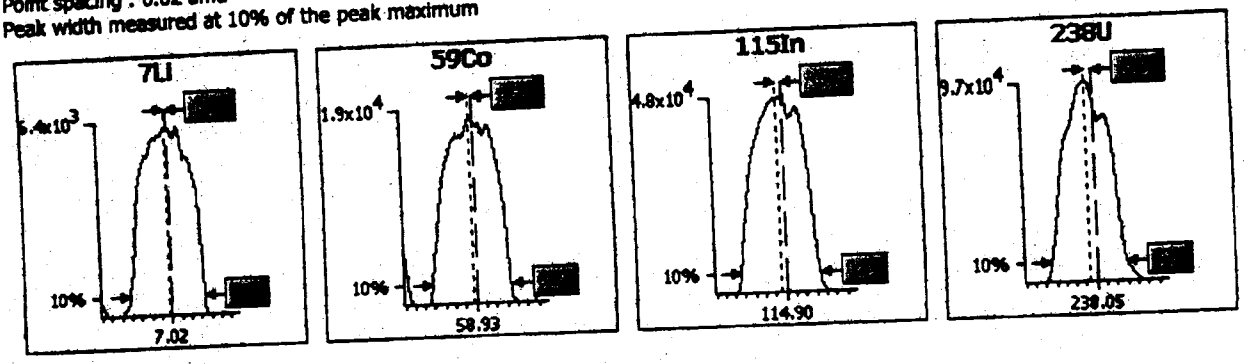
No.	Injection Name	Calibration Level	X Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
1	[illegible]	[illegible]	0.0000	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	0.1000	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	0.2500	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	0.5000	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	1.0000	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	2.5000	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	5.0000	[illegible]	[illegible]	[illegible]	[illegible]

Performance Report

Sample details
Acquired at : 7/22/2013 9:33:28 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Mass Calibration verification

Acquisition parameters
Sweeps : 10
Dwell : 5.0 mSecs
Point spacing : 0.02 amu
Peak width measured at 10% of the peak maximum



Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.75	-0.03
59Co	0.85	0.65	0.10	0.77	-0.05
115In	0.85	0.65	0.10	0.79	-0.07
238U	0.85	0.65	0.10	0.73	-0.09

Sample details
Acquired at : 7/22/2013 9:33:28 AM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Tune conditions

Major	
Extraction	-160.8
Lens 1	-1286
Lens 2	-79.2
Focus	8.0
D1	-47.1
D2	-140
Pole Bias	-2.0
Hexapole Bias	-11.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3127

Add. Gases	
CCT-He/H2	0.00
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 130

Run	Time	5Bkg	7Li	56Ar O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Dwell (mSecs)		100.0	10.0	10.0	10.0	30.0	30.0	100.0	10.0	10.0
Limits	%RSD	-	2.0%	-	2.0%	-	-	-	2.0%	-
	Countrate	-	>4000	-	>10000	-	-	-	>40000	-
1	9:33:49 AM	0.000	5718.739	349017.27	18151.306	68.205	515.650	0.154	49135.598	4856.139
2	9:34:58 AM	0.000	5865.716	347823.40	17858.662	67.949	493.854	0.000	49369.410	4876.145
3	9:36:07 AM	0.000	5669.490	349617.39	17953.385	85.128	476.674	0.077	49472.042	4820.744
4	9:37:16 AM	0.000	5708.735	346900.92	18111.260	76.923	481.289	0.000	49249.803	4846.136
5	9:38:26 AM	0.077	5785.686	348263.81	17961.857	72.564	467.443	0.000	49773.767	4931.547
x		0.015	5749.673	348324.56	18007.294	74.154	486.982	0.046	49400.124	4866.142
σ		0.03	77.18	1052.72	121.05	7.15	18.64	0.07	244.08	41.65
%RSD		223.607	1.342	0.302	0.672	9.643	3.827	149.071	0.494	0.856

Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
Dwell (mSecs)		10.0	10.0	30.0	100.0	10.0
Limits	%RSD	-	-	-	-	2.0%
	Countrate	-	-	-	<1	>80000
1	9:33:49 AM	31406.147	41876.040	760.018	0.077	92609.793
2	9:34:58 AM	31395.356	41604.547	732.838	0.077	93261.344
3	9:36:07 AM	31525.618	42140.596	758.480	0.077	94587.743
4	9:37:16 AM	31429.270	42064.237	748.992	0.000	94569.169
5	9:38:26 AM	31521.764	42040.327	743.351	0.077	95646.466
x		31455.631	41945.149	748.736	0.062	94134.903
σ		63.34	213.44	11.23	0.03	1200.79
%RSD		0.201	0.509	1.499	55.902	1.276

Ratio results

Run	Time	137Ba++/137Ba	115In/220Bkg	156Ce O/140Ce
Ratio limits		<0.0300	>80000.0000	<0.0200
1	9:33:49 AM	0.014	638762.77	0.018
2	9:34:58 AM	0.014	641802.33	0.018
3	9:36:07 AM	0.018	643136.54	0.018
4	9:37:16 AM	0.016	INF	0.018
5	9:38:26 AM	0.015	647058.97	0.018
x		0.0152	642690.15	0.0179
σ		0.00	287435.21	0.00
%RSD		10.1926	44.7238	1.2446

Result : The performance report passed.

Performance Report

Sample details
Acquired at : 7/22/2013 9:45:18 AM
Report name : CCT-KED-WITHAR2 [11/17/2010 9:50:45 AM]

Tune conditions

Major	
Extraction	-160.8
Lens 1	-1286
Lens 2	-79.2
Focus	-9.4
D1	-62.0
D2	-140
Pole Bias	-16.0
Hexapole Bias	-20.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3127

Add. Gases	
CCT-He/H2	5.14
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 100

Run	Time	78Se	80Ar2	115In	140Ce	156Ce O
Dwell (mSecs)		30.0	10.0	10.0	10.0	10.0
Limits	%RSD	-	-	2.0%	-	-
	Countrate	<20	<200	>2000	-	-
1	9:45:19 AM	0.333	93.000	6296.268	13606.922	84.000
2	9:45:29 AM	0.333	82.000	6283.263	13836.123	71.000
3	9:45:39 AM	0.667	96.000	6228.241	13667.975	78.000
4	9:45:49 AM	1.333	82.000	6308.273	13893.174	96.000
5	9:45:59 AM	0.000	75.000	6115.196	13648.959	74.000
x		0.533	85.600	6246.248	13730.631	80.600
σ		0.51	8.68	79.40	125.95	9.89
%RSD		94.786	10.137	1.271	0.917	12.270

Ratio results

Run	Time	156Ce O/140Ce
	Ratio limits	-
1	9:45:19 AM	0.006
2	9:45:29 AM	0.005
3	9:45:39 AM	0.006
4	9:45:49 AM	0.007
5	9:45:59 AM	0.005
x		0.0059
σ		0.00
%RSD		11.8863

Result : The performance report passed.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Analytical Run **F130722C** **Date of Analysis** **7/22/2013**

	Cr			Pb		
	TRUE	Found	%recovery	TRUE	Found	% recovery
ICV	100	99.0	98.99	100	100.7	100.70
CCV	200	199.7	99.85	200	200.7	100.35
CCV	200	198.9	99.45	200	194.7	97.35
CCV	200	199.9	99.95	200	193.7	96.85
CCV	200	198.7	99.35	200	194.7	97.35

Metals Digestion Logs

ENVIRO-CHEM LABORATORIES INC.

METALS DIGESTION LOG

Digestion Batch: 5106

Date: 7/9/13

Analyst: CMK

Microwave or ~~Hotblock~~? 200.8 Time in: 1010

SOP: M-100.1005 Temp in: 84.2

Spiking Solution(s) added to LCS/MS/MSD: 25µL ICB 100-19 (0431)

Acids added: (0444) 1.0mL HNO3, 1.0mL 1+1 HCl (0444)

Final volume (mL): 50mL Time out: 1400 Temp: 83.8

Sample ID:	weight (g)/initial volume (l)
LPB5106	50mL DI
LCS5106	50mL DI +
29507-001	50mL
29507-001D	
29507-001S	+
29507-002	
29507-003	
29507-004	
29507-005	
29507-006	
29507-007	
29507-008	
29507-009	

Sample ID:	weight (g)/initial volume (l)
29507-010	50mL
29507-011	
29507-011D	
29507-011S	+
29507-012	
29507-013	
29507-014	
29507-015	
29507-016	
29507-017	
29507-018	
29507-019	
29507-020	

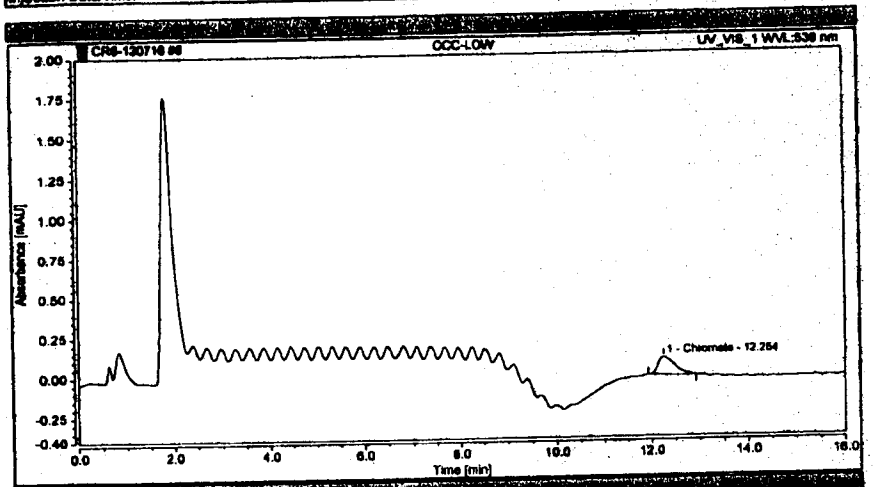
Comments:

Raw Data

Name:	CR6-130716	*Created On:*	26/Apr/11 09:00:46
Directory:	Instrument Data\Chrome_VI\Sequences\CR6-	*Created By:*	Enviro Chem
Data Vault:	ChromeleonLocal	*Updated On:*	17/Jul/13 07:19:00
No. of Injections:	33	*Updated By:*	Enviro Chem

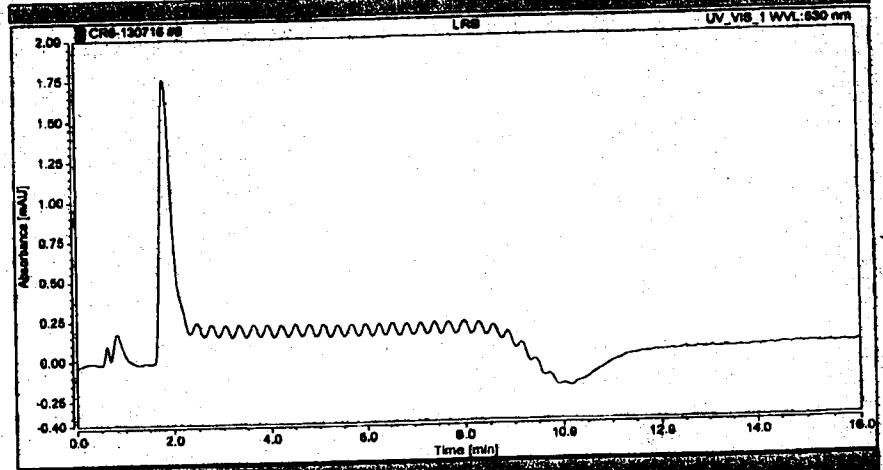
No.	Injection Name	Ret.Time min Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1	Amount ppb Chromate UV_VIS_1	Inject Time Chromate	Peak Type Chromate UV_VIS_1
1	[redacted]	12.317	0.051	0.153	0.0195	24/06/13 17:04	M
2	[redacted]	12.319	0.121	0.317	0.0523	24/06/13 17:23	M
3	[redacted]	12.302	0.218	0.573	0.0917	24/06/13 17:42	M
4	[redacted]	12.361	0.544	1.347	0.2507	24/06/13 18:00	M
5	[redacted]	12.383	1.089	2.695	0.4966	24/06/13 18:19	M
6	[redacted]	12.342	2.143	5.353	0.9998	24/06/13 18:38	M
7	[redacted]	12.344	10.689	26.528	5.0032	24/06/13 18:57	M
8	[redacted]	12.254	0.046	0.112	0.0174	16/07/13 23:07	M
9	[redacted]	n.a.	n.a.	n.a.	n.a.	16/07/13 23:26	n.a.
10	[redacted]	n.a.	n.a.	n.a.	n.a.	16/07/13 23:45	n.a.
11	[redacted]	12.105	1.604	4.238	0.7472	17/07/13 00:03	BM
12	[redacted]	12.107	1.638	4.316	0.7630	17/07/13 00:22	M
13	[redacted]	12.116	0.060	0.149	0.0239	17/07/13 00:41	M
14	[redacted]	12.091	0.062	0.154	0.0247	17/07/13 01:00	M
15	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 01:19	n.a.
16	[redacted]	12.089	0.016	0.050	0.0036	17/07/13 01:38	M
17	[redacted]	12.092	0.015	0.053	0.0036	17/07/13 01:57	M
18	[redacted]	12.105	0.059	0.144	0.0234	17/07/13 02:16	BM
19	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 02:35	n.a.
20	[redacted]	12.088	2.257	5.361	1.0533	17/07/13 02:54	M
21	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 03:13	n.a.
22	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 03:32	n.a.
23	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 03:51	n.a.
24	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 04:09	n.a.
25	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 04:28	n.a.
26	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 04:47	n.a.
27	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 05:06	n.a.
28	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 05:25	n.a.
29	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 05:44	n.a.
30	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 06:03	n.a.
31	[redacted]	n.a.	n.a.	n.a.	n.a.	17/07/13 06:22	n.a.
32	CCC-HIGH	12.243	11.058	26.223	5.1759	17/07/13 06:41	M
33	LRB	n.a.	n.a.	n.a.	n.a.	17/07/13 07:00	n.a.

Injection Name:	CCC-LOW	Run Time (min):	16.00
Vial Number:	1	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	16/Jul/13 23:07	Sample Weight:	1.0000



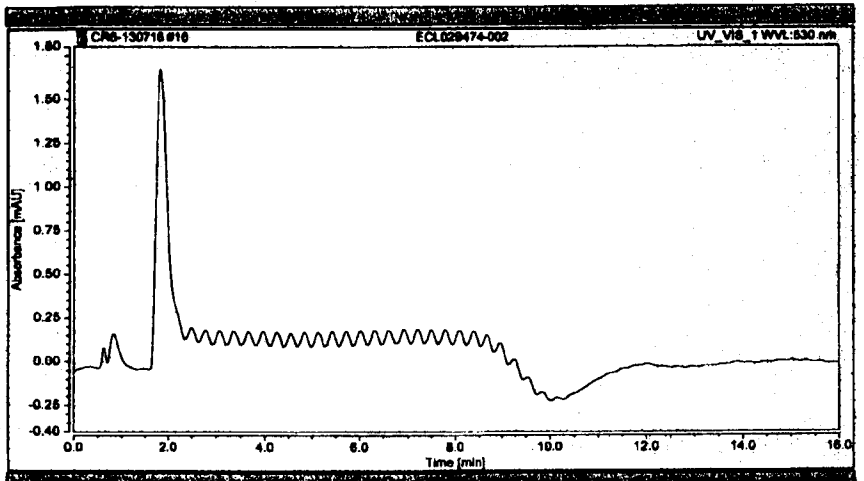
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.254	0.046	0.112	100.00	100.00	0.0873
Total:			0.046	0.112	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	2	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	16/Jul/13 23:26	Sample Weight:	1.0000



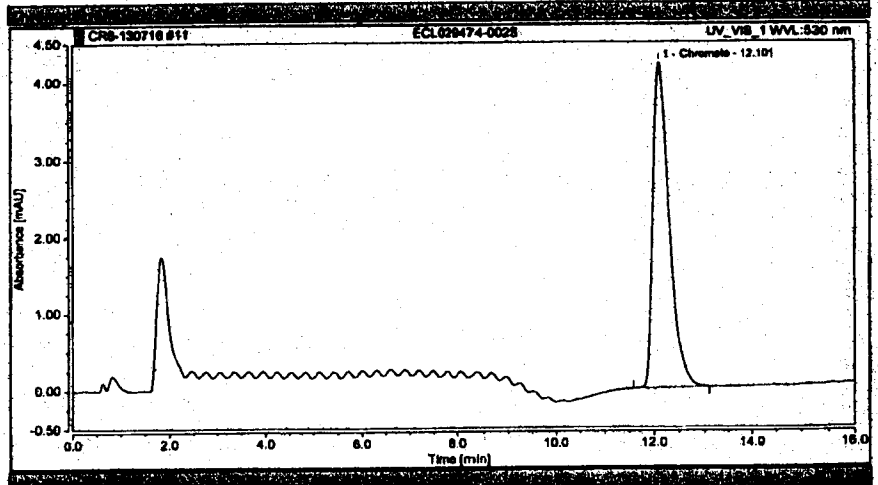
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029474-002	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	16/Jul/13 23:46	Sample Weight:	1.0000



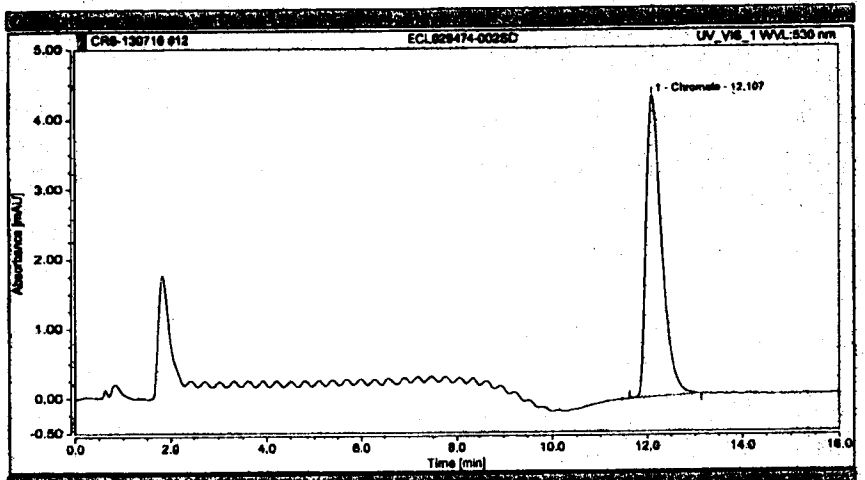
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029474-0028	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 00:03	Sample Weight:	1.0000



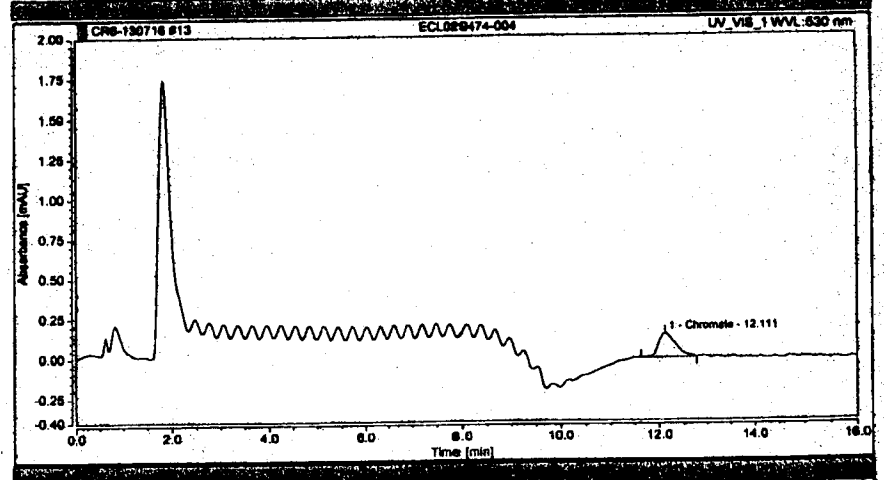
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.101	1.864	4.238	100.00	100.00	0.7372
Total:			1.864	4.238	100.00	100.00	

Injection Name:	ECL829474-0025D	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 09:22	Sample Weight:	1.0000



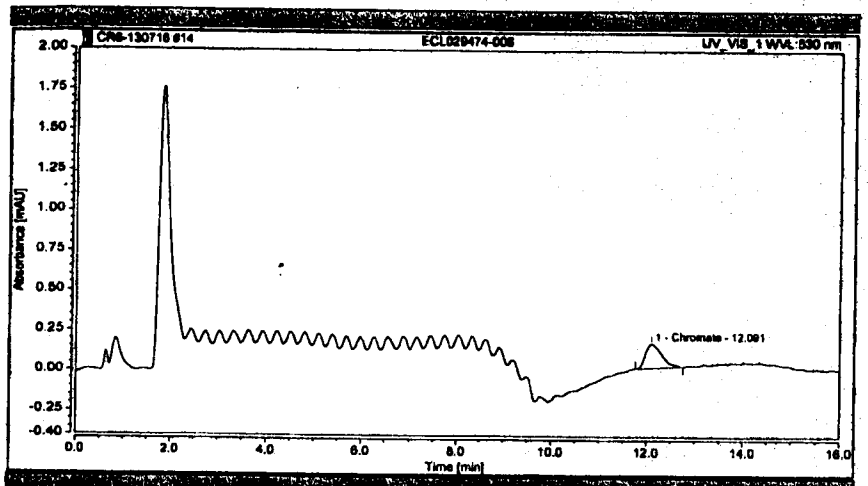
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.107	1.838	4.316	100.00	100.00	6.7830
Total:			1.838	4.316	100.00	100.00	

Injection Name:	ECL829474-004	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 09:41	Sample Weight:	1.0000



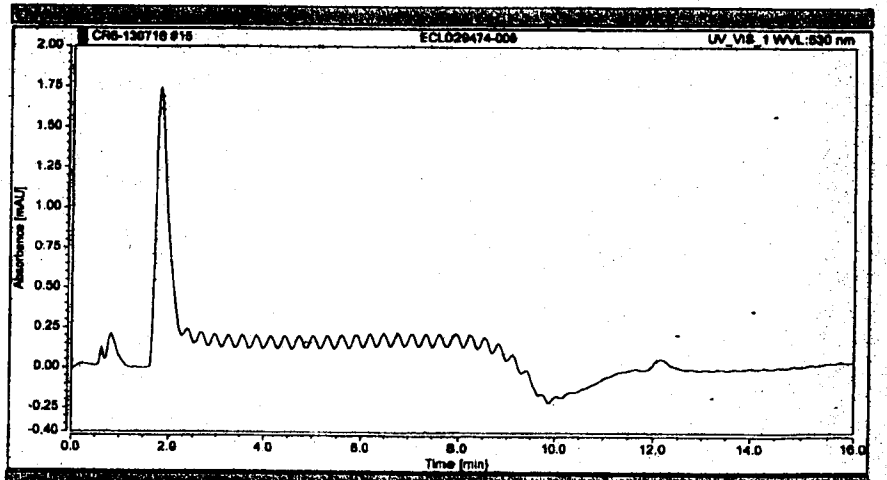
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.111	0.068	0.149	100.00	100.00	0.25106
Total:			0.068	0.149	100.00	100.00	

Injection Name:	ECL029474-008	Run Time (min):	16.00
Vial Number:	7	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:00	Sample Weight:	1.0000



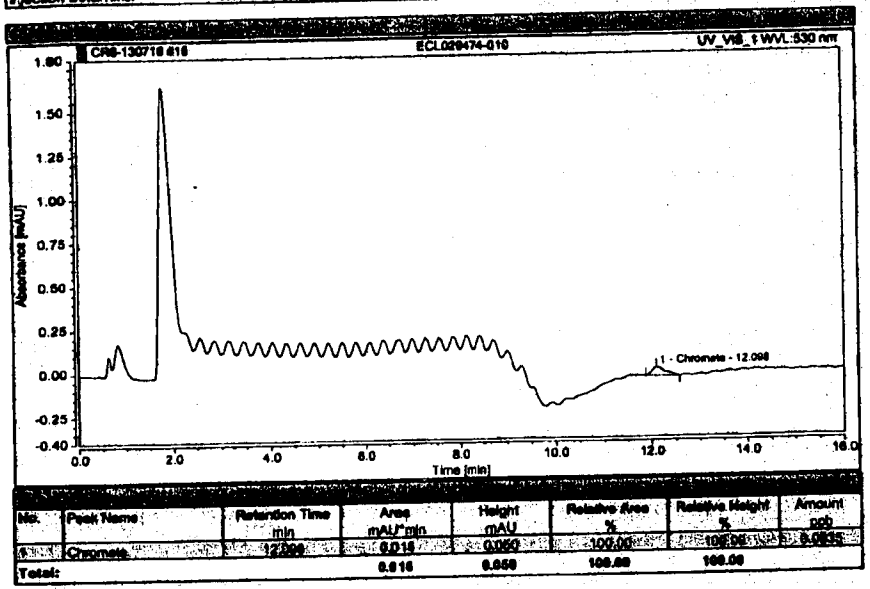
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.091	0.062	0.154	100.00	100.00	0.0247
Total:			0.062	0.154	100.00	100.00	

Injection Name:	ECL029474-009	Run Time (min):	16.00
Vial Number:	8	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:19	Sample Weight:	1.0000



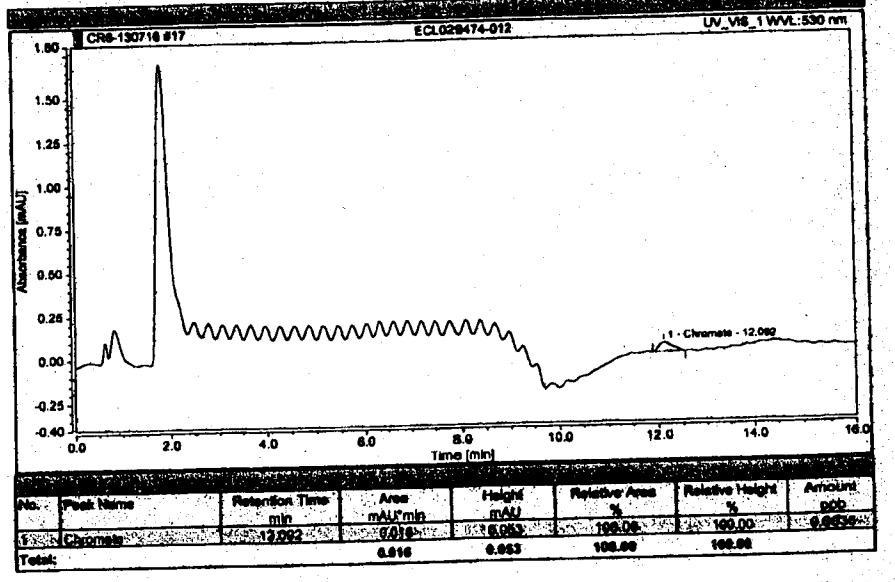
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029474-010	Run Time (min):	16.00
Vial Number:	9	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:38	Sample Weight:	1.0000



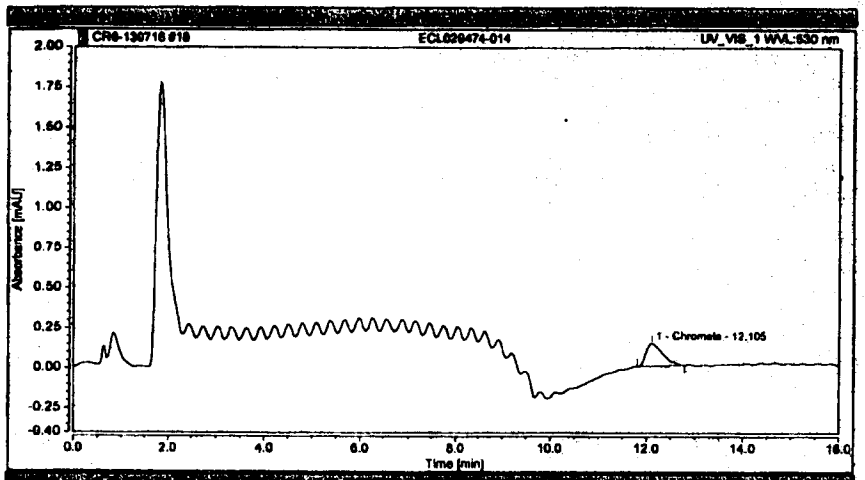
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.098	0.016	0.050	100.00	100.00	0.0835
Total:			0.016	0.050	100.00	100.00	

Injection Name:	ECL029474-012	Run Time (min):	16.00
Vial Number:	10	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 01:57	Sample Weight:	1.0000



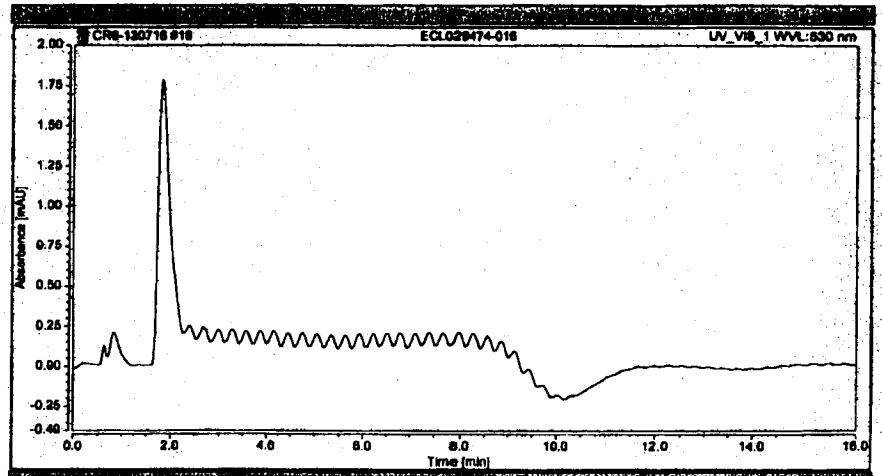
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.092	0.016	0.053	100.00	100.00	0.0836
Total:			0.016	0.053	100.00	100.00	

Injection Name:	ECL029474-014	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 02:16	Sample Weight:	1.0000



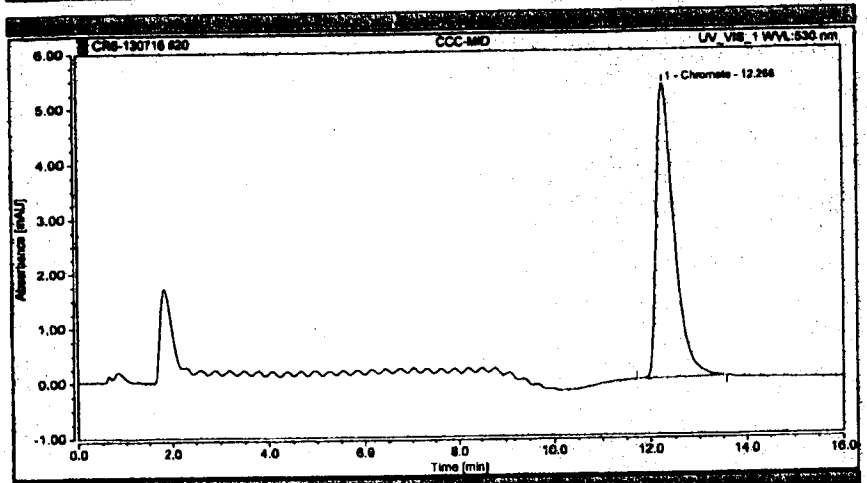
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.105	0.858	0.144	100.00	100.00	0.8234
Total:			0.858	0.144	100.00	100.00	

Injection Name:	ECL029474-015	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 02:35	Sample Weight:	1.0000



