**Appendix J** Analytical Laboratory Reports – March and June through July 2013

# 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 |

ENVIRO-CHEM
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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#- ECL028223-002 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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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#- ECL028223-003 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 |

# 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#- ECL028223-004 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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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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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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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#- ECL028223-007 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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Chesapeake GeoSciences, Inc.
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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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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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Chesapeake GeoSciences, Inc.
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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.
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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 |

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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 GeoSciences, 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 Citgo 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 / Chromium EPA 200.8 | 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 | 3/12/13 | 14:40 | 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: Deliverable - Level 4 |

# of Coolers: Seal

Ice Present: Temp: 8.6

| | | | |
|---|---|---|---|
| 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 (11/01/10)

# 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

13031516

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 | Parameters: 1 | Preservative/Remarks | PSS Lab ID |
|---|---|---|---|---|---|---|---|---|---|---|
| 11712Serene-PTSediment | 3/12/13 | 12:34 | | X | | 1 | X | | | |

# of Coolers: 1
Custody Seal: ABS
Ice Present: PRES 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 0800 | (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 | | |
| (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

# 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

# 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**

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# 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

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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

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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 |
|---|---|---|---|---|---|---|---|---|---|
| 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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**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 |
|---|---|---|---|---|---|---|---|---|---|
| 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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# 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 |
|---|---|---|---|---|---|---|---|---|---|
| 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 |

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**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-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 |

**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-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-12-0788.04 |
| 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 | VOCs via EPA 524.2 | Parameters | 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 | | |

**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 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

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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 | collectdate | collecttime | collectby |
|---|---|---|---|---|---|
| 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. This report is a revision of Enviro-Chem Laboratories, Inc. report 6524. 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 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<br>ECL029318-002 DISS | 11713Serene-POU | 6/21/13 | 9:41 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-003 TOTAL<br>ECL029318-004 DISS | 11713Serene-PT1 | | 10:03 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-005 TOTAL<br>ECL029318-006 DISS | 11713Serene-PTDUP | | 00:00 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-007 TOTAL<br>ECL029318-008 DISS | 11713Serene-PT2 | | 10:26 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-009 TOTAL<br>ECL029318-010 DISS | 11713Serene-PT3 | | 10:39 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-011 TOTAL<br>ECL029318-012 DISS | 11713Serene-PT4 | | 11:00 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-013 TOTAL<br>ECL029318-014 DISS | 11713Serene-FB | | 14:10 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-015 TOTAL<br>ECL029318-016 DISS | 11713Serene-WP1 | | 12:45 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-017<br>ECL029318-018 | 11713Serene-WP2 | | 13:45 | DW | 3 | G | X | X | X | | | | | | | |
| ECL029318-019<br>ECL029318-020 | 11713Serene-WP3 | 6/21/13 | 14:45 | DW | 3 | G | X | X | X | | | | | | | |

| Collected / Relinquished By | Date | Time | Received By |
|---|---|---|---|
| | 6/21/13 | 16:47 | |
| 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

Turnaround Requested: STD | 1-Day | Other Rush?

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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 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.

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: 6605

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 | 7/19/2013 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 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 10.5 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 4.4 | 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 01:57 | SES | 0.111 | 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: 6605

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 | 7/19/2013 15:37 | CHK | 6.5 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 4.6 | 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 02:16 | 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 17.9 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | 3.9 | 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: Grn Vall. Citgo
REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 3.4 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | 1.3 | 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 6.5 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 2.9 | 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 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: 23-Jul-13

REPORT NUMBER: 6605

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 | 7/19/2013 15:37 | CHK | 7.0 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | < 1.0 | µg/L | 1.0 | |

# ENVIRO-CHEM LABORATORIES, INC.

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: 6605

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 | 7/22/2013 15:00 | CHK | 2.8 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/22/2013 15:00 | 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.

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: 6605

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 | 7/19/2013 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.

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: 6605

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 | 7/19/2013 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 04:09 | SES | < 0.020 | ug/L Cr | 0.020 | |

ENVIRO-CHEM
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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: 6605

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 | 7/19/2013 15:37 | CHK | 14.7 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | 3.5 | 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: 6605

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 | 7/19/2013 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 04:28 | SES | 0.032 | 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: 6605

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 | 7/19/2013 15:37 | CHK | 3.9 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | 2.3 | 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: 6605

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 | 7/19/2013 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 05:25 | SES | 0.030 | ug/L Cr | 0.020 | |

ENVIRO-CHEM
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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: 6605

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 | 7/19/2013 15:37 | CHK | 3.3 | µg/L | 1.0 | |
| Lead*# | EPA 200.8 | 7/19/2013 15:37 | CHK | 3.4 | 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: 6605

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 1 | 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 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

| METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192 ID | QC Type | Test Name | True / Associated Result | Units | Value/Spike Added | Sample Result | %R or %RPD | Low Limit | High Limit | Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| ECL029318-013D | Duplicate | Chromium | < 1.0 | µg/L | | < 1.0 | 28.7 | 0 | 20 | * |
| ECL029318-003D | Duplicate | Chromium | 9.9 | µg/L | | 10.5 | 5.1 | 0 | 20 | |
| ECL029318-003D | Duplicate | Lead | < 1.0 | µg/L | | < 1.0 | 5.7 | 0 | 20 | |
| ECL029318-013D | Duplicate | Lead | < 1.0 | µg/L | | < 1.0 | 1.7 | 0 | 20 | |
| LCS5058R | LCS | Chromium | 54.7 | µg/L | 50 | | 109.3 | 85 | 115 | |
| LCS5058R | LCS | Lead | 48.2 | µg/L | 50 | | 96.3 | 85 | 115 | |
| LPB5058R | Prep Blank | Chromium | < 1.0 | µg/L | | | 0.231 | | 1 | |
| LPB5058R | Prep Blank | Lead | < 1.0 | µg/L | | | 0.187 | | 1 | |
| ECL029318-003S | Spike | Chromium | 61.6 | µg/L | 50 | 10.5 | 102.2 | 70 | 130 | |
| ECL029318-013S | Spike | Chromium | 51.7 | µg/L | 50 | < 1.0 | 102.9 | 70 | 130 | |
| ECL029318-013S | Spike | Lead | 48.3 | µg/L | 50 | < 1.0 | 96.4 | 70 | 130 | |
| ECL029318-003S | Spike | Lead | 45.6 | µg/L | 50 | < 1.0 | 89.9 | 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| ECL029303-002SD | MSD | Chromate | 1.02 | ug/L | 1 | | < 0.020 | 101.8 | 85 | 115 |
| 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 | |
| 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 | | |

| | **Analytical Run** | **F130722D** | **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 | | |

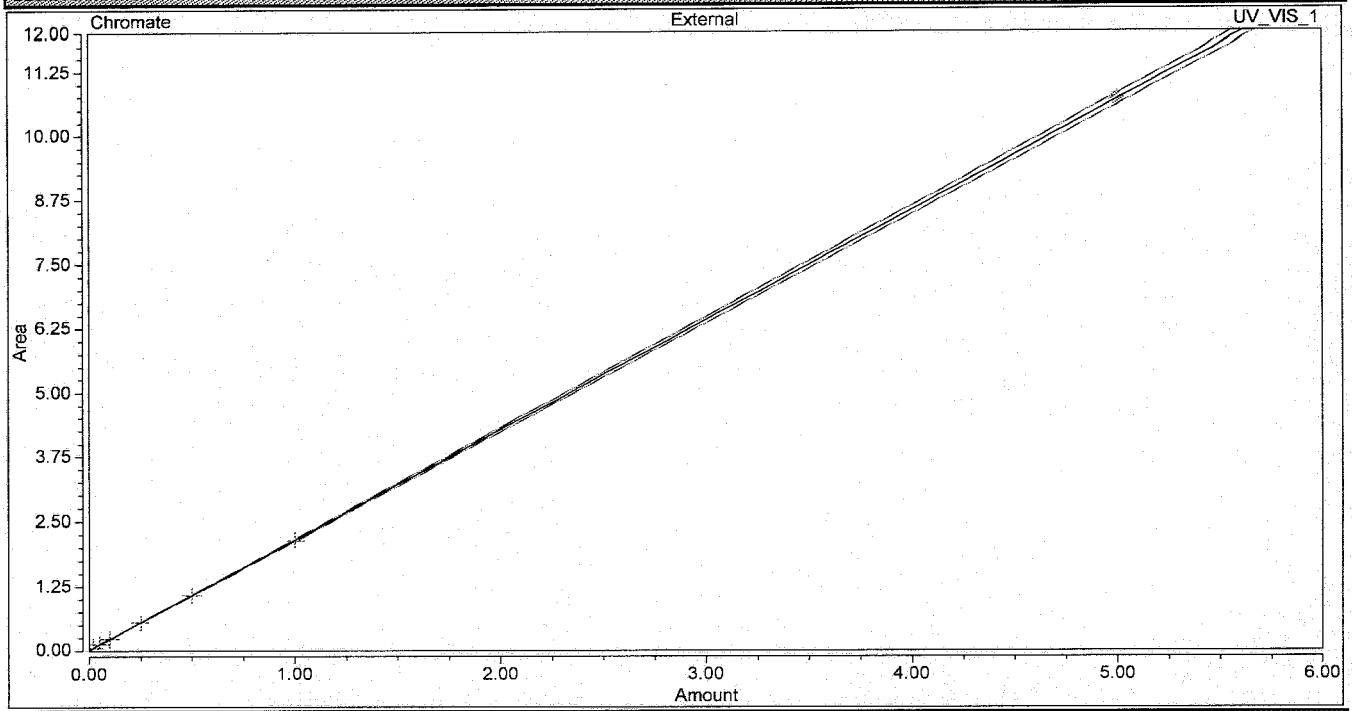
| | **Analytical Run** | **CR6-1306024** | **Date of Analysis** | **6/24-25/2013** |
|---|---|---|---|---|
| | CrO4 | | | |
| LRB | <0.02µg/L | | | |
| LRB | <0.02µg/L | | | |
| LRB | <0.02µg/L | | | |
| LRB | <0.02µg/L | | | |
| LRB | <0.02µg/L | | | |
| LRB | <0.02µg/L | | | |

# Calibration Data

# Calibration

| Calibration Details | Chromate | | |
|---|---|---|---|
| *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 |

**Calibration Plot** Chromate




**Calibration Results** Chromate

| 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 | 0.05 CrO4 | 02 | 0.0500 | 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 | 1.0 CrO4 | 06 | 1.0000 | 2.1432 | 2.1432 | 2.143 | 5.353 |
| 7 | 5.0 CrO4 | 07 | 5.0000 | 10.6889 | 10.6889 | 10.689 | 26.528 |

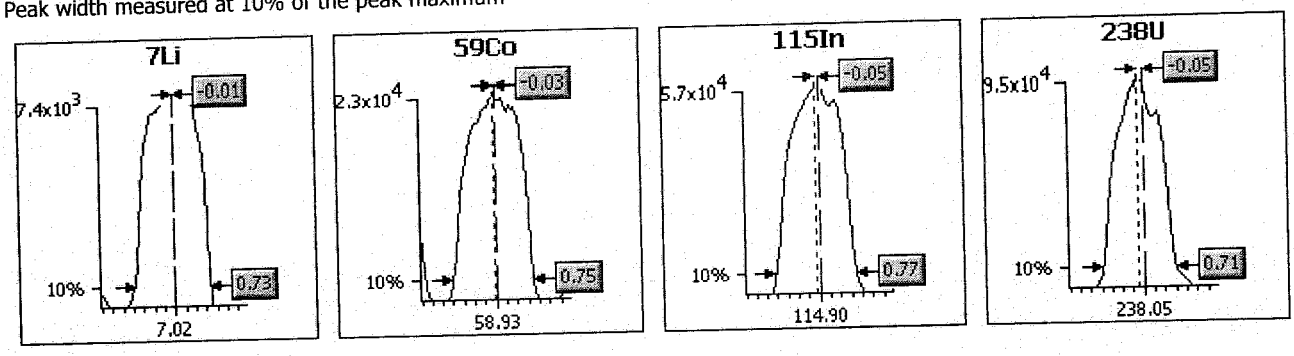
calibration 6/24/13

# 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 |

**Analytical Run** **F130722D** **Date of Analysis** **7/22/2013**

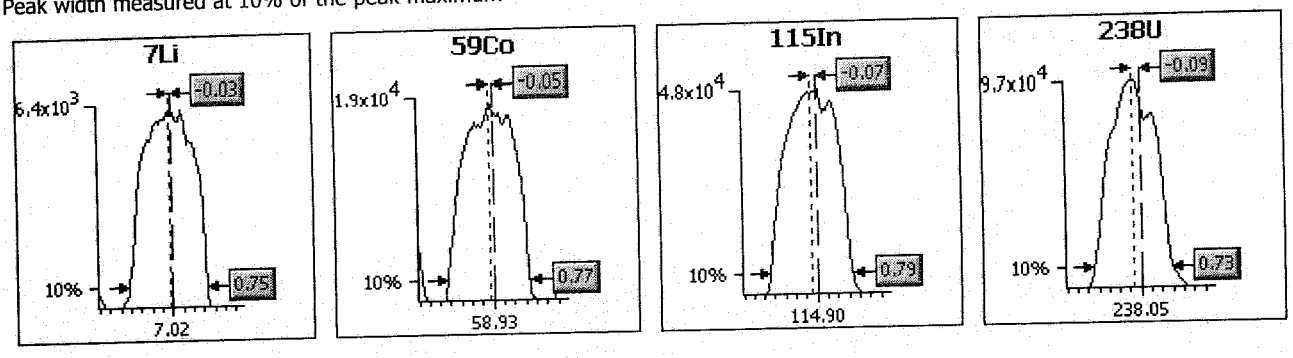
| | Cr | | | Pb | | |
|---|---|---|---|---|---|---|
| | TRUE | Found | %recovery | TRUE | Found | % recovery |
| ICV | 100 | 100.4 | 100.40 | 100 | 103.8 | 103.80 |
| CCV | 200 | 198.9 | 99.45 | 200 | 199.4 | 99.70 |
| CCV | 200 | 197.2 | 98.60 | 200 | 199.5 | 99.75 |

# 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.

Metals Digestion Logs

# ENVIRO-CHEM LABORATORIES INC.

## METALS DIGESTION LOG

Digestion Batch: 5058R

Date: 7/5/13

Analyst: CHK

Microwave or ~~Hotblock~~? 200.8 Time in: 13:55

**SOP:** M-100 Rev5 Temp in: 84.6

Spiking Solution(s) added to LCS/MS/MSD: 25µL ICG100-19 (C0431)

Acids added: 1 (C0444) 1.0 mL $HNO_3$, 1.0mL 1+1 HCl (MIXED)

Final volume (mL): 50mL Time out: 18:00 Temp: 83.7

| Sample ID: | weight (g)/initial volume (l) |
|---|---|
| LAB5058R | 50mL DI |
| LCS5058R | 50mL DI + |
| 29318-001 | 50mL |
| 29318-002 | |
| 29318-003 | |
| 29318-003D | |
| 29318-003S | + |
| 29318-004 | |
| 29318-005 | |
| 29318-006 | |
| 29318-007 | |
| 29318-008 | |
| 29318-009 | |

| Sample ID: | weight (g)/initial volume (l) |
|---|---|
| 29318-010 | 50mL |
| 29318-011 | |
| 29318-012 | |
| 29318-013 | |
| 29318-013D | |
| 29318-013S | + |
| 29318-014 | |
| 29318-015 | |
| 29318-016 | |
| 29318-017 | |
| 29318-018 | |
| 29318-019 | |
| 29318-020 | |

Comments:

24

Raw Data

# Summary

**Sequence Details**

| | | | |
|---|---|---|---|
| *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** |

**By Component** **Chromate**

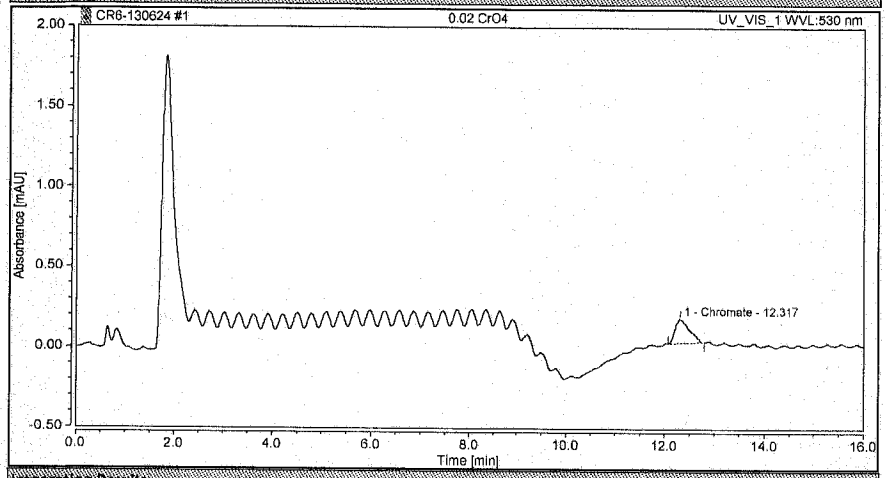
| No. | Injection Name | Ret.Time min Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 | Amount ppb Chromate UV_VIS_1 | Inject Time Chromate | Peak Type Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | QCS | 12.347 | 3.899 | 9.752 | 1.8226 | 24/06/13 19:16 | BM |
| 9 | CCC-LOW | 12.304 | 0.063 | 0.158 | 0.0255 | 24/06/13 19:35 | M |
| 10 | LRB | n.a. | n.a. | n.a. | n.a. | 24/06/13 19:54 | n.a. |
| 11 | ECL029303-002 | n.a. | n.a. | n.a. | n.a. | 24/06/13 20:13 | n.a. |
| 12 | ECL029303-002S | 12.105 | 2.157 | 5.404 | 1.0063 | 24/06/13 20:32 | M |
| 13 | ECL029303-002SD | 12.111 | 2.182 | 5.464 | 1.0182 | 24/06/13 20:51 | M |
| 14 | ECL029303-004 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:10 | n.a. |
| 15 | ECL029303-006 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:29 | n.a. |
| 16 | ECL029303-008 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:47 | n.a. |
| 17 | ECL029303-010 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:06 | n.a. |
| 18 | ECL029303-012 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:25 | n.a. |
| 19 | ECL029303-014 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:44 | n.a. |
| 20 | ECL029303-016 | 12.242 | 0.053 | 0.159 | 0.0207 | 24/06/13 23:03 | M |
| 21 | CCC-MID | 12.315 | 2.121 | 5.332 | 0.9894 | 24/06/13 23:22 | MB |
| 22 | LRB | n.a. | n.a. | n.a. | n.a. | 24/06/13 23:41 | n.a. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.317 | 0.051 | 0.153 | 100.00 | 100.00 | 0.0195 |
| **Total:** | | | **0.051** | **0.153** | **100.00** | **100.00** | |



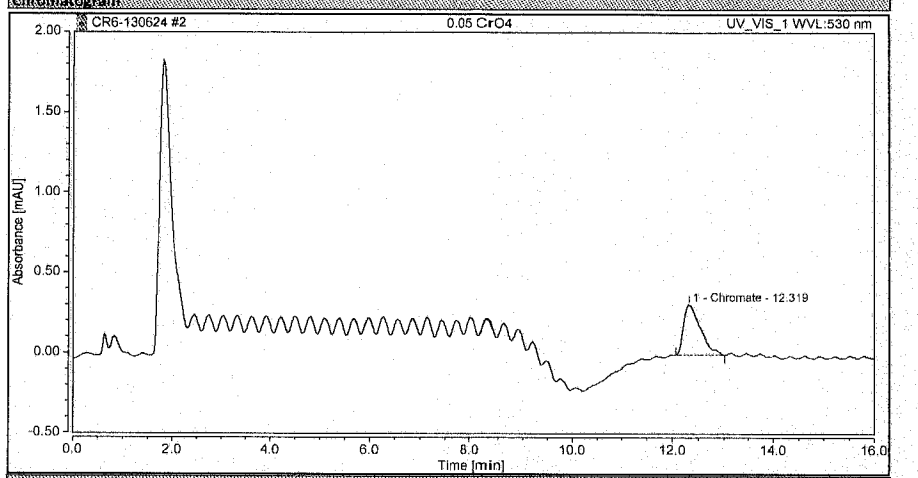


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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** |

### Chromatogram




### Integration Results

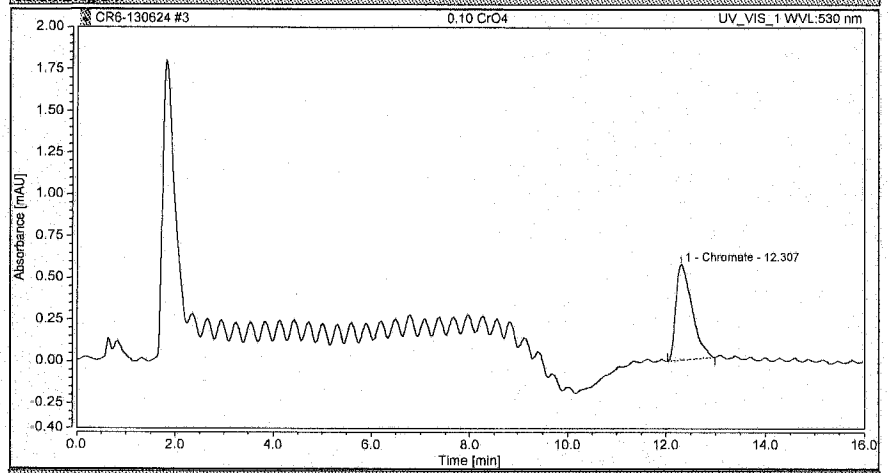
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.319 | 0.121 | 0.317 | 100.00 | 100.00 | 0.0524 |
| **Total:** | | | **0.121** | **0.317** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.307 | 0.218 | 0.573 | 100.00 | 100.00 | 0.0977 |
| **Total:** | | | **0.218** | **0.573** | **100.00** | **100.00** | |



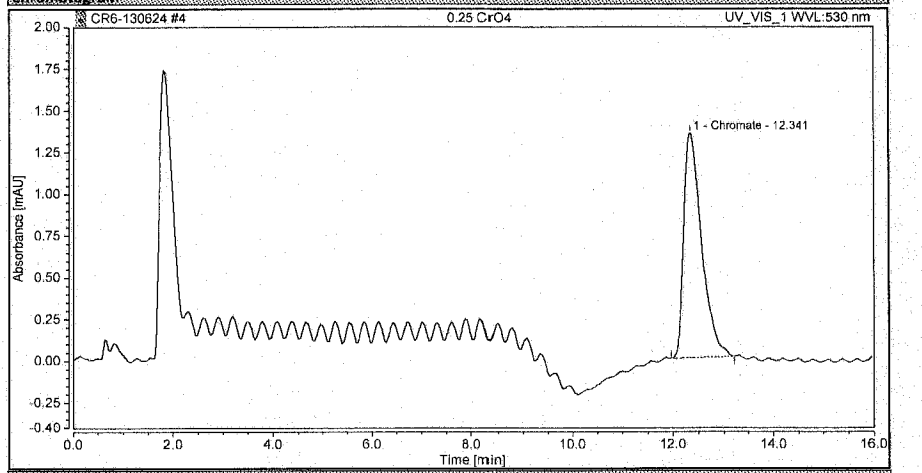


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

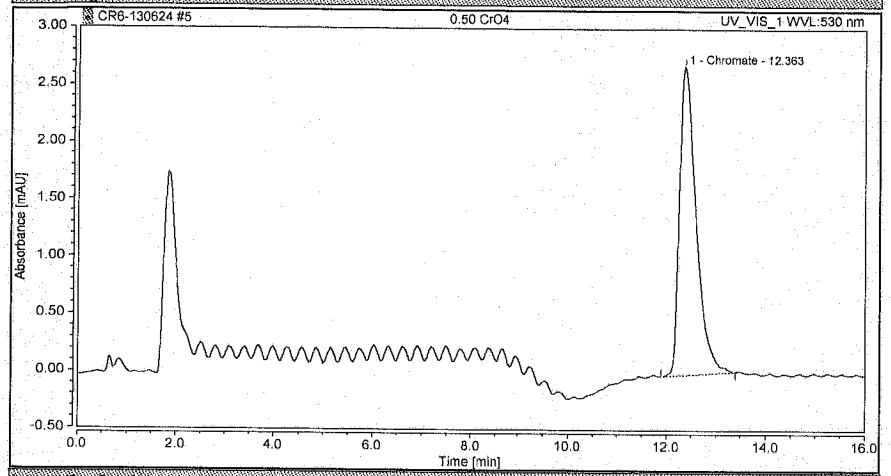
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.341 | 0.544 | 1.347 | 100.00 | 100.00 | 0.2507 |
| **Total:** | | | **0.544** | **1.347** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 18:19** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.363 | 1.069 | 2.695 | 100.00 | 100.00 | 0.4966 |
| **Total:** | | | **1.069** | **2.695** | **100.00** | **100.00** | |



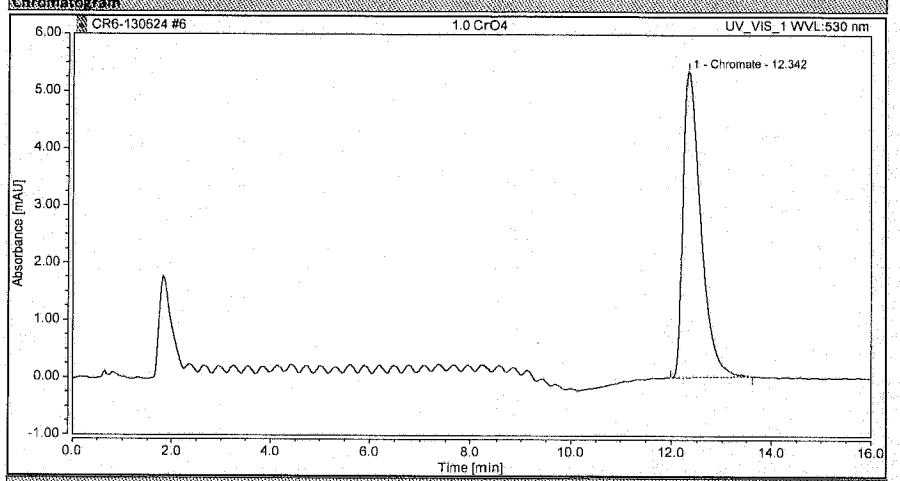


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 18:38** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

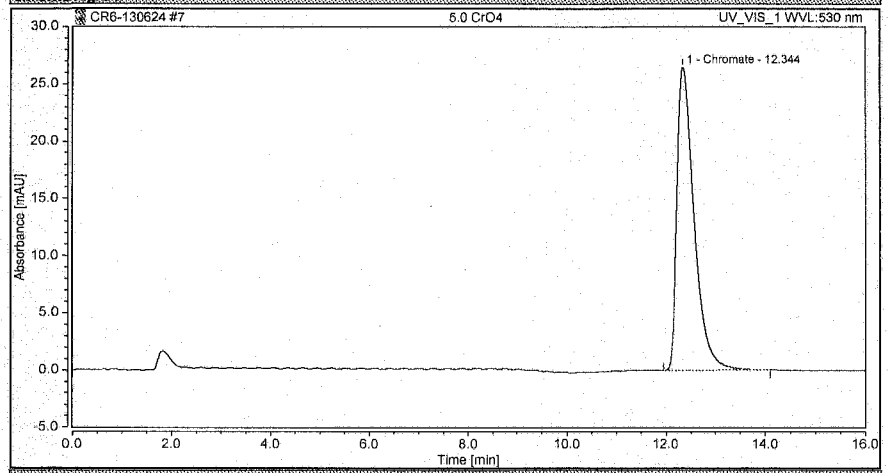
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.342 | 2.143 | 5.353 | 100.00 | 100.00 | 0.9998 |
| **Total:** | | | **2.143** | **5.353** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.344 | 10.689 | 26.528 | 100.00 | 100.00 | 5.0032 |
| **Total:** | | | **10.689** | **26.528** | **100.00** | **100.00** | |



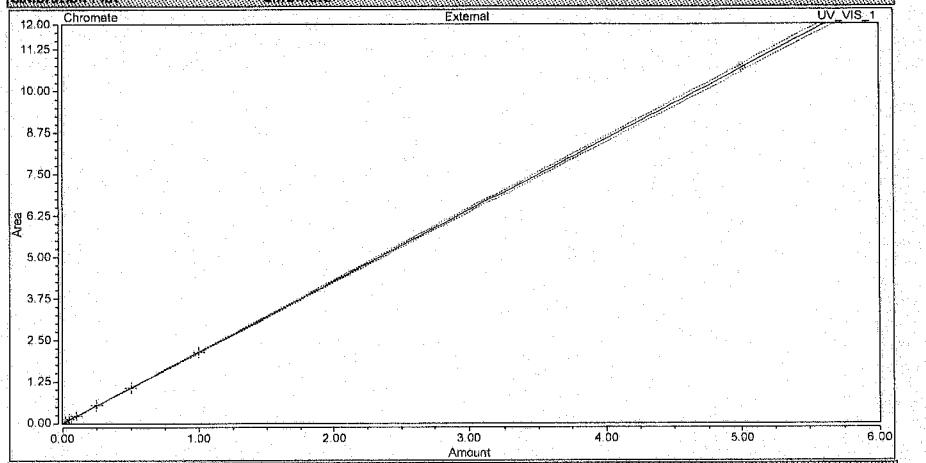


## Calibration

### Calibration Details — Chromate

| | | | |
|---|---|---|---|
| *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 |

### Calibration Plot — Chromate




### Calibration Results — Chromate

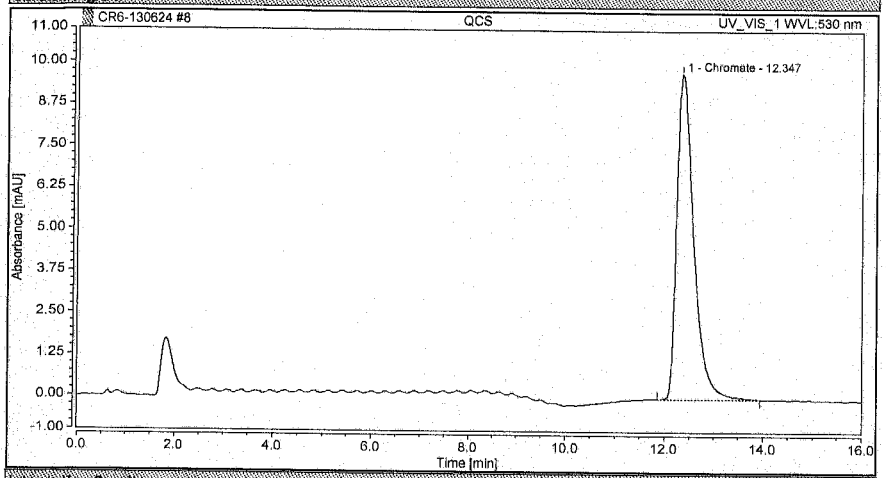
| No. | Injection Name | Calibration Level | X Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 01 | 0.0200 | 0.0506 | 0.0506 | 0.051 | 0.153 |
| 2 | 0.05 CrO4 | 02 | 0.0500 | 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 | 1.0 CrO4 | 06 | 1.0000 | 2.1432 | 2.1432 | 2.143 | 5.353 |
| 7 | 5.0 CrO4 | 07 | 5.0000 | 10.6889 | 10.6889 | 10.689 | 26.528 |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.347 | 3.899 | 9.752 | 100.00 | 100.00 | 1.8226 |
| **Total:** | | | **3.899** | **9.752** | **100.00** | **100.00** | |



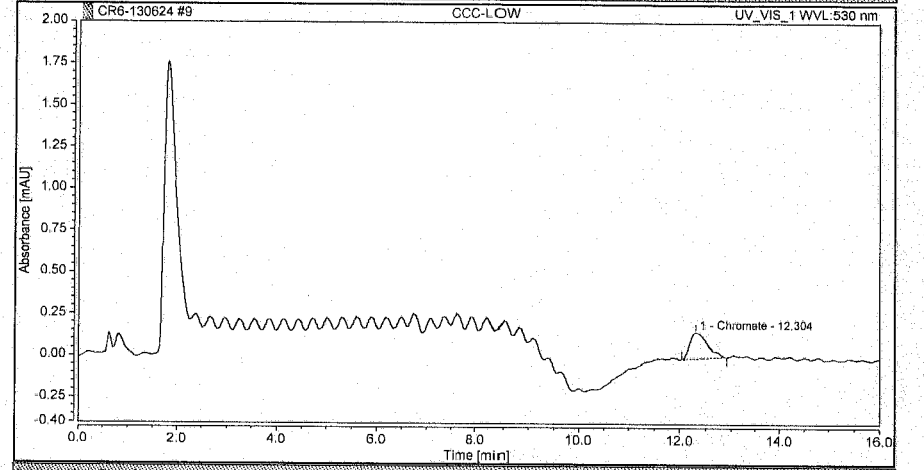


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

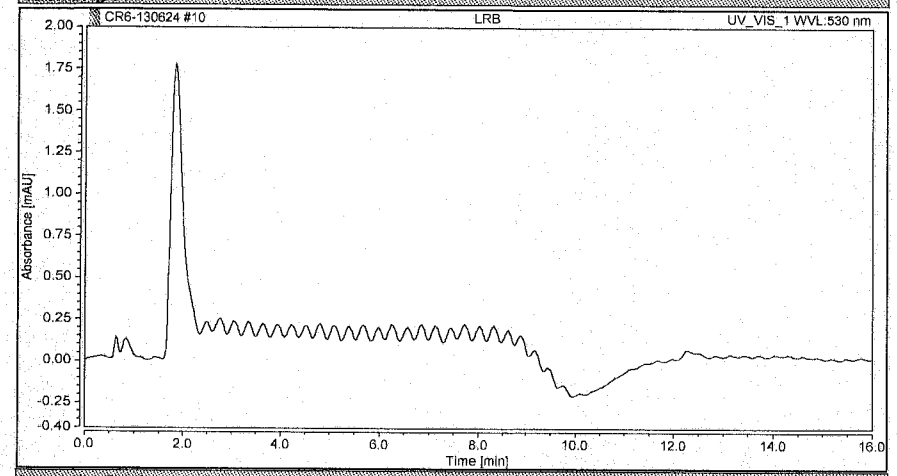
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.304 | 0.063 | 0.158 | 100.00 | 100.00 | 0.0255 |
| **Total:** | | | **0.063** | **0.158** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



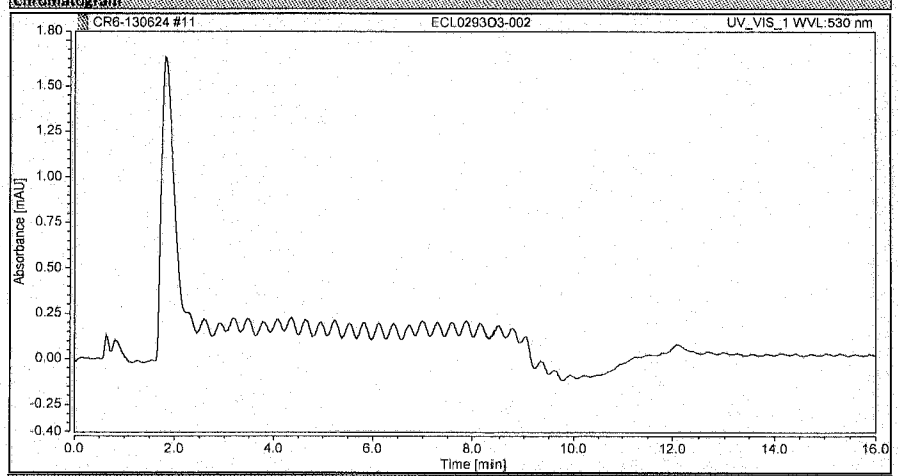


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002** | *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** |

### Chromatogram




### Integration Results

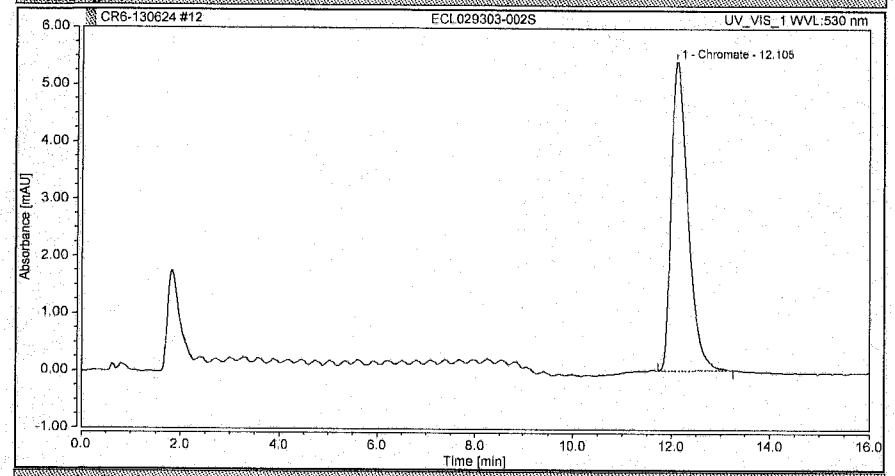
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002S** | *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** |

### Chromatogram




### Integration Results

| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.105 | 2.157 | 5.404 | 100.00 | 100.00 | 1.0063 |
| **Total:** | | | **2.157** | **5.404** | **100.00** | **100.00** | |



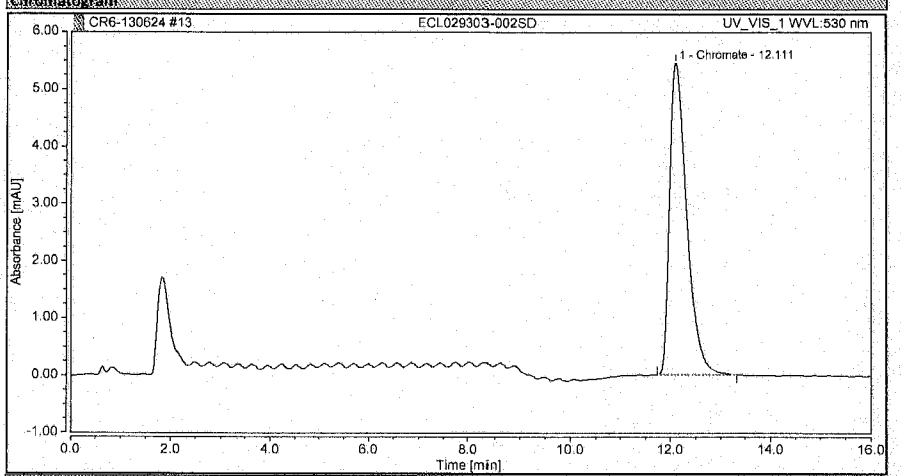


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002SD** | *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** |

### Chromatogram




### Integration Results

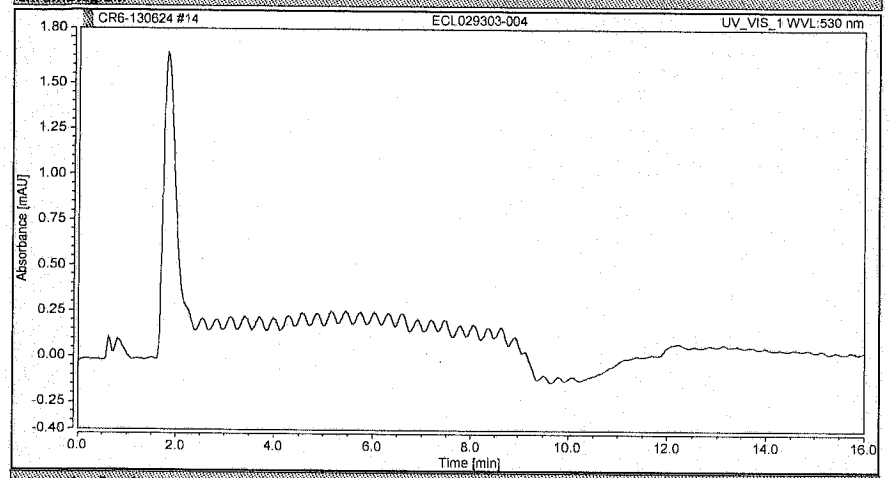
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.111 | 2.182 | 5.464 | 100.00 | 100.00 | 1.0182 |
| **Total:** | | | **2.182** | **5.464** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 21:10** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration 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** | |



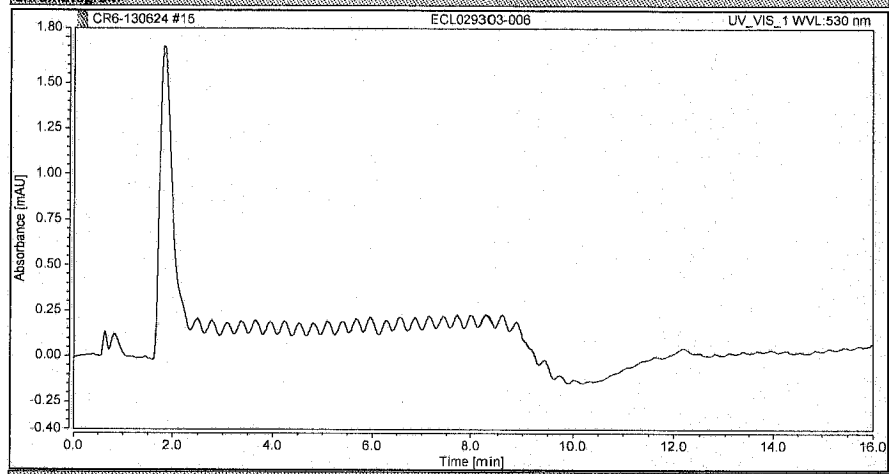


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

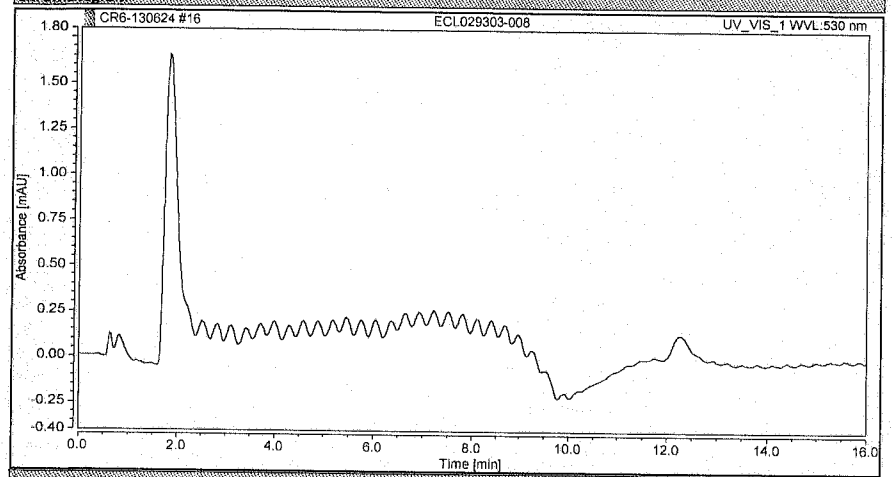
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



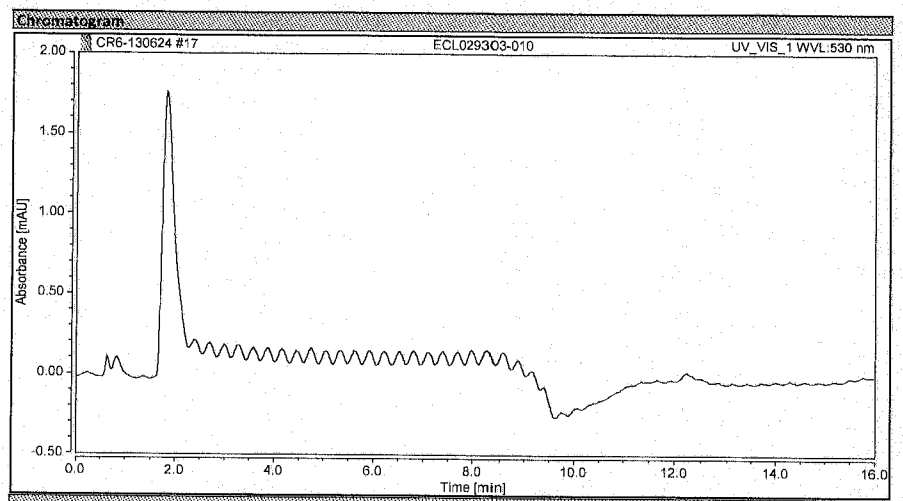


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

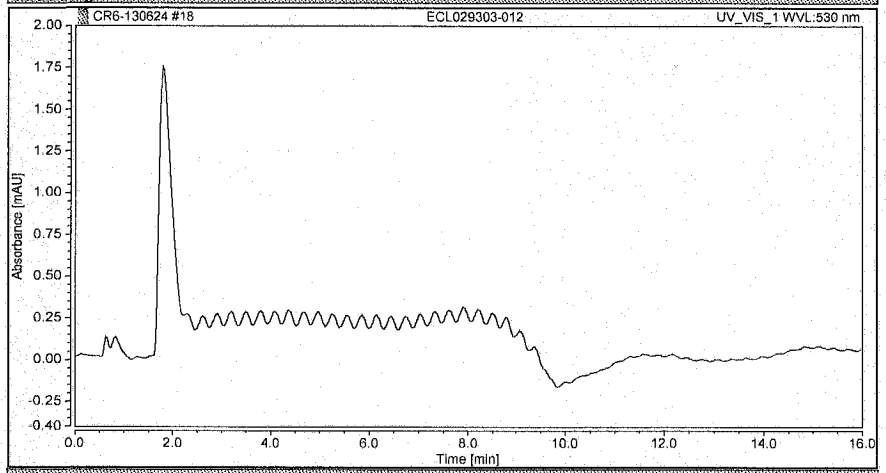
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-012** | *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** |