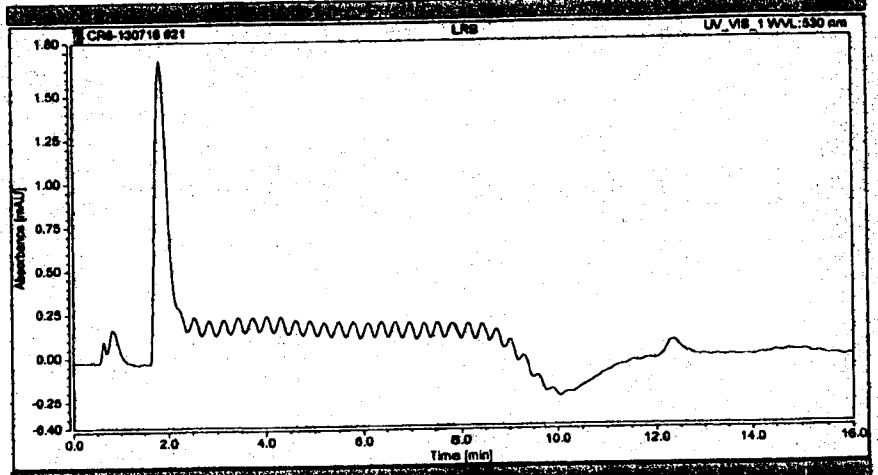
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	CCC-MID	Run Time (min):	16.00
Vial Number:	13	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 02:54	Sample Weight:	1.0000



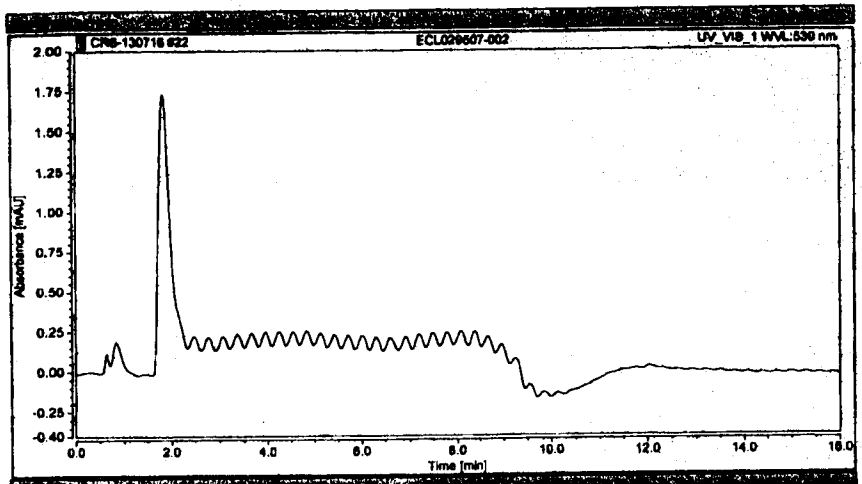
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.269	2.267	5.361	100.00	100.00	1.0000
Total:			2.267	5.361	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	14	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 03:13	Sample Weight:	1.0000



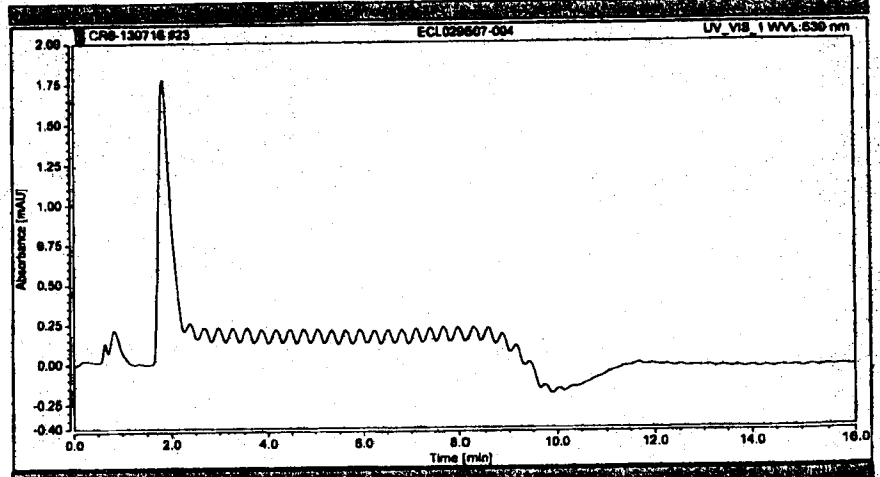
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL0296[illegible]	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 03:32	Sample Weight:	1.0000



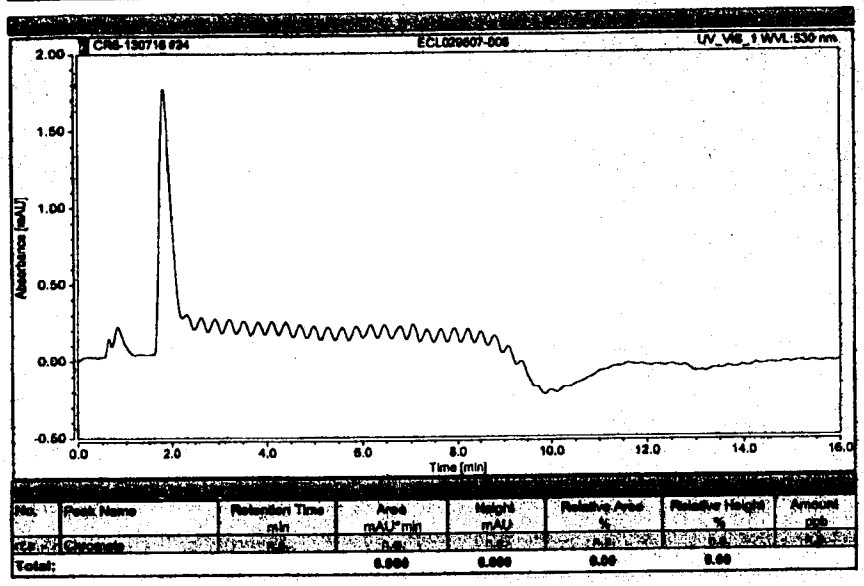
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL0296[illegible]	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 03:50	Sample Weight:	1.0000



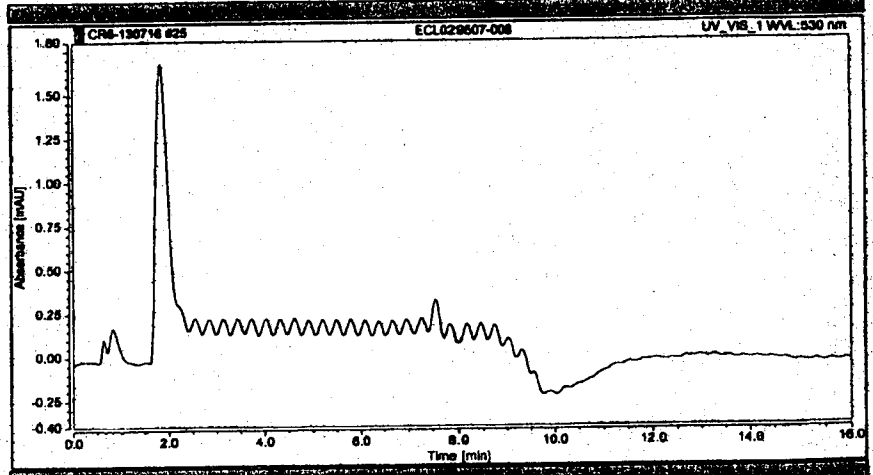
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029607-006	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:09	Sample Weight:	1.0000



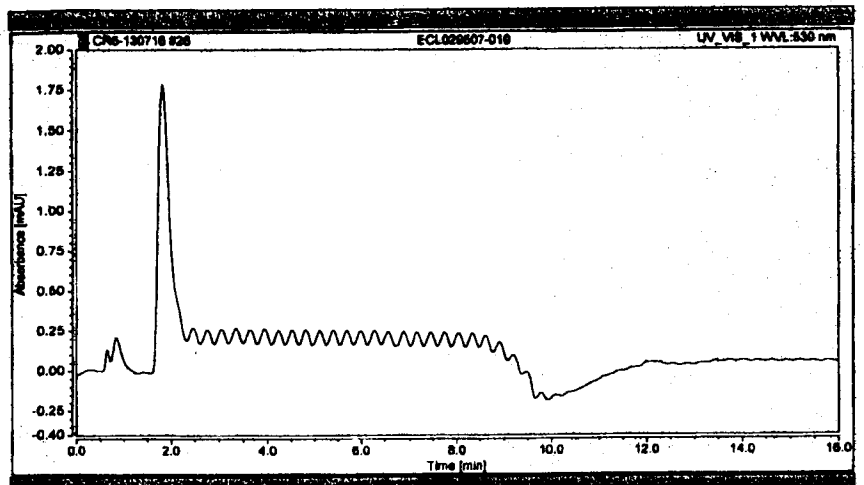
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029607-008	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chroma VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:28	Sample Weight:	1.0000



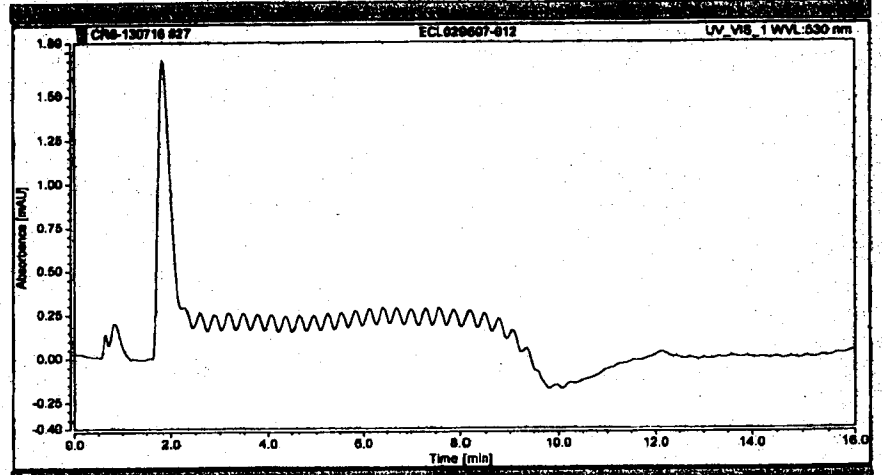
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL020607-010	Run Time (min):	16.00
Vial Number:	10	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 04:47	Sample Weight:	1.0000



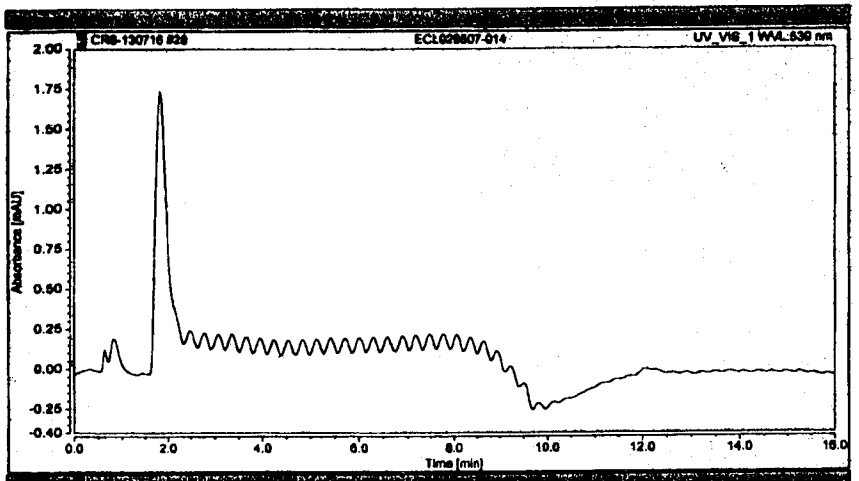
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.d.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL020607-012	Run Time (min):	16.00
Vial Number:	30	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 09:06	Sample Weight:	1.0000



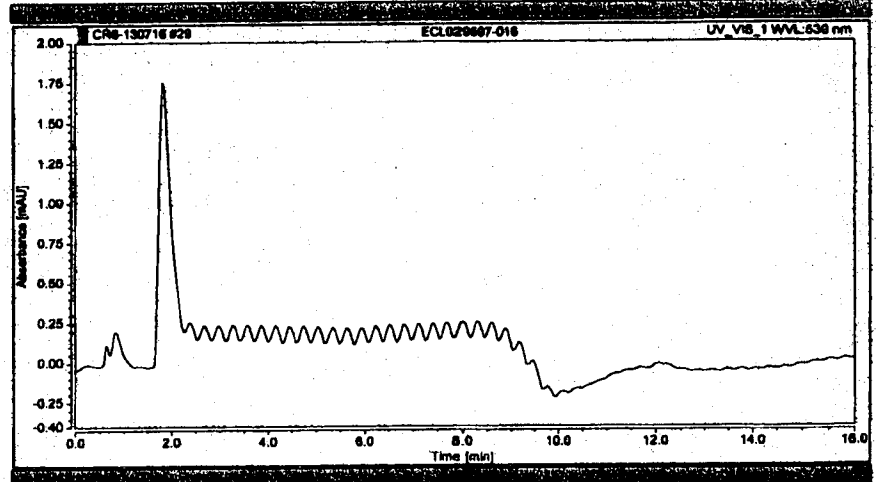
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.d.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029807-014	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 05:25	Sample Weight:	1.0000



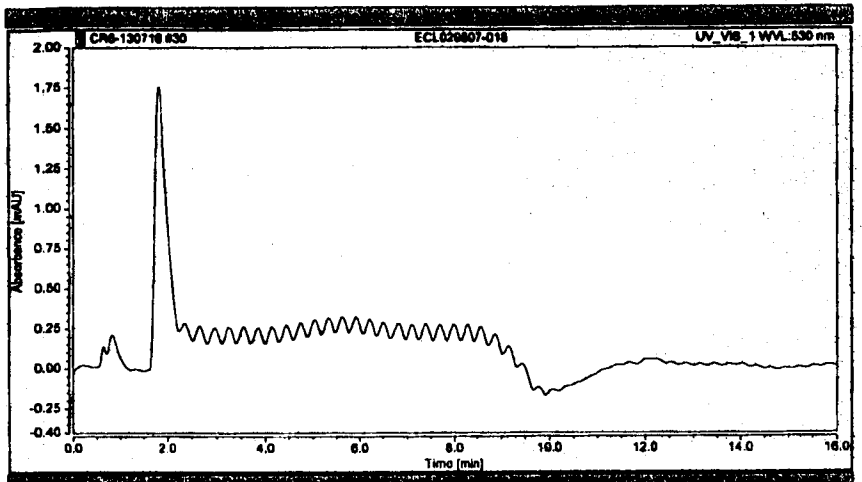
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029807-016	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 05:44	Sample Weight:	1.0000



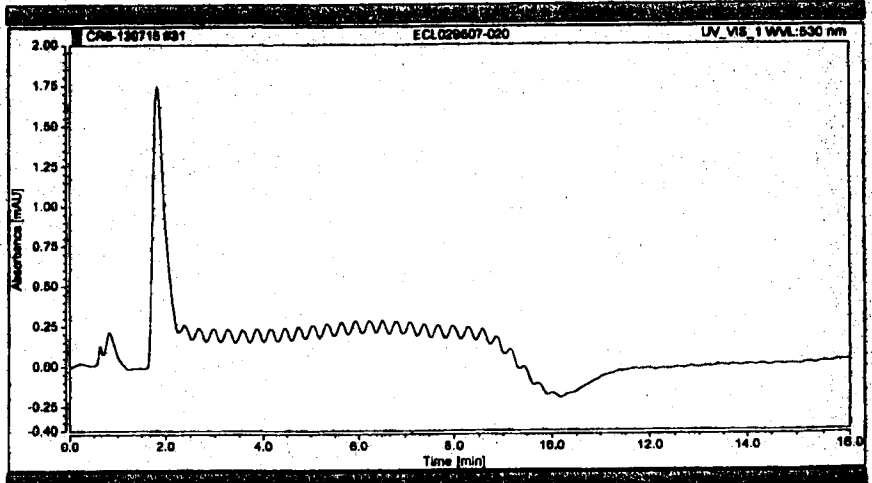
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029607-018	Run Time (min):	16.00
Vial Number:	23	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:03	Sample Weight:	1.0000



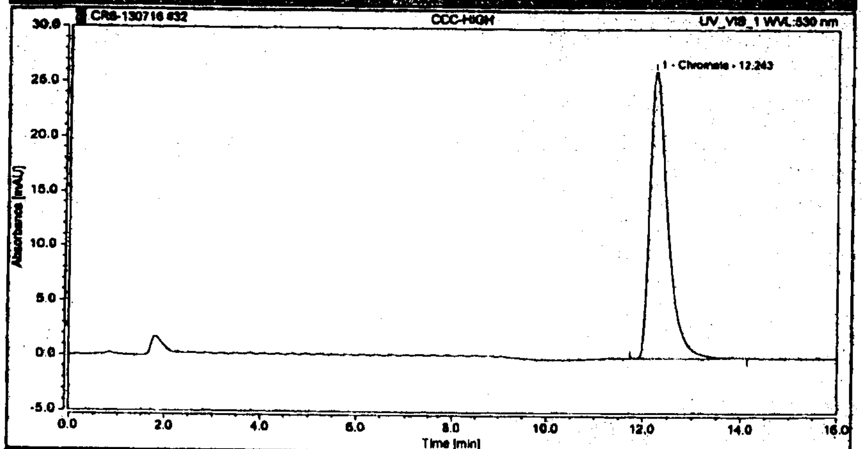
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029607-020	Run Time (min):	16.00
Vial Number:	24	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:22	Sample Weight:	1.0000



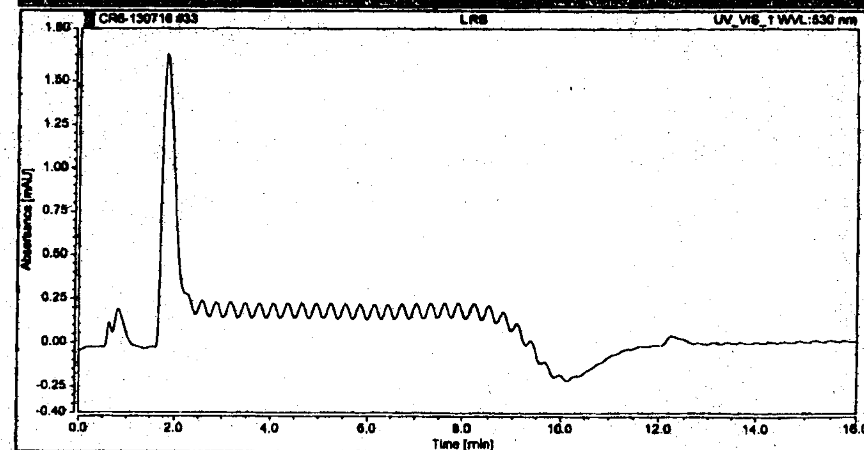
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	25	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 06:41	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
1	Chromate	12.243	11.858	26.223	100.00	100.00	[illegible]
Total:			11.858	26.223	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	26	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	17/Jul/13 07:00	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
n.a.	Chromate	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			0.000	0.000	0.00	0.00	

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clk 7/22/13
WS-20859

Dilution Corrected Concentrations

RINSE 7/22/2013 12:26:51 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:25:56	102.549%	0.184	101.002%	103.590%	0.092	102.189%
2	12:26:01	99.534%	0.241	96.574%	99.315%	0.090	97.995%
3	12:26:07	97.917%	0.247	102.424%	97.095%	0.088	99.816%
x		100.000%	0.224	100.000%	100.000%	0.090	100.000%
σ		2.351%	0.035	3.051%	3.302%	0.002	2.103%
%RSD		2.351	15.450	3.051	3.302	2.137	2.103

RINSE 7/22/2013 12:29:39 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:28:45	105.345%	0.201	101.027%	102.675%	0.073	97.862%
2	12:28:50	106.612%	0.188	101.232%	98.725%	0.078	94.572%
3	12:28:56	104.493%	0.179	101.712%	95.552%	0.076	92.256%
x		105.483%	0.189	101.324%	98.984%	0.076	94.897%
σ		1.066%	0.011	0.352%	3.569%	0.003	2.817%
%RSD		1.011	5.753	0.347	3.605	3.419	2.968

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User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:31:32	99.695%	0.004	99.372%	103.262%	0.000	102.961%
2	12:31:37	99.525%	-0.004	100.193%	99.589%	-0.000	99.463%
3	12:31:42	100.781%	-0.001	100.435%	97.149%	0.000	97.576%
x		100.000%	-0.000	100.000%	100.000%	0.000	100.000%
σ		0.681%	0.004	0.557%	3.077%	0.000	2.732%
%RSD		0.681	0.000	0.557	3.077	0.000	2.732

208 PPB 7/22/2013 12:35:11 PM MD3479

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:34:16	104.080%	198.100	98.535%	98.489%	T 199.500	95.949%
2	12:34:22	102.292%	N 200.900	99.667%	94.247%	TM 200.100	92.561%
3	12:34:27	101.973%	N 201.100	99.619%	91.773%	TM 200.400	T 90.156%
x		102.782%	N 200.000	99.274%	94.836%	TM 200.000	T 92.889%
σ		1.136%	N 1.677	0.640%	3.397%	TM 0.473	T 2.911%
%RSD		1.105	N 0.839	0.645	3.582	TM 0.237	T 3.133

CCB 7/22/2013 12:37:55 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:37:00	98.929%	0.050	99.416%	103.262%	0.032	103.276%
2	12:37:06	100.738%	0.014	98.476%	99.728%	0.031	100.042%
3	12:37:11	98.567%	0.025	99.508%	97.183%	0.033	97.696%
x		99.411%	0.030	99.133%	100.058%	0.032	100.338%
σ		1.163%	0.019	0.571%	3.053%	0.001	2.802%
%RSD		1.170	62.670	0.576	3.051	2.487	2.793

CKS 7/22/2013 12:40:40 PM M03479

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:39:46	103.463%	197.800	100.517%	99.073%	T 200.000	97.081%
2	12:39:51	104.080%	H 200.900	100.820%	94.308%	TH 201.100	93.296%
3	12:39:56	104.506%	H 200.400	100.708%	92.120%	TH 200.900	91.384%
x		104.016%	H 199.700	100.682%	95.167%	TH 200.700	93.921%
σ		0.524%	H 1.675	0.154%	3.555%	TH 0.603	2.899%
%RSD		0.504	H 0.839	0.153	3.736	TH 0.300	3.087

ICV 7/22/2013 12:43:25 PM M03481

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:42:30	102.569%	97.940	100.665%	100.380%	100.400	98.210%
2	12:42:36	103.122%	99.530	100.705%	95.788%	100.600	94.126%
3	12:42:41	101.824%	99.510	101.432%	93.108%	101.200	92.846%
x		102.505%	98.990	100.934%	96.425%	100.700	95.061%
σ		0.652%	0.914	0.432%	3.678%	0.407	2.801%
%RSD		0.636	0.924	0.428	3.814	0.404	2.947

ICB 7/22/2013 12:46:10 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:45:16	100.099%	0.034	98.395%	104.018%	0.022	102.878%
2	12:45:21	98.588%	0.014	99.030%	99.138%	0.024	98.778%
3	12:45:26	98.205%	0.013	99.972%	97.422%	0.025	97.449%
x		98.964%	0.020	99.132%	100.193%	0.023	99.702%
σ		1.002%	0.012	0.793%	3.422%	0.002	2.830%
%RSD		1.012	57.590	0.800	3.415	7.562	2.838

LLQC-1 7/22/2013 12:48:57 PM 50µL M03479 → 10mL 1.0ppb

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:48:02	102.420%	0.907	99.642%	104.618%	1.035	103.928%
2	12:48:08	101.185%	0.968	99.976%	100.841%	1.051	100.845%
3	12:48:13	97.034%	0.986	101.017%	98.550%	1.046	98.839%
x		100.213%	0.954	100.212%	101.336%	1.044	101.204%
σ		2.821%	0.042	0.717%	3.064%	0.008	2.563%
%RSD		2.815	4.377	0.716	3.024	0.762	2.533

LPBS106 7/22/2013 12:51:44 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:50:50	101.483%	0.008	100.992%	101.398%	0.043	99.409%
2	12:50:55	100.717%	0.005	101.994%	96.821%	0.043	96.011%
3	12:51:00	102.015%	0.004	101.346%	94.710%	0.042	93.647%
x		101.405%	0.006	101.444%	97.643%	0.043	96.356%
σ		0.653%	0.002	0.508%	3.419%	0.001	2.896%
%RSD		0.644	43.800	0.501	3.502	1.446	3.006

TV = 50 ppb

LCSS106 7/22/2013 12:54:29 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:53:35	106.443%	48.890	100.599%	100.353%	51.330	98.782%
2	12:53:40	103.122%	50.030	100.568%	95.905%	51.560	94.681%
3	12:53:45	100.184%	48.600	101.462%	93.612%	51.240	92.561%
x		103.250%	49.170	100.876%	96.623%	51.380	95.341%
σ		3.131%	0.754	0.508%	3.427%	0.166	3.163%
%RSD		3.033	1.534	0.503	3.547	0.323	3.318

ECL029507-001 7/22/2013 12:57:14 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:56:20	97.715%	0.021	97.653%	99.385%	0.507	90.373%
2	12:56:25	99.929%	0.052	98.234%	94.934%	0.500	86.955%
3	12:56:30	99.163%	0.028	98.519%	92.576%	0.512	84.729%
x		98.936%	0.034	98.136%	95.632%	0.506	87.353%
σ		1.124%	0.016	0.442%	3.458%	0.006	2.843%
%RSD		1.136	48.440	0.450	3.616	1.195	3.254

ECL029507-001D 7/22/2013 1:00:00 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	12:59:05	104.974%	0.015	101.637%	99.583%	0.506	89.597%
2	12:59:11	100.333%	0.012	101.500%	94.802%	0.497	85.944%
3	12:59:16	100.206%	0.020	101.498%	92.003%	0.505	84.081%
x		101.838%	0.016	101.545%	95.462%	0.503	86.541%
σ		2.717%	0.005	0.080%	3.833%	0.005	2.806%
%RSD		2.668	29.030	0.079	4.015	0.926	3.243

ECL029507-001S 7/22/2013 1:02:45 PM + 50 ppb

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:01:50	101.355%	48.310	100.274%	98.898%	49.150	89.229%
2	13:01:56	103.292%	48.870	100.487%	93.762%	49.360	85.313%
3	13:02:01	102.675%	48.800	101.087%	91.549%	49.390	83.231%
x		102.441%	48.660	100.616%	94.736%	49.300	85.924%
σ		0.990%	0.308	0.421%	3.770%	0.134	3.045%
%RSD		0.966	0.632	0.419	3.980	0.271	3.544

ECL029507-002 7/22/2013 1:05:29 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:04:35	102.675%	0.386	100.197%	99.712%	0.404	88.700%
2	13:04:40	105.549%	0.363	100.271%	93.994%	0.405	84.914%
3	13:04:46	98.716%	0.399	100.306%	90.999%	0.412	82.874%
x		102.313%	0.383	100.258%	94.902%	0.407	85.496%
σ		3.431%	0.018	0.055%	4.427%	0.004	2.956%
%RSD		3.353	4.646	0.055	4.664	1.012	3.458

ECL029507-003 7/22/2013 1:08:15 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:07:20	103.484%	0.233	102.041%	99.061%	32.150	90.059%
2	13:07:26	103.058%	0.245	101.927%	94.008%	32.220	85.724%
3	13:07:31	101.717%	0.227	102.960%	91.179%	32.410	84.051%
x		102.753%	0.235	102.309%	94.750%	32.260	86.611%
σ		0.922%	0.009	0.566%	3.993%	0.135	3.101%
%RSD		0.897	3.704	0.553	4.214	0.417	3.580

ECL029507-004 7/22/2013 1:11:00 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:10:05	103.590%	0.232	100.682%	98.991%	16.770	89.940%
2	13:10:11	95.225%	0.217	101.964%	94.234%	16.820	85.748%
3	13:10:16	99.312%	0.236	102.819%	91.655%	16.920	84.045%
x		99.376%	0.228	101.822%	94.960%	16.830	86.577%
σ		4.183%	0.010	1.076%	3.722%	0.075	3.034%
%RSD		4.210	4.434	1.056	3.919	0.446	3.504

ECL029507-005 7/22/2013 1:13:45 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:12:50	102.398%	0.225	103.482%	99.314%	41.470	89.517%
2	13:12:56	101.632%	0.214	103.830%	95.033%	41.280	85.998%
3	13:13:01	102.143%	0.211	104.143%	91.348%	41.650	83.530%
x		102.058%	0.217	103.818%	95.231%	41.470	86.348%
σ		0.390%	0.007	0.331%	3.987%	0.187	3.009%
%RSD		0.382	3.305	0.318	4.187	0.451	3.485

ECL029507-006 7/22/2013 1:16:31 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:15:36	101.483%	0.374	99.850%	99.813%	16.570	90.988%
2	13:15:42	97.438%	0.328	103.194%	95.337%	16.550	88.802%
3	13:15:47	103.527%	0.296	103.708%	92.628%	16.560	87.211%
x		100.816%	0.333	102.250%	95.926%	16.560	89.000%
σ		3.098%	0.039	2.095%	3.628%	0.010	1.896%
%RSD		3.073	11.860	2.049	3.783	0.060	2.130

CCB 7/22/2013 1:19:16 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:18:21	104.719%	0.007	104.070%	105.232%	0.007	103.509%
2	13:18:27	102.569%	-0.018	103.438%	101.016%	0.004	99.271%
3	13:18:32	107.018%	-0.005	104.486%	98.522%	0.006	97.558%
x		104.768%	-0.005	103.998%	101.590%	0.005	100.113%
σ		2.225%	0.013	0.528%	3.391%	0.001	3.064%
%RSD		2.124	245.300	0.507	3.338	21.030	3.060

CKB 7/22/2013 1:22:01 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:21:06	103.527%	196.800	102.006%	98.940%	T193.900	91.279%
2	13:21:12	104.953%	H201.200	101.557%	93.739%	T195.000	T85.340%
3	13:21:17	103.825%	198.800	102.718%	91.523%	T195.100	T84.447%
x		104.101%	H198.900	102.094%	94.734%	T194.700	T87.022%
σ		0.752%	H2.221	0.586%	3.807%	T0.647	T3.714%
%RSD		0.723	H1.116	0.574	4.019	T0.332	T4.268

ECL029507-007 7/22/2013 1:24:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:23:51	101.249%	0.430	101.563%	99.889%	58.120	95.417%
2	13:23:56	100.717%	0.419	102.177%	95.150%	58.500	91.737%
3	13:24:02	102.547%	0.391	102.847%	92.278%	58.410	89.341%
x		101.504%	0.413	102.196%	95.772%	58.340	92.165%
σ		0.942%	0.020	0.642%	3.843%	0.198	3.060%
%RSD		0.928	4.827	0.628	4.013	0.339	3.320

ECL029507-008 7/22/2013 1:27:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:26:38	105.890%	0.326	104.384%	100.206%	8.547	89.290%
2	13:26:43	101.313%	0.294	105.952%	94.998%	8.588	85.372%
3	13:26:48	102.611%	0.326	104.472%	92.541%	8.599	83.747%
x		103.271%	0.316	104.936%	95.915%	8.578	86.136%
σ		2.359%	0.018	0.881%	3.914%	0.028	2.849%
%RSD		2.284	5.841	0.840	4.081	0.322	3.308

ECL029507-009 7/22/2013 1:30:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:29:23	101.206%	0.172	105.591%	99.702%	14.680	94.543%
2	13:29:29	103.867%	0.183	105.665%	94.585%	14.690	90.620%
3	13:29:34	103.676%	0.191	105.652%	92.037%	14.710	88.612%
x		102.916%	0.182	105.636%	95.441%	14.690	91.259%
σ		1.484%	0.010	0.039%	3.904%	0.017	3.017%
%RSD		1.442	5.336	0.037	4.090	0.112	3.306

ECL029507-010 7/22/2013 1:33:03 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:32:08	104.187%	0.262	104.462%	99.788%	9.723	89.514%
2	13:32:13	103.335%	0.285	104.844%	93.996%	9.756	85.186%
3	13:32:19	104.910%	0.275	104.410%	91.186%	9.843	83.297%
x		104.144%	0.274	104.572%	94.990%	9.774	85.999%
σ		0.789%	0.011	0.237%	4.387%	0.062	3.187%
%RSD		0.757	4.181	0.227	4.618	0.636	3.706

ECL029507-011 7/22/2013 1:35:48 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:34:53	104.634%	0.256	104.461%	98.918%	24.850	92.693%
2	13:34:59	101.547%	0.304	104.907%	94.441%	24.850	88.914%
3	13:35:04	100.759%	0.277	105.295%	91.316%	25.090	86.751%
x		102.313%	0.279	104.887%	94.891%	24.930	89.453%
σ		2.048%	0.024	0.417%	3.821%	0.136	3.008%
%RSD		2.001	8.551	0.398	4.026	0.543	3.362

ECL029507-011D 7/22/2013 1:38:33 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:37:38	106.741%	0.187	104.184%	98.316%	24.950	91.512%
2	13:37:44	100.355%	0.208	104.513%	93.719%	24.960	87.662%
3	13:37:49	102.654%	0.192	104.981%	90.605%	25.060	85.546%
x		103.250%	0.196	104.560%	94.213%	24.990	88.240%
σ		3.235%	0.011	0.401%	3.879%	0.062	3.025%
%RSD		3.133	5.633	0.383	4.117	0.247	3.428

ECL029507-011S 7/22/2013 1:41:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:40:22	101.973%	48.500	103.883%	98.056%	73.930	91.050%
2	13:40:28	105.528%	47.950	104.982%	92.677%	74.240	86.788%
3	13:40:33	103.229%	48.590	105.096%	90.079%	74.010	85.316%
x		103.576%	48.350	104.654%	93.604%	74.060	87.718%
σ		1.803%	0.349	0.670%	4.069%	0.161	2.978%
%RSD		1.741	0.721	0.640	4.347	0.217	3.395

ECL029507-012 7/22/2013 1:44:03 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:43:08	105.059%	0.373	103.276%	98.201%	6.405	86.319%
2	13:43:14	101.228%	0.407	103.566%	93.100%	6.441	82.683%
3	13:43:19	101.802%	0.424	103.892%	90.124%	6.473	80.813%
x		102.696%	0.401	103.578%	93.808%	6.440	83.272%
σ		2.066%	0.026	0.308%	4.085%	0.034	2.800%
%RSD		2.012	6.496	0.298	4.354	0.531	3.362

ECL029507-013 7/22/2013 1:46:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:45:53	100.546%	0.049	104.303%	98.395%	0.436	88.408%
2	13:45:58	102.058%	0.044	103.975%	93.458%	0.431	84.260%
3	13:46:04	103.420%	0.038	105.415%	90.088%	0.438	82.154%
x		102.008%	0.044	104.565%	93.981%	0.435	84.941%
σ		1.438%	0.005	0.755%	4.178%	0.004	3.182%
%RSD		1.409	12.110	0.722	4.446	0.809	3.746

CCB 7/22/2013 1:49:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:48:38	104.187%	-0.001	103.873%	104.314%	0.006	101.978%
2	13:48:43	107.018%	0.005	105.529%	99.577%	0.006	97.613%
3	13:48:48	105.804%	0.003	104.637%	97.034%	0.004	95.935%
x		105.670%	0.002	104.680%	100.308%	0.005	98.509%
σ		1.420%	0.003	0.829%	3.695%	0.001	3.120%
%RSD		1.344	155.300	0.792	3.683	20.330	3.167

CKS 7/22/2013 1:52:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:51:23	101.887%	198.400	100.857%	97.222%	T 193.500	92.931%
2	13:51:28	102.547%	H 200.700	101.567%	92.773%	T 193.400	T 86.266%
3	13:51:33	101.824%	H 200.500	102.004%	89.508%	T 194.300	T 83.355%
x		102.086%	H 199.900	101.476%	93.168%	T 193.700	T 87.517%
σ		0.401%	H 1.267	0.579%	3.872%	T 0.447	T 4.909%
%RSD		0.393	H 0.634	0.571	4.156	T 0.231	T 5.609

ECL029507-014 7/22/2013 1:55:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:54:08	99.652%	0.351	100.080%	98.452%	0.452	86.693%
2	13:54:13	100.908%	0.360	102.099%	93.321%	0.459	83.174%
3	13:54:18	100.930%	0.306	103.767%	90.954%	0.450	81.668%
x		100.497%	0.339	101.982%	94.242%	0.454	83.845%
σ		0.731%	0.029	1.846%	3.833%	0.005	2.579%
%RSD		0.728	8.411	1.811	4.067	1.125	3.076

ECL029507-015 7/22/2013 1:57:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:56:53	105.400%	0.037	105.417%	98.847%	0.307	89.092%
2	13:56:59	100.653%	0.031	104.942%	93.730%	0.304	85.724%
3	13:57:04	102.824%	0.038	106.033%	91.451%	0.314	83.091%
x		102.959%	0.035	105.464%	94.676%	0.308	85.969%
σ		2.376%	0.004	0.547%	3.788%	0.005	3.008%
%RSD		2.308	10.800	0.518	4.001	1.595	3.499

ECL029507-016 7/22/2013 2:00:34 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	13:59:39	106.826%	0.366	105.015%	98.705%	0.304	88.987%
2	13:59:44	104.272%	0.368	105.064%	93.553%	0.302	85.219%
3	13:59:50	103.910%	0.379	105.888%	90.970%	0.300	82.987%
x		105.003%	0.371	105.322%	94.409%	0.302	85.731%
σ		1.590%	0.007	0.491%	3.938%	0.002	3.033%
%RSD		1.514	1.864	0.466	4.171	0.743	3.538

ECL029507-017 7/22/2013 2:03:20 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:02:25	101.951%	0.033	103.659%	98.948%	0.273	89.056%
2	14:02:30	102.909%	0.043	104.606%	93.609%	0.283	85.300%
3	14:02:36	104.293%	0.040	104.569%	90.820%	0.277	83.499%
x		103.051%	0.038	104.278%	94.459%	0.278	85.952%
σ		1.177%	0.005	0.537%	4.130%	0.005	2.835%
%RSD		1.142	13.730	0.514	4.372	1.716	3.299

ECL029507-018 7/22/2013 2:06:06 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:05:12	156.579%	-0.025	157.463%	T159.813%	-0.027	139.703%
2	14:05:17	157.005%	-0.023	163.928%	T153.939%	-0.027	137.570%
3	14:05:22	163.158%	-0.025	164.705%	T150.353%	-0.028	138.733%
x		158.914%	-0.024	162.032%	T154.701%	-0.027	138.669%
σ		3.682%	0.001	3.976%	T4.776%	0.000	1.068%
%RSD		2.317	4.856	2.454	T3.087	1.345	0.770

ECL029507-019 7/22/2013 2:08:52 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:07:57	106.635%	0.030	102.882%	100.976%	0.050	98.177%
2	14:08:03	104.101%	0.030	104.000%	96.221%	0.049	94.367%
3	14:08:08	105.741%	0.023	103.828%	94.151%	0.052	92.759%
x		105.492%	0.028	103.570%	97.116%	0.050	95.101%
σ		1.285%	0.004	0.602%	3.500%	0.002	2.782%
%RSD		1.218	15.370	0.582	3.604	3.552	2.926

ECL029507-020 7/22/2013 2:11:37 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:10:42	103.527%	0.348	101.295%	100.675%	0.045	97.786%
2	14:10:48	102.164%	0.352	101.920%	95.987%	0.050	93.934%
3	14:10:53	105.293%	0.363	101.994%	93.227%	0.047	91.811%
x		103.661%	0.355	101.736%	96.629%	0.047	94.510%
σ		1.569%	0.008	0.384%	3.765%	0.002	3.029%
%RSD		1.514	2.266	0.378	3.897	5.203	3.205

CCB 7/22/2013 2:14:22 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:13:28	104.676%	-0.002	103.534%	104.508%	-0.000	103.339%
2	14:13:33	103.931%	-0.012	103.333%	99.737%	0.002	98.982%
3	14:13:39	105.762%	-0.011	103.671%	97.252%	0.003	97.421%
x		104.790%	-0.009	103.513%	100.499%	0.002	99.914%
σ		0.921%	0.005	0.170%	3.688%	0.002	3.067%
%RSD		0.879	62.630	0.164	3.670	100.000	3.070

CICS 7/22/2013 2:17:06 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	14:16:12	104.783%	196.500	102.165%	97.678%	T 194.900	T 92.065%
2	14:16:18	102.803%	199.100	103.208%	93.114%	T 194.400	T 87.982%
3	14:16:23	107.997%	N 200.400	102.944%	90.616%	T 194.700	T 85.824%
x		105.194%	N 198.700	102.772%	93.802%	T 194.700	T 88.624%
σ		2.621%	N 2.032	0.543%	3.581%	T 0.246	T 3.170%
%RSD		2.492	N 1.023	0.528	3.818	T 0.126	T 3.577

MDE

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Oil Control Program, Suite 620, 1800 Washington Blvd., Baltimore MD 21230-1719
410-537-3442 410-537-3092 (fax) 1-800-633-6101, ext. 3442

Martin O'Malley
Governor

Anthony G. Brown
Lieutenant Governor

Robert M. Summers, Ph.D.
Secretary

August 19, 2013

Mr. Todd J. Ploski, Sr.
3991 Farm Lane
Monrovia MD 21770

RE: DRINKING WATER SAMPLE RESULTS
MDE-FCHD Groundwater Investigation
Green Valley / Monrovia
Frederick County, Maryland

Dear Mr. Ploski:

On June 22, 2013, the Maryland Department of the Environment's contractor collected several samples from your drinking water supply system. Water samples were collected from your kitchen sink, before and after purges of your pressure tank, and after successive purges of your well as described previously to you and as documented in the attached field notes. There were insufficient sediments in the purge water from the pressure tank to analyze. A summary table and the full laboratory analytical reports are attached.

The federal and State maximum contaminant level (MCL) for total chromium is 100 µg/L. There is no separate federal or State MCL for hexavalent chromium or for dissolved chromium. The Department uses 0.3 µg/L as an action level for hexavalent chromium for private drinking water wells because it represents a conservative lifetime exposure health based standard that is calculated from the most current drinking water risk assessment evaluations available from the U.S. EPA. The federal and State action level that warrants additional investigation for total lead in public drinking water supplies is 15 µg/L, so the MDE follows this standard as an action level for private water supplies. There is no separate level for dissolved lead. The U.S. EPA's recommended pH range for drinking water is 6.5 to 8.5.

Hexavalent chromium and lead are metals that can be hazardous to human health, but a meaningful assessment of potential health risks from exposure to hexavalent chromium and/or lead involves the consideration of multiple factors, including the type of exposure (e.g., ingestion, inhalation, dermal contact), the concentration in water, the duration of exposure, and other factors specific to individuals. Both metals can occur naturally in the environment or may be generated by human activity. Home water pumps, piping, and faucets also are known to be sources of lead in drinking water.

The results from the recent investigation indicate that there is no appreciable accumulation of lead and/or chromium in your plumbing system or present in your well above applicable levels. It is recommended that you continue to maintain your plumbing system according to manufacturer recommendations and to continue to maintain any treatment systems that are installed. At this point, the Department is concluding its investigation into the occurrence of certain metals at your property. A report of the Department's more comprehensive Green Valley/Monrovia groundwater investigation will be made available to you once completed. It is anticipated to be complete within the next several months.

The Frederick County Health Department and the Maryland Department of the Environment appreciate your cooperation in the investigation of groundwater resources in the Monrovia/Green Valley area. If you have any questions about the attached information or the results, please do not hesitate to call me at 410-537-3442 (chris.ralston@maryland.gov).

Sincerely,

Christopher Ralston, Administrator
Oil Control Program

CHR/nln

Enclosures

cc: Dr. Barbara Brookmyer, FCHD Health Officer
Mr. Jay Sakai, Director, MDE Water Management Administration
Mr. Horacio Tablada, Director, MDE Land Management Administration
Priscilla Carroll, Esq., Assistant Attorney General
Francesca Gibbs, Esq., Assistant Attorney General
Theodore Flerlage, Esq., Law Offices of Peter G. Angelos
M. Albert Figinski, Esq., Law Offices of Peter G. Angelos
Dwight Stone, Esq., Whiteford Taylor Preston
Heather S. Deane, Esq., Bonner Kiernan

Inorganic Laboratory Analytical Data / Field Measurements

MDE-FCHD Groundwater Investigavtion
Green Valley / Monrovia
Frederick County, Maryland

3991 Farm Lane
June 22, 2013

Sample I.D. Sample Location	3991 Farm-PT1 Pressure Tank drain (prior to 1st purge)	3991 Farm-PT1DB Pressure Tank drain (prior to 1st purge)	3991 Farm-PT2 Pressure Tank drain (after 1st purge)	3991 Farm-PT3 Pressure Tank drain (after 2nd purge)	3991 Farm-PT4 Pressure Tank drain (after 3rd purge)	3991 Farm-POU Cold Water tap at Kitchen Sink	3991 Farm-WP1 Garden hose connected to pressure tank drain (after ~1.5 well volumes)	3991 Farm-WP2 Garden hose connected to pressure tank drain (after ~2.75 well volumes)	3991 Farm-WP3 Garden hose connected to pressure tank drain (after ~4 well volumes)	3991 Farm-FB Field Blank	MDE Groundwater Standard
Analyte	**Concentration (ug/L)**										
Total Chromium	1.0 U	1.0 U	3.4	1.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0E+02
Total Lead	6.4	6.3	13.5	12.8	7.7	1.0 U	2.3	3.6	2.0	1.0 U	1.5E+01
Dissolved Chromium	1.0 U	1.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	na
Dissolved Lead	6.4	6.5	5.7	5.3	4.6	1.0 U	1.7	1.2	1.4	1.0 U	na
Hexavalent Chromium (Chromate)	0.024	0.023	0.024	0.021	0.024	0.225	0.021	0.025	0.020 U	0.020 U	na
Parameter	**Field Measurement**										
pH	4.89	4.89	5.40	5.53	5.65	6.14	5.24	5.29	5.18	6.57	na
Temperature (°C)	16.00	16.00	14.64	15.09	14.76	19.42	14.82	14.35	14.83	15.94	na
Oxidation-Reduction Potential (ORP) (mV)	284.4	284.4	288.0	297.1	304.2	302.2	283.8	292.8	296.7	258.8	na

Table Notes
Total and Dissolved Lead and Chromium Analytical Method: EPA Method 200.8
Hexavalent Chromium Analytical Method: EPA Method 218.7
ug/L - micrograms per liter or parts per billion (ppb)
MDE Groundwater Standard Type I and II Aquifers (June 2008)
U - Analyte Not Detected Above Specified Reporting Limit (RL)
Bold - Detected analyte concentration
Bold and underline - Detected analyte concentration exceeds respective standard
na - not applicable
YSI 556 Water Quality Meter used to measure pH, temperature, and ORP
°C - degrees Celsius
mV - millivolts

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia , Frederick County, MD 21770
MDE Case No. 2005-0834FR

Date: 6/22/13
Arrival Time: 7:55
Departure Time: 10:30
Property Owner: Todd + Shelly Plosk
Address: 3991 Farm Lane, Monrovia, MD
CGS Staff: Lara Bennett + Matt Emery

When was the last time water was used ? Used to make coffee + brush teeth
Where and what was the purpose of recent water use? Kitchen sink + upstair bathroom
Is a totalizer meter present? No meter present
If yes, what is the totalizer meter reading prior to sampling? N/A

Sample Locations and IDs: Well Tag #: FR-73-2663 - Well is located on N side of house near carport

Sample Type	Sample ID	Location	Sample Time	Check to indicate sample collection: Total Lead / Chromium	Dissolved Lead / Chromium	Hexavalent Chromium	VOCs	Enter reading: pH	Temperature	ORP
PT #1	3991Farm-PT1		8:25	X	X	X		4.39	16.00	244.4
PT #2	3991Farm-PT2		8:36	X	X	X		5.40	14.64	283.0
PT #3	3991Farm-PT3		8:47	X	X	X		5.53	15.09	297.1
PT #4	3991Farm-PT4		8:53	X	X	X		5.65	14.76	304.2
Duplicate	3991Farm-PT1DB		00:00	X	X	X		4.39	16.00	234.4
Field Blank	3991Farm-FB		9:53	X	X	X		6.57	15.94	258.8

Point of Use Sample - Collected from Kitchen
3991Farm-POU
Purge Start: 8:00
Purge Stop: 8:10
Sampled at 8:12
Temp - 19.42°C
pH - 6.14
ORP - 302.2 mV

First Pressure Tank Purge
Purge time begin: 8:32
Purge time end: 8:34
Total gallons purged: 6gallons

Second Pressure Tank Purge
Purge time begin: 8:40
Purge time end: 8:42
Total gallons purged: 7gallons

Third Pressure Tank Purge
Purge time begin: 8:49
Purge time end: 8:50
Total gallons purged: 7gallons

pH/Temperature/ORP Meter Calibration

Provide notes on calibration including date, time, standards used and results of calibration
pH Calibration: Calibrated on 6/21/13 - All parameters are correct
ORP Calibration: Calibration checked on 6/21/13 - Parameter within 0.5%

No sediment sample collected - not enough sediment present in purge water

FIELD SAMPLING FORM
Former Green Valley Citgo
Green Valley / Monrovia, Frederick County, MD 21770
MDE Case No. 2005-0834FR
3991 Farm Lane

Well Purge:
Purge time begin: 9:06
Purge time end: 10:06
Total gallons purged: ~520 gallons (Estimated)

Well Depth: 120 Feet
Well Diameter: 6 inches
One Well Volume (gallons): 132.2 gallons
Three Well Volumes (gallons): 396.6 gallons

Time	Pumping Rate (Gallons/Minute)	Temperature (°C)	pH	ORP (mV)	Comments
9:06	11.11	NA	NA	NA	Started Purge
9:21	10.6	NA	NA	NA	
9:26	10.6	14.82	5.24	283.8	3991Farm-WP1
9:36	6.4	NA	NA	NA	Adjusted flowrate so that
9:40	6.4	NA	NA	NA	a 1 hr purge equals approx. 3 well volumes.
9:46	6.4	14.35	5.29	292.8	3991Farm-WP2
9:50	6.6	NA	NA	NA	
9:53	6.6	15.94	6.57	258.8	3991Farm-FB (Field Blank)
10:06	6.6	14.83	5.18	296.7	3991Farm-WP3
					Stopped Purge

TABLE OF CONTENTS

Table of Contents	1
Case Narrative	2
Chain of Custody	4
Analytical Reports	6
QC Summary Table	27
Instrument Blanks	30
Calibration Data	32
Metals Digestion Logs	38
Raw Data	40

Case Narrative

Case Narrative

The following samples were received by Enviro-Chem Laboratories, Inc. from Chesapeake Geo-Science in support of their Green Valley Citgo Project.

ECL029324-001	3991 Farm-PT1	6/24/2013	6/22/2013	8:25	Emery, Bennett
ECL029324-002	3991 Farm-PT1 Dissolved	6/24/2013	6/22/2013	8:25	Emery, Bennett
ECL029324-003	3991 Farm-PT1DB	6/24/2013	6/22/2013		Emery, Bennett
ECL029324-004	3991 Farm-PT1DB Dissolved	6/24/2013	6/22/2013		Emery, Bennett
ECL029324-005	3991 Farm-PT2	6/24/2013	6/22/2013	8:36	Emery, Bennett
ECL029324-006	3991 Farm-PT2 Dissolved	6/24/2013	6/22/2013	8:36	Emery, Bennett
ECL029324-007	3991 Farm-PT3	6/24/2013	6/22/2013	8:47	Emery, Bennett
ECL029324-008	3991 Farm-PT3 Dissolved	6/24/2013	6/22/2013	8:47	Emery, Bennett
ECL029324-009	3991 Farm-PT4	6/24/2013	6/22/2013	8:53	Emery, Bennett
ECL029324-010	3991 Farm-PT4 Dissolved	6/24/2013	6/22/2013	8:53	Emery, Bennett
ECL029324-011	3991 Farm-POU	6/24/2013	6/22/2013	8:12	Emery, Bennett
ECL029324-012	3991 Farm-POU Dissolved	6/24/2013	6/22/2013	8:12	Emery, Bennett
ECL029324-013	3991 Farm-WP1	6/24/2013	6/22/2013	9:26	Emery, Bennett
ECL029324-014	3991 Farm-WP1 Dissolved	6/24/2013	6/22/2013	9:26	Emery, Bennett
ECL029324-015	3991 Farm-WP2	6/24/2013	6/22/2013	9:46	Emery, Bennett
ECL029324-016	3991 Farm-WP2 Dissolved	6/24/2013	6/22/2013	9:46	Emery, Bennett
ECL029324-017	3991 Farm-WP3	6/24/2013	6/22/2013	10:06	Emery, Bennett
ECL029324-018	3991 Farm-WP3 Dissolved	6/24/2013	6/22/2013	10:06	Emery, Bennett
ECL029324-019	3991 Farm-FB	6/24/2013	6/22/2013	9:53	Emery, Bennett
ECL029324-020	3991 Farm-FB Dissolved	6/24/2013	6/22/2013	9:53	Emery, Bennett

Samples were analyzed by EPA 200.8 for total and dissolved Chromium and Lead, and by EPA Method 218.7 for Hexavalent Chromium. This report is a revision of Enviro-Chem Laboratories, Inc report 6555. All Quality Control criteria for these analyses were met.

Stephen E. Shelley
Laboratory Director
Enviro-Chem Laboratories, Inc.

Chain of Custody

Sample Chain of Custody

$((NH_4)_2SO_4) + (NH_4OH)$

Enviro-Chem Laboratories, Inc. 47 Loveton Circle, Suite K Sparks, MD 21152

Client: Chesapeake GeoSciences, Inc. (CGS) Phone No.: (410) 740-1911

Project Manager: Sean Daniel Fax No.: (410) 740-3899

Sampler: Matt Emery + Lara Bennett Email: sdaniel@cgs.us.com

Project Name: Green Valley Citgo Project Number: CG-12-0788.06

P.O. Number: CG120788.06SD

ECL Log in Batch Number

Page 1 of 1

Preservative Key:
NA = Nitric Acid, pH <2
SA = Sulfuric Acid, pH <2
OH = NaOH, pH >12
TI = Thiosulfate
Zn = Zinc Acetate
N = None, Chilled
X = Other

Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time Sampled	Matrix	No. of Containers	Sample Type (C = Comp., G = Grab)	Total Lead/Chromium EPA 200.8 (Preservative: N)	Dissolved Lead/Chromium 200.8 (Preservative: NA)	Hexavalent Chromium 218.7						Remarks
29324-001, 29324-002 Diss.	3991 Farm-PT1	6/22/13	8:25	DW	3	G	X	X	X						
29324-003, -004 Diss	3991 Farm-PT1DB	↓	00:00	DW	3	G	X	X	X						
29324-005, -006 Diss.	3991 Farm-PT2	↓	8:36	DW	3	G	X	X	X						
29324-007, -008 Diss	3991 Farm-PT3	↓	8:47	DW	3	G	X	X	X						
29324-009, -010 Diss	3991 Farm-PT4	↓	8:53	DW	3	G	X	X	X						
29324-011, -012 Diss	3991 Farm-POU	↓	8:12	DW	3	G	X	X	X						
29324-013, -014 Diss	3991 Farm-WP1	↓	9:26	DW	3	G	X	X	X						
29324-015, -016 Diss	3991 Farm-WP2	↓	9:46	DW	3	G	X	X	X						
29324-017, -018 Diss	3991 Farm-WP3	↓	10:06	DW	3	G	X	X	X						
29324-019, -020 Diss	3991 Farm-FB	6/22/13	9:53	DW	3	G	X	X	X						

Collected / Relinquished By	Date	Time	Received By
[signature]	6/24/13	9:50	[signature]
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By
Relinquished By	Date	Time	Received By

Deliverables Required:

Due Date:

Coolers: 1 Seal:

Ice Present: Y Temp: all below 6°

Turnaround Requested: Rush? STD 1-Day Other

Special instructions, Comments: Level IV Data Deliverables

COC/Labels match: (Y) N

Bottles intact/appropriate: (Y) N

# of Samples: 20 # of Bottles: 30

Preserved correctly: (Y) N NA

Explain any "NO" answers

ECL Doc 1 (11-03/10)

Analytical Reports

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-001 SAMPLE ID- 3991 Farm-PT1
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:25 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	6.4	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-002 SAMPLE ID- 3991 Farm-PT1 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:25 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	6.4	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 06:40	SES	0.024	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-003 SAMPLE ID- 3991 Farm-PT1DB
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS- Time of sampling not Provided

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	6.3	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-004 SAMPLE ID- 3991 Farm-PT1DB Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS- Time of sampling not Provided

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	1.8	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	6.5	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 07:37	SES	0.023	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-005 SAMPLE ID- 3991 Farm-PT2
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:36 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	3.4	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	13.5	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-006 SAMPLE ID- 3991 Farm-PT2 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:36 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	5.7	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 07:56	SES	0.024	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-007 SAMPLE ID- 3991 Farm-PT3
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:47 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	1.6	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	12.8	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-008 SAMPLE ID- 3991 Farm-PT3 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:47 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	5.3	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 08:15	SES	0.021	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-009 SAMPLE ID- 3991 Farm-PT4
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:53 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	7.7	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-010 SAMPLE ID- 3991 Farm-PT4 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:53 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	4.6	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 09:12	SES	0.024	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-011 SAMPLE ID- 3991 Farm-POU
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:12 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-012 SAMPLE ID- 3991 Farm-POU Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:12 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 09:31	SES	0.225	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-013 SAMPLE ID- 3991 Farm-WP1
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:26 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	2.3	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-014 SAMPLE ID- 3991 Farm-WP1 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:26 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	1.7	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 09:50	SES	0.021	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-015 SAMPLE ID- 3991 Farm-WP2
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:46 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	3.6	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-016 SAMPLE ID- 3991 Farm-WP2 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:46 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	1.2	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 10:09	SES	0.025	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-017 SAMPLE ID- 3991 Farm-WP3
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 10:06 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	2.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-018 SAMPLE ID- 3991 Farm-WP3 Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 10:06 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	1.4	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 10:27	SES	< 0.020	ug/L Cr	0.020	

ENVIRO-CHEM LABORATORIES, INC.

47 Loveton Circle, Suite K • Sparks, Maryland 21152 410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-019 SAMPLE ID- 3991 Farm-FB
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:53 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	

ENVIRO-CHEM LABORATORIES, INC.