### Chromatogram




### Integration 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** | |



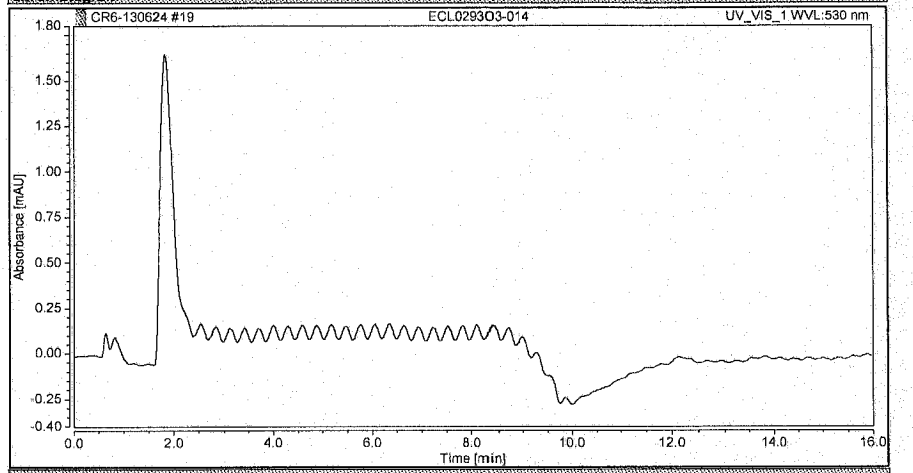


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-014** | *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** |

### Chromatogram




### Integration Results

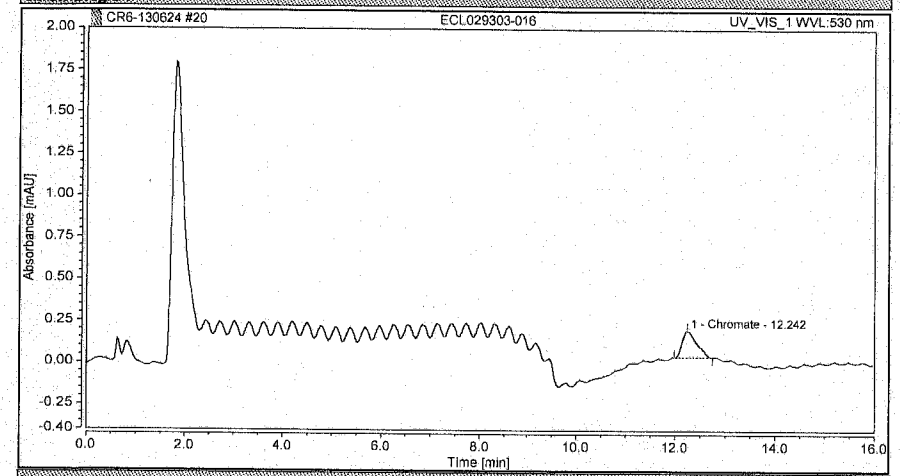
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-016** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.242 | 0.053 | 0.159 | 100.00 | 100.00 | 0.0207 |
| **Total:** | | | **0.053** | **0.159** | **100.00** | **100.00** | |



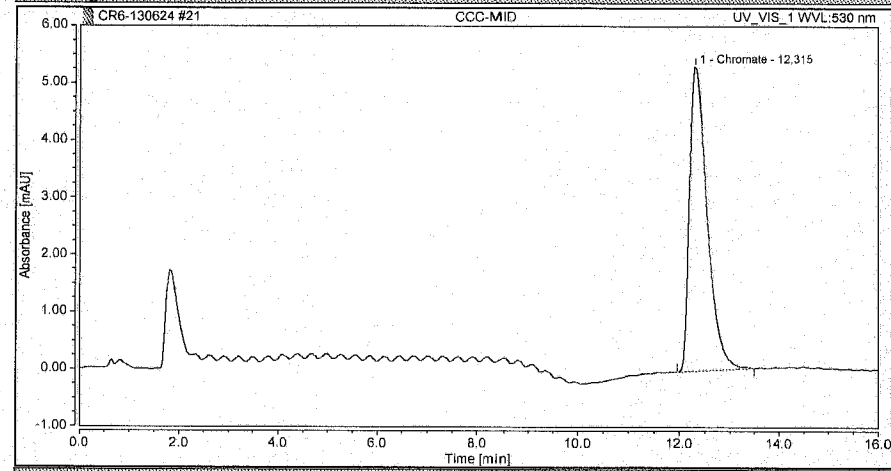


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

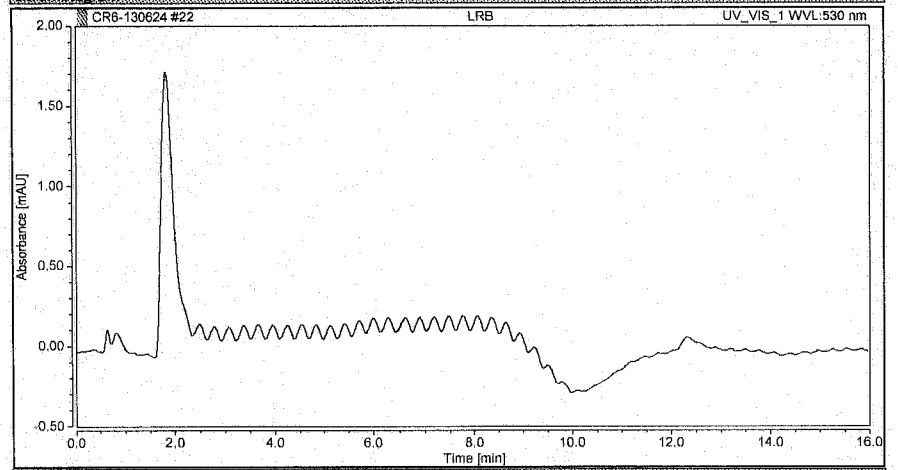
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.315 | 2.121 | 5.332 | 100.00 | 100.00 | 0.9894 |
| **Total:** | | | **2.121** | **5.332** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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 23:41** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration 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** | |

# Summary

**Sequence Details**

| | | | |
|---|---|---|---|
| *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** |

**By Component** **Chromate**

| 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 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | ECL029303-018 | 12.172 | 0.078 | 0.198 | 0.0326 | 25/06/13 00:04 | M |
| 9 | ECL029303-018S | 12.181 | 2.154 | 5.364 | 1.0048 | 25/06/13 00:22 | MB |
| 10 | ECL029303-018SD | 12.180 | 2.178 | 5.470 | 1.0160 | 25/06/13 00:41 | M |
| 11 | ECL029303-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:00 | n.a. |
| 12 | ECL029303-022 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:19 | n.a. |
| 13 | ECL029318-002 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:38 | n.a. |
| 14 | ECL029318-004 | 12.242 | 0.246 | 0.613 | 0.1113 | 25/06/13 01:57 | M |
| 15 | ECL029318-006 | 12.244 | 0.247 | 0.638 | 0.1117 | 25/06/13 02:16 | M |
| 16 | ECL029318-008 | 12.224 | 0.282 | 0.712 | 0.1280 | 25/06/13 02:35 | BM |
| 17 | ECL029318-010 | 12.256 | 0.248 | 0.626 | 0.1122 | 25/06/13 02:53 | M |
| 18 | CCC-HIGH | 12.312 | 10.618 | 26.326 | 4.9698 | 25/06/13 03:12 | M |
| 19 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 03:31 | n.a. |
| 20 | ECL029318-012 | 12.229 | 0.243 | 0.629 | 0.1097 | 25/06/13 03:50 | M |
| 21 | ECL029318-014 | n.a. | n.a. | n.a. | n.a. | 25/06/13 04:09 | n.a. |
| 22 | ECL029318-016 | 12.232 | 0.077 | 0.196 | 0.0320 | 25/06/13 04:28 | MB |
| 23 | ECL029318-016S | 12.238 | 2.213 | 5.564 | 1.0327 | 25/06/13 04:47 | M |
| 24 | ECL029318-016SD | 12.224 | 2.138 | 5.386 | 0.9975 | 25/06/13 05:06 | M |
| 25 | ECL029318-018 | 12.249 | 0.072 | 0.189 | 0.0298 | 25/06/13 05:25 | MB |
| 26 | ECL029318-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 05:44 | n.a. |
| 27 | ECL029330-002 | 12.249 | 0.093 | 0.247 | 0.0393 | 25/06/13 06:03 | BM |
| 28 | ECL029330-004 | n.a. | n.a. | n.a. | n.a. | 25/06/13 06:22 | n.a. |
| 29 | ECL029324-002 | 12.162 | 0.060 | 0.156 | 0.0240 | 25/06/13 06:40 | M |
| 30 | CCC-LOW | 12.337 | 0.056 | 0.152 | 0.0219 | 25/06/13 06:59 | BMB* |
| 31 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 07:18 | n.a. |
| 32 | ECL029324-004 | 12.165 | 0.058 | 0.162 | 0.0231 | 25/06/13 07:37 | M |
| 33 | ECL029324-006 | 12.162 | 0.060 | 0.165 | 0.0238 | 25/06/13 07:56 | M |
| 34 | ECL029324-008 | 12.187 | 0.054 | 0.149 | 0.0211 | 25/06/13 08:15 | M |
| 35 | ECL029324-008S | 12.175 | 2.081 | 5.307 | 0.9708 | 25/06/13 08:34 | M |
| 36 | ECL029324-008SD | 12.157 | 2.069 | 5.258 | 0.9652 | 25/06/13 08:53 | M |
| 37 | ECL029324-010 | 12.189 | 0.060 | 0.166 | 0.0241 | 25/06/13 09:12 | MB |
| 38 | ECL029324-012 | 12.162 | 0.489 | 1.230 | 0.2251 | 25/06/13 09:31 | MB |
| 39 | ECL029324-014 | 12.167 | 0.053 | 0.126 | 0.0209 | 25/06/13 09:50 | BMB* |
| 40 | ECL029324-016 | 12.147 | 0.062 | 0.147 | 0.0250 | 25/06/13 10:09 | M |
| 41 | ECL029324-018 | 12.142 | 0.043 | 0.131 | 0.0160 | 25/06/13 10:27 | M |
| 42 | CCC-MID | 12.318 | 2.140 | 5.423 | 0.9983 | 25/06/13 10:46 | MB |
| 43 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 11:05 | n.a. |

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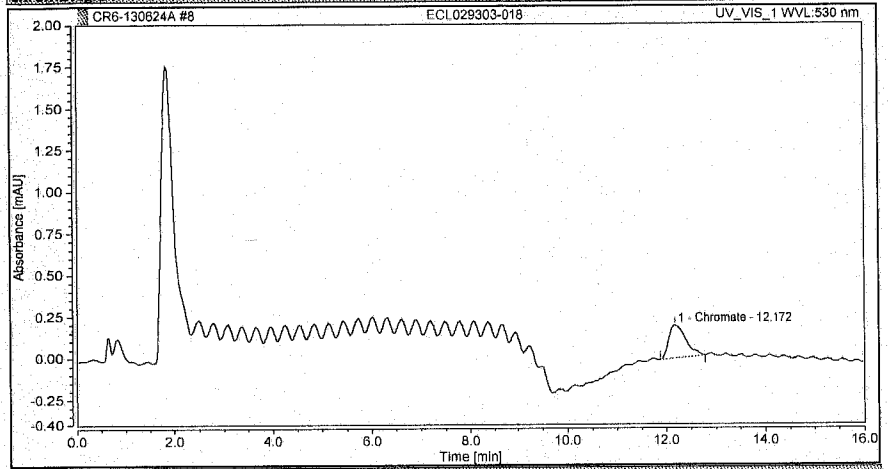
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 44 | ECL029324-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 11:24 | n.a. |
| 45 | CCC-HIGH | 12.312 | 10.699 | 26.705 | 5.0077 | 25/06/13 11:43 | M |
| 46 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 12:02 | n.a. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.172 | 0.078 | 0.198 | 100.00 | 100.00 | 0.0326 |
| **Total:** | | | **0.078** | **0.198** | **100.00** | **100.00** | |



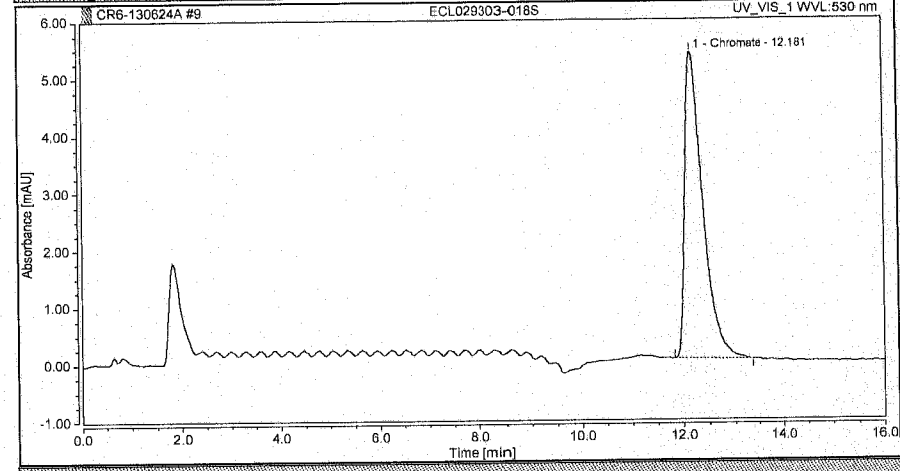


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018S** | *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** |

### Chromatogram




### Integration Results

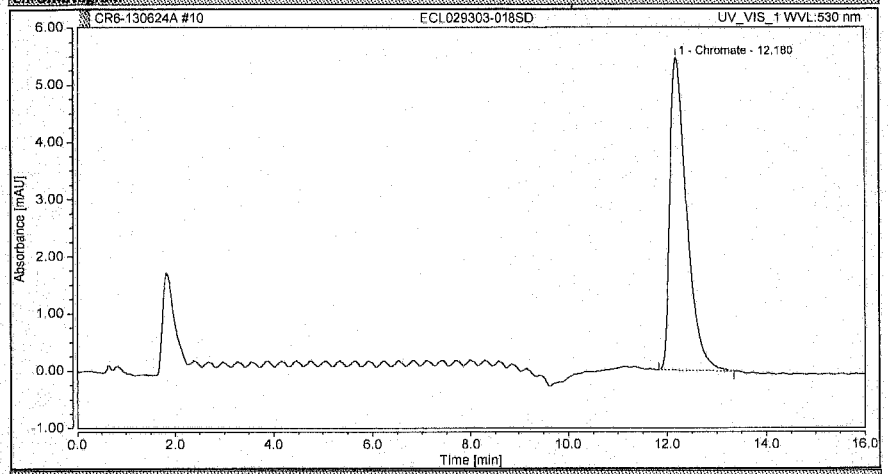
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.181 | 2.154 | 5.364 | 100.00 | 100.00 | 1.0048 |
| **Total:** | | | **2.154** | **5.364** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.180 | 2.178 | 5.470 | 100.00 | 100.00 | 1.0180 |
| **Total:** | | | **2.178** | **5.470** | **100.00** | **100.00** | |



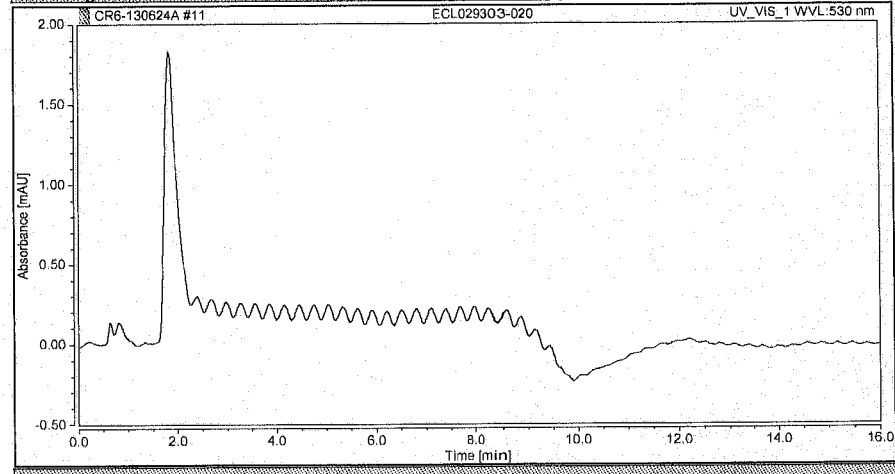


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-020** | *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 01:00** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration 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** | |



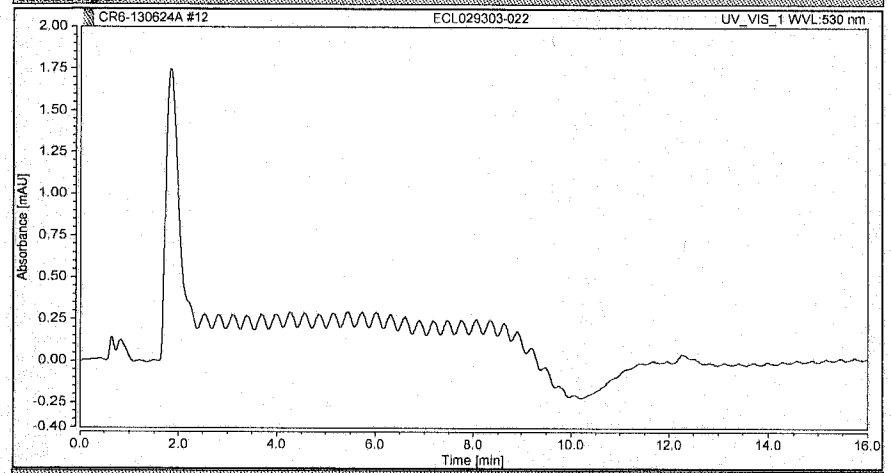
09

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



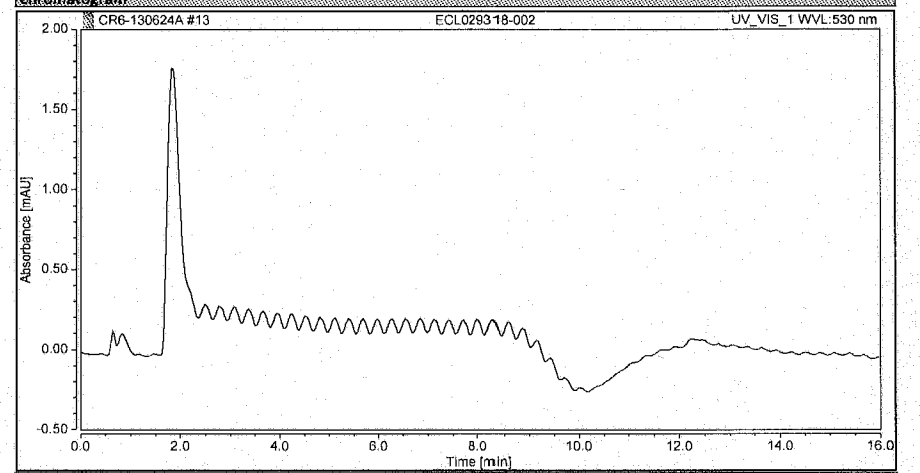


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-002** | *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** |

### Chromatogram




### Integration Results

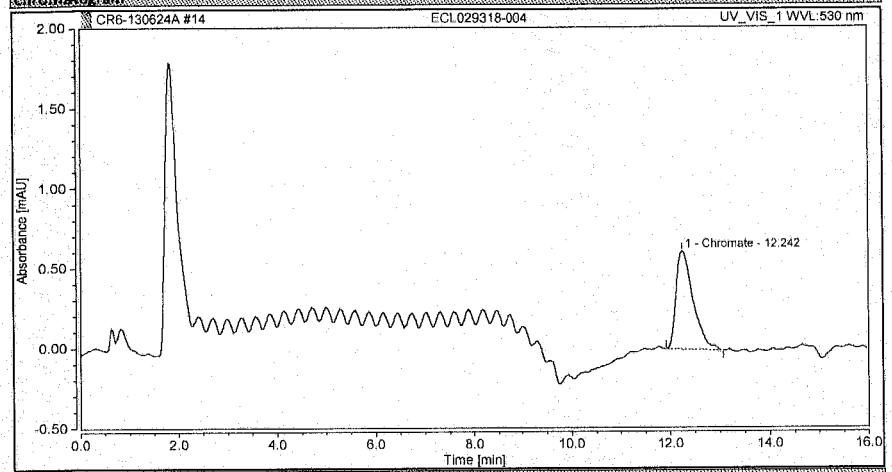
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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 |

### Chromatogram




### Integration Results

| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.242 | 0.246 | 0.613 | 100.00 | 100.00 | 0.1113 |
| **Total:** | | | **0.246** | **0.613** | **100.00** | **100.00** | |



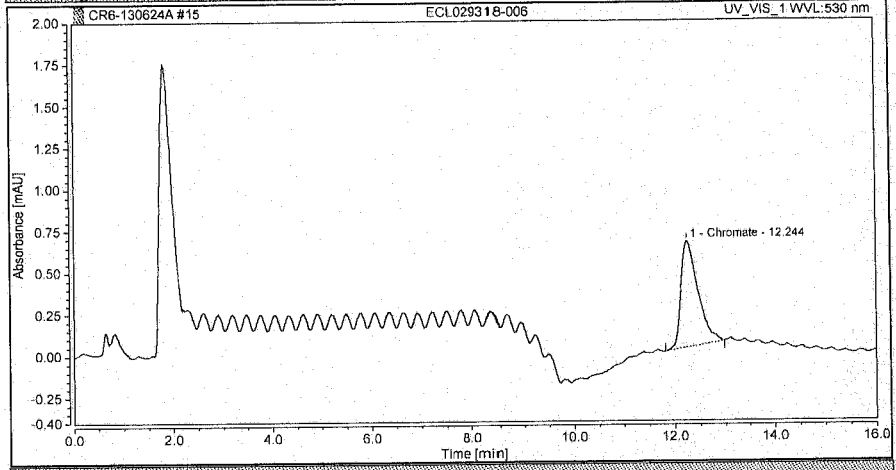


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| Injection Name: | ECL029318-006 | 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: | 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 |