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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.
5405 Twin Knolls Rd
Suite 1
Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-020 SAMPLE ID- 3991 Farm-FB Dissolved
LOCATION-
DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:53 SAMPLER- Emery, Bennett
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS
COMMENTS-

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromium*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
Lead*#	EPA 200.8	7/19/2013 15:37	CHK	< 1.0	µg/L	1.0	
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192							
Chromate	EPA 218.7	6/25/2013 11:24	SES	< 0.020	ug/L Cr	0.020	

Stephen Shelley
LABORATORY DIRECTOR

State of Maryland Certified Parameter
* NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
ECL029324-003D	Duplicate	Chromium	< 1.0	µg/L		< 1.0	16.3	0	20	
ECL029324-013D	Duplicate	Chromium	< 1.0	µg/L		< 1.0	0.5	0	20	
ECL029324-003D	Duplicate	Lead	6.3	µg/L		6.3	0.8	0	20	
ECL029324-013D	Duplicate	Lead	2.0	µg/L		2.3	13.6	0	20	
LCS5059R	LCS	Chromium	49.1	µg/L	50		98.3	85	115	
LCS5059R	LCS	Lead	48.6	µg/L	50		97.2	85	115	
LPB5059R	Prep Blank	Chromium	< 1.0	µg/L			0.026		1	
LPB5059R	Prep Blank	Lead	< 1.0	µg/L			0.151		1	
ECL029324-003S	Spike	Chromium	47.9	µg/L	50	< 1.0	94.9	70	130	
ECL029324-013S	Spike	Chromium	47.5	µg/L	50	< 1.0	94.6	70	130	
ECL029324-013S	Spike	Lead	47.9	µg/L	50	2.3	91.2	70	130	
ECL029324-003S	Spike	Lead	53.1	µg/L	50	6.3	93.6	70	130	

WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192

ID	QC Type	Test Name	Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low Limit	High Limit	Flag
CCC-HIGH 1	CCC-HIGH	Chromate	4.97	ug/L	5		99.4	85	115	
CCC-HIGH 2	CCC-HIGH	Chromate	5.01	ug/L	5		100.2	85	115	
CCC-LOW 2	CCC-LOW	Chromate	0.022	ug/L	0.02		109.5	50	150	
CCC-LOW 1	CCC-LOW	Chromate	0.026	ug/L	0.02		127.5	50	150	
CCC-MID 2	CCC-MID	Chromate	0.998	ug/L	1		99.8	85	115	
CCC-MID 1	CCC-MID	Chromate	0.989	ug/L	1		98.9	85	115	
ECL029324-008SD	MSD	Chromate	0.965	ug/L	1	0.021	94.4	85	115	
ECL029318-016SD	MSD	Chromate	0.998	ug/L	1	0.032	96.6	85	115	
ECL029303-018SD	MSD	Chromate	1.02	ug/L	1	0.033	98.3	85	115	
ECL029303-002SD	MSD	Chromate	1.02	ug/L	1	< 0.020	101.8	85	115	
ECL029318-016S	Spike	Chromate	1.03	ug/L	1	0.032	100.1	85	115	
ECL029303-018S	Spike	Chromate	1.00	ug/L	1	0.033	97.2	85	115	
ECL029324-008S	Spike	Chromate	0.971	ug/L	1	0.021	95	85	115	
ECL029303-002S	Spike	Chromate	1.01	ug/L	1	< 0.020	100.6	85	115	
ECL029303-002SD	Spike Dup	Chromate	1.02	ug/L	1	< 0.020	101.8	85	115	
ECL029318-016SD	Spike Dup	Chromate	0.998	ug/L	1	0.032	96.6	85	115	
ECL029324-008SD	Spike Dup	Chromate	0.965	ug/L	1	0.021	94.4	85	115	
ECL029303-018SD	Spike Dup	Chromate	1.02	ug/L	1	0.033	98.3	85	115	

Instrument Blanks

INSTRUMENT BLANKS

Analytical Run **F130719B** **Date of Analysis** **7/19/2013**

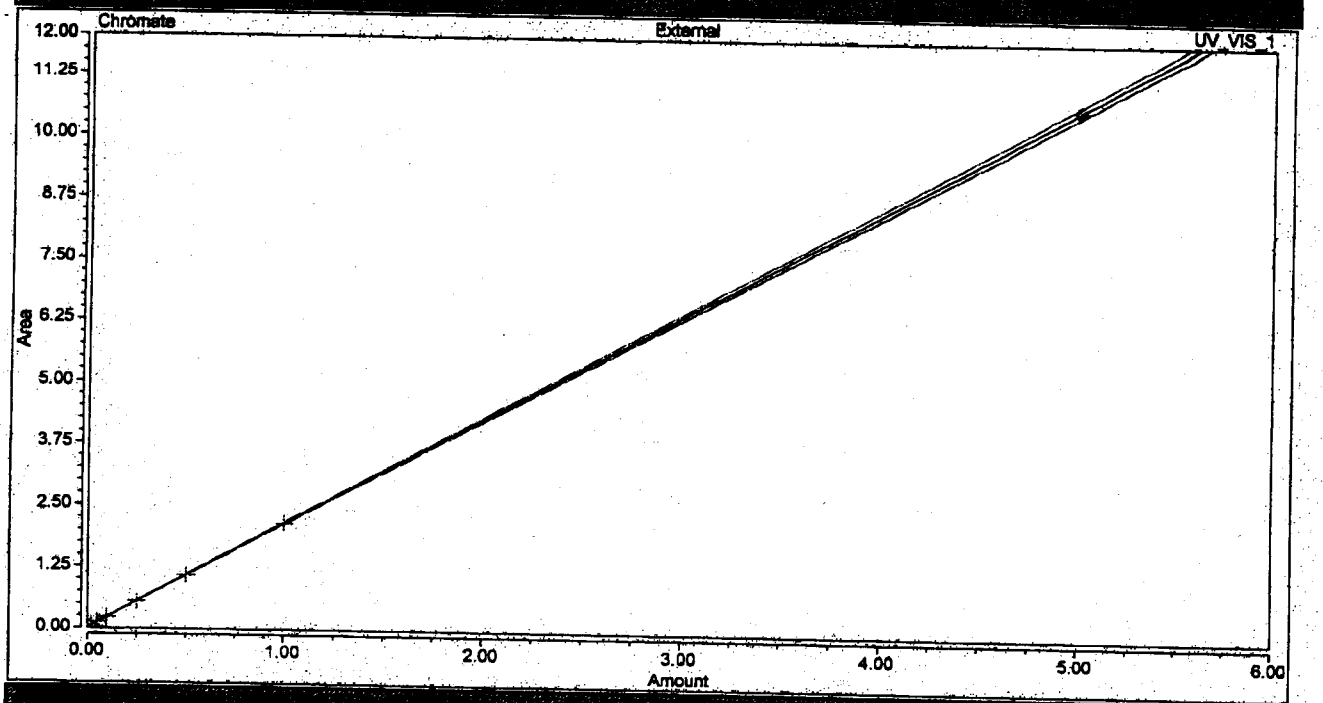
	Cr	Pb
ICB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L
CCB	<1.0 µg/L	<1.0 µg/L

Analytical Run **CR6-1306024** **Date of Analysis** **6/24-25/2013**

	CrO4
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L
LRB	<0.02µg/L

Calibration Data

Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0089
Evaluation Type	Area	*Slope (C1)*	2.1346
Number of Calibration Points	7	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000



No.	Sample Name	Calibration Level	X Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Y Value Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
1		1					

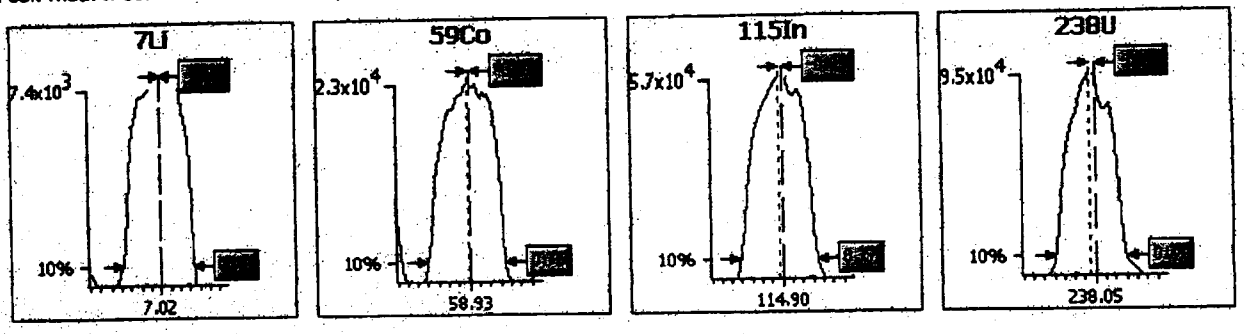
Calibration 6/24/13

Performance Report

Sample details
Acquired at : 7/19/2013 2:20:11 PM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Mass Calibration verification

Acquisition parameters
Sweeps : 10
Dwell : 5.0 mSecs
Point spacing : 0.02 amu
Peak width measured at 10% of the peak maximum



Analyte	Limits			Results	
	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.73	-0.01
59Co	0.85	0.65	0.10	0.75	-0.03
115In	0.85	0.65	0.10	0.77	-0.05
238U	0.85	0.65	0.10	0.71	-0.05

Sample details
Acquired at : 7/19/2013 2:20:11 PM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

Tune conditions

Major	
Extraction	-164.7
Lens 1	-1286
Lens 2	-79.2
Focus	8.0
D1	-47.1
D2	-140
Pole Bias	-2.0
Hexapole Bias	-11.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3124

Add. Gases	
CCT-He/H2	0.00
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 130

Run	Time	5Bkg	7Li	56Ar O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Dwell (mSecs)		100.0	10.0	10.0	10.0	30.0	30.0	100.0	10.0	10.0
Limits	%RSD	-	2.0%	-	2.0%	-	-	-	2.0%	-
	Countrate	-	>4000	-	>10000	-	-	-	>40000	-
1	2:20:31 PM	0.077	7819.649	495812.94	23644.030	113.077	728.479	0.000	58827.456	5574.071
2	2:21:40 PM	0.000	7698.050	490288.03	23405.209	115.385	724.632	0.077	58125.606	5510.972
3	2:22:49 PM	0.077	7622.628	486759.47	23126.333	109.488	725.145	0.000	56676.451	5525.592
4	2:23:58 PM	0.077	7501.800	485966.11	23715.677	109.488	718.222	0.000	57599.818	5595.617
5	2:25:08 PM	0.000	7508.727	486074.01	23364.379	102.821	703.093	0.077	57680.886	5528.670
x		0.046	7630.171	488980.11	23451.125	110.052	719.914	0.031	57782.044	5546.984
σ		0.04	133.97	4208.89	235.76	4.76	10.11	0.04	786.88	36.02
%RSD		91.287	1.756	0.861	1.005	4.323	1.404	136.931	1.362	0.649

Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
Dwell (mSecs)		10.0	10.0	30.0	100.0	10.0
Limits	%RSD	-	-	-	-	2.0%
	Countrate	-	-	-	<1	>80000
1	2:20:31 PM	36915.094	48508.258	850.280	0.077	93772.853
2	2:21:40 PM	36361.491	48389.429	867.204	0.000	93467.957
3	2:22:49 PM	36064.650	47468.919	892.077	0.000	92216.709
4	2:23:58 PM	36585.860	48414.892	860.537	0.000	93091.876
5	2:25:08 PM	36571.981	48545.296	867.460	0.000	93192.473
x		36499.815	48265.359	867.511	0.015	93148.374
σ		313.68	449.84	15.40	0.03	584.22
%RSD		0.859	0.932	1.776	223.607	0.627

Ratio results

Run	Time	137Ba++/137Ba	115In/220Bkg	156Ce O/140Ce
Ratio limits		<0.0300	>80000.0000	<0.0200
1	2:20:31 PM	0.020	764756.93	0.018
2	2:21:40 PM	0.021	INF	0.018
3	2:22:49 PM	0.020	INF	0.019
4	2:23:58 PM	0.020	INF	0.018
5	2:25:08 PM	0.019	INF	0.018
x		0.0198	764756.93	0.0180
σ		0.00	0.00	0.00
%RSD		4.3808	0.0000	2.6715

Result : The performance report passed.

Performance Report

Sample details
Acquired at : 7/19/2013 2:33:02 PM
Report name : CCT-KED-WITHAR2 [11/17/2010 9:50:45 AM]

Tune conditions

Major	
Extraction	-160.8
Lens 1	-1286
Lens 2	-79.2
Focus	-9.4
D1	-62.0
D2	-140
Pole Bias	-16.0
Hexapole Bias	-20.0
Nebuliser	0.78

Minor	
Lens 3	-195.3
Forward power	1200
Horizontal	67
Vertical	640
DA	-31.4
Cool	13.0
Auxiliary	1.20
Sampling Depth	150

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3124

Add. Gases	
CCT-He/H2	5.14
CCT-Ammonia	0.00

Sensitivity and stability results

Acquisition parameters
Sweeps : 100

Run	Time	78Se	80Ar2	115In	140Ce	156Ce O
Dwell (mSecs)		30.0	10.0	10.0	10.0	10.0
Limits	%RSD	-	-	2.0%	-	-
	Countrate	<20	<200	>2000	-	-
1	2:33:03 PM	0.333	104.000	7180.650	15688.873	78.000
2	2:33:13 PM	0.667	103.000	7187.653	15900.086	91.000
3	2:33:22 PM	1.333	160.001	7317.713	15539.724	94.000
4	2:33:32 PM	0.667	122.000	7453.777	15856.041	89.000
5	2:33:42 PM	0.333	130.001	7193.656	16031.220	102.000
x		0.667	123.801	7266.690	15803.189	90.800
σ		0.41	23.33	118.94	191.48	8.70
%RSD		61.237	18.843	1.637	1.212	9.582

Ratio results

Run	Time	156Ce O/140Ce
Ratio limits		-
1	2:33:03 PM	0.005
2	2:33:13 PM	0.006
3	2:33:22 PM	0.006
4	2:33:32 PM	0.006
5	2:33:42 PM	0.006
x		0.0057
σ		0.00
%RSD		9.0872

Result : The performance report passed.

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Analytical Run **F130719B** **Date of Analysis** **7/19/2013**

	Cr			Pb		
	TRUE	Found	%recovery	TRUE	Found	% recovery
ICV	100	100.1	100.10	100	96.74	96.74
CCV	200	198.3	99.15	200	199	99.50
CCV	200	198.4	99.20	200	199.3	99.65
CCV	200	200.2	100.10	200	198.3	99.15
CCV	200	195.9	97.95	200	203	101.50
CCV	200	196.2	98.10	200	205.1	102.55
CCV	200	196.6	98.30	200	199.6	99.80
CCV	200	197.6	98.80	200	204.2	102.10

Metals Digestion Logs

ENVIRO-CHEM LABORATORIES INC.

METALS DIGESTION LOG

Digestion Batch: LPB5059R

Date: 7/5/13

Analyst: Cathe

Microwave or ~~Hotblock~~? 200.8 Time in: 1805

SOP: M-100 Rev 5 Temp in: 83.7

Spiking Solution(s) added to LCS/MS/MSD: 25µL ICV 100-19 (C0431)

Acids added: 1.0mL HNO3 (conc), 1.0mL H2SO4 (1+1 HCl)

Final volume (mL): 50mL Time out: 2015 Temp: 83.4

Sample ID:	weight (g)/initial volume (l)
LPB5059R	50mL DI
LCS5059R	50mL DI +
29324-001	50mL
29324-002	"
29324-003	"
29324-003D	"
29324-003S	" +
29324-004	"
29324-005	"
29324-006	"
29324-007	"
29324-008	"
29324-009	"

Sample ID:	weight (g)/initial volume (l)
29324-010	50mL
29324-011	"
29324-012	"
29324-013	"
29324-013D	"
29324-013S	" +
29324-014	"
29324-015	"
29324-016	"
29324-017	"
29324-018	"
29324-019	"
29324-020	"

Comments:

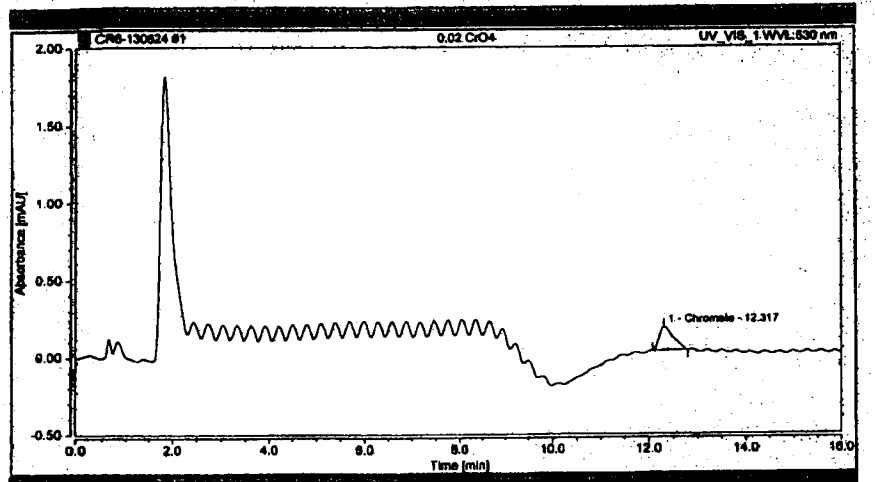
Raw Data

6/25/13

Name:	CR6-130624	*Created On:*	26/Apr/11 09:00:48
Directory:	Instrument Data\Chrome_VI\Sequences\CR6-	*Created By:*	Enviro Chem
Data Vault:	ChromeleonLocal	*Updated On:*	25/Jun/13 00:00:20
No. of Injections:	22	*Updated By:*	Enviro Chem

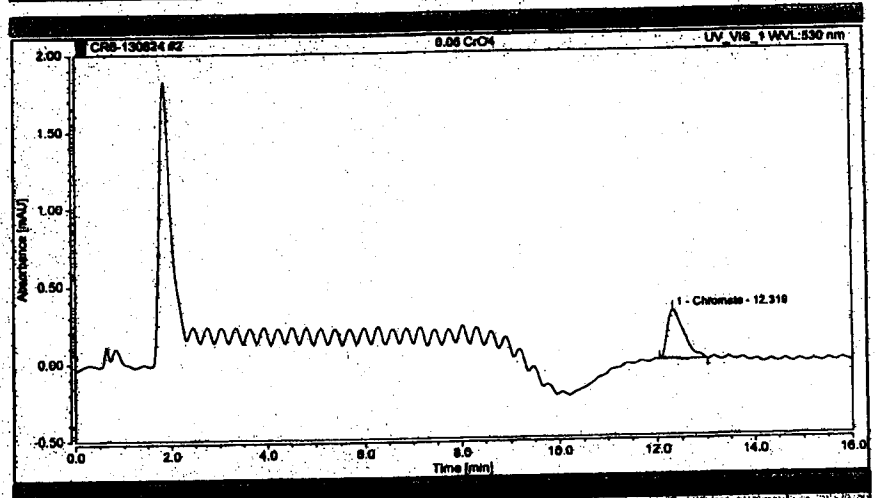
No.	Injection Name	Ret.Time min Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1	Amount ppb Chromate UV_VIS_1	Inject Time Chromate	Peak Type Chromate UV_VIS_1

Injection Name:	0.02 CrO4	Run Time (min):	18.00
Vial Number:	1	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	01	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:04	Sample Weight:	1.0000



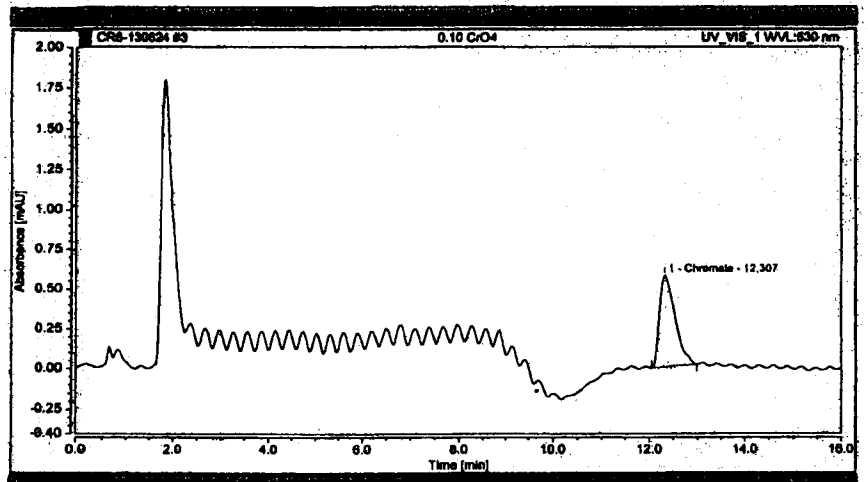
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.051	0.153	100.00	100.00	

Injection Name:	0.05 CrO4	Run Time (min):	18.00
Vial Number:	2	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	02	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:23	Sample Weight:	1.0000



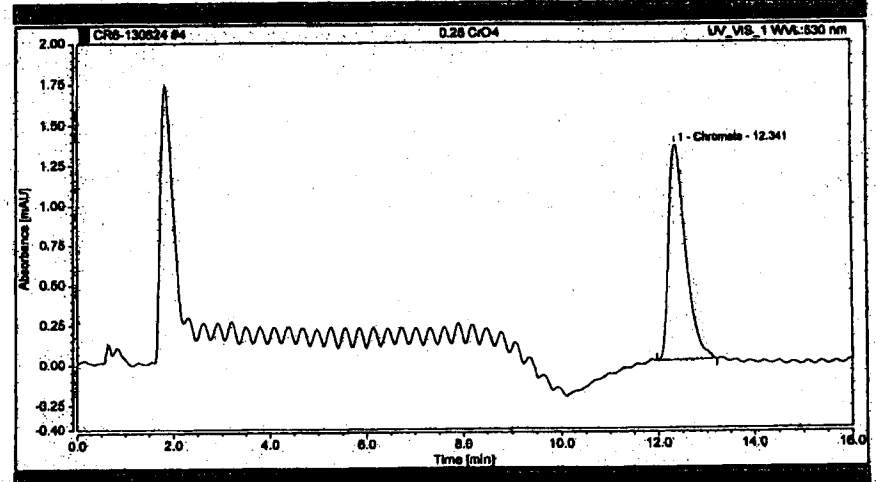
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
Total:			0.121	0.317	100.00	100.00	

Injection Name:	0.10 CrO4	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	03	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 17:42	Sample Weight:	1.0000



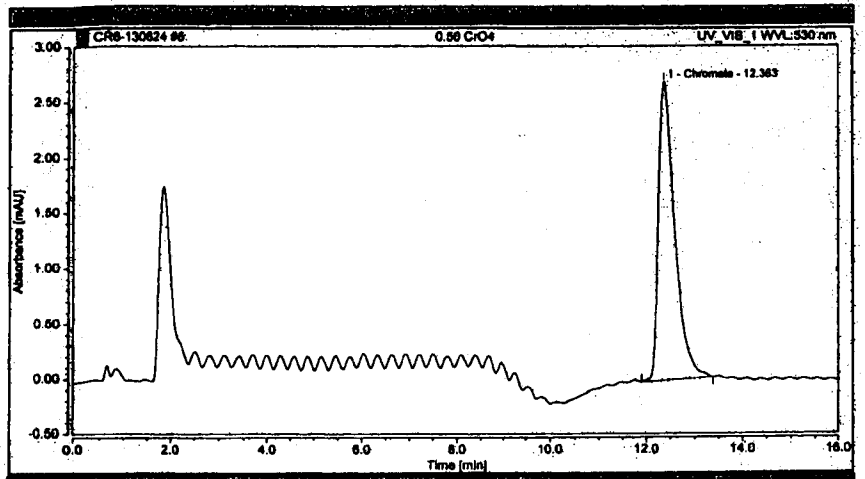
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount %
Total:			0.218	0.573	100.00	100.00	

Injection Name:	0.25 CrO4	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	04	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 18:00	Sample Weight:	1.0000



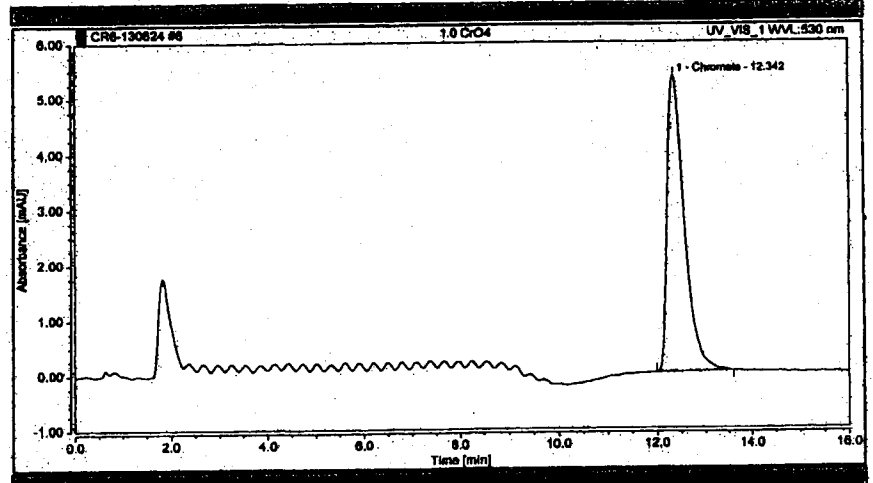
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount %
Total:			0.544	1.347	100.00	100.00	

Injection Name:	0.50 CrO4	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	05	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 16:19	Sample Weight:	1.0000



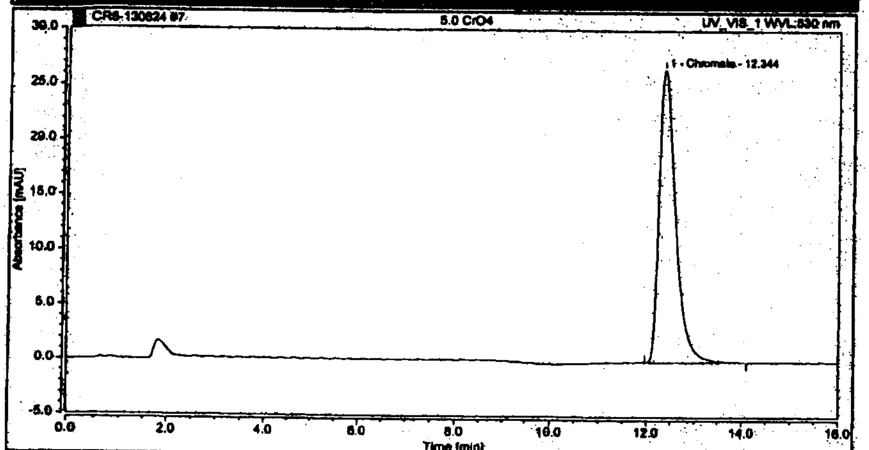
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppm
Total:			1.069	2.085	100.00	100.00	

Injection Name:	1.0 CrO4	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Calibration Standard	Channel:	UV_VIS_1
Calibration Level:	06	Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 16:38	Sample Weight:	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppm
Total:			2.143	5.353	100.00	100.00	

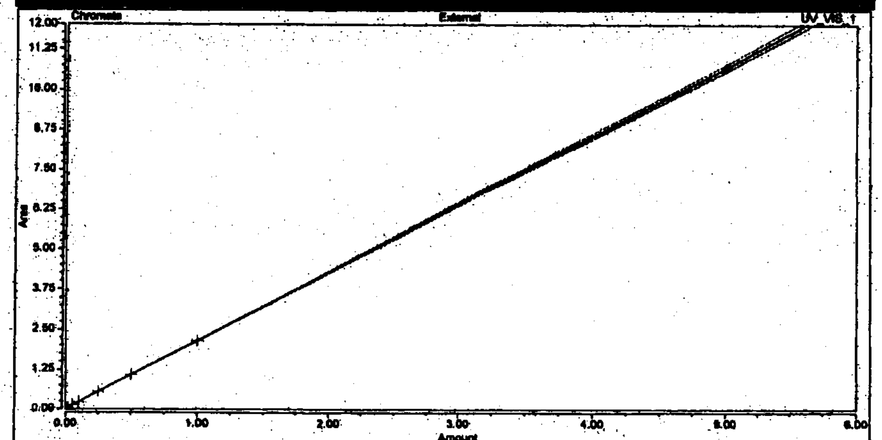
Injection Name:	5.0 CrO4	*Run Time (min):*	16.00
Vial Number:	7	*Injection Volume:*	5.00
Injection Type:	Calibration Standard	*Channel:*	UV_VIS_1
Calibration Level:	07	*Wavelength:*	530.0
Instrument Method:	Chrome VI instrument method	*Bandwidth:*	n.a.
Processing Method:	EPA 218.7 as Cr	*Dilution Factor:*	1.0000
Injection Date/Time:	24/Jun/13 18:57	*Sample Weight:*	1.0000



No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total:			10.659	26.528	100.00	100.00	

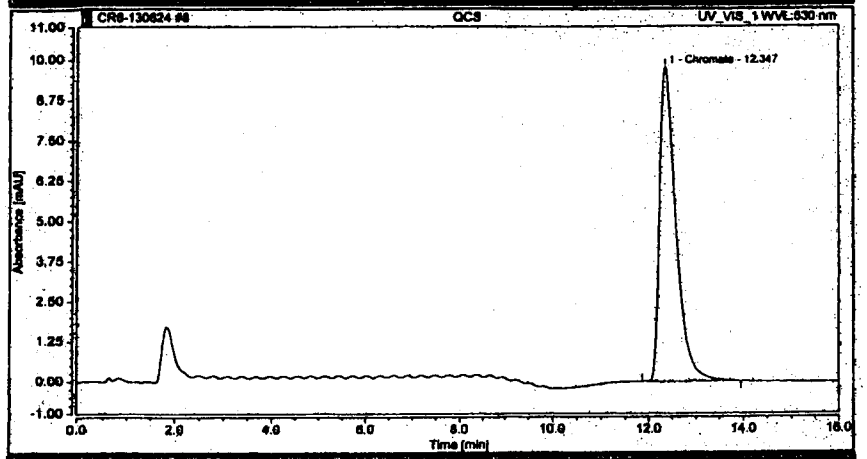
45

Calibration Type	Lin, WithOffset, 1/A	*Offset (C0)*	0.0089
Evaluation Type	Area	*Slope (C1)*	2.1346
Number of Calibration Points	7	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000



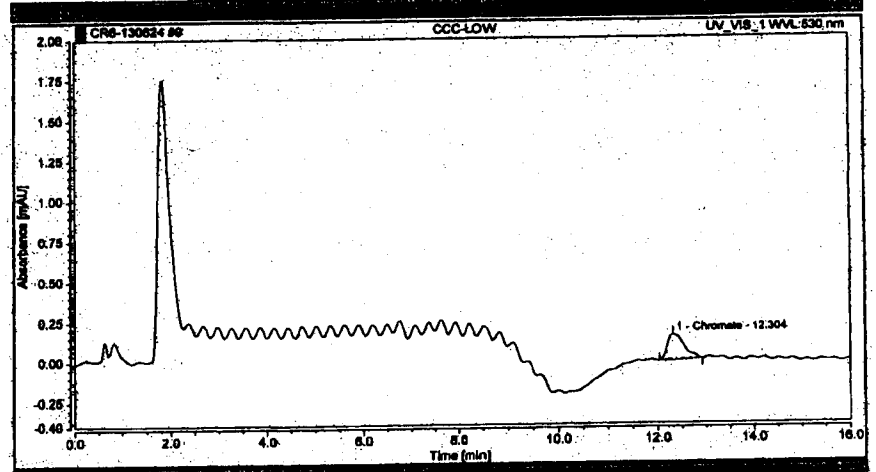
No.	Peak Name	Calibration Type	X-Value Chromate UV_VIS_1	Y-Value Chromate UV_VIS_1	Amount Chromate UV_VIS_1	Area mAU*min Chromate UV_VIS_1	Height mAU Chromate UV_VIS_1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Injection Name:	QCS	Run Time (min):	16.00
Vial Number:	8	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:16	Sample Weight:	1.0000



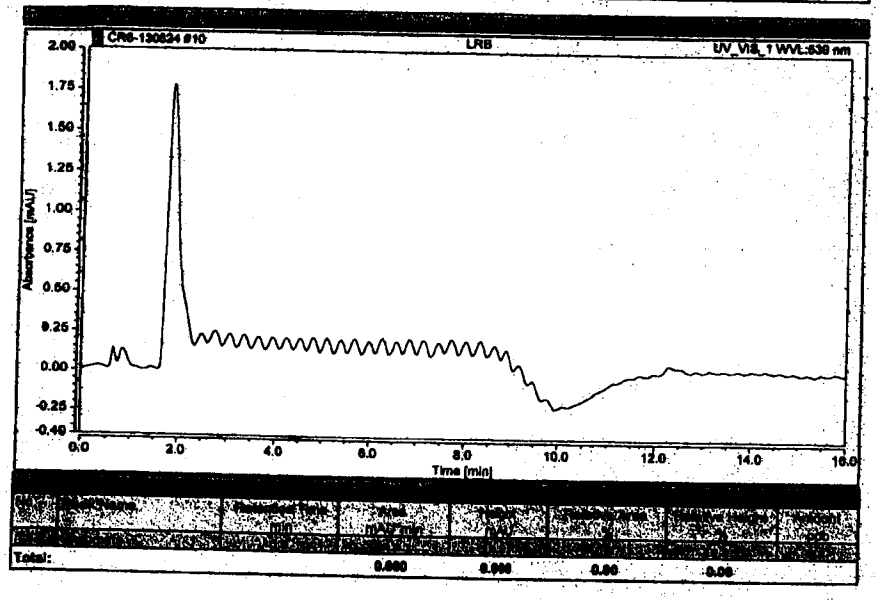
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Chromate	12.347	3.899	9.752	100.00	100.00	
Total:			3.899	9.752	100.00	100.00	

Injection Name:	CCC-LOW	Run Time (min):	16.00
Vial Number:	9	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:35	Sample Weight:	1.0000



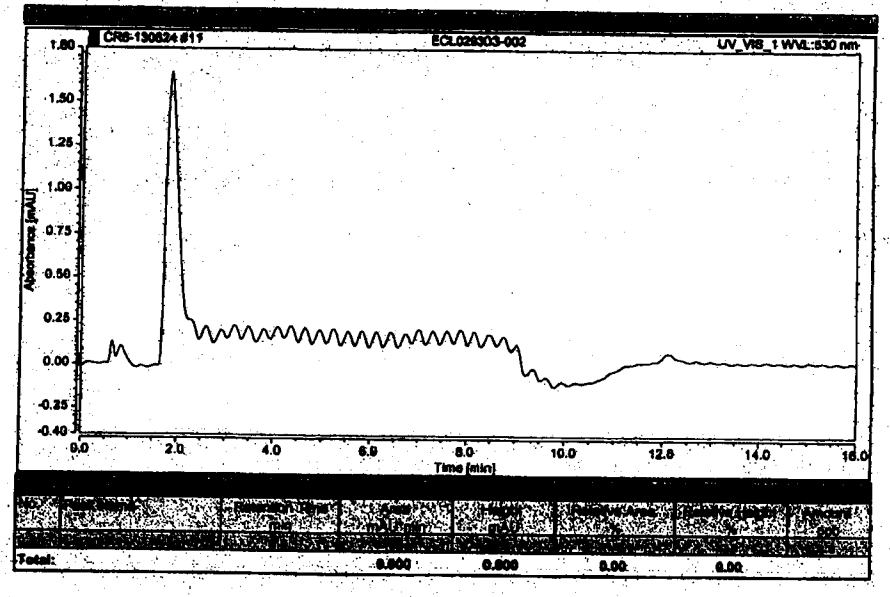
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Chromate	12.304	0.043	0.158	100.00	100.00	
Total:			0.043	0.158	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	10	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 19:54	Sample Weight:	1.0000



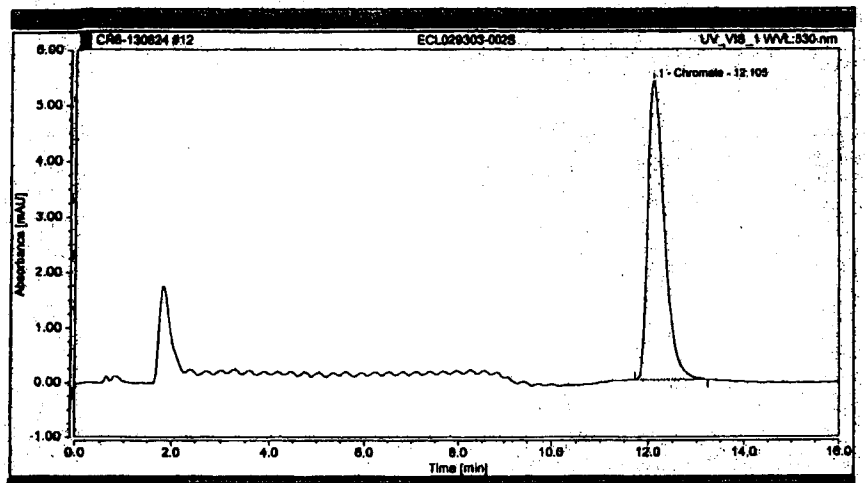
Total:		0.000	0.000	0.00	0.00		

Injection Name:	ECL026303-002	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:13	Sample Weight:	1.0000



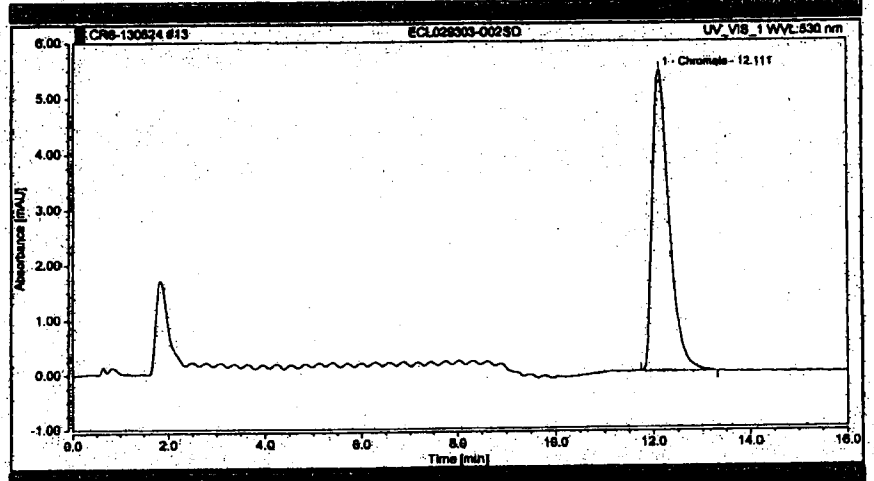
Total:		0.000	0.000	0.00	0.00		

Injection Name:	ECL029303-0028	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:32	Sample Weight:	1.0000



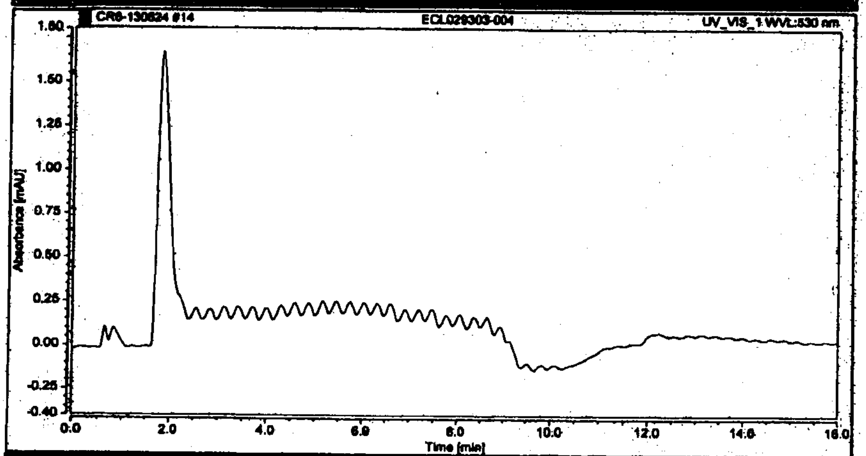
No.	Peak Name	Retention Time [min]	Area [mAU*min]	Height [mAU]	Relative Area [%]	Relative Height [%]	Amount [ug/L]
Total:			2.157	5.464	100.00	100.00	

Injection Name:	ECL029303-0028D	Run Time (min):	16.00
Vial Number:	13	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 20:51	Sample Weight:	1.0000



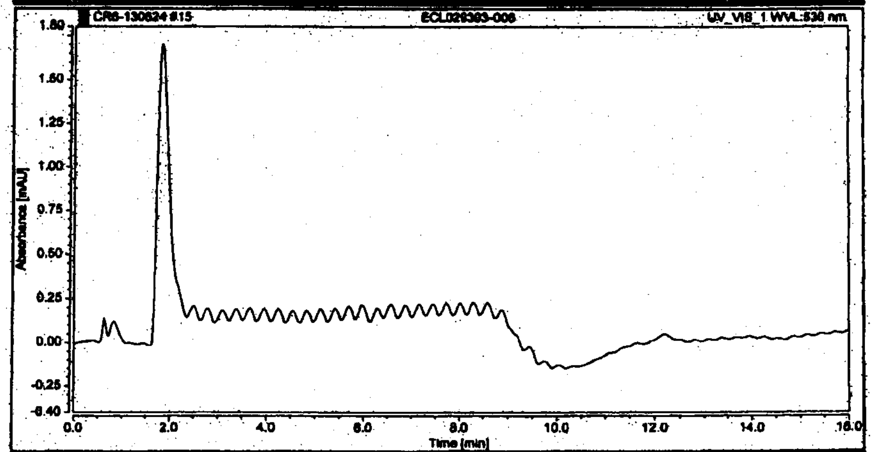
No.	Peak Name	Retention Time [min]	Area [mAU*min]	Height [mAU]	Relative Area [%]	Relative Height [%]	Amount [ug/L]
Total:			2.162	5.464	100.00	100.00	

Injection Name:	ECL029303-004	Run Time (min):	16.00
Vial Number:	14	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:18	Sample Weight:	1.0000



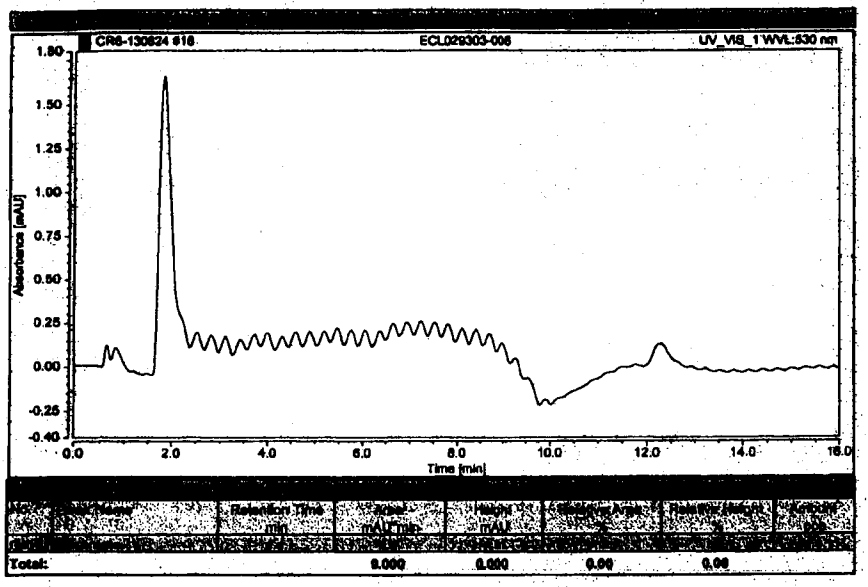
Total:	0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-006	Run Time (min):	16.00
Vial Number:	15	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:29	Sample Weight:	1.0000



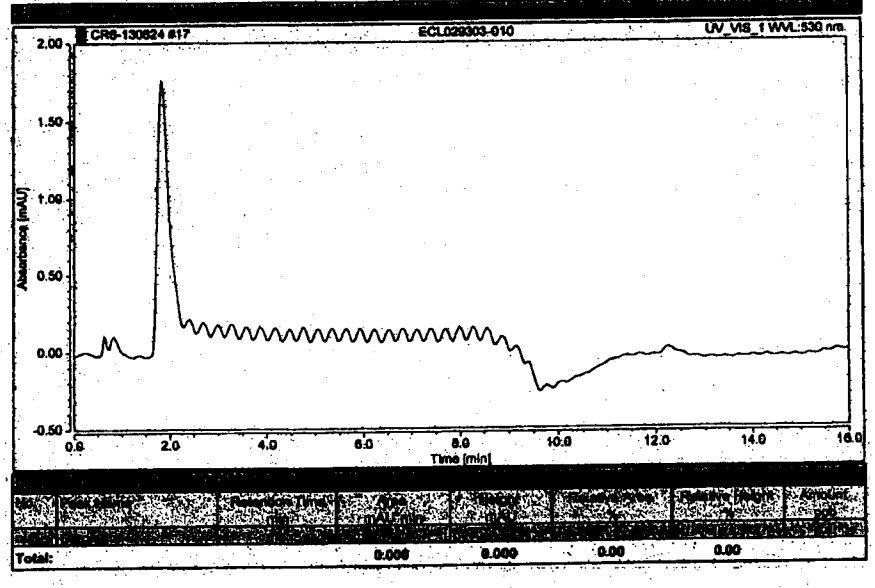
Total:	0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-008	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 21:47	Sample Weight:	1.0000



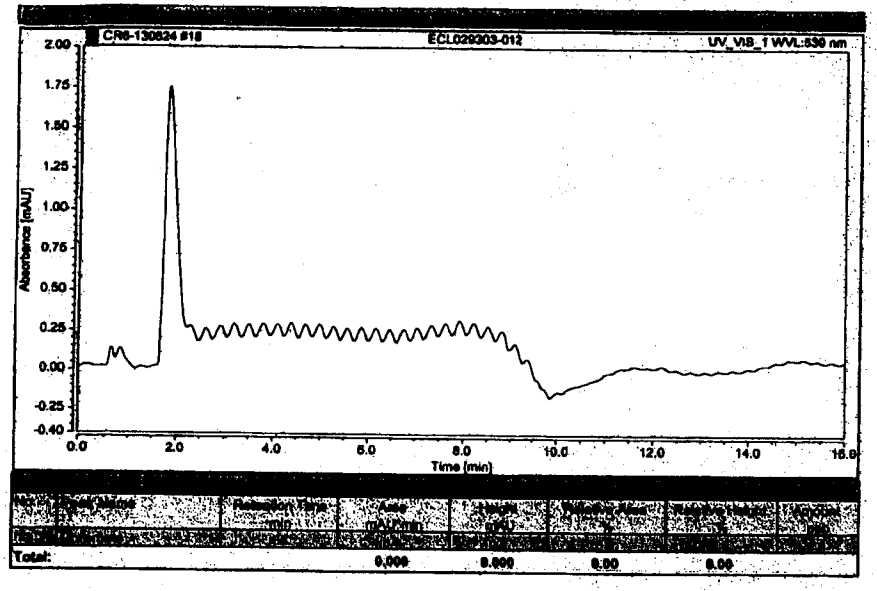
Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount
Total:		0.000	0.000	0.00	0.00	

Injection Name:	ECL029303-010	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:06	Sample Weight:	1.0000



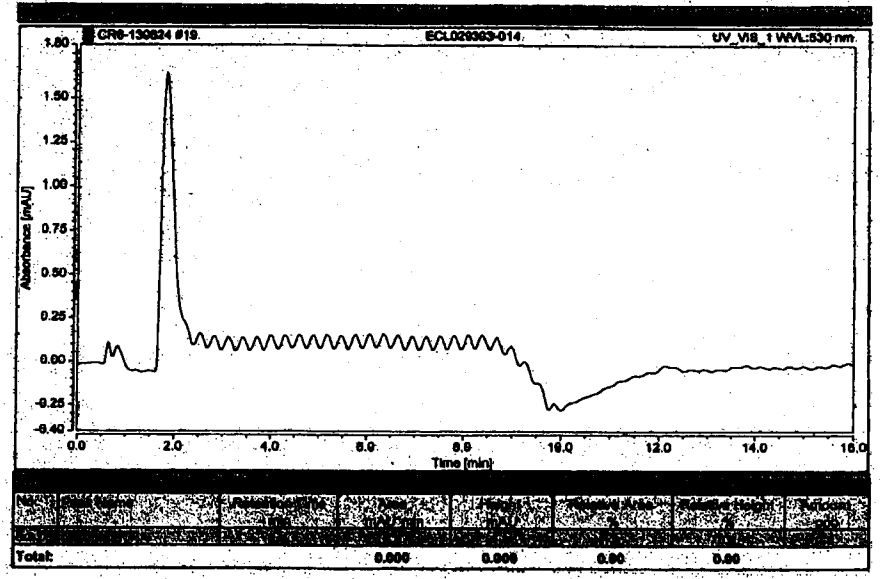
Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount
Total:		0.000	0.000	0.00	0.00	

Injection Name:	ECL028303-012	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:25	Sample Weight:	1.0000



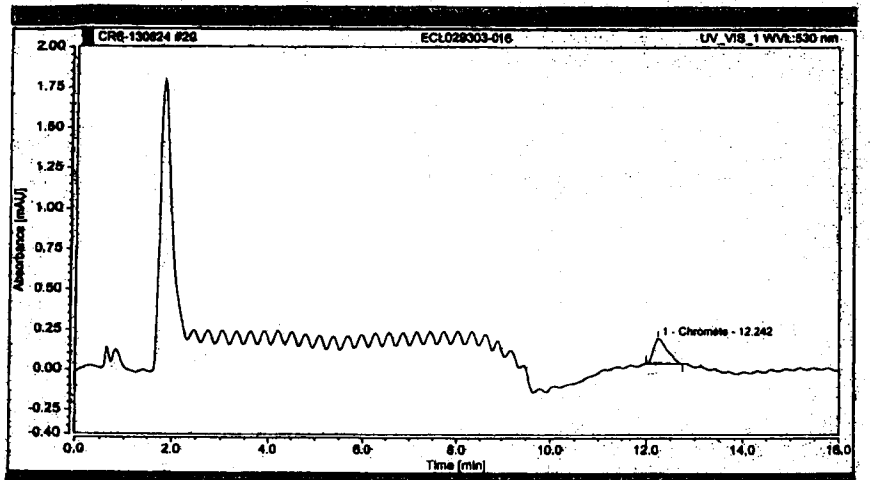
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Type
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL028303-014	Run Time (min):	16.00
Vial Number:	19	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 22:44	Sample Weight:	1.0000



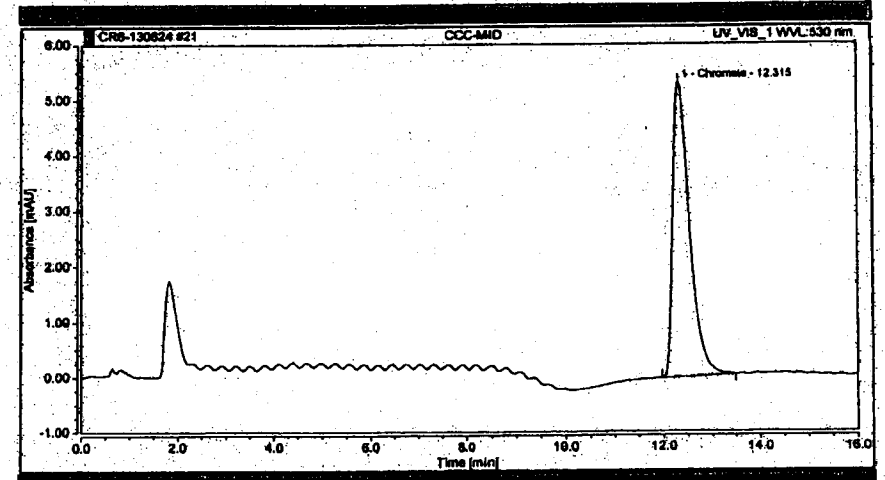
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Type
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL028303-016	Run Time (min):	16.00
Vial Number:	20	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:03	Sample Weight:	1.0000



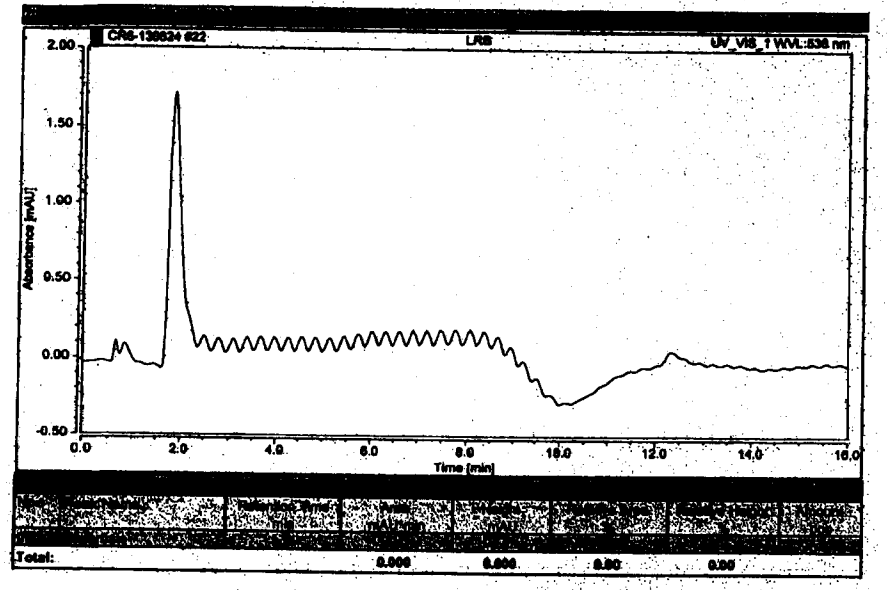
Total:		0.853	0.158	100.00	100.00	

Injection Name:	CCC-MID	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:22	Sample Weight:	1.0000



Total:		2.121	5.332	100.00	100.00	

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	536.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	24/Jun/13 23:41	Sample Weight:	1.0000

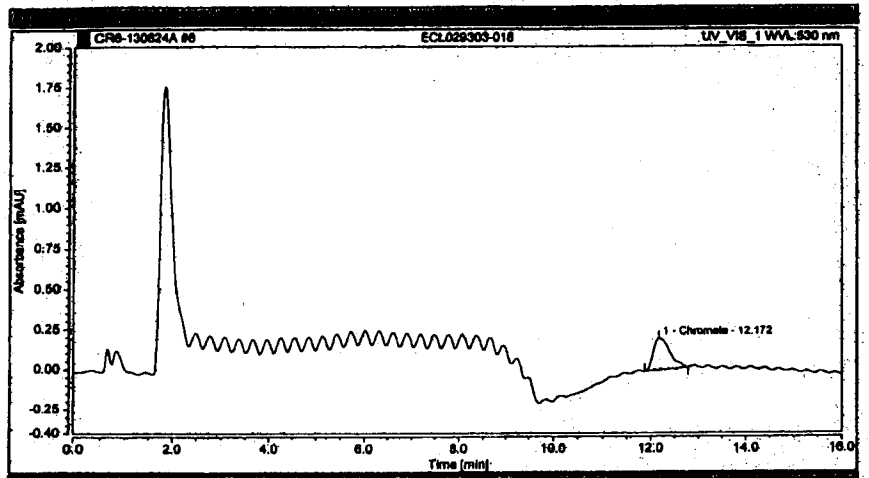


Name:	CR6-130624A	*Created On:*	26/Apr/11 09:00:46
Directory:	Instrument Data\Chrome_VI\Sequences\CR6-	*Created By:*	Enviro Chem
Data Vault:	ChromeleonLocal	*Updated On:*	25/Jun/13 12:21:30
No. of Injections:	46	*Updated By:*	Enviro Chem

No.	Injection Name	Ret.Time min Chromate UV-VIS-1	Area mAU*min Chromate UV-VIS-1	Height mAU Chromate UV-VIS-1	Amount ppb Chromate UV-VIS-1	Inject Time Chromate	Peak Type Chromate UV-VIS-1

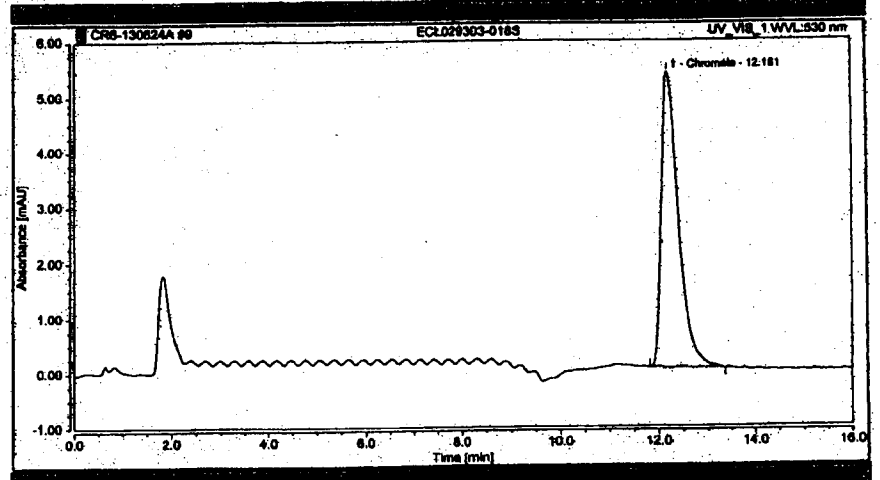
[redacted]

Injection Name:	ECL029303-016	Run Time (min):	16.00
Vial Number:	1	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 00:04	Sample Weight:	1.0000



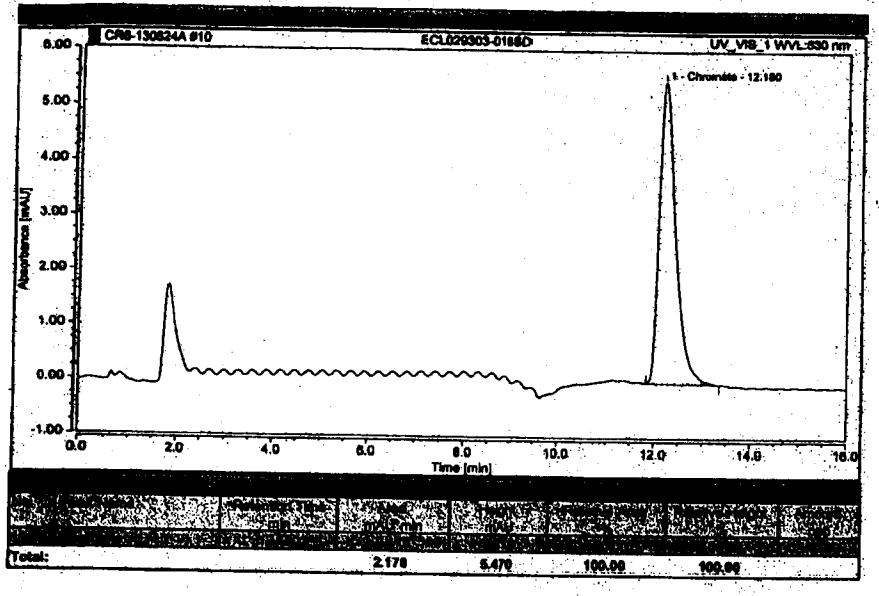
Total:			0.078	0.198	100.00	100.00	

Injection Name:	ECL029303-016S	Run Time (min):	16.00
Vial Number:	2	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 00:22	Sample Weight:	1.0000



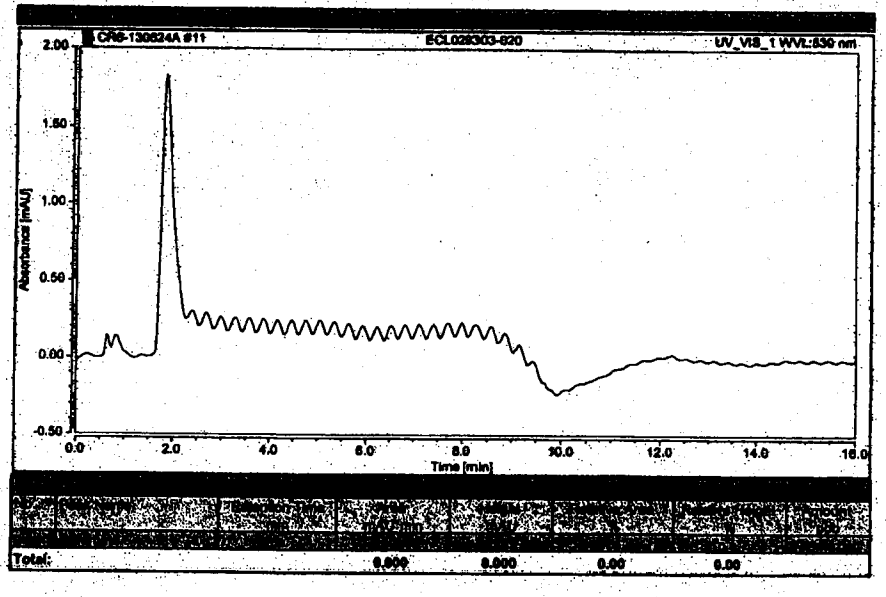
Total:			2.154	5.364	100.00	100.00	

Injection Name:	ECL026303-0185D	Run Time (min):	16.00
Vial Number:	3	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 00:41	Sample Weight:	1.0000



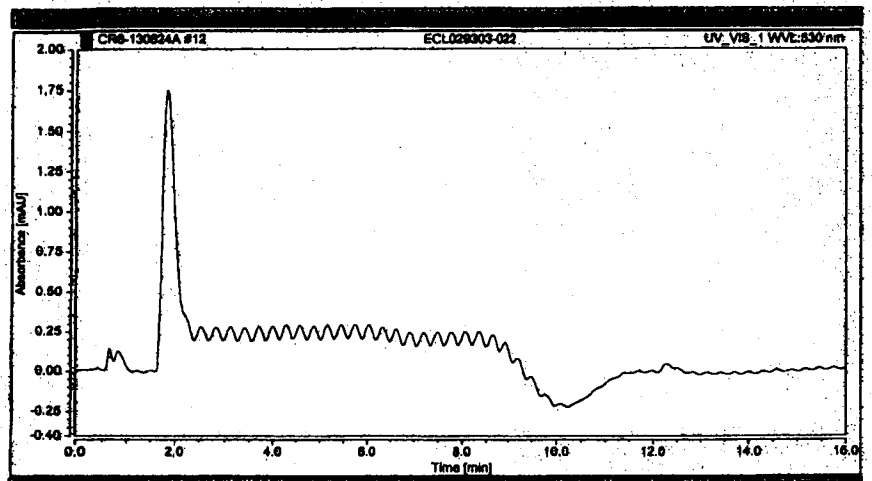
Total:		2.178	5.470	100.00	100.00

Injection Name:	ECL026303-020	Run Time (min):	16.00
Vial Number:	4	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:09	Sample Weight:	1.0000



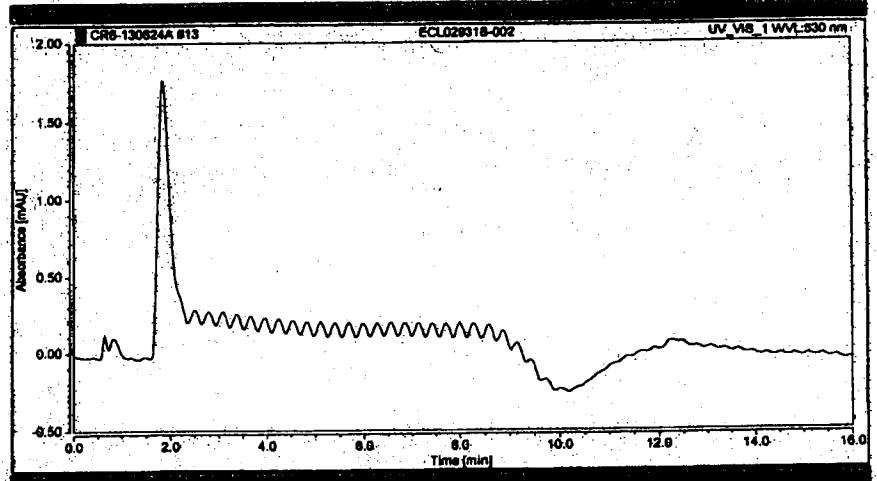
Total:		0.000	0.000	0.00	0.00

Injection Name:	ECL029303-022	Run Time (min):	16.00
Vial Number:	5	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:19	Sample Weight:	1.0000



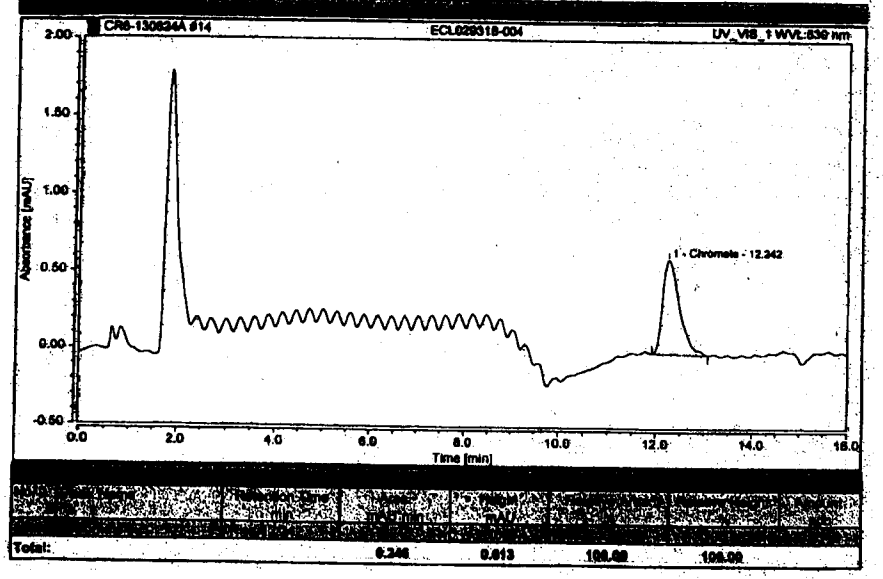
No.	Peak Name	Retention Time [min]	Area [mAU*min]	Height [mAU]	Relative Area [%]	Relative Height [%]	Amount [ppb]
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029316-002	Run Time (min):	16.00
Vial Number:	6	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:38	Sample Weight:	1.0000



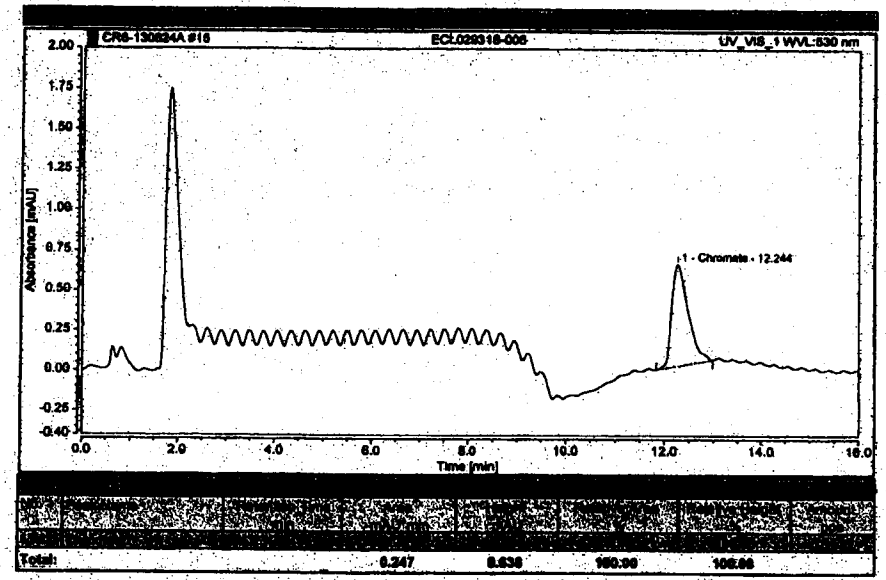
No.	Peak Name	Retention Time [min]	Area [mAU*min]	Height [mAU]	Relative Area [%]	Relative Height [%]	Amount [ppb]
Total:			0.000	0.000	0.00	0.00	