### Chromatogram




### Integration Results

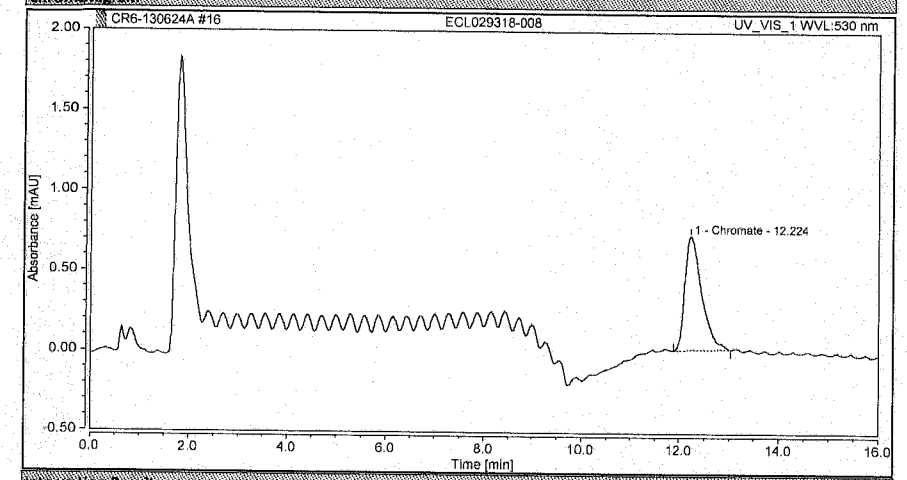
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.244 | 0.247 | 0.638 | 100.00 | 100.00 | 0.1117 |
| **Total:** | | | **0.247** | **0.638** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-008** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.224 | 0.282 | 0.712 | 100.00 | 100.00 | 0.1280 |
| **Total:** | | | **0.282** | **0.712** | **100.00** | **100.00** | |



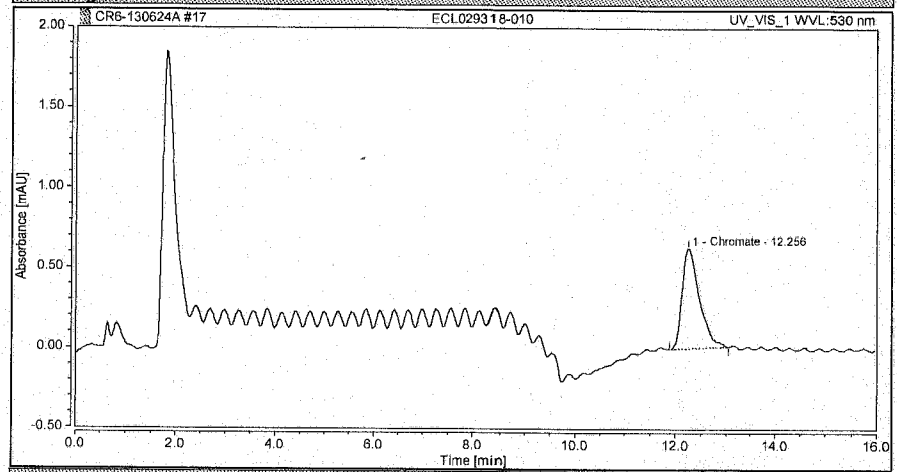


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

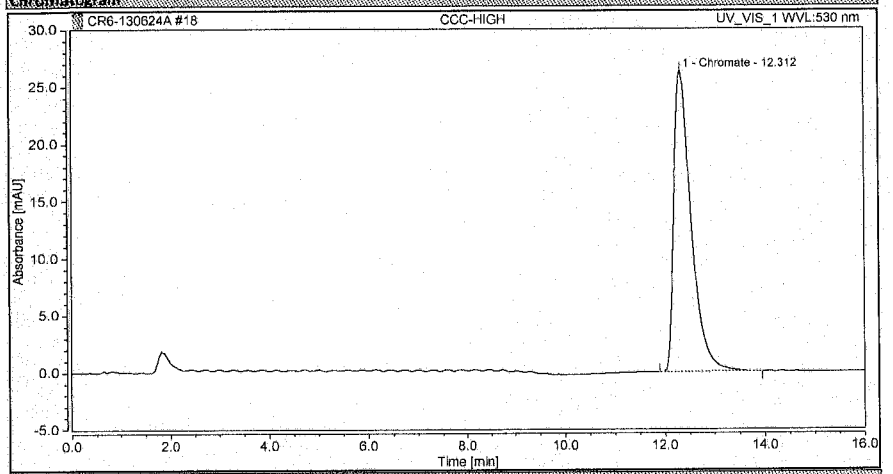
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.256 | 0.248 | 0.626 | 100.00 | 100.00 | 0.1122 |
| **Total:** | | | **0.248** | **0.626** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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 |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.312 | 10.618 | 26.326 | 100.00 | 100.00 | 4.9698 |
| **Total:** | | | **10.618** | **26.326** | **100.00** | **100.00** | |



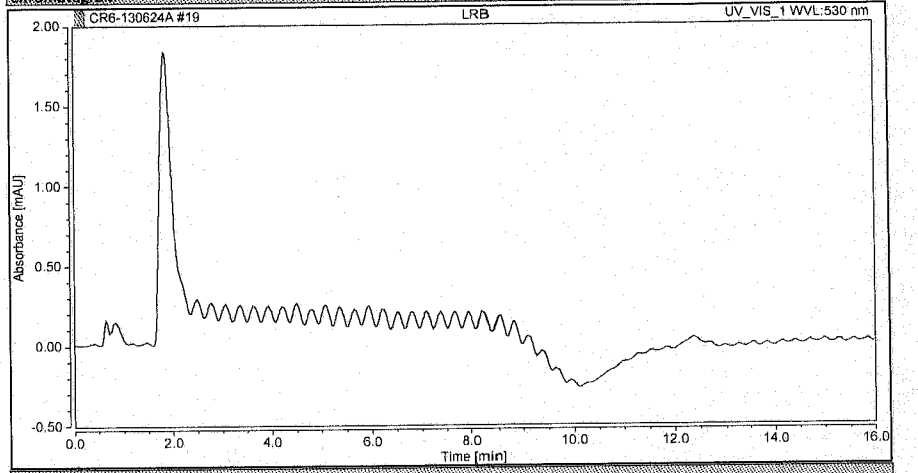


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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 |

### Chromatogram




### Integration Results

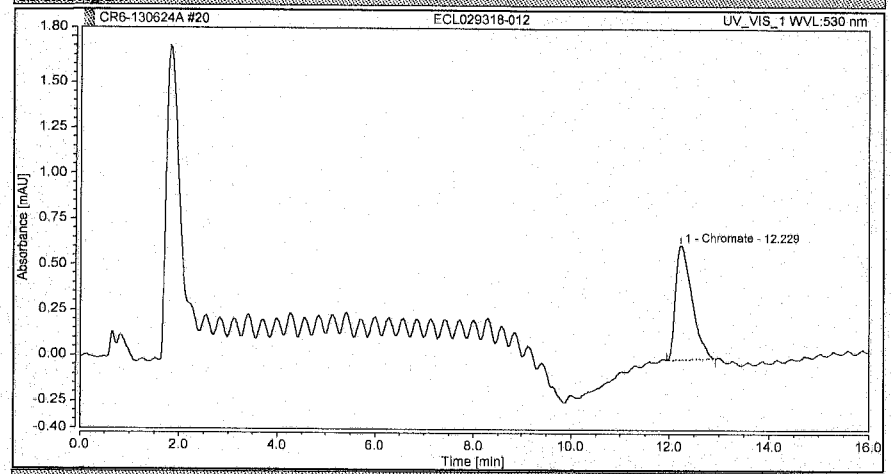
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.229 | 0.243 | 0.629 | 100.00 | 100.00 | 0.1097 |
| **Total:** | | | **0.243** | **0.629** | **100.00** | **100.00** | |



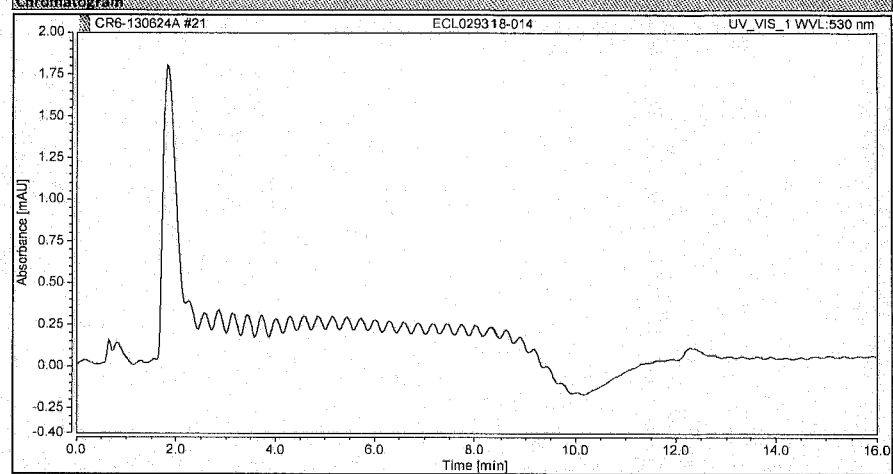


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

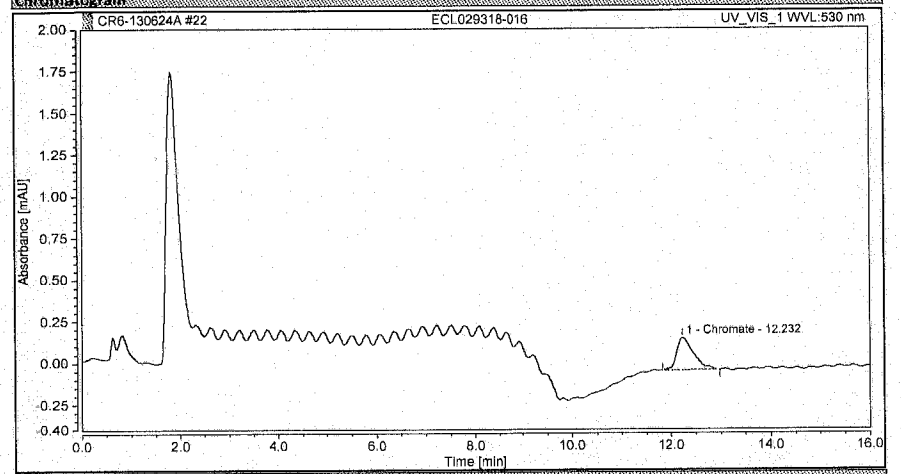
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.232 | 0.077 | 0.196 | 100.00 | 100.00 | 0.0320 |
| **Total:** | | | **0.077** | **0.196** | **100.00** | **100.00** | |



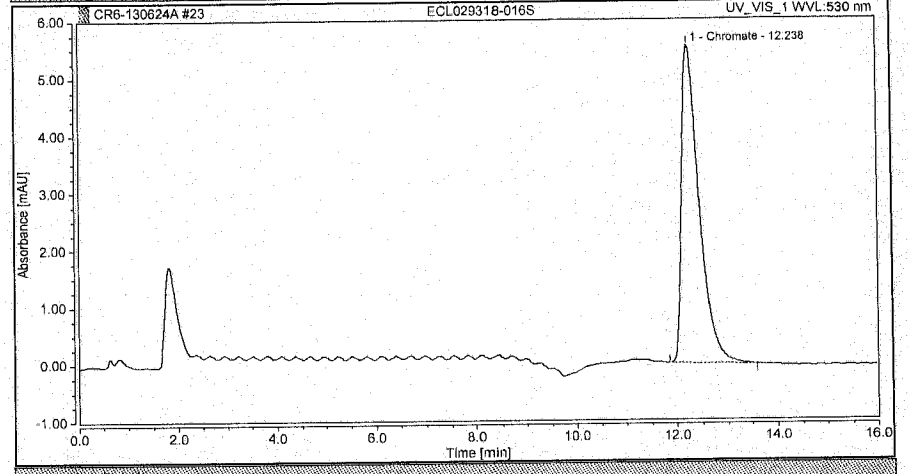


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

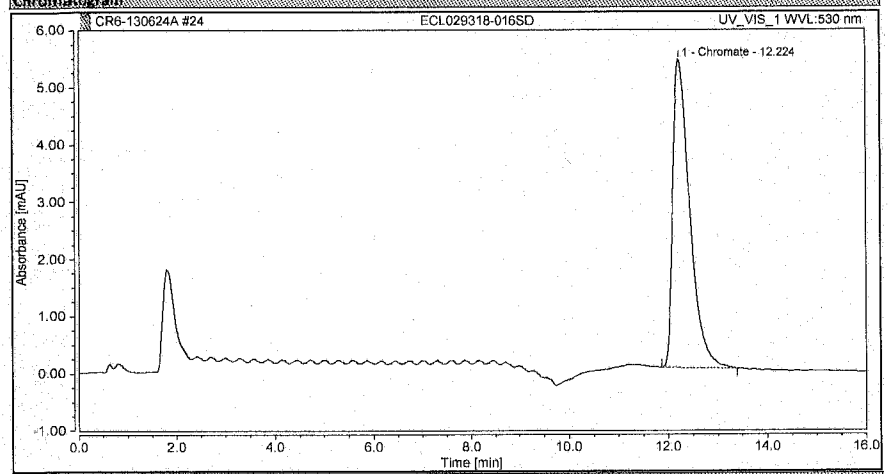
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.238 | 2.213 | 5.564 | 100.00 | 100.00 | 1.0327 |
| **Total:** | | | **2.213** | **5.564** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-016SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.224 | 2.138 | 5.386 | 100.00 | 100.00 | 0.9975 |
| **Total:** | | | **2.138** | **5.386** | **100.00** | **100.00** | |



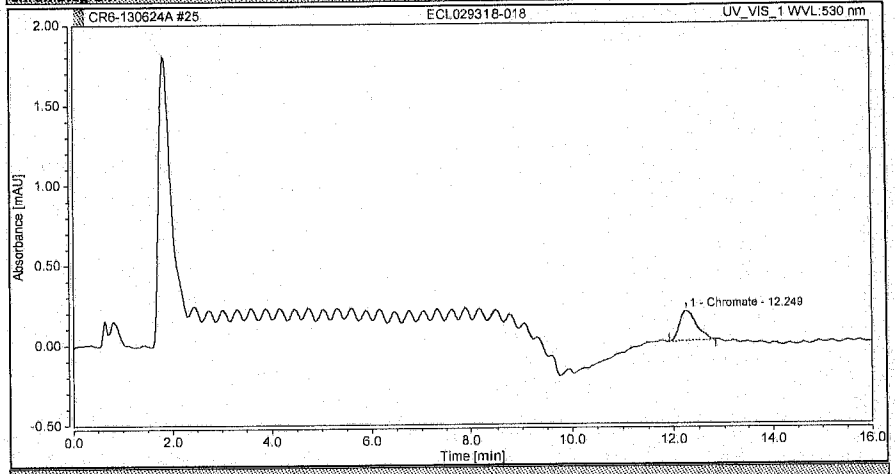


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-018** | *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 05:25** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

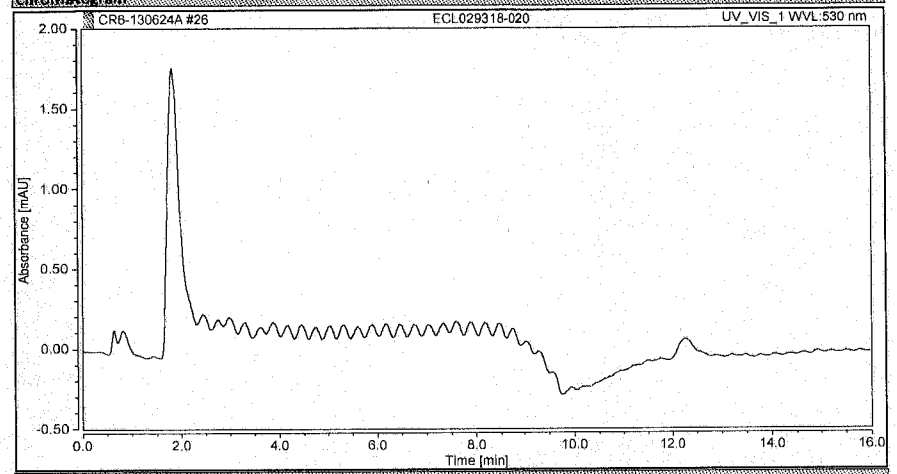
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.249 | 0.072 | 0.189 | 100.00 | 100.00 | 0.0298 |
| **Total:** | | | **0.072** | **0.189** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



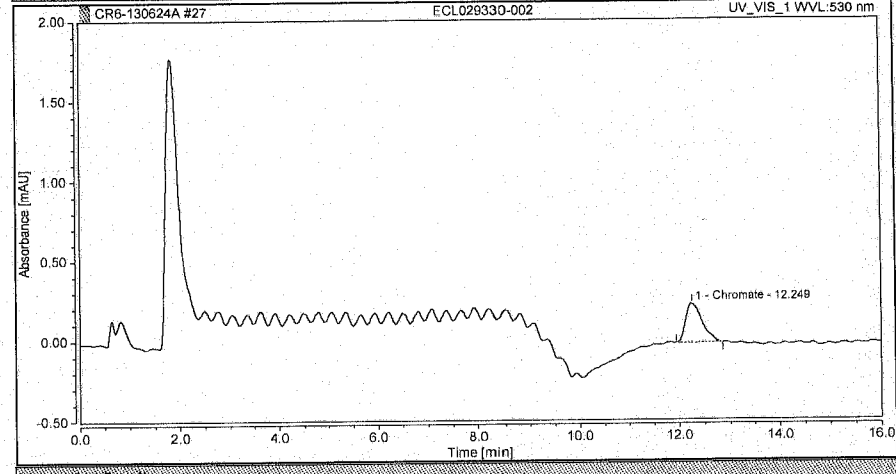


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

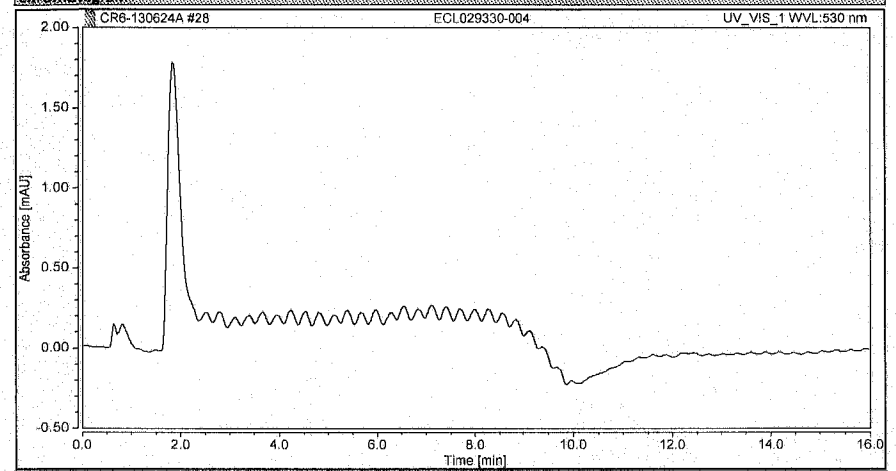
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.249 | 0.093 | 0.247 | 100.00 | 100.00 | 0.0393 |
| **Total:** | | | **0.093** | **0.247** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



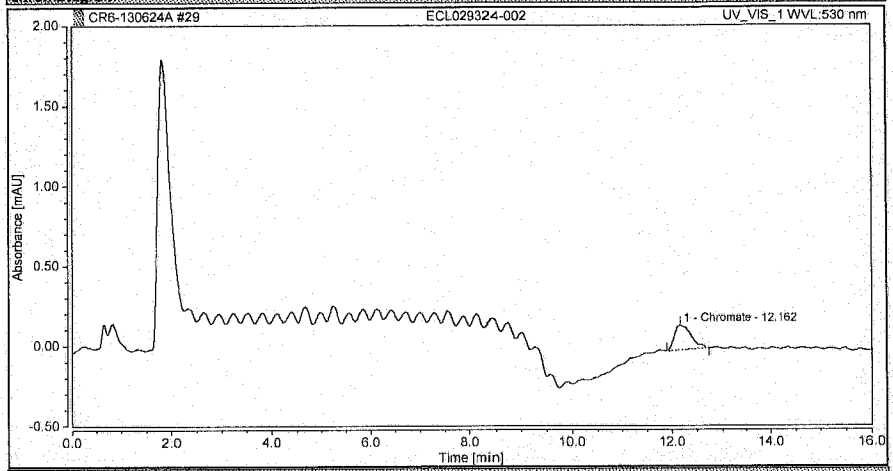


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

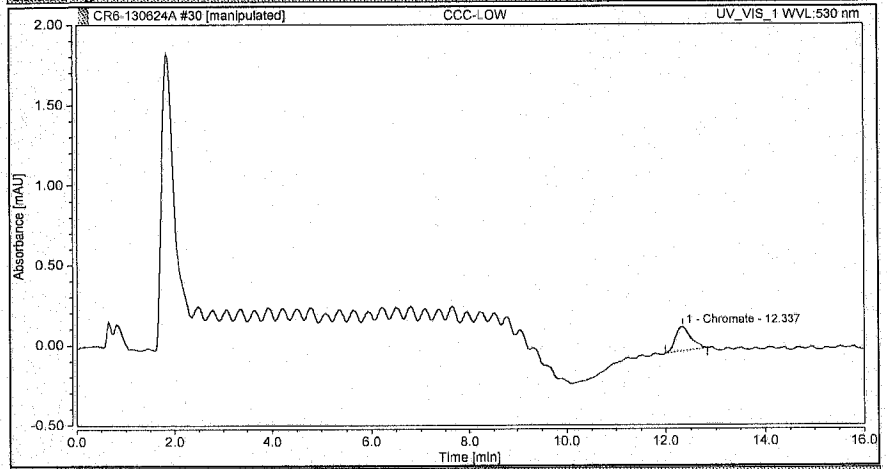
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.060 | 0.156 | 100.00 | 100.00 | 0.0240 |
| **Total:** | | | **0.060** | **0.156** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 06:59** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.337 | 0.056 | 0.152 | 100.00 | 100.00 | 0.0219 |
| **Total:** | | | **0.056** | **0.152** | **100.00** | **100.00** | |