Injection Name:	ECL029318-004	Run Time (min):	16.00
Vial Number:	7	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 01:57	Sample Weight:	1.0000



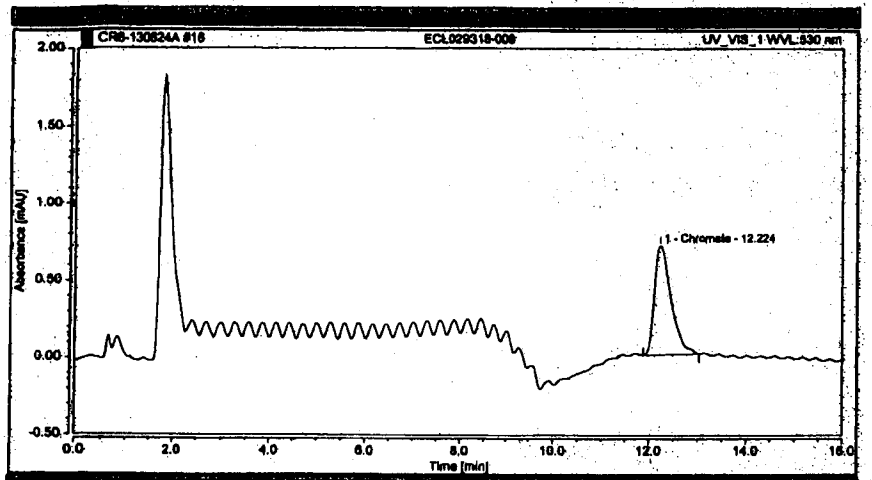
Total:		0.246	0.613	100.00

Injection Name:	ECL029318-005	Run Time (min):	16.00
Vial Number:	8	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 02:16	Sample Weight:	1.0000



Total:		0.247	0.638	100.00

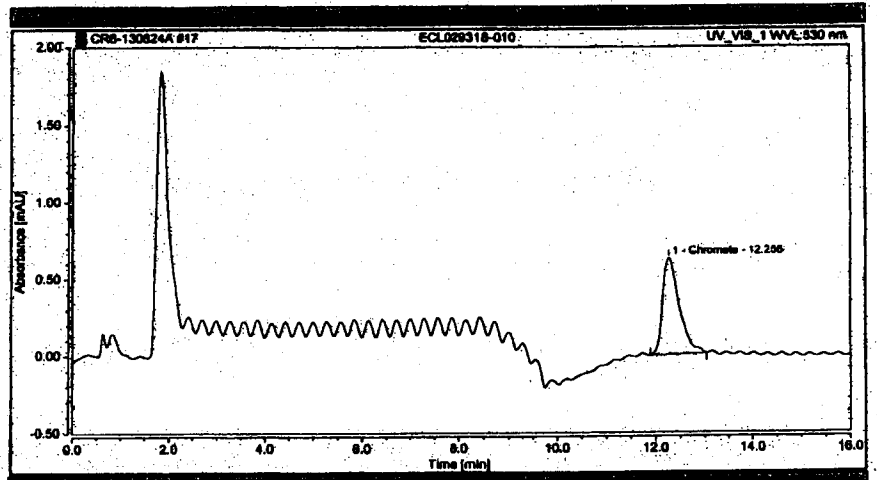
Injection Name:	ECL029318-009	Run Time (min):	16.00
Vial Number:	9	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 02:35	Sample Weight:	1.0000



Total:		0.292	0.712	100.00	100.00

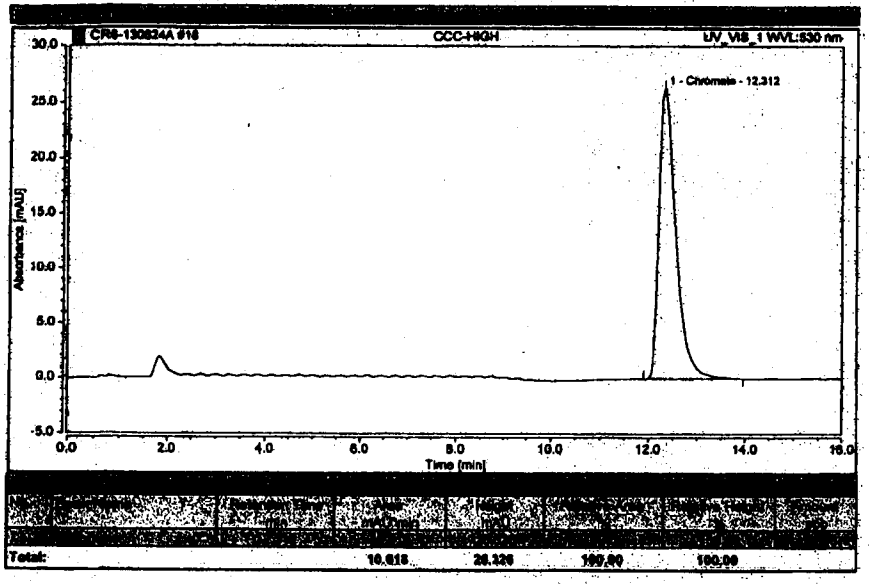
09

Injection Name:	ECL029318-010	Run Time (min):	16.00
Vial Number:	10	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 02:53	Sample Weight:	1.0000



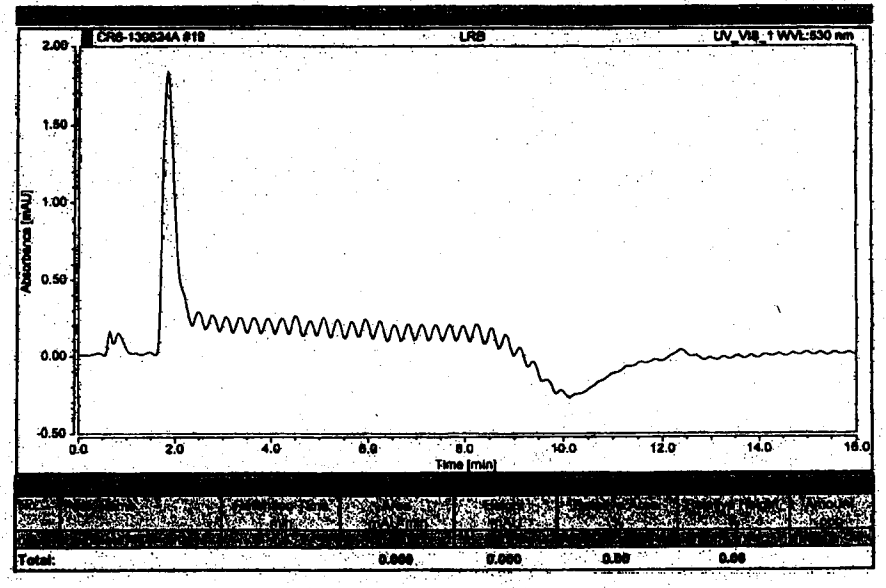
Total:		0.248	0.628	100.00	100.00

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	11	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:12	Sample Weight:	1.0000



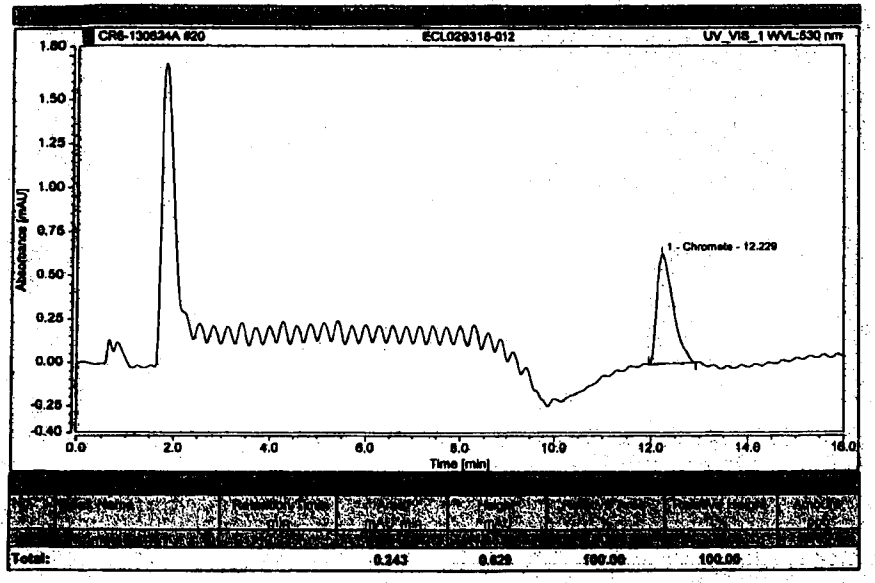
Total:				
	10.618	26.326	100.00	100.00

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	12	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:31	Sample Weight:	1.0000



Total:				
	0.000	0.000	0.00	0.00

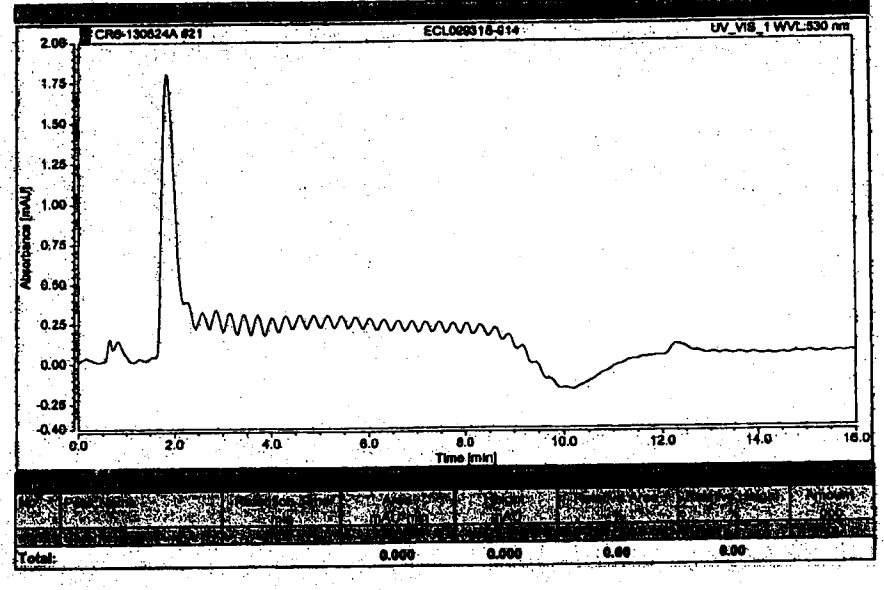
Injection Name:	ECL029318-012	Run Time (min):	16.00
Vial Number:	13	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 03:50	Sample Weight:	1.0000



Total:		0.243	0.629	100.00	100.00

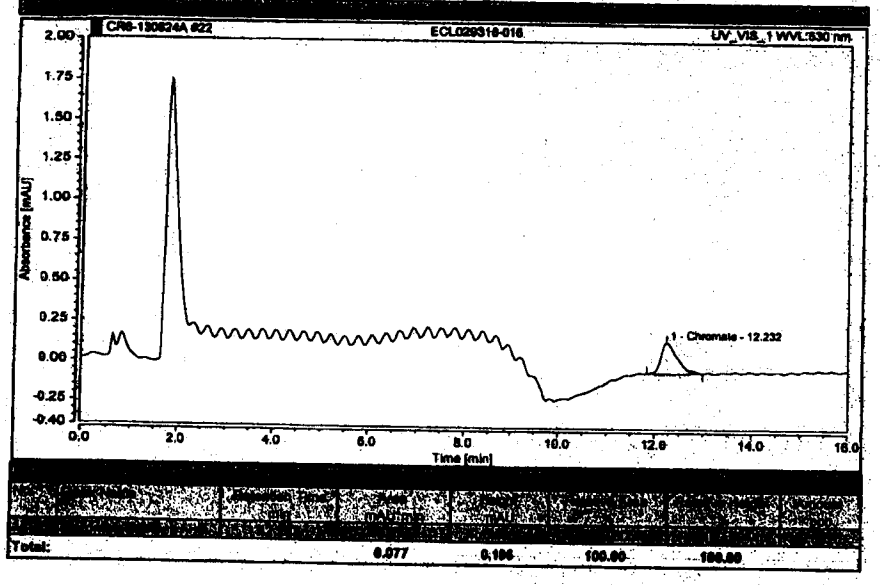
62

Injection Name:	ECL029318-014	Run Time (min):	16.00
Vial Number:	14	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:09	Sample Weight:	1.0000



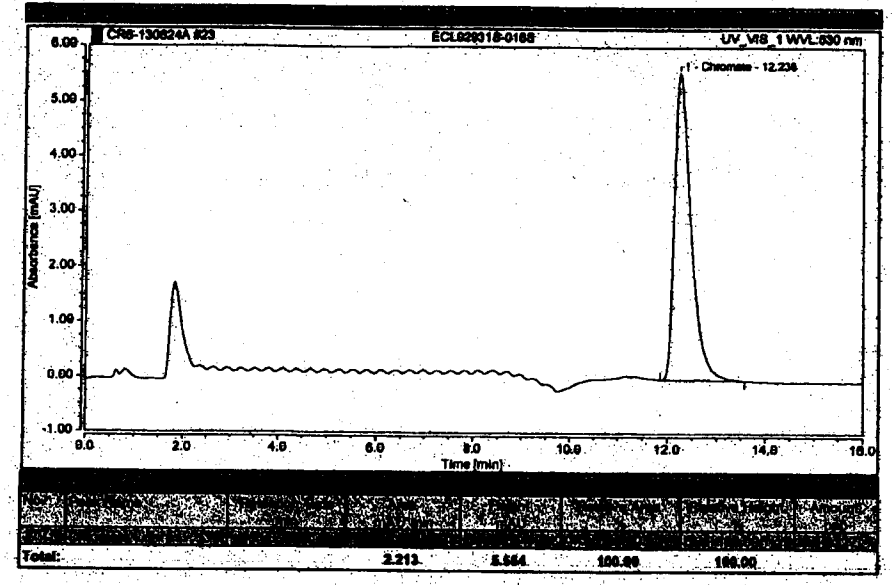
Total:		0.000	0.000	0.00	0.00

Injection Name:	ECL029318-016	Run Time (min):	16.00
Vial Number:	15	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:28	Sample Weight:	1.0000



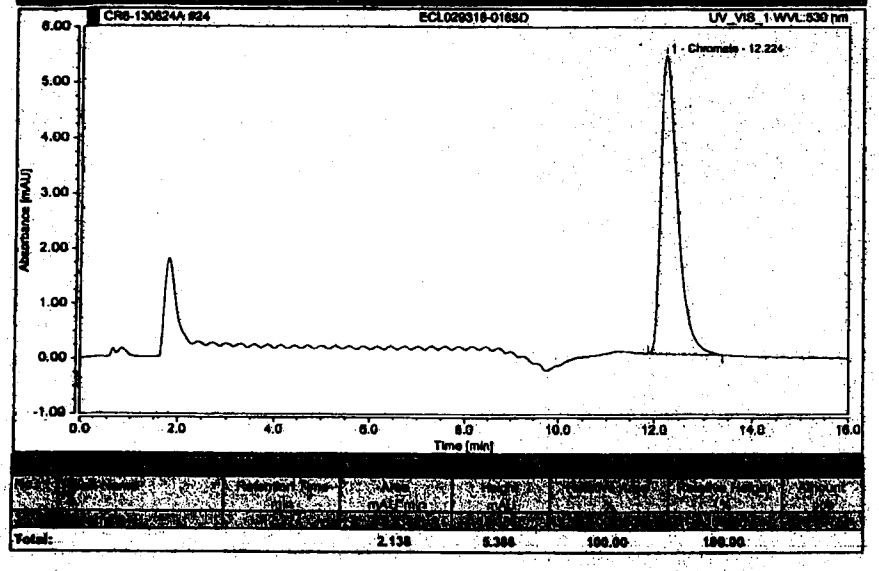
Total:		0.077	0.196	100.00	100.00

Injection Name:	ECL029318-0168	Run Time (min):	16.00
Vial Number:	16	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 04:47	Sample Weight:	1.0000



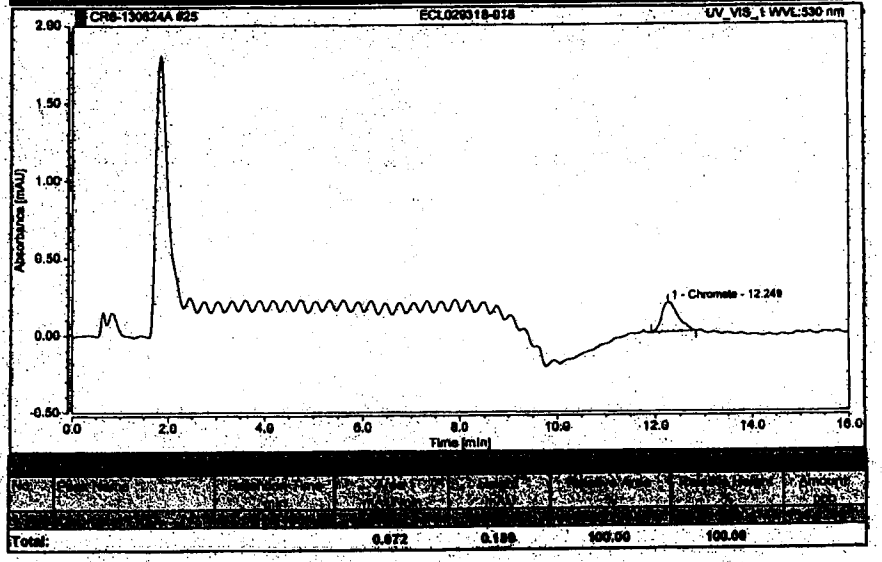
Total:		2.213	5.564	100.00	100.00

Injection Name:	ECL029316-016SD	Run Time (min):	16.00
Vial Number:	17	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:06	Sample Weight:	1.0000



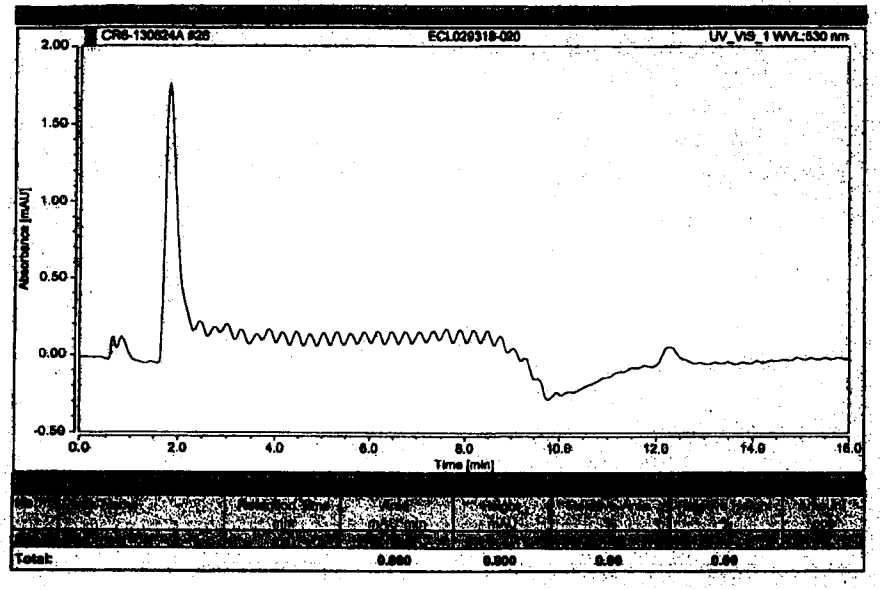
Total:		2.138	5.366	100.00	100.00	

Injection Name:	ECL029316-018	Run Time (min):	16.00
Vial Number:	18	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:23	Sample Weight:	1.0000



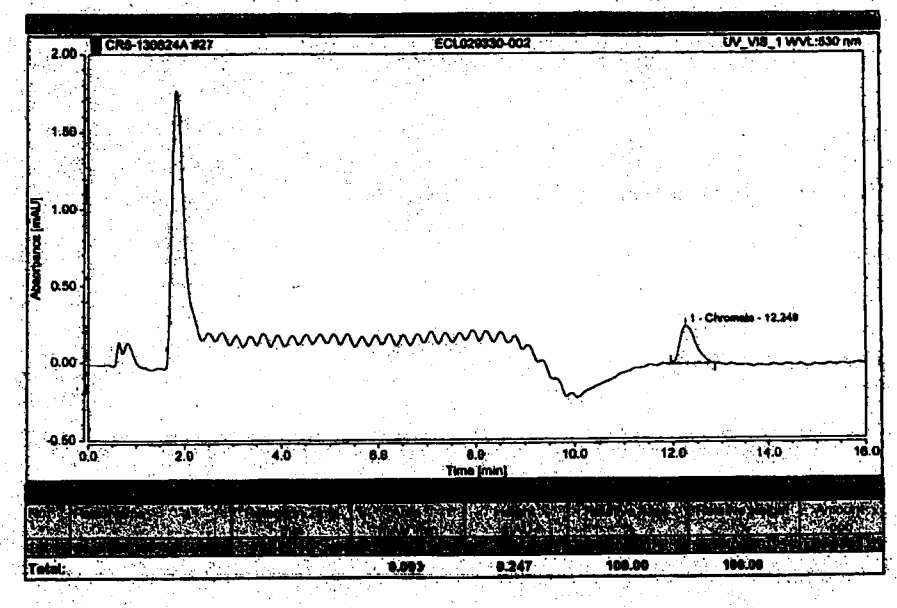
Total:		0.672	0.199	100.00	100.00	

Injection Name:	ECL029318-020	Run Time (min):	16.00
Vial Number:	19	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 05:44	Sample Weight:	1.0000



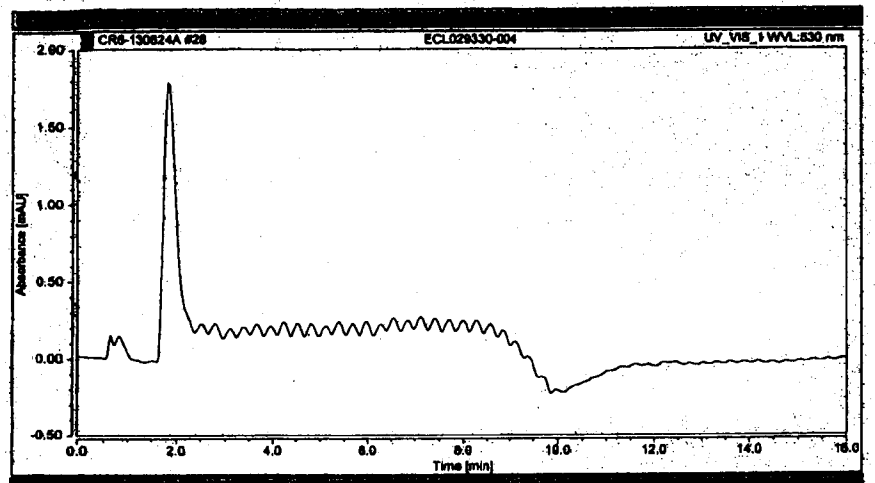
Total:				
	0.000	0.000	0.00	0.00

Injection Name:	ECL029330-002	Run Time (min):	16.00
Vial Number:	20	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:03	Sample Weight:	1.0000



Total:				
	0.093	0.347	100.00	100.00

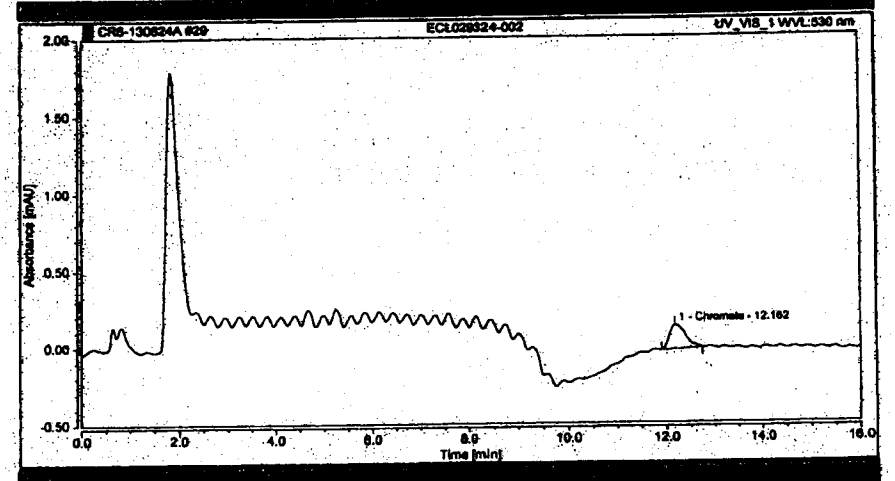
Injection Name:	ECL029330-004	Run Time (min):	16.00
Vial Number:	21	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:22	Sample Weight:	1.0000



Total:		0.000	0.000	0.00	0.00		

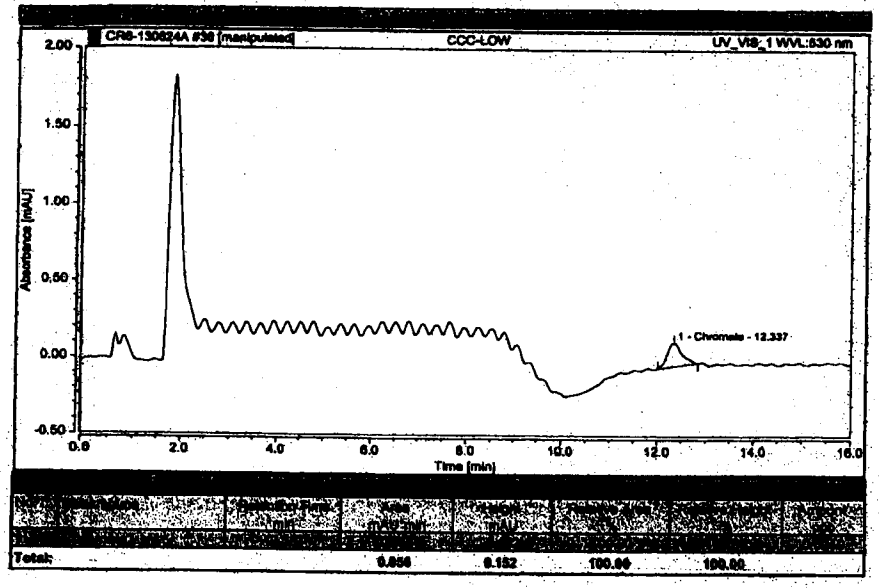
99

Injection Name:	ECL029324-002	Run Time (min):	16.00
Vial Number:	22	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:40	Sample Weight:	1.0000



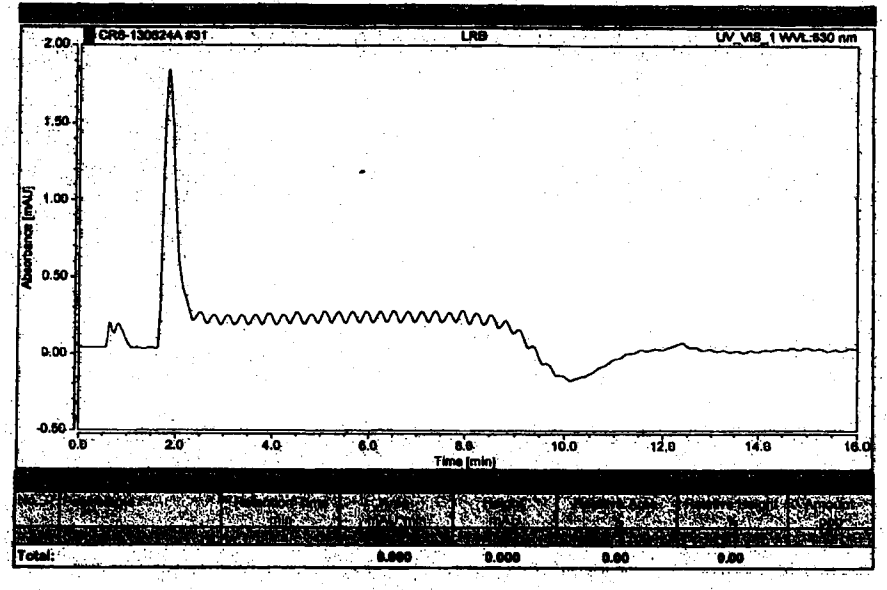
Total:		0.000	0.158	100.00	100.00		

Injection Name:	CCC-LOW	Run Time (min):	16.00
Vial Number:	23	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 06:58	Sample Weight:	1.0000



Total:				
	0.856	0.152	100.00	100.00

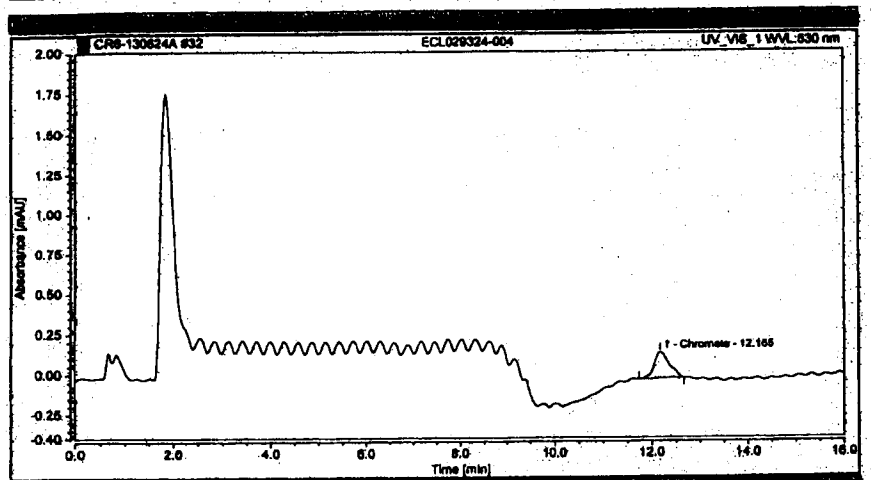
Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	24	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 07:18	Sample Weight:	1.0000



Total:				
	0.000	0.000	0.00	0.00

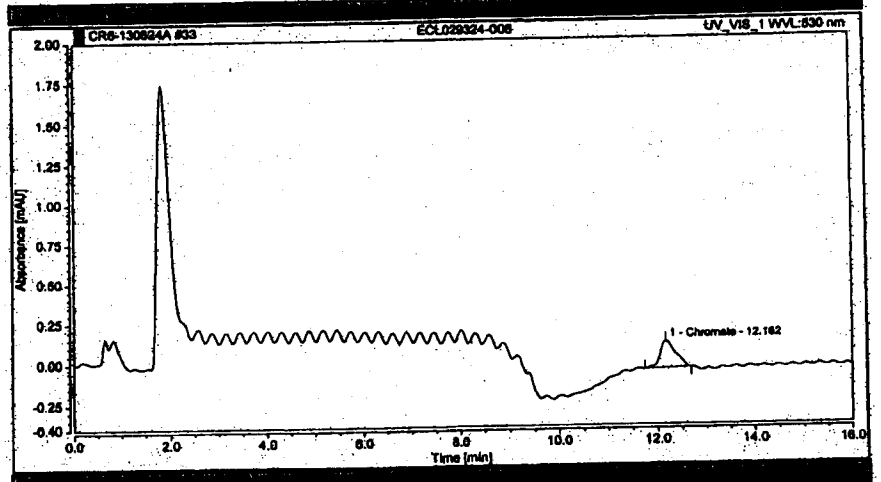
67

Injection Name:	ECL029324-004	Run Time (min):	16.00
Vial Number:	25	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 07:37	Sample Weight:	1.0000