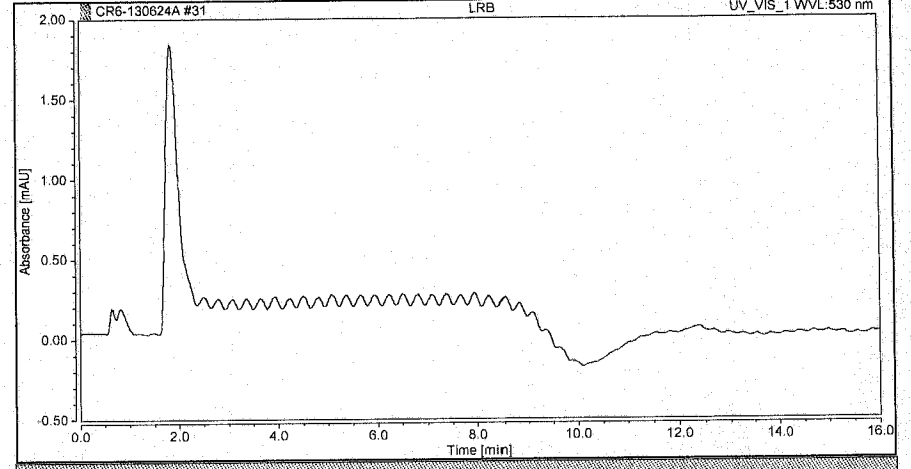


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



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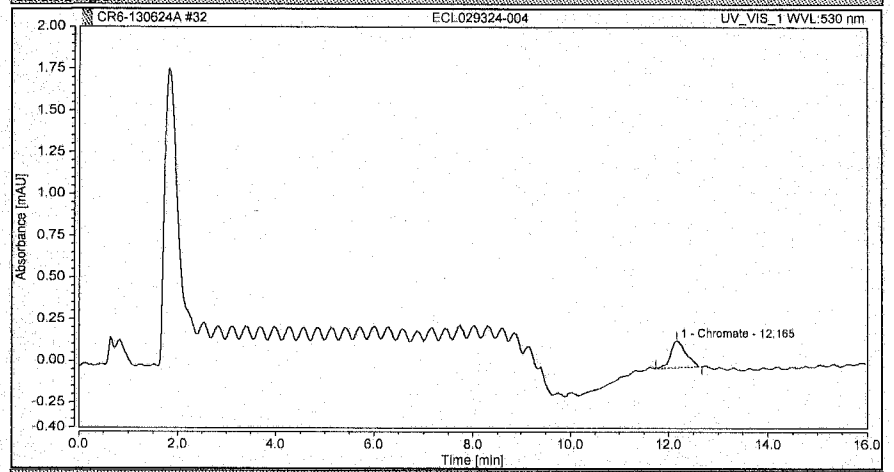
## Chromatogram and Results

**Injection Details**

| | | | |
|---|---|---|---|
| *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** |

**Chromatogram**




**Integration Results**

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.165 | 0.058 | 0.162 | 100.00 | 100.00 | 0.0231 |
| **Total:** | | | **0.058** | **0.162** | **100.00** | **100.00** | |



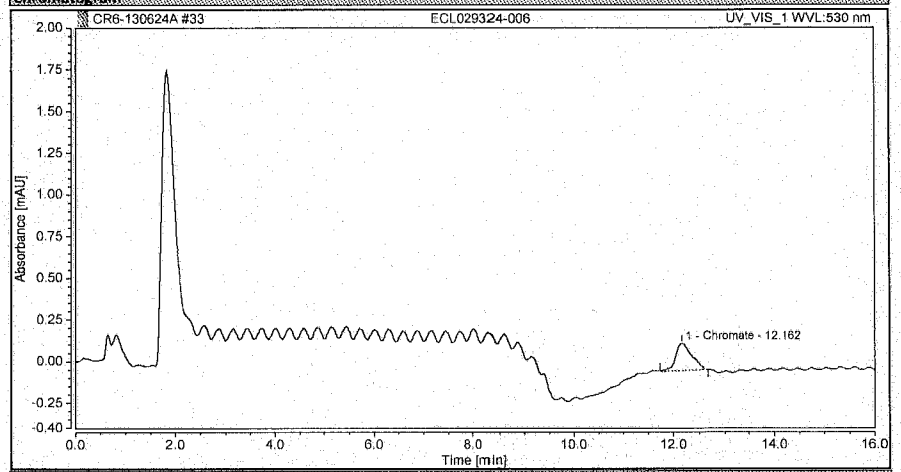


## Chromatogram and Results

**Injection Details**

| | | | |
|---|---|---|---|
| *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** |

**Chromatogram**




**Integration Results**

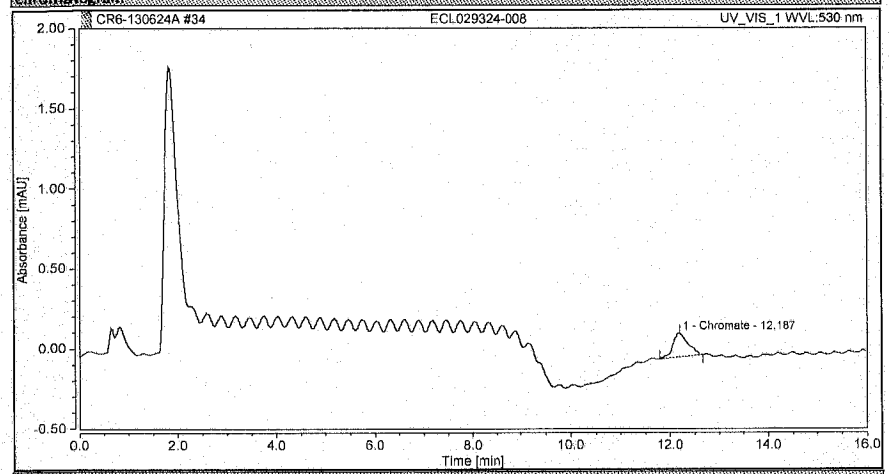
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.060 | 0.165 | 100.00 | 100.00 | 0.0238 |
| **Total:** | | | **0.060** | **0.165** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.187 | 0.054 | 0.149 | 100.00 | 100.00 | 0.0211 |
| **Total:** | | | **0.054** | **0.149** | **100.00** | **100.00** | |



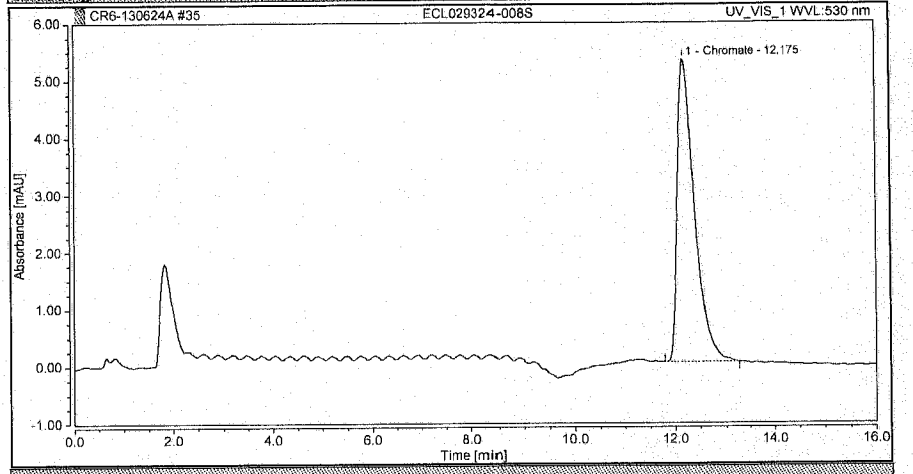


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008S** | *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** |

### Chromatogram




### Integration Results

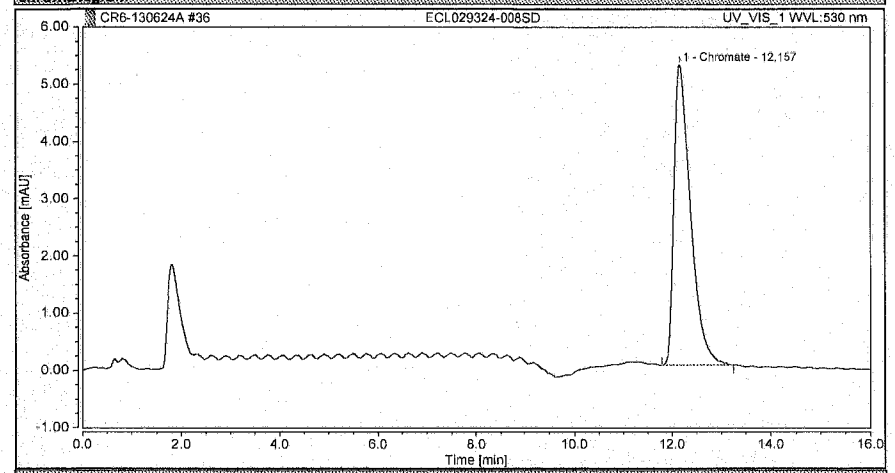
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.175 | 2.081 | 5.307 | 100.00 | 100.00 | 0.9708 |
| **Total:** | | | **2.081** | **5.307** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.157 | 2.069 | 5.258 | 100.00 | 100.00 | 0.9652 |
| **Total:** | | | **2.069** | **5.258** | **100.00** | **100.00** | |



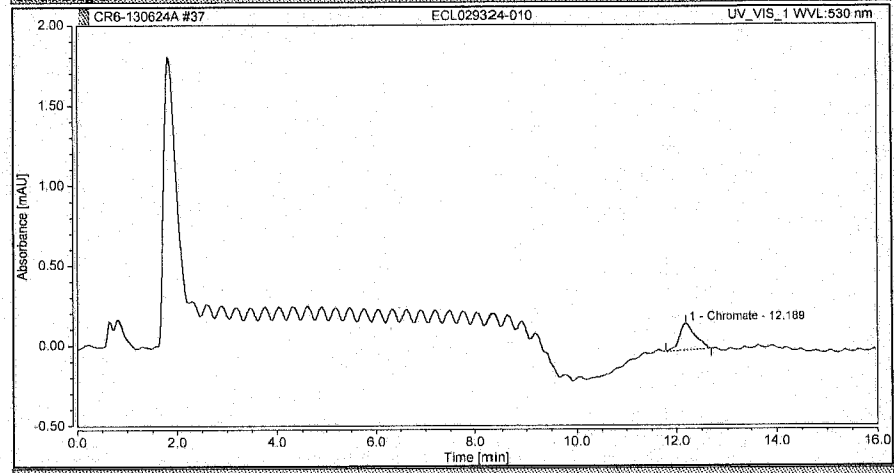


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

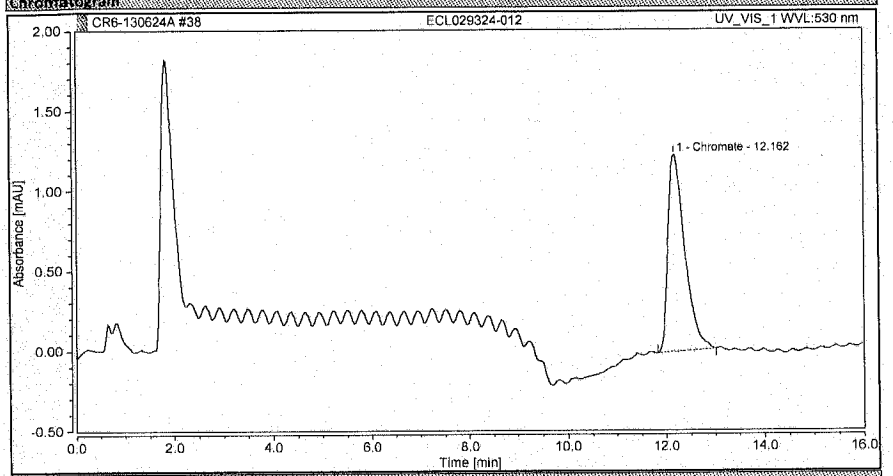
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.189 | 0.060 | 0.156 | 100.00 | 100.00 | 0.0241 |
| **Total:** | | | **0.060** | **0.166** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.489 | 1.230 | 100.00 | 100.00 | 0.2251 |
| **Total:** | | | **0.489** | **1.230** | **100.00** | **100.00** | |



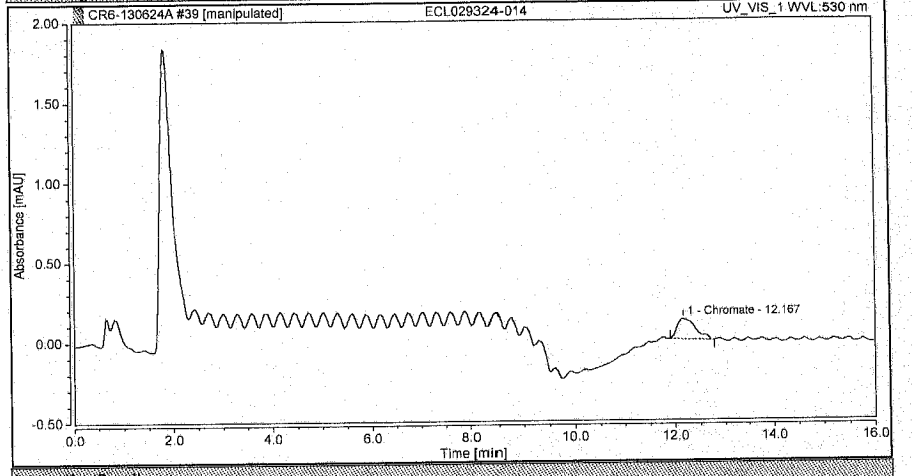


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 09:50** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

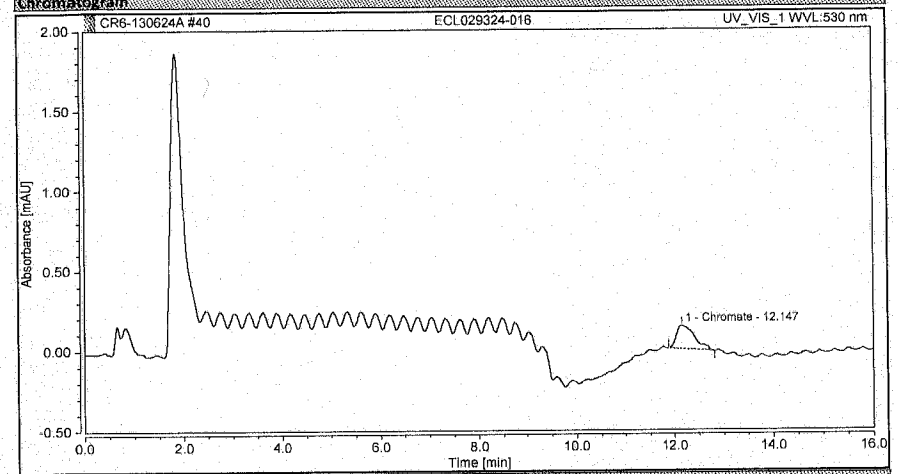
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.167 | 0.053 | 0.126 | 100.00 | 100.00 | 0.0209 |
| **Total:** | | | **0.053** | **0.126** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.147 | 0.062 | 0.147 | 100.00 | 100.00 | 0.0250 |
| **Total:** | | | **0.062** | **0.147** | **100.00** | **100.00** | |



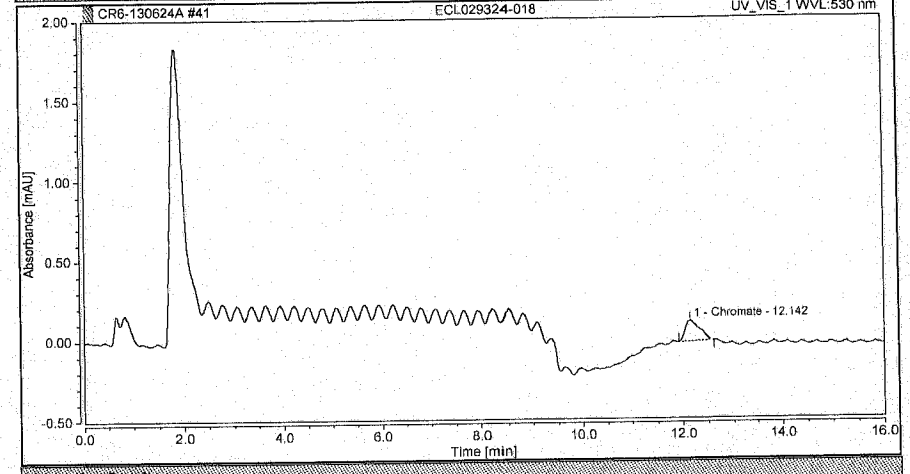


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

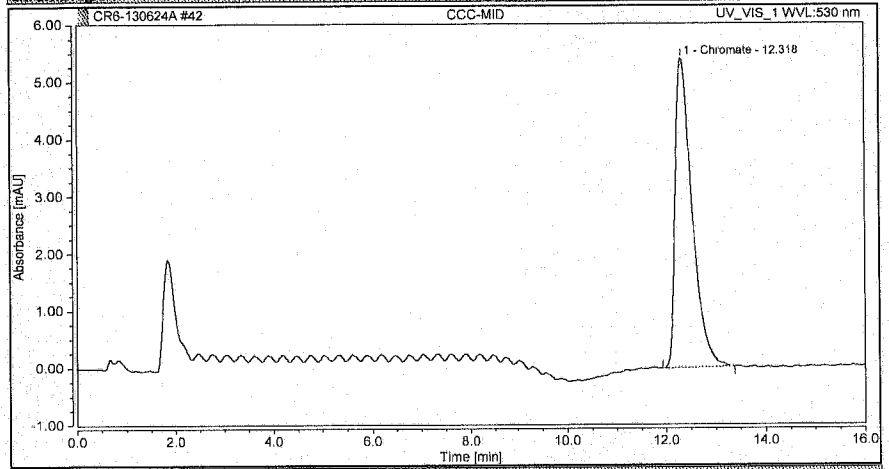
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.142 | 0.043 | 0.131 | 100.00 | 100.00 | 0.0160 |
| **Total:** | | | **0.043** | **0.131** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.318 | 2.140 | 5.423 | 100.00 | 100.00 | 0.9983 |
| **Total:** | | | **2.140** | **5.423** | **100.00** | **100.00** | |



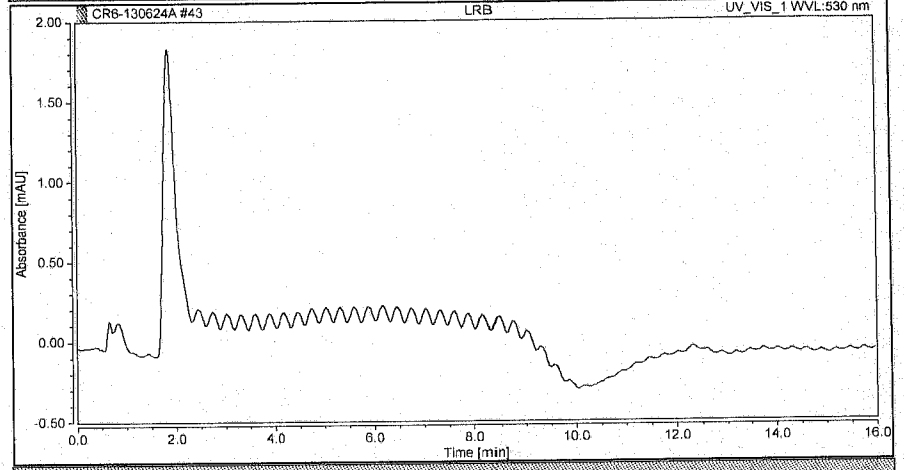


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 11:05** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

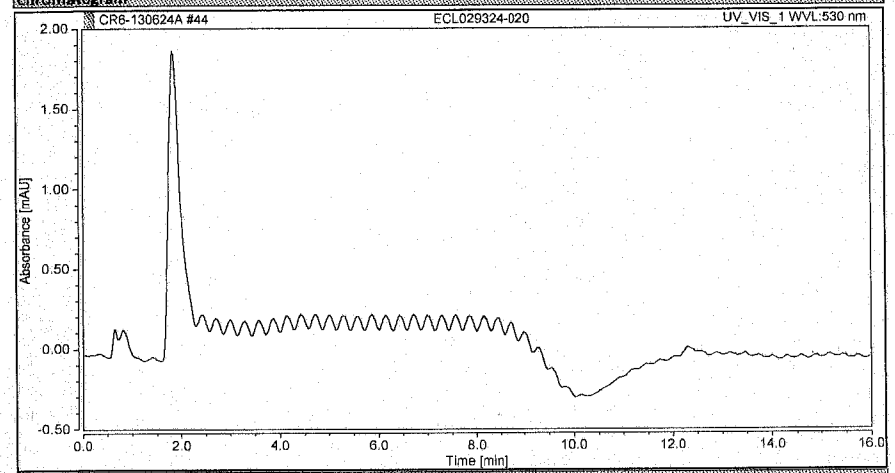
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



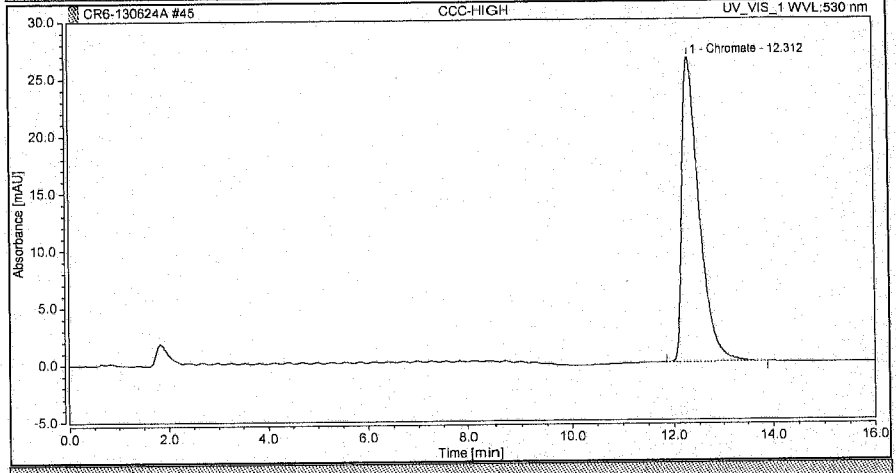


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

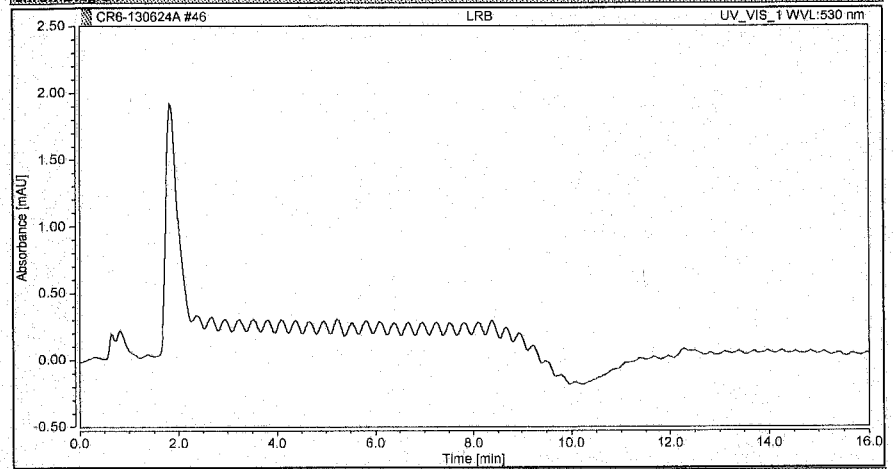
| No | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.312 | 10.699 | 26.705 | 100.00 | 100.00 | 5.0077 |
| **Total:** | | | **10.699** | **26.705** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |

## Dilution Corrected Concentrations

F130719B
CHC 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 |

**BLANK** 7/19/2013 3:27:00 PM

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 |

M03479

**200 PPB** 7/19/2013 3:29:44 PM

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 |

**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 |

**LPB5058R** 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 |

**LCS5058R** 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 |

**CKS** 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% | T199.700 | 99.183% |
| 2 | 16:20:43 | 94.050% | 197.500 | 96.597% | 98.273% | T198.600 | 97.485% |
| 3 | 16:20:48 | 95.127% | 198.300 | 97.808% | 95.861% | T199.600 | T102.293% |
| x | | 93.548% | 198.400 | 96.503% | 98.451% | T199.300 | T99.654% |
| σ | | 1.880% | 0.925 | 1.354% | 2.683% | T0.610 | T2.439% |
| %RSD | | 2.010 | 0.466 | 1.403 | 2.725 | T0.306 | T2.447 |

**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% | M 200.700 | 92.735% | 99.831% | T 198.400 | 97.079% |
| 2 | 16:55:11 | 89.520% | 199.200 | 93.395% | 96.371% | T 197.500 | 94.706% |
| 3 | 16:55:16 | 90.264% | M 200.500 | 93.304% | 93.052% | T 199.000 | T 98.469% |
| x | | 89.251% | M 200.200 | 93.145% | 96.418% | T 198.300 | T 96.751% |
| σ | | 1.172% | M 0.808 | 0.358% | 3.389% | T 0.711 | T 1.903% |
| %RSD | | 1.313 | M 0.404 | 0.384 | 3.515 | T 0.359 | T 1.967 |

**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 |

**LPB5059R** 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% | TM 205.600 | T 100.354% |
| 2 | 17:50:12 | 69.976% | 195.500 | 74.036% | 85.928% | TM 204.500 | T 97.169% |
| 3 | 17:50:17 | 70.768% | 197.600 | 73.817% | 83.857% | TM 205.100 | T 96.066% |
| x | | 69.585% | 196.200 | 73.917% | 86.107% | TM 205.100 | T 97.863% |
| σ | | 1.419% | 1.222 | 0.110% | 2.345% | TM 0.530 | T 2.226% |
| %RSD | | 2.039 | 0.623 | 0.149 | 2.724 | TM 0.259 | T 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 |

**ECL029324-020** 7/19/2013 6:40:36 PM

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 |

**CCB** 7/19/2013 6:43:21 PM

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 |

## Dilution Corrected Concentrations

F130722D
CMC 7/22/13
WS - 20857

**RINSE** 7/22/2013 2:43:37 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:42:42 | 98.328% | 0.198 | 98.733% | 103.191% | 0.087 | 102.281% |
| 2 | 14:42:48 | 101.307% | 0.197 | 100.408% | 99.452% | 0.096 | 99.642% |
| 3 | 14:42:53 | 100.365% | 0.213 | 100.859% | 97.357% | 0.092 | 98.077% |
| x | | 100.000% | 0.203 | 100.000% | 100.000% | 0.092 | 100.000% |
| σ | | 1.522% | 0.009 | 1.120% | 2.955% | 0.004 | 2.125% |
| %RSD | | 1.522 | 4.469 | 1.120 | 2.955 | 4.582 | 2.125 |

**RINSE** 7/22/2013 2:46:26 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:45:31 | 103.606% | 0.201 | 103.708% | 95.920% | 0.086 | 95.024% |
| 2 | 14:45:36 | 108.883% | 0.187 | 104.372% | 92.206% | 0.086 | 92.019% |
| 3 | 14:45:42 | 106.409% | 0.183 | 104.319% | 89.395% | 0.087 | 90.050% |
| x | | 106.299% | 0.190 | 104.133% | 92.507% | 0.086 | 92.364% |
| σ | | 2.640% | 0.010 | 0.369% | 3.273% | 0.001 | 2.505% |
| %RSD | | 2.484 | 5.140 | 0.354 | 3.538 | 0.598 | 2.712 |

**BLANK** 7/22/2013 2:49:13 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:48:18 | 98.122% | -0.003 | 99.852% | 103.542% | 0.000 | 102.757% |
| 2 | 14:48:23 | 99.419% | 0.005 | 99.773% | 99.060% | -0.001 | 99.310% |
| 3 | 14:48:29 | 102.459% | -0.002 | 100.375% | 97.398% | 0.001 | 97.933% |
| x | | 100.000% | -0.000 | 100.000% | 100.000% | 0.000 | 100.000% |
| σ | | 2.226% | 0.004 | 0.328% | 3.178% | 0.001 | 2.485% |
| %RSD | | 2.226 | 0.000 | 0.328 | 3.178 | 0.000 | 2.485 |

**200 PPB** 7/22/2013 2:51:58 PM

MU3479

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:51:02 | 101.608% | 198.700 | 99.077% | 97.535% | TM 200.400 | 94.521% |
| 2 | 14:51:08 | 105.604% | 199.300 | 100.709% | 93.599% | T 199.900 | 91.206% |
| 3 | 14:51:14 | 101.630% | M 202.000 | 100.696% | 90.972% | T 199.800 | T 87.592% |
| x | | 102.947% | M 200.000 | 100.161% | 94.035% | TM 200.000 | T 91.106% |
| σ | | 2.301% | M 1.758 | 0.939% | 3.303% | TM 0.323 | T 3.466% |
| %RSD | | 2.235 | M 0.879 | 0.937 | 3.513 | TM 0.161 | T 3.804 |

**CCB** 7/22/2013 2:54:42 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:53:48 | 101.077% | 0.043 | 98.824% | 100.927% | 0.018 | 100.073% |
| 2 | 14:53:53 | 99.483% | 0.045 | 99.574% | 97.021% | 0.015 | 96.510% |
| 3 | 14:53:59 | 101.268% | 0.031 | 100.458% | 94.472% | 0.016 | 94.381% |
| x | | 100.609% | 0.039 | 99.619% | 97.473% | 0.016 | 96.988% |
| σ | | 0.980% | 0.008 | 0.818% | 3.251% | 0.002 | 2.876% |
| %RSD | | 0.974 | 19.450 | 0.821 | 3.335 | 9.355 | 2.966 |

**CKS** 7/22/2013 2:57:27 PM M03479 200ppb

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:56:32 | 102.714% | 196.700 | 100.078% | 96.587% | T 198.400 | 94.102% |
| 2 | 14:56:37 | 101.545% | 199.900 | 99.903% | 91.449% | TM 200.200 | T 87.782% |
| 3 | 14:56:43 | 104.265% | M 200.000 | 101.317% | 89.495% | T 199.500 | T 85.798% |
| x | | 102.841% | M 198.900 | 100.433% | 92.510% | TM 199.400 | T 89.227% |
| σ | | 1.365% | M 1.880 | 0.771% | 3.663% | TM 0.885 | T 4.336% |
| %RSD | | 1.327 | M 0.945 | 0.768 | 3.960 | TM 0.444 | T 4.860 |

**ICV** 7/22/2013 3:00:11 PM M03481 100ppb

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 14:59:17 | 101.034% | 100.100 | 98.751% | 96.483% | 103.300 | 94.325% |
| 2 | 14:59:22 | 103.330% | 100.300 | 99.518% | 91.560% | 104.000 | 90.579% |
| 3 | 14:59:27 | 101.311% | 101.000 | 98.911% | 89.523% | 103.900 | 88.457% |
| x | | 101.892% | 100.400 | 99.060% | 92.522% | 103.800 | 91.120% |
| σ | | 1.253% | 0.513 | 0.405% | 3.578% | 0.383 | 2.971% |
| %RSD | | 1.230 | 0.511 | 0.408 | 3.868 | 0.369 | 3.260 |

**ICB** 7/22/2013 3:02:57 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 15:02:02 | 99.844% | 0.026 | 99.140% | 100.524% | 0.027 | 99.166% |
| 2 | 15:02:07 | 103.904% | 0.026 | 99.236% | 96.163% | 0.026 | 95.709% |
| 3 | 15:02:13 | 101.077% | 0.014 | 100.086% | 93.749% | 0.026 | 94.120% |
| x | | 101.608% | 0.022 | 99.487% | 96.812% | 0.026 | 96.332% |
| σ | | 2.081% | 0.007 | 0.521% | 3.434% | 0.000 | 2.580% |
| %RSD | | 2.048 | 31.160 | 0.524 | 3.547 | 1.584 | 2.678 |

**LLQC-1** 7/22/2013 3:05:45 PM 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 | 15:04:50 | 100.801% | 1.041 | 99.664% | 101.138% | 1.060 | 100.172% |
| 2 | 15:04:55 | 100.546% | 1.029 | 101.277% | 96.787% | 1.050 | 96.502% |
| 3 | 15:05:01 | 100.546% | 1.016 | 101.003% | 94.656% | 1.052 | 95.003% |
| x | | 100.631% | 1.029 | 100.648% | 97.527% | 1.054 | 97.226% |
| σ | | 0.147% | 0.013 | 0.863% | 3.304% | 0.005 | 2.659% |
| %RSD | | 0.146 | 1.229 | 0.857 | 3.387 | 0.521 | 2.735 |

**ECL029318-012** 7/22/2013 3:08:34 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 15:07:39 | 102.437% | 2.846 | 98.133% | 90.771% | 0.561 | 79.908% |
| 2 | 15:07:44 | 102.161% | 2.682 | 99.775% | 84.828% | 0.572 | 76.312% |
| 3 | 15:07:50 | 101.927% | 2.779 | 100.429% | 82.457% | 0.559 | 74.284% |
| x | | 102.175% | 2.769 | 99.446% | 86.018% | 0.564 | 76.835% |
| σ | | 0.255% | 0.082 | 1.183% | 4.283% | 0.007 | 2.848% |
| %RSD | | 0.250 | 2.975 | 1.189 | 4.979 | 1.204 | 3.707 |

**CCB** 7/22/2013 3:11:20 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 15:10:26 | 107.985% | 0.026 | 105.305% | 101.594% | 0.004 | 101.016% |
| 2 | 15:10:31 | 110.026% | 0.038 | 105.358% | 97.012% | 0.003 | 97.199% |
| 3 | 15:10:36 | 107.794% | 0.057 | 106.084% | 94.737% | 0.004 | 94.965% |
| x | | 108.602% | 0.040 | 105.582% | 97.781% | 0.003 | 97.727% |
| σ | | 1.237% | 0.015 | 0.435% | 3.493% | 0.001 | 3.060% |
| %RSD | | 1.139 | 38.340 | 0.412 | 3.572 | 15.970 | 3.131 |

**CKS** 7/22/2013 3:14:05 PM

User Pre-dilution: 1.000

| Run | Time | 45Sc | 52Cr | 89Y | 175Lu | 208Pb | 209Bi |
|---|---|---|---|---|---|---|---|
| | | ppb | ppb | ppb | ppb | ppb | ppb |
| 1 | 15:13:10 | 106.072% | 196.200 | 104.579% | 95.588% | T 198.700 | 92.636% |
| 2 | 15:13:15 | 104.308% | 199.100 | 104.180% | 90.783% | T 199.300 | T 86.300% |
| 3 | 15:13:21 | 108.814% | 196.500 | 105.768% | 87.799% | TM 200.500 | T 83.819% |
| x | | 106.398% | 197.200 | 104.842% | 91.390% | TM 199.500 | T 87.585% |
| σ | | 2.271% | 1.587 | 0.826% | 3.930% | TM 0.932 | T 4.547% |
| %RSD | | 2.134 | 0.805 | 0.788 | 4.300 | TM 0.467 | T 5.191 |

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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 | collectdate | collecttime | collectby |
|---|---|---|---|---|---|
| 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

((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 | ECL Log in Batch Number | Page 1 of 1

Project Manager: Sean Daniel Fax No.: (410) 740 - 3899

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

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

P.O.Number: CG120788.06SD

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 | Total Lead/Chromium EPA 200.8 | Dissolved Lead/ Chromium 200.8 | Hexavalent Chromium 218.7 | N | NA | | | | | 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 | | | | | | | |

| | Date | Time | Received By |
|---|---|---|---|
| Collected / Relinquished By | 6/24/13 | 9:50 | |
| Relinquished By | | | |
| Relinquished By | | | |
| Relinquished 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 # of Samples 20 # of Bottles 30

Bottles intact/appropriate Y N Preserved correctly Y N NA

Explain any "NO" answers

ECL Doc 1 (11-07-0)

# 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.

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#- ECL029324-008 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.

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#- ECL029324-009 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
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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.

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#- ECL029324-011 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.

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#- ECL029324-015 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-

Page 15 of 20

| 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.

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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#- ECL029324-019 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.

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#- ECL029324-020 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**

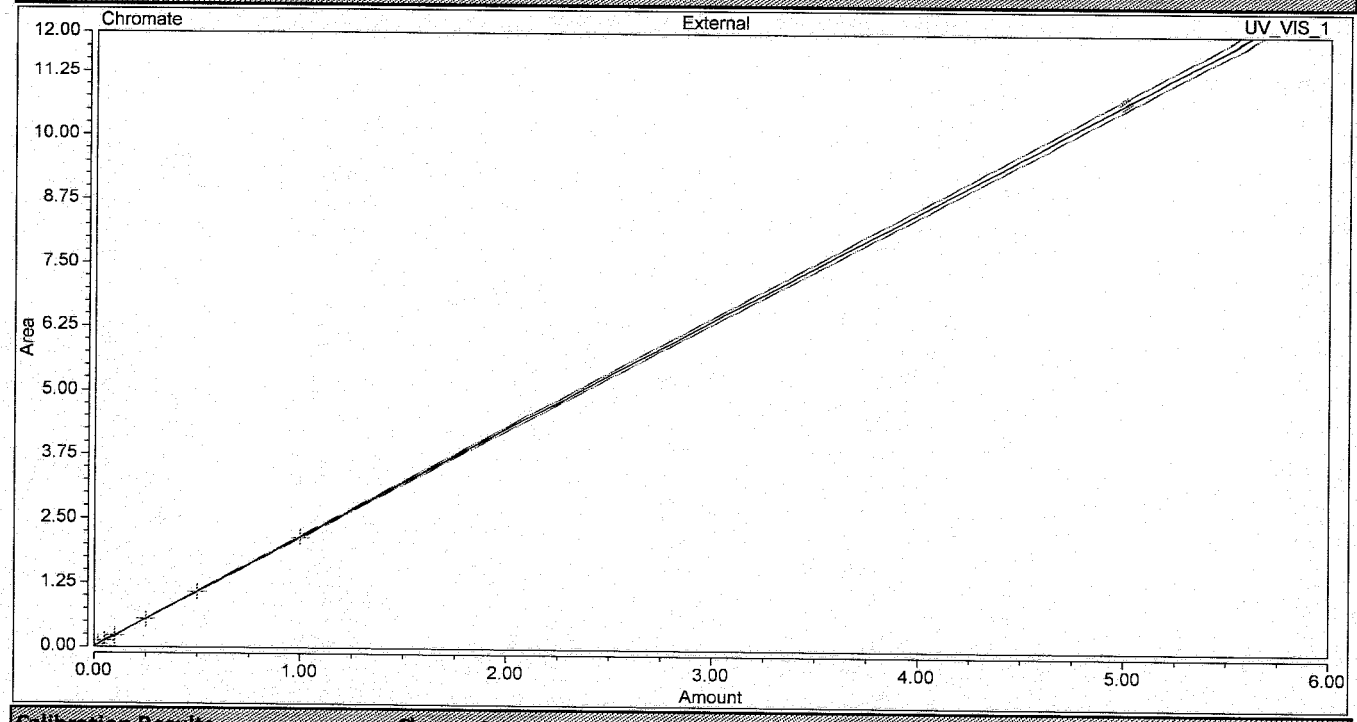
| | CrO4 |
|---|---|
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |

# Calibration Data

# Calibration

| Calibration Details | Chromate | | |
|---|---|---|---|
| *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 |

**Calibration Plot** Chromate




**Calibration Results** Chromate

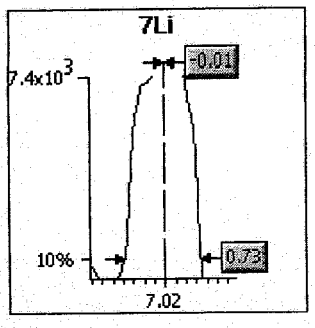
| No. | Injection Name | Calibration Level | X Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 01 | 0.0200 | 0.0506 | 0.0506 | 0.051 | 0.153 |
| 2 | 0.05 CrO4 | 02 | 0.0500 | 0.1208 | 0.1208 | 0.121 | 0.317 |
| 3 | 0.10 CrO4 | 03 | 0.1000 | 0.2176 | 0.2176 | 0.218 | 0.573 |

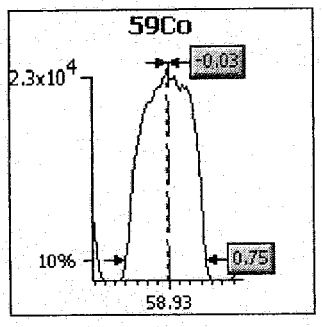
# Performance Report

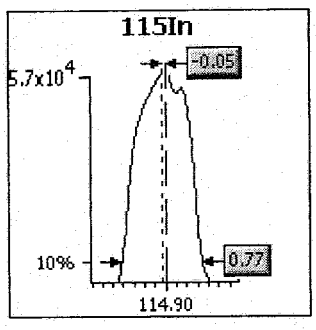
**Sample details**
Acquired at : 7/19/2013 2:20:11 PM
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

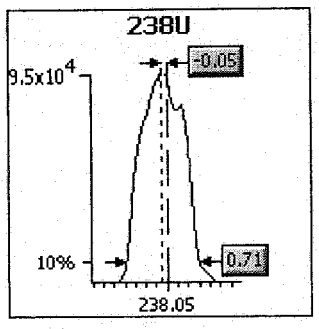
**Mass Calibration verification**

**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: 18:05

**SOP:** M-100 rev 5 Temp in: 83.7

Spiking Solution(s) added to LCS/MS/MSD: 25µL ICV@100-19 (C0431)

Acids added: (C0444) 1.0mL $HNO_3$, 1.0mL (HR0425) 1+1 HCl

Final volume (mL): 50mL Time out: 20:10 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

✓ 8A 6/25/13



# Summary

**Sequence Details**

| | | | |
|---|---|---|---|
| *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** |

**By Component** **Chromate**

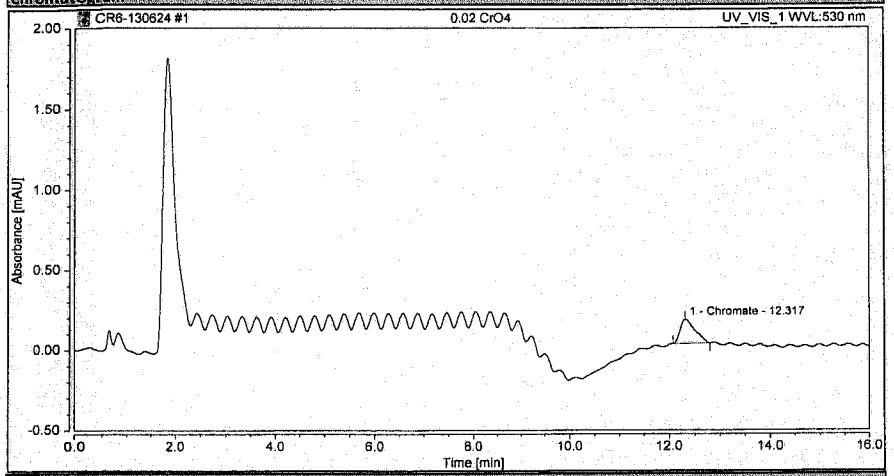
| No. | Injection Name | Ret.Time min Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 | Amount ppb Chromate UV_VIS_1 | Inject Time Chromate | Peak Type Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | QCS | 12.347 | 3.899 | 9.752 | 1.8226 | 24/06/13 19:16 | BM |
| 9 | CCC-LOW | 12.304 | 0.063 | 0.158 | 0.0255 | 24/06/13 19:35 | M |
| 10 | LRB | n.a. | n.a. | n.a. | n.a. | 24/06/13 19:54 | n.a. |
| 11 | ECL029303-002 | n.a. | n.a. | n.a. | n.a. | 24/06/13 20:13 | n.a. |
| 12 | ECL029303-002S | 12.105 | 2.157 | 5.404 | 1.0063 | 24/06/13 20:32 | M |
| 13 | ECL029303-002SD | 12.111 | 2.182 | 5.464 | 1.0182 | 24/06/13 20:51 | M |
| 14 | ECL029303-004 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:10 | n.a. |
| 15 | ECL029303-006 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:29 | n.a. |
| 16 | ECL029303-008 | n.a. | n.a. | n.a. | n.a. | 24/06/13 21:47 | n.a. |
| 17 | ECL029303-010 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:06 | n.a. |
| 18 | ECL029303-012 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:25 | n.a. |
| 19 | ECL029303-014 | n.a. | n.a. | n.a. | n.a. | 24/06/13 22:44 | n.a. |
| 20 | ECL029303-016 | 12.242 | 0.053 | 0.159 | 0.0207 | 24/06/13 23:03 | M |
| 21 | CCC-MID | 12.315 | 2.121 | 5.332 | 0.9894 | 24/06/13 23:22 | MB |
| 22 | LRB | n.a. | n.a. | n.a. | n.a. | 24/06/13 23:41 | n.a. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.317 | 0.051 | 0.153 | 100.00 | 100.00 | 0.0195 |
| **Total:** | | | **0.051** | **0.153** | **100.00** | **100.00** | |



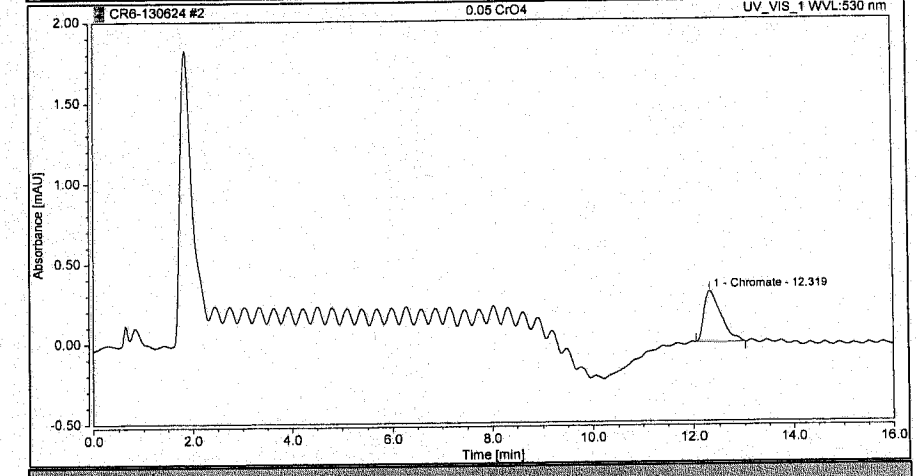


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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** |