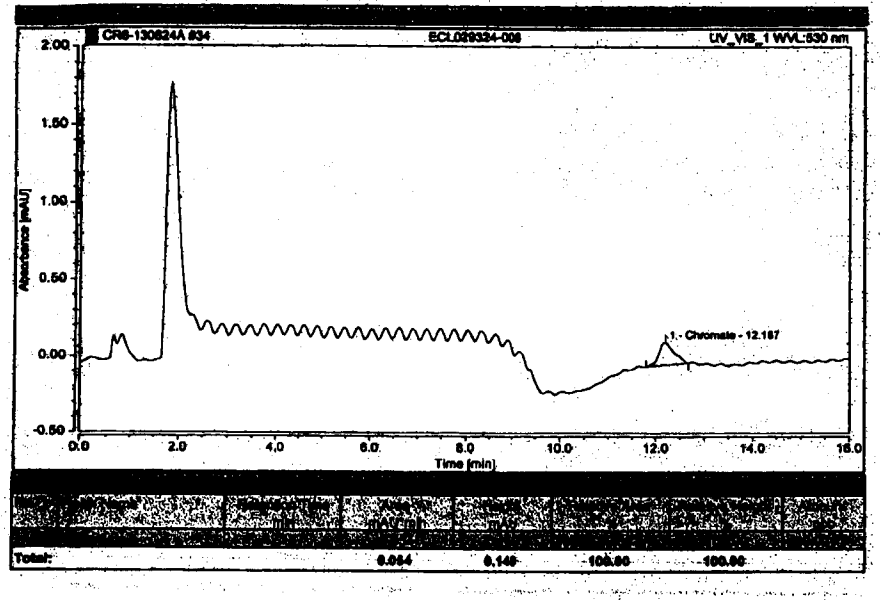
Total:		0.058	0.162	100.00	100.00

Injection Name:	ECL029324-006	Run Time (min):	16.00
Vial Number:	26	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 07:56	Sample Weight:	1.0000



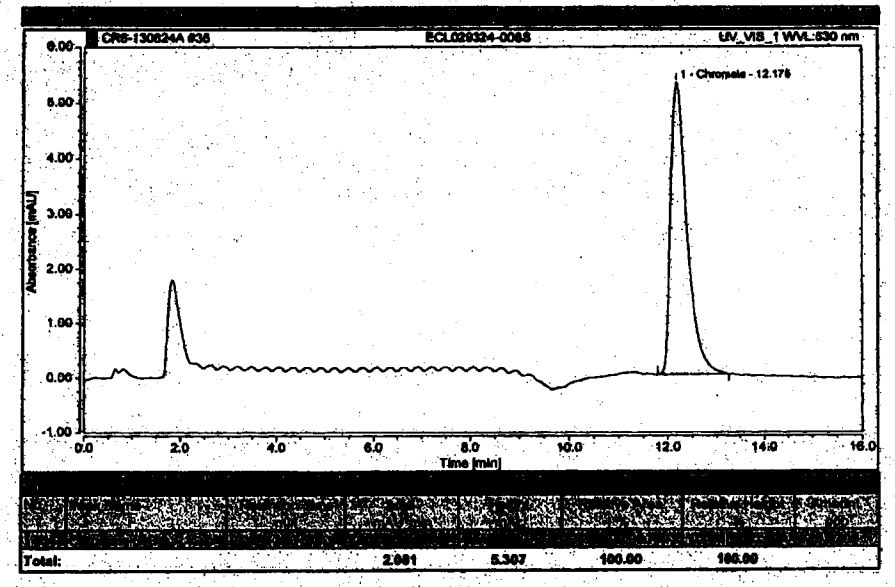
Total:		0.060	0.165	100.00	100.00

Injection Name:	ECL029334-008	Run Time (min):	16.00
Vial Number:	27	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 08:15	Sample Weight:	1.0000



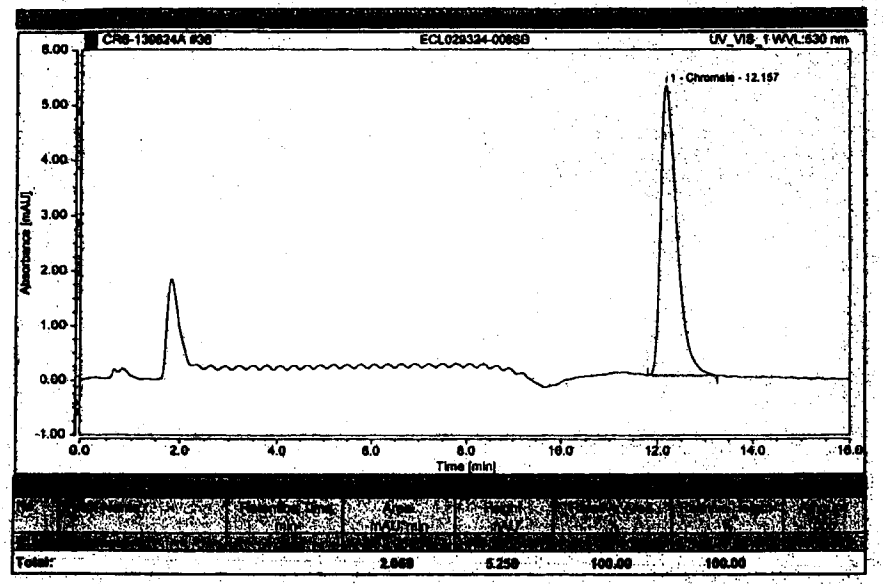
Total:				
	0.054	0.146	100.00	100.00

Injection Name:	ECL029334-0088	Run Time (min):	16.00
Vial Number:	28	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 08:34	Sample Weight:	1.0000



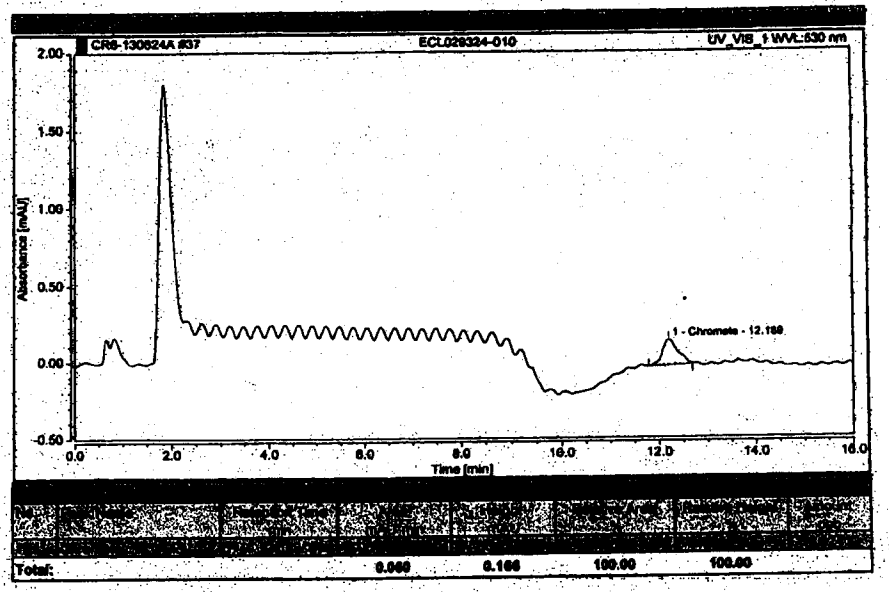
Total:				
	2.081	5.307	100.00	100.00

Injection Name:	ECL029324-006SD	Run Time (min):	16.00
Vial Number:	29	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:53	Sample Weight:	1.0000



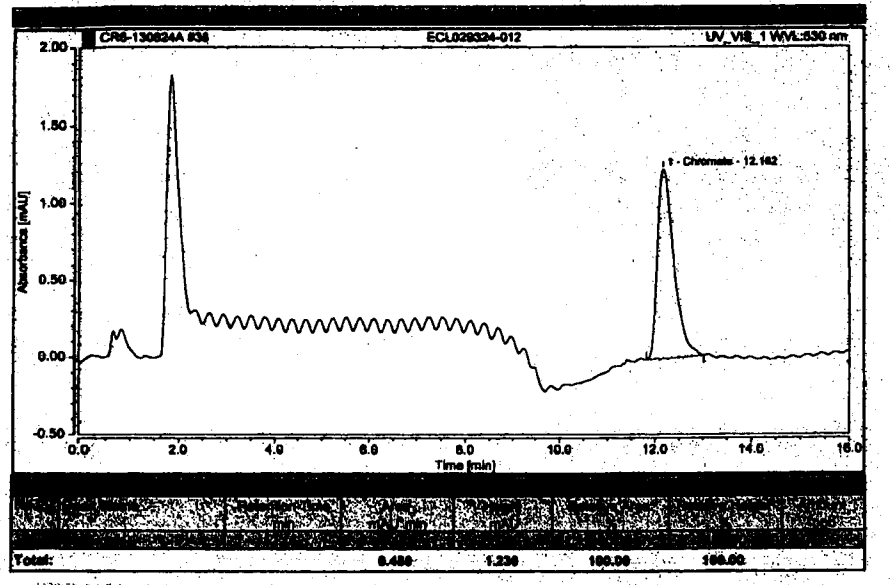
Total:		2.068	5.259	100.00	100.00

Injection Name:	ECL029324-010	Run Time (min):	16.00
Vial Number:	30	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:12	Sample Weight:	1.0000



Total:		0.068	0.166	100.00	100.00

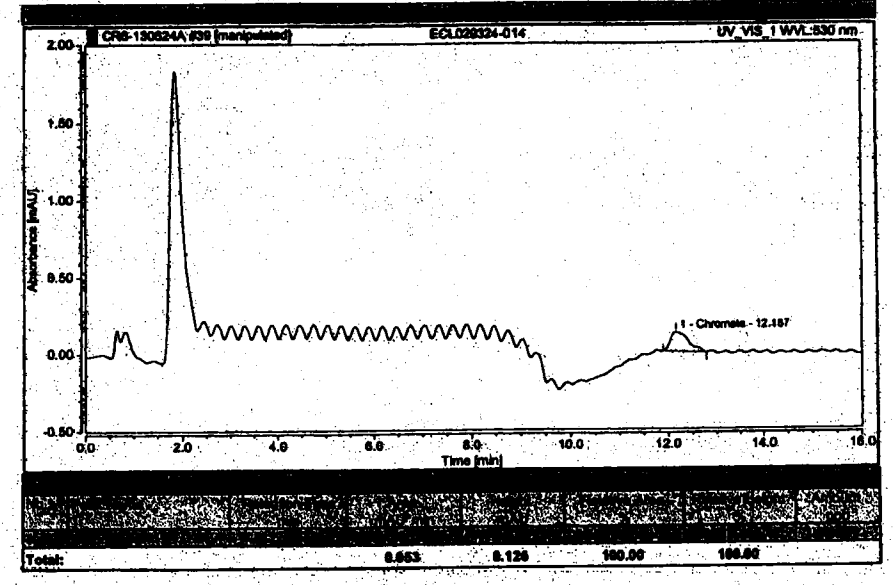
Injection Name:	ECL029324-012	Run Time (min):	16.00
Vial Number:	31	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:31	Sample Weight:	1.0000



Total:		0.488	1.230	100.00	100.00

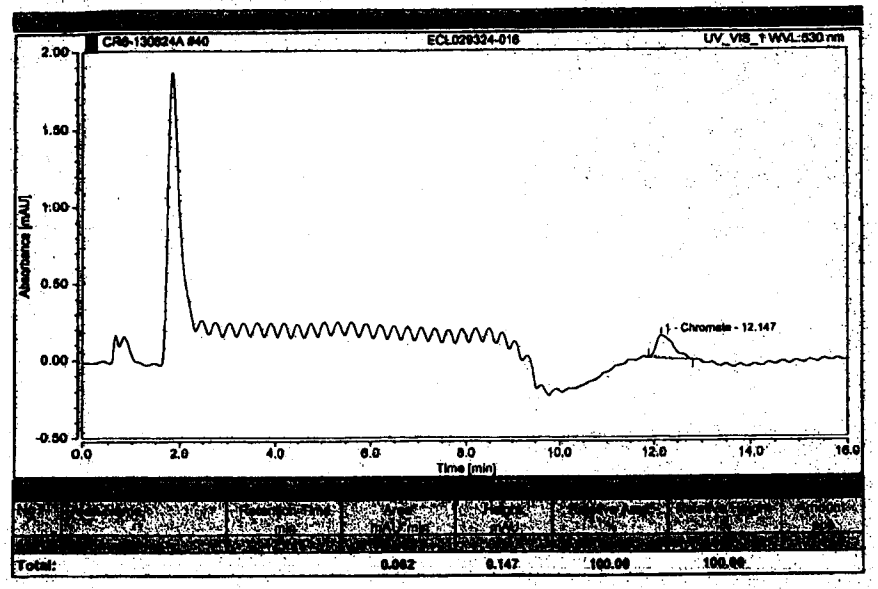
71

Injection Name:	ECL029324-014	Run Time (min):	16.00
Vial Number:	32	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 09:56	Sample Weight:	1.0000



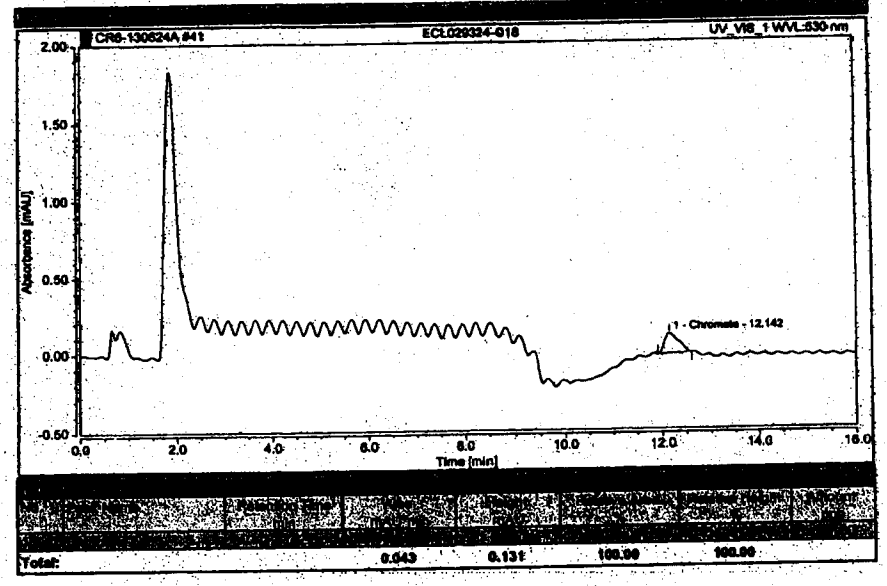
Total:		0.553	0.126	100.00	100.00

Injection Name:	ECL029324-016	Run Time (min):	16.00
Vial Number:	33	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 10:09	Sample Weight:	1.0000



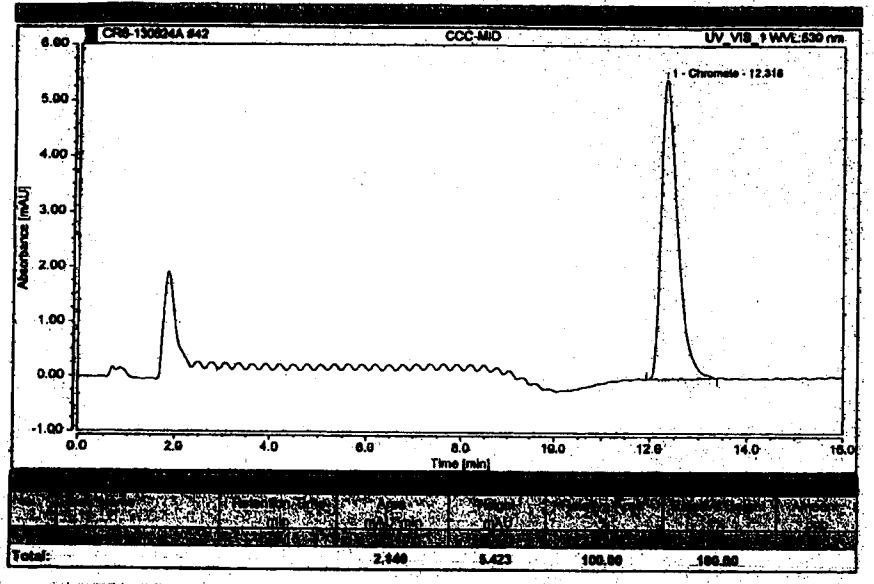
Total:	0.062	0.147	100.00	100.00

Injection Name:	ECL029324-018	Run Time (min):	16.00
Vial Number:	34	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 10:27	Sample Weight:	1.0000



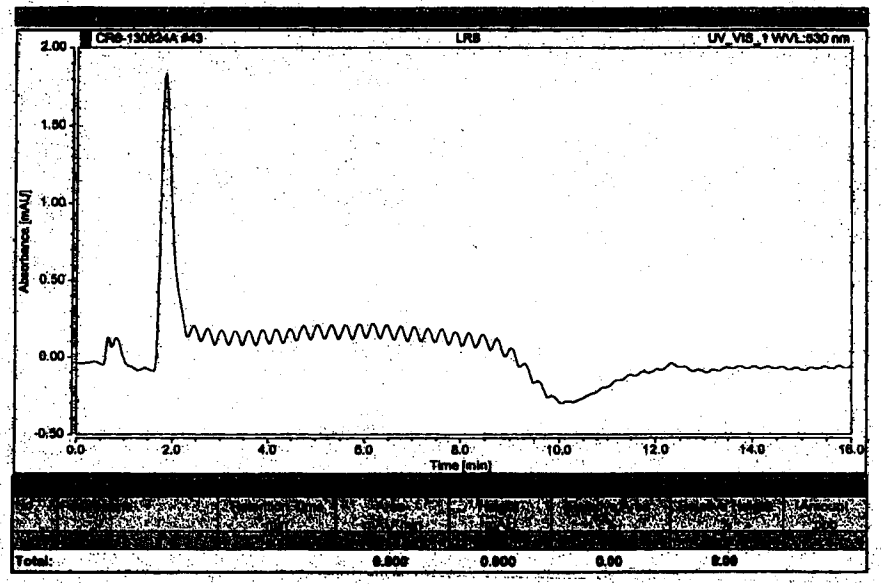
Total:	0.043	0.131	100.00	100.00

Injection Name:	CCC-MID	Run Time (min):	16.00
Vial Number:	35	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 10:46	Sample Weight:	1.0000



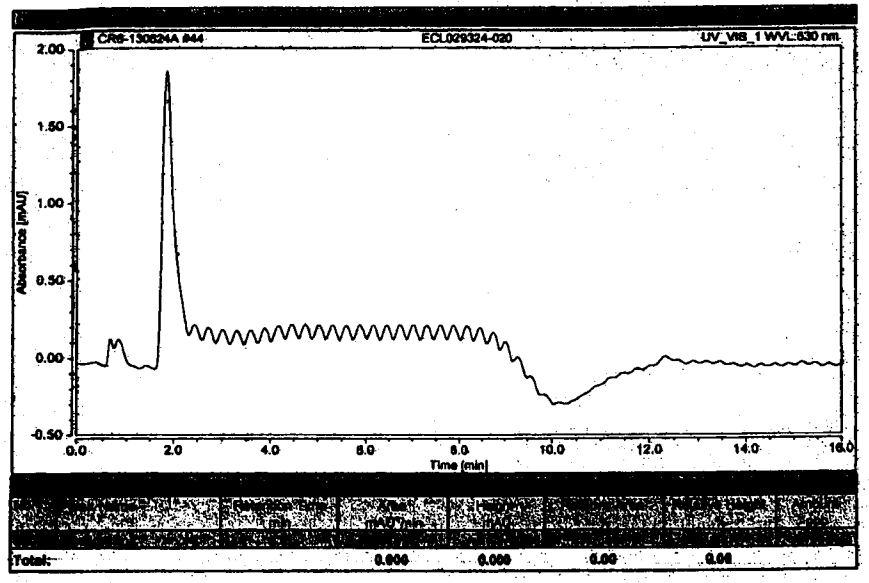
Total:	2.149	5.423	100.00	100.00

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	36	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI Instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 11:06	Sample Weight:	1.0000



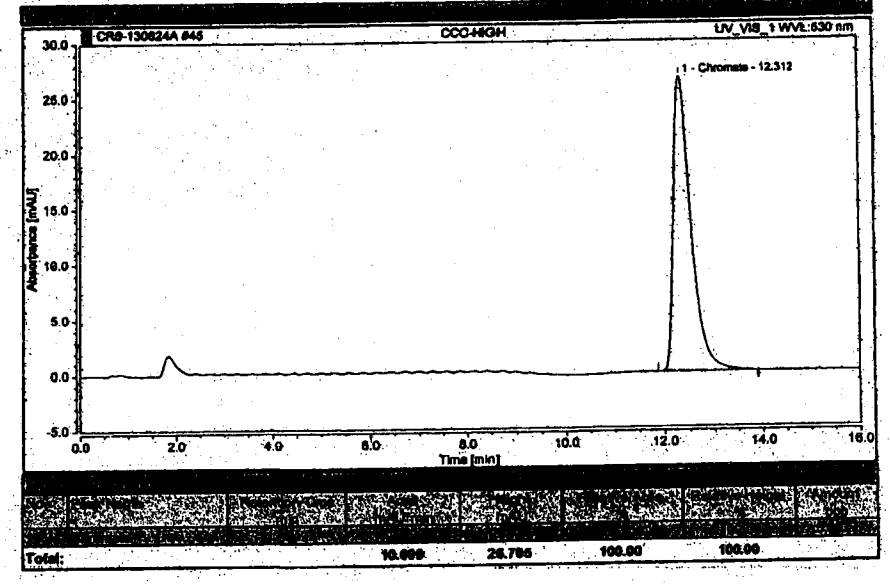
Total:	0.000	0.000	0.00	0.00

Injection Name:	ECL029324-020	Run Time (min):	16.00
Vial Number:	37	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 11:24	Sample Weight:	1.0000



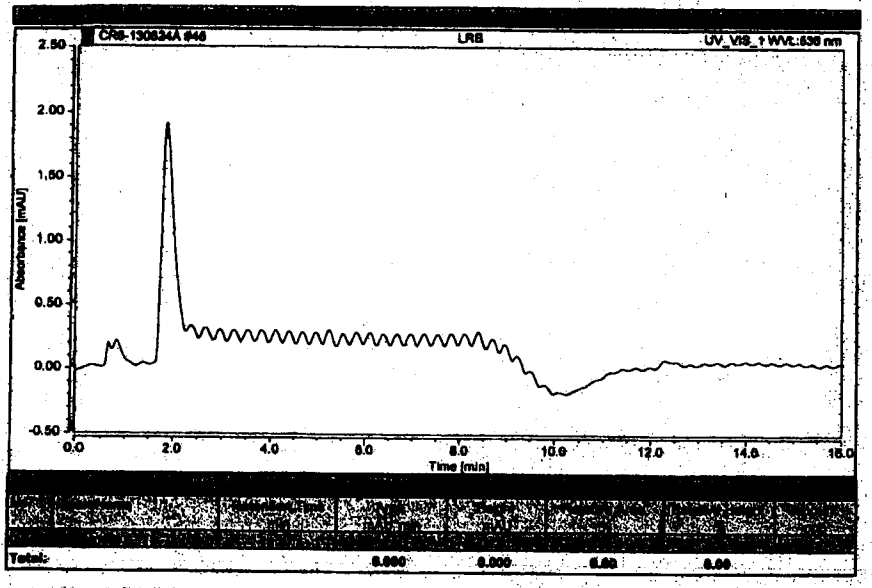
Total:		0.000	0.000	0.00	0.00

Injection Name:	CCC-HIGH	Run Time (min):	16.00
Vial Number:	38	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 11:43	Sample Weight:	1.0000



Total:		10.669	28.795	100.00	100.00

Injection Name:	LRB	Run Time (min):	16.00
Vial Number:	39	Injection Volume:	5.00
Injection Type:	Unknown	Channel:	UV_VIS_1
Calibration Level:		Wavelength:	530.0
Instrument Method:	Chrome VI instrument method	Bandwidth:	n.a.
Processing Method:	EPA 218.7 as Cr	Dilution Factor:	1.0000
Injection Date/Time:	25/Jun/13 12:02	Sample Weight:	1.0000



Dilution Corrected Concentrations

F130719B
CHK 7/19/13
WS- 20856

RINSE 7/19/2013 3:21:25 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:20:30	100.817%	0.053	99.419%	101.867%	0.066	101.749%
2	15:20:35	98.148%	0.034	99.930%	99.831%	0.065	99.320%
3	15:20:41	101.035%	0.054	100.651%	98.302%	0.060	98.931%
x		100.000%	0.047	100.000%	100.000%	0.064	100.000%
σ		1.608%	0.011	0.619%	1.788%	0.003	1.527%
%RSD		1.608	24.420	0.619	1.788	5.311	1.527

RINSE 7/19/2013 3:24:13 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:23:19	94.934%	0.016	100.359%	103.046%	0.055	101.731%
2	15:23:24	99.601%	0.030	101.329%	100.660%	0.054	99.984%
3	15:23:29	99.691%	0.052	101.695%	98.917%	0.058	99.151%
x		98.075%	0.033	101.128%	100.874%	0.056	100.289%
σ		2.721%	0.018	0.690%	2.073%	0.002	1.317%
%RSD		2.774	54.760	0.683	2.055	4.381	1.313

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User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:26:05	99.150%	-0.003	99.925%	103.185%	-0.003	102.260%
2	15:26:11	98.960%	0.002	99.904%	99.407%	0.002	99.512%
3	15:26:16	101.890%	0.002	100.171%	97.408%	0.002	98.228%
x		100.000%	0.000	100.000%	100.000%	-0.000	100.000%
σ		1.640%	0.003	0.148%	2.934%	0.003	2.060%
%RSD		1.640	0.000	0.148	2.934	0.000	2.060

200 PPB 7/19/2013 3:29:44 PM

M03479

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:28:49	93.939%	198.900	100.708%	106.254%	TM 200.000	105.920%
2	15:28:55	102.064%	M 201.300	100.824%	103.111%	T 199.600	104.463%
3	15:29:00	97.851%	199.800	102.088%	101.008%	TM 200.400	102.936%
x		97.951%	M 200.000	101.207%	103.458%	TM 200.000	104.440%
σ		4.064%	M 1.215	0.765%	2.640%	TM 0.378	1.492%
%RSD		4.149	M 0.608	0.756	2.552	TM 0.189	1.429

CCB 7/19/2013 3:32:28 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:31:33	97.487%	0.099	99.481%	103.369%	0.015	103.613%
2	15:31:39	100.528%	0.069	101.535%	99.887%	0.019	100.187%
3	15:31:44	104.108%	0.082	102.084%	97.718%	0.019	98.896%
x		100.708%	0.083	101.033%	100.325%	0.018	100.899%
σ		3.314%	0.015	1.372%	2.851%	0.002	2.438%
%RSD		3.291	18.150	1.358	2.842	12.420	2.416

~~39~~ 84
75A

CKS 7/19/2013 3:35:12 PM

User Pre-dilution: 1.000

M03479

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:34:18	93.242%	197.700	100.085%	106.236%	↑199.000	106.297%
2	15:34:23	98.786%	198.600	100.825%	102.201%	↑199.300	103.946%
3	15:34:28	100.227%	198.400	101.634%	101.023%	↑198.800	103.118%
x		97.418%	198.300	100.848%	103.153%	↑199.000	104.454%
σ		3.688%	0.491	0.775%	2.734%	↑0.234	1.649%
%RSD		3.786	0.248	0.768	2.651	↑0.117	1.579

ICV 7/19/2013 3:37:57 PM

User Pre-dilution: 1.000

M03481

100ppb

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:37:03	94.921%	99.940	98.430%	104.879%	96.420	105.299%
2	15:37:08	98.326%	100.200	100.063%	101.073%	96.820	102.413%
3	15:37:13	96.948%	100.200	100.431%	99.030%	96.970	101.434%
x		96.732%	100.100	99.641%	101.661%	96.740	103.049%
σ		1.713%	0.133	1.065%	2.968%	0.286	2.009%
%RSD		1.771	0.133	1.069	2.920	0.296	1.950

ICB 7/19/2013 3:40:42 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:39:47	96.568%	0.116	99.992%	101.042%	0.023	100.721%
2	15:39:53	99.388%	0.098	100.147%	98.347%	0.023	98.397%
3	15:39:58	101.367%	0.091	100.596%	95.764%	0.021	96.832%
x		99.108%	0.102	100.245%	98.384%	0.023	98.650%
σ		2.412%	0.013	0.314%	2.639%	0.001	1.957%
%RSD		2.434	13.030	0.313	2.682	5.406	1.984

LLQC-1 7/19/2013 3:43:29 PM

User Pre-dilution: 1.000

50μL M03479 → 10 mL

1.0 ppb

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:42:35	86.210%	0.811	90.801%	109.227%	0.818	112.220%
2	15:42:40	86.067%	0.826	92.660%	107.834%	0.819	111.611%
3	15:42:45	85.893%	0.826	92.760%	105.841%	0.826	110.126%
x		86.056%	0.821	92.074%	107.634%	0.821	111.319%
σ		0.159%	0.009	1.104%	1.702%	0.004	1.077%
%RSD		0.184	1.049	1.199	1.581	0.510	0.967

LPBS058R 7/19/2013 3:51:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:50:23	103.949%	0.231	102.191%	96.554%	0.182	95.863%
2	15:50:29	104.076%	0.219	103.183%	93.214%	0.192	92.444%
3	15:50:34	103.332%	0.245	102.747%	90.721%	0.187	91.528%
x		103.786%	0.232	102.707%	93.496%	0.187	93.279%
σ		0.398%	0.013	0.497%	2.927%	0.005	2.285%
%RSD		0.384	5.446	0.484	3.130	2.654	2.449

LCS50588 7/19/2013 3:54:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:53:07	106.595%	54.610	103.726%	92.737%	47.850	91.506%
2	15:53:12	109.335%	54.670	104.629%	88.051%	48.500	88.159%
3	15:53:18	112.962%	54.730	105.522%	85.513%	48.110	85.497%
x		109.631%	54.670	104.626%	88.767%	48.150	88.387%
σ		3.194%	0.061	0.898%	3.665%	0.326	3.011%
%RSD		2.914	0.111	0.858	4.129	0.677	3.406

ECL029318-001 7/19/2013 3:56:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:55:51	99.435%	0.213	100.311%	97.625%	0.155	94.186%
2	15:55:56	104.805%	0.205	101.683%	93.065%	0.162	90.772%
3	15:56:02	105.422%	0.189	101.182%	90.956%	0.156	89.238%
x		103.221%	0.203	101.059%	93.882%	0.158	91.399%
σ		3.293%	0.012	0.694%	3.409%	0.004	2.533%
%RSD		3.190	6.058	0.687	3.631	2.523	2.771