### Chromatogram




### Integration Results

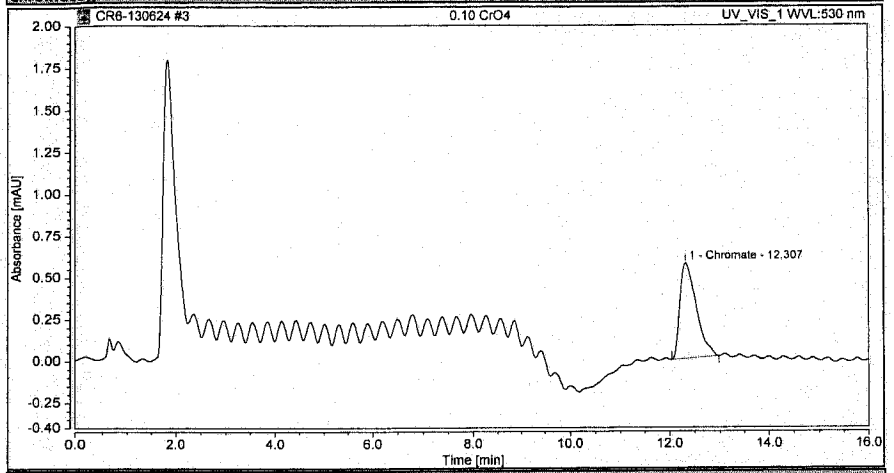
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.319 | 0.121 | 0.317 | 100.00 | 100.00 | 0.0524 |
| **Total:** | | | **0.121** | **0.317** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.307 | 0.218 | 0.573 | 100.00 | 100.00 | 0.0977 |
| **Total:** | | | **0.218** | **0.573** | **100.00** | **100.00** | |



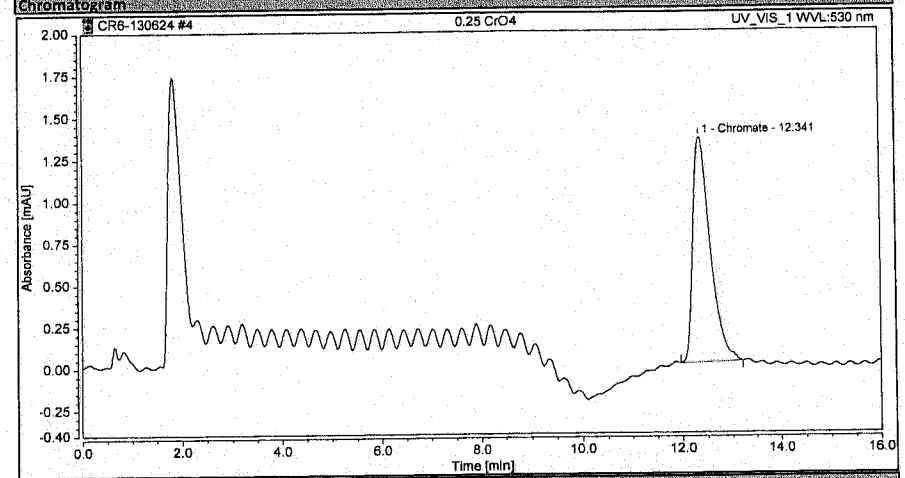


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

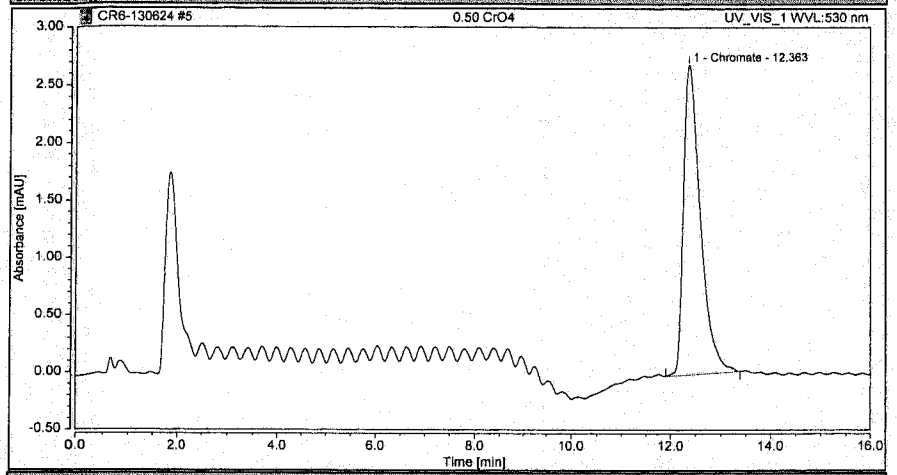
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.341 | 0.544 | 1.347 | 100.00 | 100.00 | 0.2507 |
| **Total:** | | | **0.544** | **1.347** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 18:19** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.363 | 1.069 | 2.695 | 100.00 | 100.00 | 0.4966 |
| **Total:** | | | **1.069** | **2.695** | **100.00** | **100.00** | |



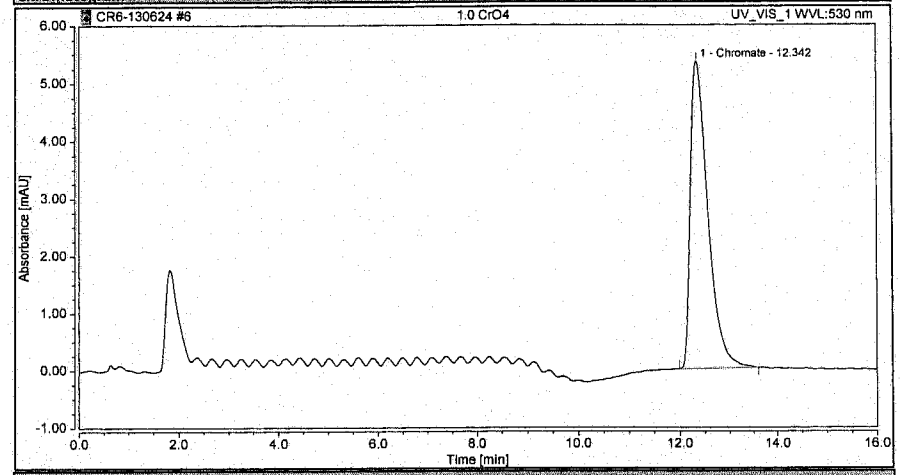


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 18:38** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

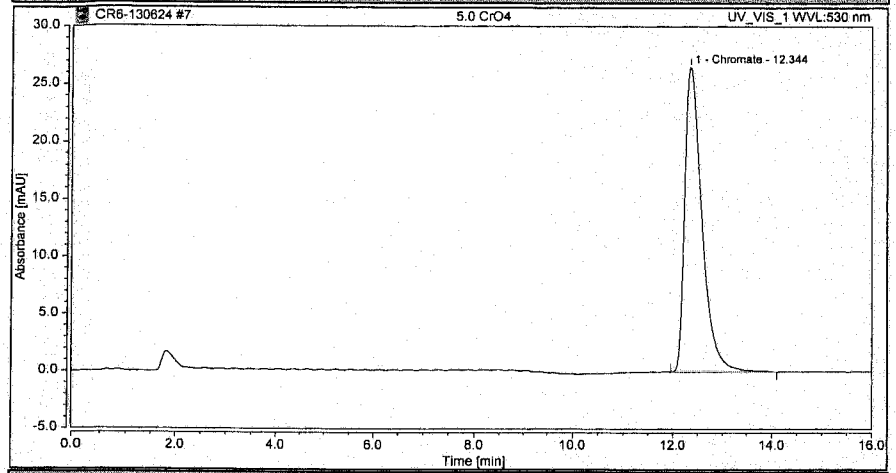
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.342 | 2.143 | 5.353 | 100.00 | 100.00 | 0.9998 |
| **Total:** | | | **2.143** | **5.353** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.344 | 10.689 | 26.528 | 100.00 | 100.00 | 5.0032 |
| **Total:** | | | **10.689** | **26.528** | **100.00** | **100.00** | |



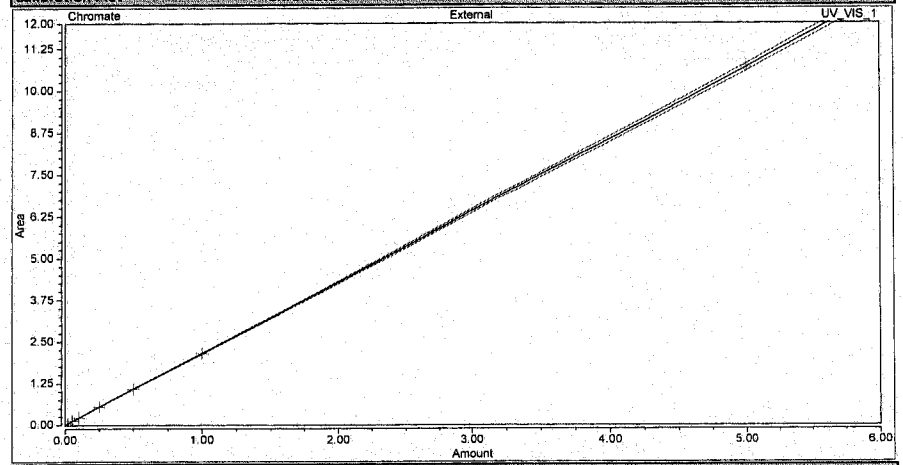


## Calibration

### Calibration Details — Chromate

| | | | |
|---|---|---|---|
| *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 |

### Calibration Plot — Chromate




### Calibration Results — Chromate

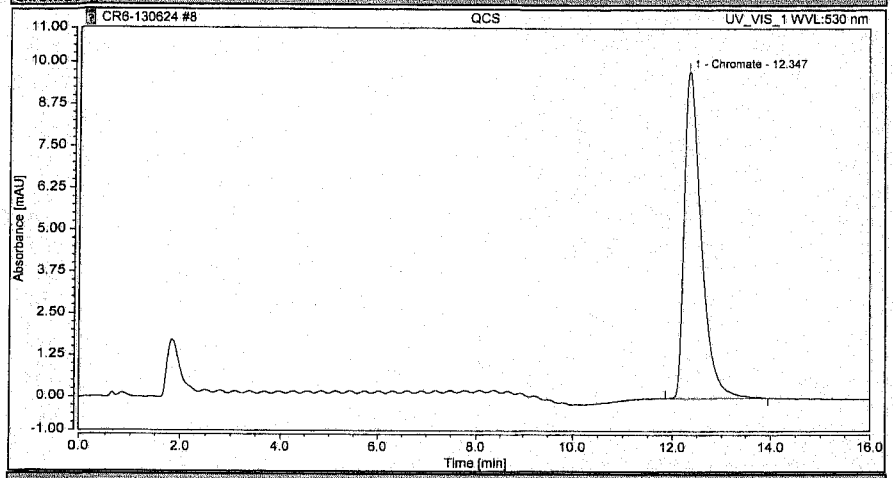
| No. | Injection Name | Calibration Level | X Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 01 | 0.0200 | 0.0506 | 0.0506 | 0.051 | 0.153 |
| 2 | 0.05 CrO4 | 02 | 0.0500 | 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 | 1.0 CrO4 | 06 | 1.0000 | 2.1432 | 2.1432 | 2.143 | 5.353 |
| 7 | 5.0 CrO4 | 07 | 5.0000 | 10.6889 | 10.6889 | 10.689 | 26.528 |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.347 | 3.899 | 9.752 | 100.00 | 100.00 | 1.8226 |
| **Total:** | | | **3.899** | **9.752** | **100.00** | **100.00** | |



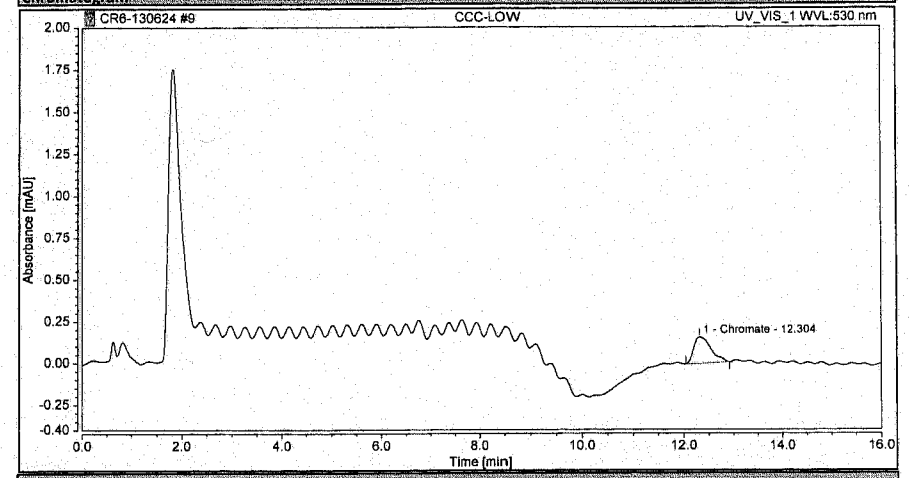


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

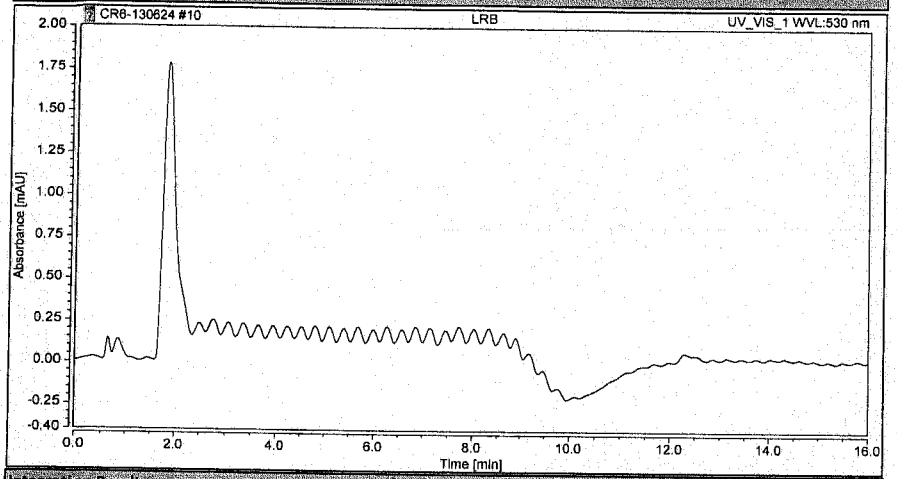
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.304 | 0.063 | 0.158 | 100.00 | 100.00 | 0.0255 |
| **Total:** | | | **0.063** | **0.158** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



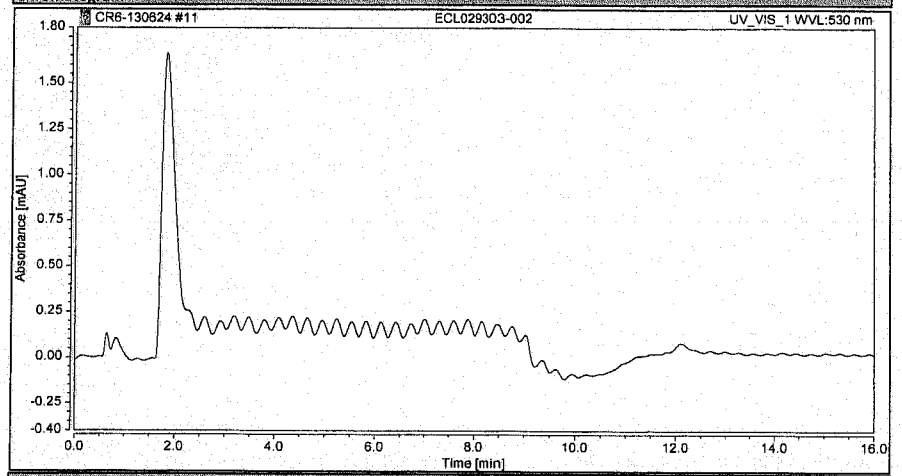


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002** | *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** |

### Chromatogram




### Integration Results

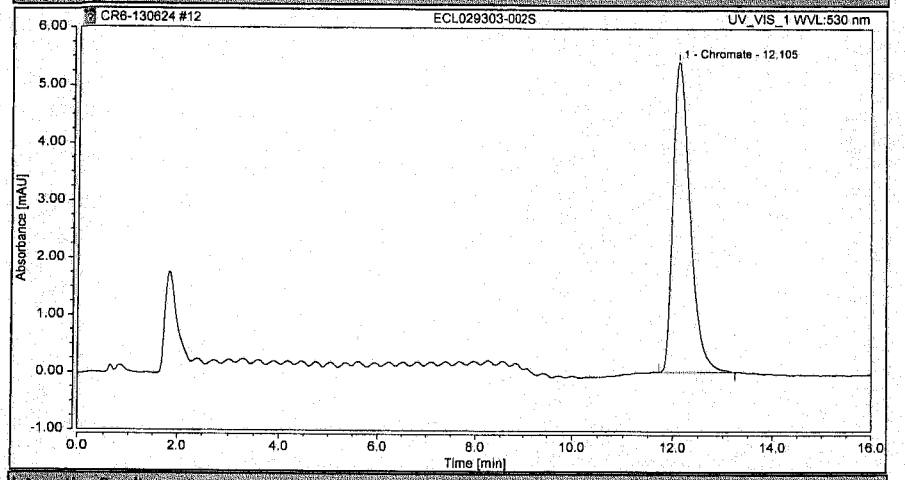
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002S** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.105 | 2.157 | 5.404 | 100.00 | 100.00 | 1.0083 |
| **Total:** | | | **2.157** | **5.404** | **100.00** | **100.00** | |





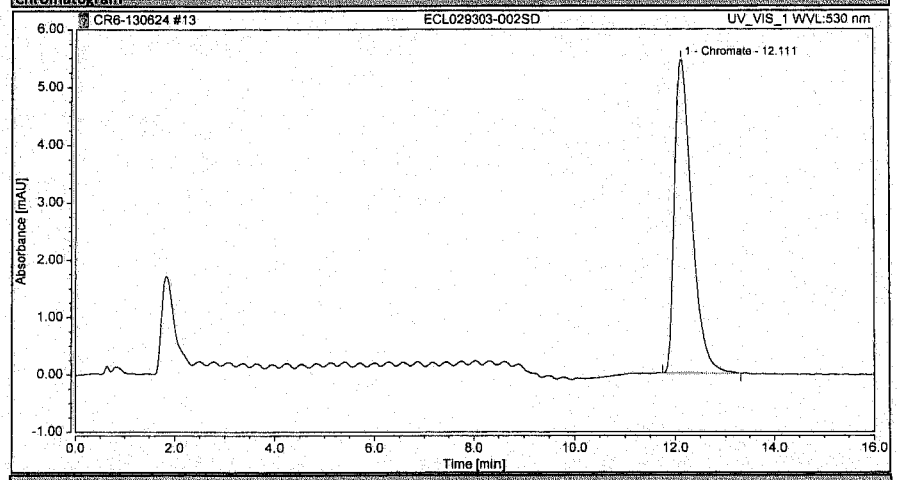


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-002SD** | *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** |

### Chromatogram




### Integration Results

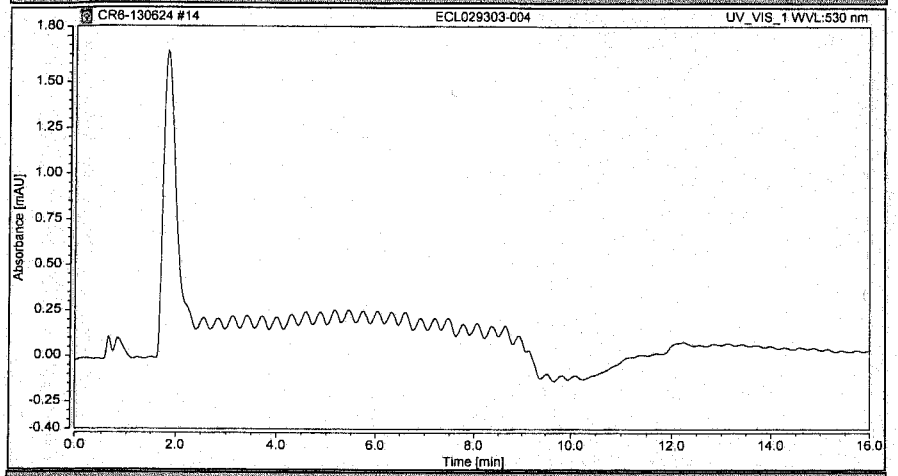
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.111 | 2.182 | 5.464 | 100.00 | 100.00 | 1.0182 |
| **Total:** | | | **2.182** | **5.464** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 21:10** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration 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** | |



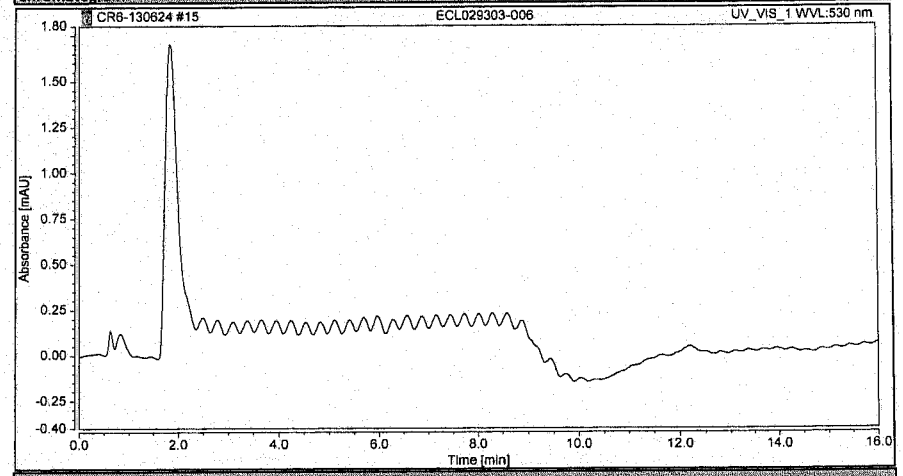


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

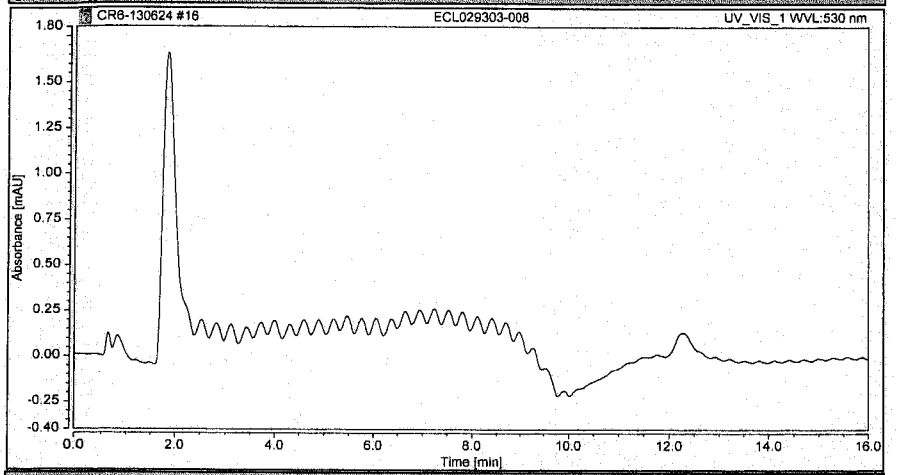
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