ECL029318-002 7/19/2013 3:59:29 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	15:58:35	104.820%	0.387	104.444%	95.768%	0.107	92.312%
2	15:58:40	109.145%	0.415	105.486%	91.850%	0.105	89.027%
3	15:58:45	110.317%	0.395	105.288%	90.041%	0.106	87.658%
x		108.094%	0.399	105.073%	92.553%	0.106	89.666%
σ		2.895%	0.014	0.553%	2.927%	0.001	2.392%
%RSD		2.678	3.550	0.527	3.163	1.084	2.667

ECL029318-003 7/19/2013 4:02:13 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:01:19	114.831%	10.210	111.904%	89.002%	0.617	80.478%
2	16:01:24	115.212%	10.470	111.644%	84.288%	0.622	76.932%
3	16:01:29	116.368%	10.700	111.477%	82.157%	0.621	75.384%
x		115.470%	10.460	111.675%	85.149%	0.620	77.598%
σ		0.800%	0.248	0.215%	3.503%	0.003	2.612%
%RSD		0.693	2.367	0.193	4.114	0.436	3.366

ECL029318-003D 7/19/2013 4:04:59 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:04:04	109.984%	9.846	109.735%	89.622%	0.587	81.255%
2	16:04:09	114.150%	10.170	109.600%	84.803%	0.578	77.101%
3	16:04:15	114.720%	9.799	109.929%	82.312%	0.591	75.156%
x		112.952%	9.938	109.755%	85.579%	0.585	77.838%
σ		2.586%	0.202	0.165%	3.716%	0.006	3.116%
%RSD		2.289	2.028	0.151	4.343	1.108	4.003

ECL029318-003S 7/19/2013 4:07:44 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:06:49	103.015%	61.730	103.363%	89.073%	45.320	80.408%
2	16:06:55	108.305%	61.170	104.160%	83.694%	45.550	76.531%
3	16:07:00	109.002%	61.760	104.132%	81.518%	45.790	75.357%
x		106.774%	61.550	103.885%	84.762%	45.550	77.432%
σ		3.274%	0.330	0.452%	3.889%	0.236	2.644%
%RSD		3.067	0.535	0.435	4.588	0.518	3.414

ECL029318-004 7/19/2013 4:10:29 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:09:35	102.904%	4.433	102.416%	91.124%	0.448	82.067%
2	16:09:40	102.318%	4.532	101.231%	86.565%	0.448	78.516%
3	16:09:45	102.730%	4.377	101.547%	84.349%	0.456	77.080%
x		102.650%	4.447	101.731%	87.346%	0.451	79.221%
σ		0.301%	0.078	0.614%	3.454%	0.005	2.567%
%RSD		0.293	1.763	0.603	3.955	1.029	3.240

ECL029318-005 7/19/2013 4:13:15 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:12:20	95.333%	6.450	99.050%	91.027%	0.698	82.176%
2	16:12:25	99.514%	6.530	98.905%	86.649%	0.692	79.422%
3	16:12:31	99.625%	6.448	99.135%	84.588%	0.673	77.445%
x		98.157%	6.476	99.030%	87.421%	0.688	79.681%
σ		2.447%	0.046	0.116%	3.288%	0.013	2.376%
%RSD		2.493	0.714	0.117	3.761	1.875	2.982

ECL029318-006 7/19/2013 4:16:01 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:15:06	94.937%	4.653	95.445%	91.601%	0.454	82.529%
2	16:15:11	95.776%	4.532	95.479%	87.764%	0.461	79.838%
3	16:15:17	97.202%	4.475	95.246%	85.050%	0.463	78.170%
x		95.972%	4.553	95.390%	88.138%	0.460	80.179%
σ		1.145%	0.091	0.126%	3.292%	0.005	2.200%
%RSD		1.193	1.995	0.132	3.735	1.082	2.744

CCB 7/19/2013 4:18:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:17:51	88.269%	0.119	94.860%	97.864%	0.016	97.379%
2	16:17:57	92.561%	0.127	94.136%	94.356%	0.017	94.511%
3	16:18:02	91.294%	0.110	96.052%	91.934%	0.011	92.304%
x		90.708%	0.119	95.016%	94.718%	0.015	94.732%
σ		2.205%	0.009	0.967%	2.981%	0.003	2.544%
%RSD		2.431	7.353	1.018	3.148	21.540	2.686

CIC 7/19/2013 4:21:33 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:20:37	91.468%	199.400	95.105%	101.217%	↑199.700	99.183%
2	16:20:43	94.050%	197.500	96.597%	98.273%	↑198.600	97.485%
3	16:20:48	95.127%	198.300	97.808%	95.861%	↑199.600	↑102.293%
x		93.548%	198.400	96.503%	98.451%	↑199.300	↑99.654%
σ		1.880%	0.925	1.354%	2.683%	↑0.610	↑2.439%
%RSD		2.010	0.466	1.403	2.725	↑0.306	↑2.447

ECL029318-007 7/19/2013 4:24:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:23:24	96.758%	18.020	97.143%	86.695%	3.906	77.785%
2	16:23:29	102.619%	17.980	96.954%	82.559%	3.899	74.825%
3	16:23:35	101.304%	17.760	97.307%	81.126%	3.896	73.618%
x		100.227%	17.920	97.135%	83.460%	3.900	75.409%
σ		3.075%	0.141	0.177%	2.892%	0.005	2.144%
%RSD		3.068	0.788	0.182	3.465	0.126	2.843

ECL029318-008 7/19/2013 4:27:05 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:26:10	92.925%	3.438	94.367%	88.644%	1.285	79.770%
2	16:26:15	95.903%	3.355	95.407%	84.386%	1.284	77.141%
3	16:26:21	94.351%	3.437	94.069%	82.043%	1.313	75.511%
x		94.393%	3.410	94.614%	85.024%	1.294	77.474%
σ		1.489%	0.048	0.703%	3.346%	0.017	2.149%
%RSD		1.578	1.402	0.743	3.936	1.279	2.773

ECL029318-009 7/19/2013 4:29:50 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:28:55	88.522%	6.377	92.530%	90.990%	0.868	82.485%
2	16:29:01	92.894%	6.422	92.688%	85.783%	0.882	78.750%
3	16:29:06	91.420%	6.686	91.761%	82.932%	0.884	76.830%
x		90.945%	6.495	92.326%	86.568%	0.878	79.355%
σ		2.224%	0.167	0.496%	4.086%	0.009	2.876%
%RSD		2.446	2.568	0.537	4.720	0.984	3.624

ECL029318-010 7/19/2013 4:32:34 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:31:40	87.904%	2.935	89.137%	89.370%	0.507	78.756%
2	16:31:45	89.029%	2.852	89.629%	85.200%	0.496	76.088%
3	16:31:50	88.807%	2.868	89.377%	83.044%	0.518	75.078%
x		88.580%	2.885	89.381%	85.871%	0.507	76.641%
σ		0.596%	0.044	0.246%	3.216%	0.011	1.901%
%RSD		0.672	1.512	0.276	3.745	2.229	2.480

ECL029318-011 7/19/2013 4:35:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:34:23	86.415%	6.898	87.601%	88.886%	0.691	81.064%
2	16:34:28	87.556%	7.086	87.356%	84.867%	0.705	78.274%
3	16:34:33	85.972%	7.122	87.463%	81.911%	0.702	75.789%
x		86.648%	7.036	87.473%	85.221%	0.699	78.376%
σ		0.817%	0.120	0.123%	3.501%	0.007	2.639%
%RSD		0.943	1.708	0.141	4.108	1.046	3.367

ECL029318-013 7/19/2013 4:38:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:37:08	86.701%	0.265	89.237%	92.941%	0.065	91.340%
2	16:37:13	86.020%	0.264	87.944%	88.537%	0.066	88.277%
3	16:37:18	89.963%	0.280	88.834%	85.521%	0.069	85.828%
x		87.561%	0.270	88.672%	89.000%	0.067	88.482%
σ		2.108%	0.009	0.662%	3.731%	0.002	2.762%
%RSD		2.408	3.318	0.746	4.193	3.052	3.121

ECL029318-013D 7/19/2013 4:40:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:39:52	88.744%	0.343	89.095%	88.525%	0.067	87.368%
2	16:39:57	89.947%	0.374	88.522%	85.075%	0.063	84.314%
3	16:40:03	93.321%	0.363	89.946%	82.983%	0.067	82.897%
x		90.671%	0.360	89.188%	85.528%	0.066	84.860%
σ		2.373%	0.015	0.717%	2.798%	0.003	2.285%
%RSD		2.617	4.293	0.804	3.272	3.922	2.692

ECL029318-013S 7/19/2013 4:43:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:42:37	85.164%	50.970	89.164%	90.776%	48.240	89.994%
2	16:42:43	90.644%	52.200	88.965%	87.837%	48.200	87.551%
3	16:42:48	91.104%	51.950	90.572%	85.553%	48.360	86.146%
x		88.971%	51.710	89.567%	88.055%	48.270	87.897%
σ		3.305%	0.649	0.876%	2.618%	0.085	1.947%
%RSD		3.714	1.256	0.978	2.974	0.175	2.215

ECL029318-014 7/19/2013 4:46:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:45:22	91.912%	0.437	91.771%	91.615%	0.064	90.631%
2	16:45:28	91.674%	0.432	91.272%	86.218%	0.062	86.256%
3	16:45:33	94.145%	0.452	91.745%	83.697%	0.062	83.768%
x		92.577%	0.440	91.596%	87.177%	0.063	86.885%
σ		1.363%	0.010	0.281%	4.045%	0.001	3.475%
%RSD		1.472	2.309	0.307	4.640	1.473	3.999

CCB 7/19/2013 4:49:01 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:48:07	86.257%	0.106	88.704%	97.709%	0.011	97.049%
2	16:48:12	85.133%	0.118	88.889%	92.826%	0.018	94.300%
3	16:48:18	88.839%	0.119	90.076%	90.493%	0.013	92.103%
x		86.743%	0.114	89.223%	93.676%	0.014	94.484%
σ		1.900%	0.007	0.744%	3.682%	0.004	2.478%
%RSD		2.191	6.517	0.834	3.931	26.300	2.623

CKS 7/19/2013 4:56:00 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:55:05	87.968%	M200.700	92.735%	99.831%	T198.400	97.079%
2	16:55:11	89.520%	199.200	93.395%	96.371%	T197.500	94.706%
3	16:55:16	90.264%	M200.500	93.304%	93.052%	T199.000	T98.469%
x		89.251%	M200.200	93.145%	96.418%	T198.300	T96.751%
σ		1.172%	M0.808	0.358%	3.389%	T0.711	T1.903%
%RSD		1.313	M0.404	0.384	3.515	T0.359	T1.967

ECL029318-015 7/19/2013 4:58:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	16:57:52	91.040%	14.860	92.966%	87.848%	3.499	79.391%
2	16:57:57	93.765%	14.770	94.251%	82.139%	3.506	75.152%
3	16:58:03	92.719%	14.560	93.868%	79.890%	3.520	73.315%
x		92.508%	14.730	93.695%	83.292%	3.508	75.953%
σ		1.374%	0.153	0.660%	4.103%	0.011	3.116%
%RSD		1.486	1.041	0.704	4.926	0.306	4.103

ECL029318-016 7/19/2013 5:01:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:00:38	84.642%	0.701	89.549%	87.005%	0.272	78.663%
2	17:00:43	91.056%	0.730	90.323%	83.829%	0.281	76.782%
3	17:00:49	90.581%	0.691	89.511%	81.202%	0.273	74.999%
x		88.760%	0.707	89.794%	84.012%	0.275	76.815%
σ		3.574%	0.020	0.458%	2.906%	0.005	1.833%
%RSD		4.027	2.864	0.510	3.459	1.832	2.386

ECL029318-017 7/19/2013 5:04:19 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:03:24	82.725%	3.862	86.338%	87.163%	2.251	79.885%
2	17:03:29	87.382%	3.915	86.345%	82.593%	2.286	76.493%
3	17:03:35	84.214%	3.906	85.265%	80.295%	2.303	75.733%
x		84.774%	3.894	85.982%	83.350%	2.280	77.370%
σ		2.378%	0.028	0.622%	3.496%	0.027	2.211%
%RSD		2.805	0.721	0.723	4.194	1.181	2.857

ECL029318-018 7/19/2013 5:07:05 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:06:11	77.261%	0.662	81.298%	87.785%	0.211	80.068%
2	17:06:16	82.076%	0.713	82.312%	83.449%	0.211	77.311%
3	17:06:21	83.089%	0.592	82.462%	81.780%	0.212	76.334%
x		80.809%	0.656	82.024%	84.338%	0.211	77.905%
σ		3.114%	0.061	0.633%	3.100%	0.001	1.937%
%RSD		3.853	9.267	0.772	3.675	0.299	2.486

ECL029318-019 7/19/2013 5:09:50 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:08:56	77.689%	3.374	82.559%	87.830%	3.423	81.809%
2	17:09:01	78.195%	3.231	81.738%	83.567%	3.454	78.901%
3	17:09:06	80.872%	3.232	81.609%	82.525%	3.440	77.940%
x		78.919%	3.279	81.969%	84.641%	3.439	79.550%
σ		1.711%	0.082	0.515%	2.811%	0.016	2.014%
%RSD		2.167	2.499	0.628	3.321	0.456	2.532

ECL029318-020 7/19/2013 5:12:34 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:11:39	74.711%	0.569	81.091%	86.929%	0.169	80.096%
2	17:11:45	77.609%	0.516	81.149%	82.762%	0.172	77.510%
3	17:11:50	82.678%	0.517	82.178%	80.840%	0.169	76.211%
x		78.333%	0.534	81.473%	83.511%	0.170	77.939%
σ		4.032%	0.031	0.612%	3.113%	0.002	1.978%
%RSD		5.148	5.724	0.751	3.727	1.046	2.537

CCB 7/19/2013 5:15:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:14:23	78.908%	0.092	80.493%	91.574%	0.012	91.731%
2	17:14:28	76.849%	0.104	80.984%	87.558%	0.015	88.763%
3	17:14:34	78.876%	0.073	82.903%	85.581%	0.013	87.022%
x		78.211%	0.090	81.460%	88.238%	0.013	89.172%
σ		1.180%	0.015	1.274%	3.054%	0.001	2.381%
%RSD		1.508	17.060	1.564	3.461	11.140	2.670

CKS 7/19/2013 5:18:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:17:07	76.928%	195.900	82.897%	92.438%	TM 203.100	T 102.907%
2	17:17:13	77.008%	196.200	83.032%	89.018%	TM 202.400	T 99.417%
3	17:17:18	80.429%	195.700	83.538%	86.940%	TM 203.500	T 97.837%
x		78.122%	195.900	83.156%	89.465%	TM 203.000	T 100.054%
σ		1.998%	0.231	0.338%	2.776%	TM 0.554	T 2.595%
%RSD		2.558	0.118	0.406	3.103	TM 0.273	T 2.593

LP85059R 7/19/2013 5:20:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:19:53	75.978%	0.032	83.070%	94.145%	0.151	95.520%
2	17:19:58	80.175%	0.026	83.542%	91.209%	0.152	91.729%
3	17:20:03	80.840%	0.021	83.379%	88.947%	0.150	90.917%
x̄		78.998%	0.026	83.330%	91.434%	0.151	92.722%
σ		2.636%	0.005	0.240%	2.606%	0.001	2.457%
%RSD		3.337	20.890	0.288	2.850	0.710	2.650

LCS5059R 7/19/2013 5:23:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:22:37	79.035%	48.780	83.126%	93.775%	48.570	93.526%
2	17:22:42	80.682%	49.010	83.674%	89.939%	48.620	91.361%
3	17:22:48	82.963%	49.600	83.648%	88.551%	48.590	90.171%
x̄		80.893%	49.130	83.482%	90.755%	48.590	91.686%
σ		1.972%	0.427	0.309%	2.706%	0.028	1.701%
%RSD		2.438	0.868	0.370	2.982	0.058	1.855

ECL029324-001 7/19/2013 5:26:16 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:25:21	71.259%	0.564	77.400%	92.861%	6.348	85.970%
2	17:25:27	74.220%	0.581	77.876%	89.139%	6.386	83.707%
3	17:25:32	73.016%	0.582	76.973%	88.395%	6.349	83.184%
x̄		72.832%	0.576	77.416%	90.132%	6.361	84.287%
σ		1.489%	0.010	0.452%	2.393%	0.022	1.481%
%RSD		2.045	1.757	0.583	2.655	0.342	1.757

ECL029324-002 7/19/2013 5:29:01 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:28:07	71.385%	0.599	76.445%	93.346%	6.450	86.384%
2	17:28:12	72.605%	0.601	77.436%	89.528%	6.462	84.080%
3	17:28:17	70.213%	0.596	77.140%	87.981%	6.438	82.455%
x̄		71.401%	0.599	77.007%	90.285%	6.450	84.306%
σ		1.196%	0.003	0.509%	2.761%	0.012	1.974%
%RSD		1.675	0.465	0.661	3.058	0.191	2.342

ECL029324-003 7/19/2013 5:31:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:30:51	67.568%	0.449	76.315%	93.632%	6.305	87.153%
2	17:30:57	73.096%	0.443	76.885%	90.001%	6.347	84.567%
3	17:31:02	73.428%	0.417	77.381%	87.305%	6.286	82.444%
x̄		71.364%	0.437	76.860%	90.312%	6.313	84.722%
σ		3.291%	0.017	0.534%	3.175%	0.032	2.358%
%RSD		4.612	3.896	0.694	3.515	0.501	2.784

ECL029324-003D 7/19/2013 5:34:30 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:33:35	67.679%	0.532	75.366%	91.332%	6.259	84.123%
2	17:33:40	70.245%	0.527	76.615%	87.502%	6.254	81.297%
3	17:33:46	70.562%	0.485	76.551%	86.075%	6.271	80.641%
x		69.495%	0.514	76.177%	88.303%	6.261	82.020%
σ		1.581%	0.026	0.704%	2.719%	0.009	1.850%
%RSD		2.275	5.029	0.924	3.079	0.142	2.256

ECL029324-003S 7/19/2013 5:37:14 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:36:20	68.408%	47.800	73.828%	91.522%	53.040	84.953%
2	17:36:25	68.503%	47.580	74.701%	88.202%	53.030	82.541%
3	17:36:31	67.679%	48.300	74.530%	86.074%	53.300	81.227%
x		68.197%	47.900	74.353%	88.599%	53.120	82.907%
σ		0.451%	0.370	0.462%	2.746%	0.156	1.890%
%RSD		0.661	0.772	0.622	3.099	0.293	2.280

ECL029324-004 7/19/2013 5:40:00 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:39:05	68.329%	1.749	74.580%	90.234%	6.458	83.407%
2	17:39:10	70.340%	1.703	75.559%	88.253%	6.479	82.141%
3	17:39:16	71.021%	1.842	75.879%	85.140%	6.464	79.790%
x		69.897%	1.765	75.339%	87.876%	6.467	81.779%
σ		1.400%	0.071	0.677%	2.568%	0.011	1.835%
%RSD		2.003	4.012	0.898	2.922	0.168	2.244

ECL029324-005 7/19/2013 5:42:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:41:51	68.139%	3.381	74.282%	88.965%	13.520	81.307%
2	17:41:56	70.324%	3.417	74.568%	84.921%	13.560	78.999%
3	17:42:02	71.274%	3.430	75.973%	83.187%	13.520	78.031%
x		69.912%	3.409	74.941%	85.691%	13.540	79.445%
σ		1.608%	0.025	0.905%	2.965%	0.021	1.683%
%RSD		2.300	0.744	1.208	3.460	0.158	2.118

ECL029324-006 7/19/2013 5:45:31 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:44:37	67.188%	0.424	72.332%	88.020%	5.740	80.949%
2	17:44:42	67.442%	0.429	72.412%	85.071%	5.739	79.141%
3	17:44:47	69.247%	0.485	71.920%	82.763%	5.701	77.062%
x		67.959%	0.446	72.221%	85.285%	5.727	79.051%
σ		1.123%	0.034	0.264%	2.635%	0.023	1.945%
%RSD		1.652	7.636	0.366	3.090	0.395	2.460

CCB 7/19/2013 5:48:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:47:22	67.347%	0.094	71.390%	86.224%	0.018	86.130%
2	17:47:27	68.645%	0.094	72.598%	83.803%	0.017	84.355%
3	17:47:33	69.786%	0.123	72.349%	82.605%	0.015	83.767%
x		68.593%	0.104	72.112%	84.210%	0.016	84.751%
σ		1.220%	0.016	0.638%	1.844%	0.001	1.230%
%RSD		1.779	15.870	0.884	2.189	8.812	1.452

CKS 7/19/2013 5:51:01 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:50:06	68.012%	195.500	73.898%	88.537%	m 205.600	r 100.354%
2	17:50:12	69.976%	195.500	74.036%	85.928%	m 204.500	r 97.169%
3	17:50:17	70.768%	197.600	73.817%	83.857%	m 205.100	r 96.066%
x		69.585%	196.200	73.917%	86.107%	m 205.100	r 97.863%
σ		1.419%	1.222	0.110%	2.345%	m 0.530	r 2.226%
%RSD		2.039	0.623	0.149	2.724	m 0.259	r 2.275

ECL029324-007 7/19/2013 5:53:46 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:52:52	61.392%	1.900	64.935%	89.275%	12.770	79.984%
2	17:52:57	67.632%	1.350	75.426%	85.342%	12.750	77.691%
3	17:53:03	67.869%	1.593	70.030%	83.576%	12.750	76.893%
x		65.631%	1.614	70.130%	86.064%	12.760	78.189%
σ		3.673%	0.276	5.246%	2.917%	0.015	1.605%
%RSD		5.597	17.080	7.481	3.390	0.115	2.052

ECL029324-008 7/19/2013 5:56:33 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:55:38	66.792%	0.465	72.043%	86.038%	5.238	78.435%
2	17:55:43	67.616%	0.413	70.702%	82.453%	5.263	75.772%
3	17:55:49	69.326%	0.482	70.995%	80.041%	5.260	74.295%
x		67.912%	0.453	71.247%	82.844%	5.254	76.167%
σ		1.293%	0.036	0.705%	3.018%	0.013	2.098%
%RSD		1.903	7.882	0.990	3.643	0.252	2.755

ECL029324-009 7/19/2013 5:59:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	17:58:23	65.082%	0.855	71.036%	85.805%	7.640	78.399%
2	17:58:29	69.041%	0.826	71.211%	82.238%	7.723	75.881%
3	17:58:34	68.249%	0.817	72.718%	80.792%	7.733	75.622%
x		67.458%	0.833	71.655%	82.945%	7.699	76.634%
σ		2.095%	0.020	0.924%	2.580%	0.051	1.534%
%RSD		3.106	2.396	1.290	3.111	0.666	2.002

ECL029324-010 7/19/2013 6:02:03 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:01:09	63.451%	0.407	70.735%	84.646%	4.592	77.340%
2	18:01:14	66.951%	0.437	70.866%	81.609%	4.622	74.678%
3	18:01:19	67.996%	0.396	71.058%	79.047%	4.611	73.643%
x		66.133%	0.413	70.886%	81.767%	4.608	75.220%
σ		2.381%	0.021	0.162%	2.803%	0.015	1.907%
%RSD		3.600	5.142	0.229	3.428	0.330	2.535

ECL029324-011 7/19/2013 6:04:48 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:03:53	64.274%	0.227	68.783%	84.889%	0.291	76.014%
2	18:03:58	64.749%	0.194	68.321%	81.394%	0.290	73.783%
3	18:04:04	66.270%	0.246	67.998%	80.104%	0.293	72.861%
x		65.098%	0.222	68.367%	82.129%	0.291	74.219%
σ		1.042%	0.026	0.395%	2.476%	0.002	1.621%
%RSD		1.601	11.790	0.578	3.014	0.555	2.184

ECL029324-012 7/19/2013 6:07:33 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:06:38	64.100%	0.413	68.737%	86.304%	0.244	77.922%
2	18:06:43	66.032%	0.366	69.217%	82.307%	0.236	74.871%
3	18:06:49	66.238%	0.367	69.002%	78.939%	0.245	72.070%
x		65.457%	0.382	68.985%	82.517%	0.242	74.954%
σ		1.179%	0.026	0.240%	3.687%	0.005	2.927%
%RSD		1.802	6.932	0.348	4.468	1.930	3.905

ECL029324-013 7/19/2013 6:10:17 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:09:23	63.150%	0.175	69.226%	85.829%	2.288	78.457%
2	18:09:28	64.211%	0.148	69.002%	82.353%	2.299	76.372%
3	18:09:33	66.951%	0.208	70.018%	80.639%	2.295	75.070%
x		64.771%	0.177	69.415%	82.940%	2.294	76.633%
σ		1.961%	0.030	0.534%	2.645%	0.006	1.709%
%RSD		3.028	16.960	0.769	3.189	0.247	2.230

ECL029324-013D 7/19/2013 6:13:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:12:07	61.677%	0.211	63.921%	83.693%	1.994	76.358%
2	18:12:13	71.417%	0.145	74.097%	80.537%	2.012	74.005%
3	18:12:18	69.200%	0.173	72.689%	79.039%	1.997	73.143%
x		67.431%	0.176	70.236%	81.090%	2.001	74.502%
σ		5.105%	0.033	5.514%	2.376%	0.010	1.664%
%RSD		7.571	18.940	7.851	2.930	0.482	2.233

ECL029324-013S 7/19/2013 6:15:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:14:52	66.143%	47.300	70.017%	86.551%	47.740	79.083%
2	18:14:58	67.663%	46.970	70.788%	81.510%	47.940	75.519%
3	18:15:03	67.062%	48.210	70.103%	79.471%	48.060	74.210%
x		66.956%	47.490	70.303%	82.511%	47.910	76.271%
σ		0.766%	0.644	0.422%	3.644%	0.166	2.522%
%RSD		1.144	1.355	0.601	4.417	0.346	3.307

ECL029324-014 7/19/2013 6:18:32 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:17:37	69.120%	0.173	72.543%	84.351%	1.700	77.388%
2	18:17:43	67.046%	0.129	71.807%	82.742%	1.704	76.503%
3	18:17:48	68.028%	0.184	71.958%	80.441%	1.711	74.420%
x		68.065%	0.162	72.103%	82.511%	1.705	76.104%
σ		1.038%	0.029	0.389%	1.965%	0.006	1.524%
%RSD		1.525	17.940	0.539	2.382	0.329	2.002

CCB 7/19/2013 6:21:18 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:20:23	66.412%	0.113	70.553%	83.898%	0.013	83.456%
2	18:20:28	67.363%	0.141	70.158%	80.369%	0.019	80.670%
3	18:20:34	67.790%	0.115	69.437%	78.448%	0.011	78.723%
x		67.188%	0.123	70.049%	80.905%	0.014	80.950%
σ		0.705%	0.015	0.566%	2.764%	0.004	2.379%
%RSD		1.050	12.490	0.808	3.417	31.100	2.939

CKS 7/19/2013 6:24:02 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:23:07	66.111%	194.900	68.719%	84.098%	TM 209.700	T 99.001%
2	18:23:13	67.853%	198.000	68.669%	79.771%	194.800	79.952%
3	18:23:18	67.727%	196.900	69.442%	77.983%	194.400	78.674%
x		67.231%	196.600	68.943%	80.617%	TM 199.600	T 85.875%
σ		0.971%	1.557	0.433%	3.144%	TM 8.724	T 11.385%
%RSD		1.445	0.792	0.627	3.900	TM 4.370	T 13.257

ECL029324-015 7/19/2013 6:26:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:25:53	62.089%	0.429	67.663%	86.131%	3.581	78.802%
2	18:25:58	66.539%	0.444	68.849%	81.862%	3.546	75.368%
3	18:26:03	66.111%	0.439	69.316%	79.964%	3.540	74.116%
x		64.913%	0.438	68.609%	82.652%	3.556	76.095%
σ		2.455%	0.007	0.852%	3.158%	0.022	2.426%
%RSD		3.782	1.714	1.242	3.821	0.627	3.189

ECL029324-016 7/19/2013 6:29:33 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:28:39	63.419%	0.235	69.777%	86.050%	1.210	79.143%
2	18:28:44	68.455%	0.200	70.841%	82.408%	1.197	76.491%
3	18:28:49	69.960%	0.186	70.768%	80.824%	1.190	75.042%
x		67.278%	0.207	70.462%	83.094%	1.199	76.892%
σ		3.426%	0.025	0.594%	2.680%	0.010	2.080%
%RSD		5.092	12.200	0.844	3.225	0.853	2.705

ECL029324-017 7/19/2013 6:32:19 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:31:25	66.523%	0.378	70.732%	84.771%	2.002	77.709%
2	18:31:30	67.663%	0.335	70.723%	80.060%	2.010	74.129%
3	18:31:35	68.645%	0.375	71.449%	78.626%	1.989	72.909%
x		67.611%	0.363	70.968%	81.152%	2.000	74.916%
σ		1.062%	0.024	0.417%	3.215%	0.011	2.495%
%RSD		1.571	6.695	0.587	3.961	0.526	3.330

ECL029324-018 7/19/2013 6:35:05 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:34:11	66.191%	0.240	69.645%	83.224%	1.346	75.874%
2	18:34:16	67.283%	0.239	70.032%	79.559%	1.358	73.606%
3	18:34:21	66.222%	0.270	71.082%	78.135%	1.354	72.380%
x		66.565%	0.250	70.253%	80.306%	1.353	73.953%
σ		0.622%	0.017	0.743%	2.626%	0.006	1.773%
%RSD		0.934	6.978	1.058	3.269	0.438	2.397

ECL029324-019 7/19/2013 6:37:51 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:36:56	65.969%	0.010	69.977%	84.121%	0.453	83.556%
2	18:37:01	67.537%	0.009	70.477%	80.175%	0.452	80.194%
3	18:37:07	66.365%	0.000	71.253%	79.163%	0.462	79.621%
x		66.623%	0.006	70.569%	81.153%	0.456	81.123%
σ		0.815%	0.005	0.643%	2.620%	0.005	2.126%
%RSD		1.224	81.110	0.911	3.228	1.183	2.621

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User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:39:41	65.145%	0.294	67.920%	84.308%	0.100	84.491%
2	18:39:47	64.132%	0.348	68.272%	81.884%	0.105	82.442%
3	18:39:52	67.077%	0.344	68.290%	80.507%	0.100	81.584%
x		65.452%	0.328	68.160%	82.233%	0.102	82.839%
σ		1.497%	0.030	0.209%	1.924%	0.003	1.494%
%RSD		2.286	9.111	0.306	2.340	2.561	1.803

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User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:42:27	63.498%	0.145	66.513%	83.237%	0.016	83.127%
2	18:42:32	65.874%	0.109	67.839%	81.820%	0.014	82.506%
3	18:42:37	64.243%	0.124	68.069%	79.952%	0.013	80.653%
X		64.538%	0.126	67.474%	81.670%	0.014	82.095%
σ		1.215%	0.018	0.840%	1.648%	0.002	1.287%
%RSD		1.883	14.560	1.244	2.018	11.800	1.568

CKS 7/19/2013 6:46:06 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
1	18:45:11	65.874%	197.500	68.817%	82.588%	TM 210.100	81.773%
2	18:45:17	67.188%	196.200	69.811%	79.661%	TM 209.300	79.862%
3	18:45:22	66.555%	199.000	69.467%	78.390%	193.400	78.851%
X		66.539%	197.600	69.365%	80.213%	TM 204.300	80.162%
σ		0.657%	1.382	0.505%	2.153%	TM 9.411	1.484%
%RSD		0.988	0.700	0.727	2.684	TM 4.607	1.851