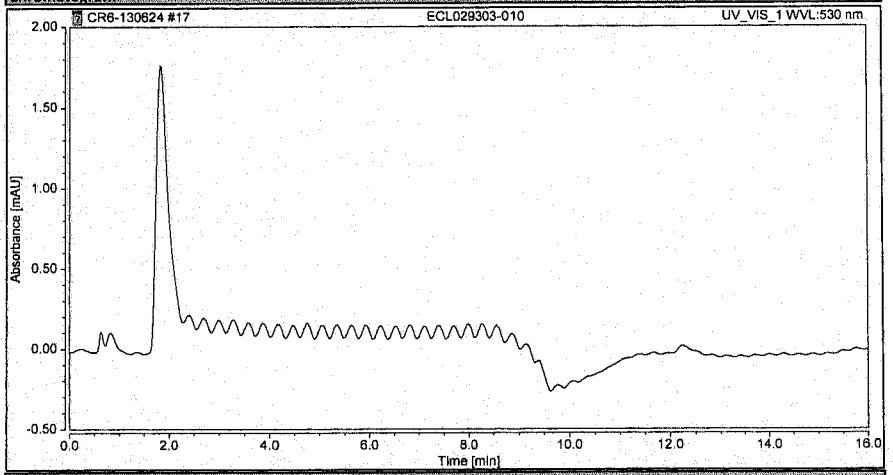


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

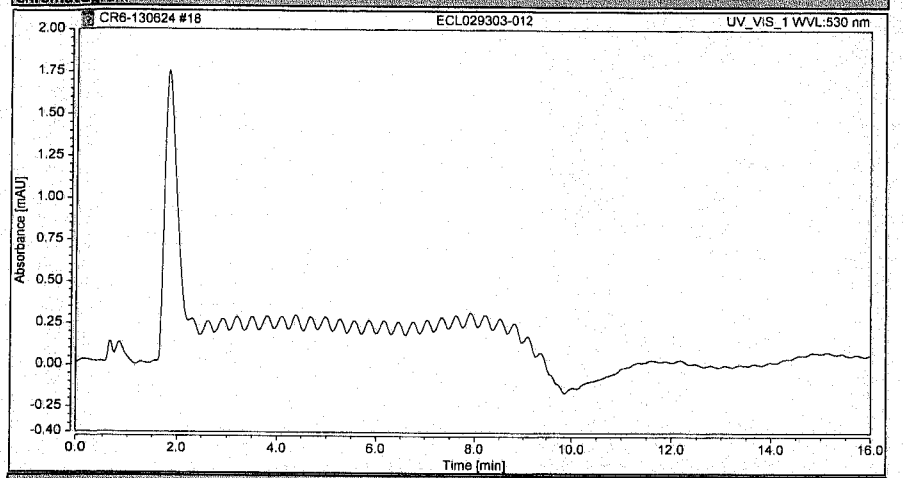
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-012** | *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** |

### Chromatogram




### Integration 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** | |



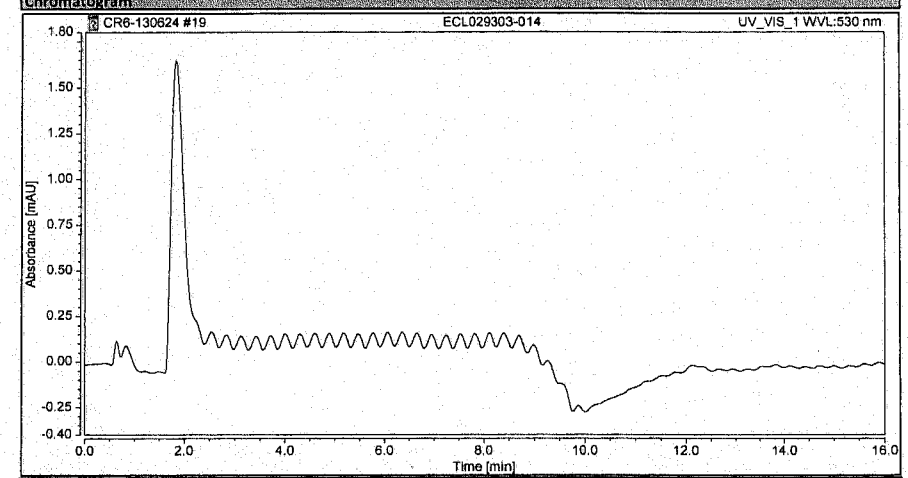


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-014** | *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** |

### Chromatogram




### Integration Results

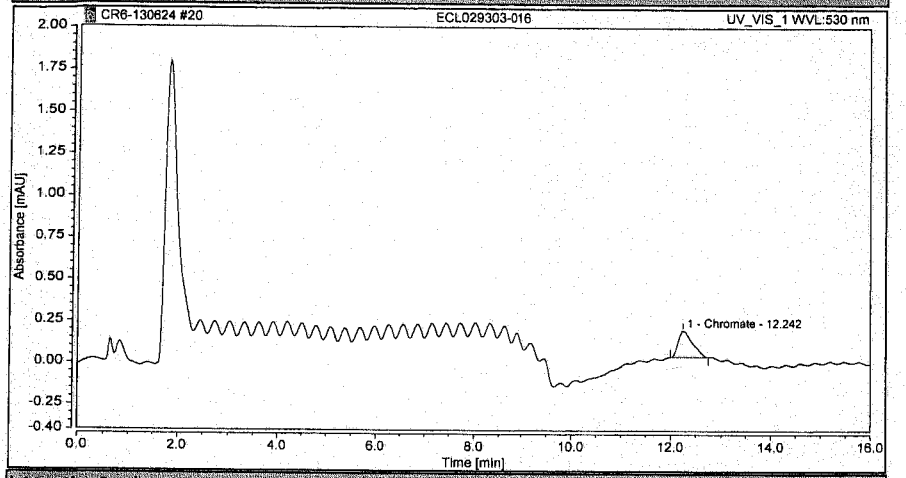
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-016** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.242 | 0.053 | 0.159 | 100.00 | 100.00 | 0.0207 |
| **Total:** | | | **0.053** | **0.159** | **100.00** | **100.00** | |



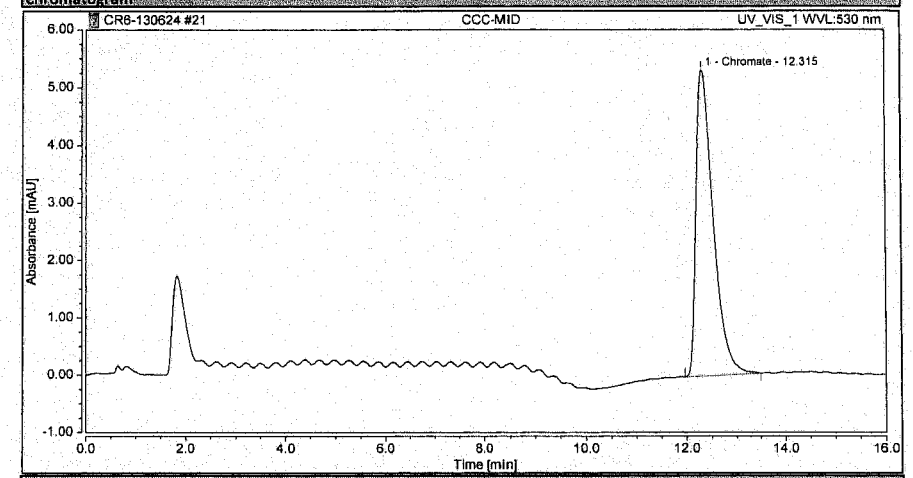


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

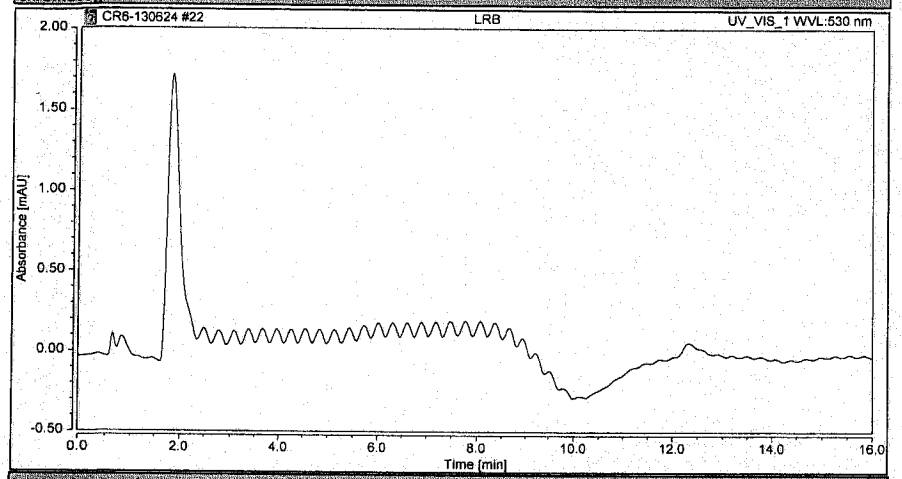
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.315 | 2.121 | 5.332 | 100.00 | 100.00 | 0.9894 |
| **Total:** | | | **2.121** | **5.332** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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:* | **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 23:41** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration 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** | |

## Summary

**Sequence Details**

| | | | |
|---|---|---|---|
| *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** |

**By Component** **Chromate**

| 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 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | ECL029303-018 | 12.172 | 0.078 | 0.198 | 0.0326 | 25/06/13 00:04 | M |
| 9 | ECL029303-018S | 12.181 | 2.154 | 5.364 | 1.0048 | 25/06/13 00:22 | MB |
| 10 | ECL029303-018SD | 12.180 | 2.178 | 5.470 | 1.0160 | 25/06/13 00:41 | M |
| 11 | ECL029303-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:00 | n.a. |
| 12 | ECL029303-022 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:19 | n.a. |
| 13 | ECL029318-002 | n.a. | n.a. | n.a. | n.a. | 25/06/13 01:38 | n.a. |
| 14 | ECL029318-004 | 12.242 | 0.246 | 0.613 | 0.1113 | 25/06/13 01:57 | M |
| 15 | ECL029318-006 | 12.244 | 0.247 | 0.638 | 0.1117 | 25/06/13 02:16 | M |
| 16 | ECL029318-008 | 12.224 | 0.282 | 0.712 | 0.1280 | 25/06/13 02:35 | BM |
| 17 | ECL029318-010 | 12.256 | 0.248 | 0.626 | 0.1122 | 25/06/13 02:53 | M |
| 18 | CCC-HIGH | 12.312 | 10.618 | 26.326 | 4.9698 | 25/06/13 03:12 | M |
| 19 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 03:31 | n.a. |
| 20 | ECL029318-012 | 12.229 | 0.243 | 0.629 | 0.1097 | 25/06/13 03:50 | M |
| 21 | ECL029318-014 | n.a. | n.a. | n.a. | n.a. | 25/06/13 04:09 | n.a. |
| 22 | ECL029318-016 | 12.232 | 0.077 | 0.196 | 0.0320 | 25/06/13 04:28 | MB |
| 23 | ECL029318-016S | 12.238 | 2.213 | 5.564 | 1.0327 | 25/06/13 04:47 | M |
| 24 | ECL029318-016SD | 12.224 | 2.138 | 5.386 | 0.9975 | 25/06/13 05:06 | M |
| 25 | ECL029318-018 | 12.249 | 0.072 | 0.189 | 0.0298 | 25/06/13 05:25 | MB |
| 26 | ECL029318-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 05:44 | n.a. |
| 27 | ECL029330-002 | 12.249 | 0.093 | 0.247 | 0.0393 | 25/06/13 06:03 | BM |
| 28 | ECL029330-004 | n.a. | n.a. | n.a. | n.a. | 25/06/13 06:22 | n.a. |
| 29 | ECL029324-002 | 12.162 | 0.060 | 0.156 | 0.0240 | 25/06/13 06:40 | M |
| 30 | CCC-LOW | 12.337 | 0.056 | 0.152 | 0.0219 | 25/06/13 06:59 | BMB* |
| 31 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 07:18 | n.a. |
| 32 | ECL029324-004 | 12.165 | 0.058 | 0.162 | 0.0231 | 25/06/13 07:37 | M |
| 33 | ECL029324-006 | 12.162 | 0.060 | 0.165 | 0.0238 | 25/06/13 07:56 | M |
| 34 | ECL029324-008 | 12.187 | 0.054 | 0.149 | 0.0211 | 25/06/13 08:15 | M |
| 35 | ECL029324-008S | 12.175 | 2.081 | 5.307 | 0.9708 | 25/06/13 08:34 | M |
| 36 | ECL029324-008SD | 12.157 | 2.069 | 5.258 | 0.9652 | 25/06/13 08:53 | M |
| 37 | ECL029324-010 | 12.189 | 0.060 | 0.166 | 0.0241 | 25/06/13 09:12 | MB |
| 38 | ECL029324-012 | 12.162 | 0.489 | 1.230 | 0.2251 | 25/06/13 09:31 | MB |
| 39 | ECL029324-014 | 12.167 | 0.053 | 0.126 | 0.0209 | 25/06/13 09:50 | BMB* |
| 40 | ECL029324-016 | 12.147 | 0.062 | 0.147 | 0.0250 | 25/06/13 10:09 | M |
| 41 | ECL029324-018 | 12.142 | 0.043 | 0.131 | 0.0160 | 25/06/13 10:27 | M |
| 42 | CCC-MID | 12.318 | 2.140 | 5.423 | 0.9983 | 25/06/13 10:46 | MB |
| 43 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 11:05 | n.a. |

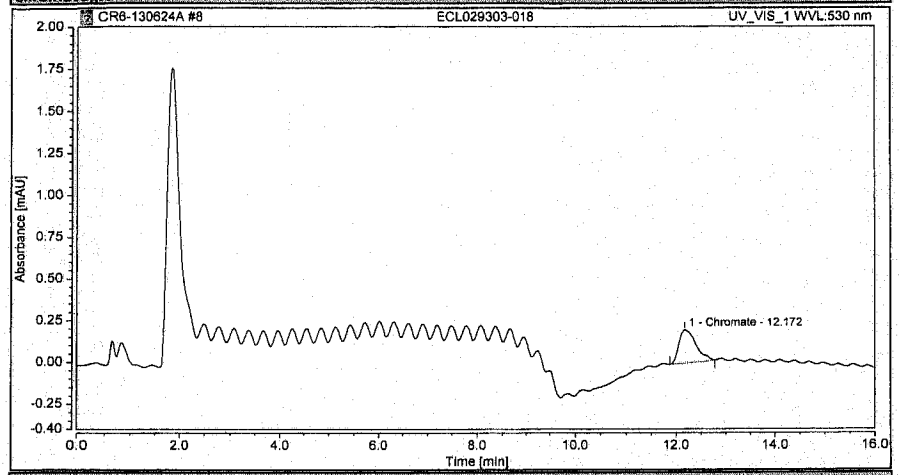
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 44 | ECL029324-020 | n.a. | n.a. | n.a. | n.a. | 25/06/13 11:24 | n.a. |
| 45 | CCC-HIGH | 12.312 | 10.699 | 26.705 | 5.0077 | 25/06/13 11:43 | M |
| 46 | LRB | n.a. | n.a. | n.a. | n.a. | 25/06/13 12:02 | n.a. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.172 | 0.078 | 0.198 | 100.00 | 100.00 | 0.0326 |
| **Total:** | | | **0.078** | **0.198** | **100.00** | **100.00** | |



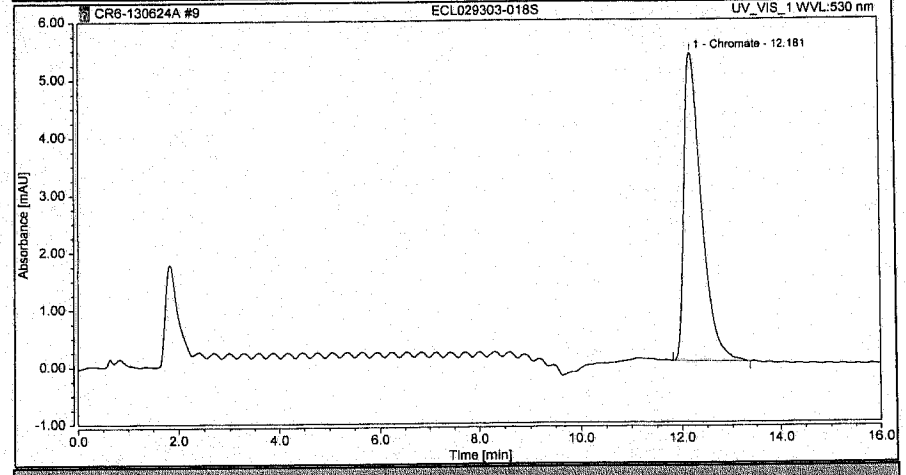


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018S** | *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** |

### Chromatogram




### Integration Results

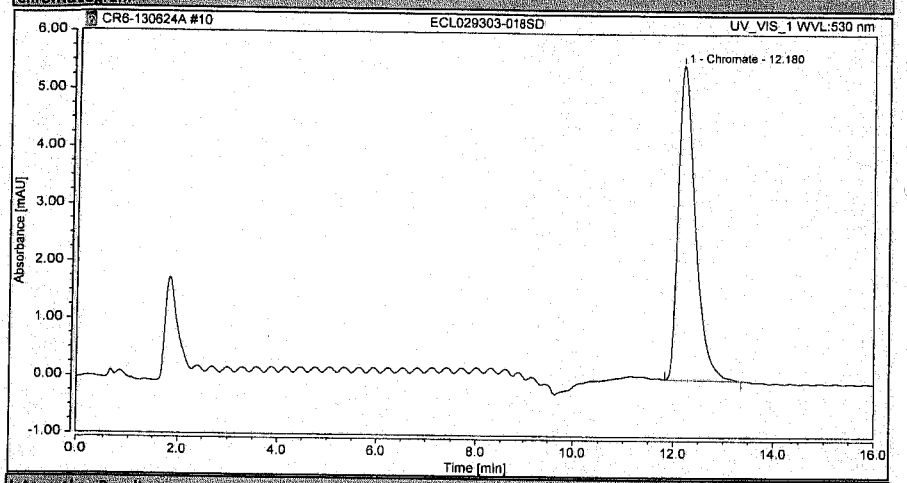
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.181 | 2.154 | 5.364 | 100.00 | 100.00 | 1.0048 |
| **Total:** | | | **2.154** | **5.364** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-018SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.180 | 2.178 | 5.470 | 100.00 | 100.00 | 1.0160 |
| **Total:** | | | **2.178** | **5.470** | **100.00** | **100.00** | |



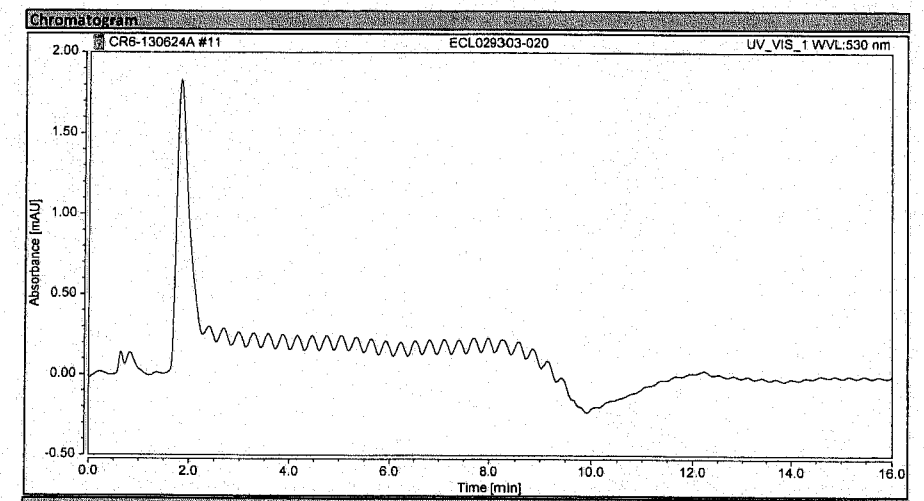


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029303-020** | *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 01:00** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

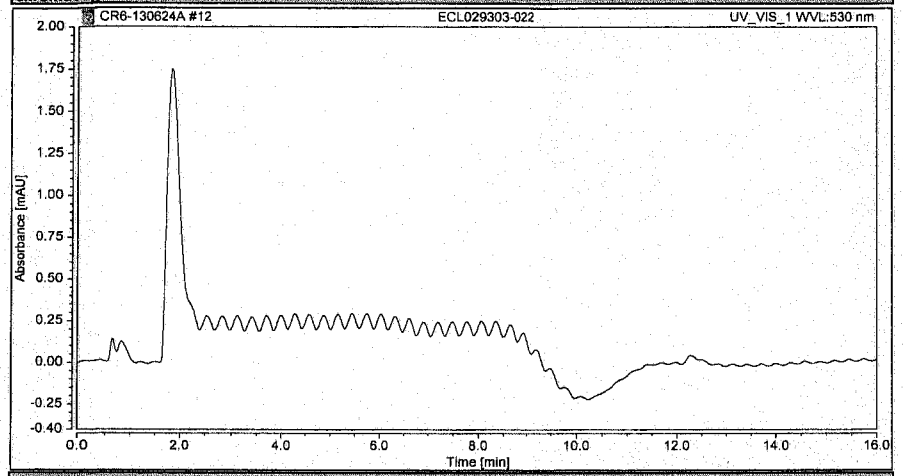
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



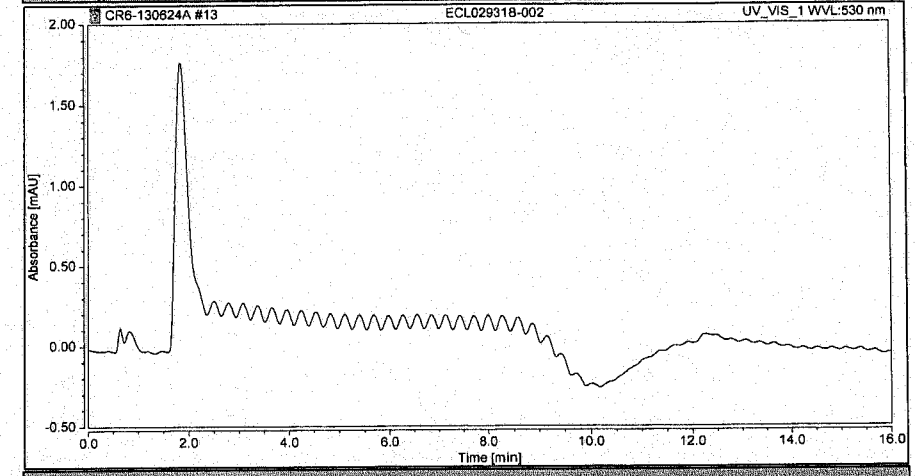


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-002** | *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** |

### Chromatogram




### Integration Results

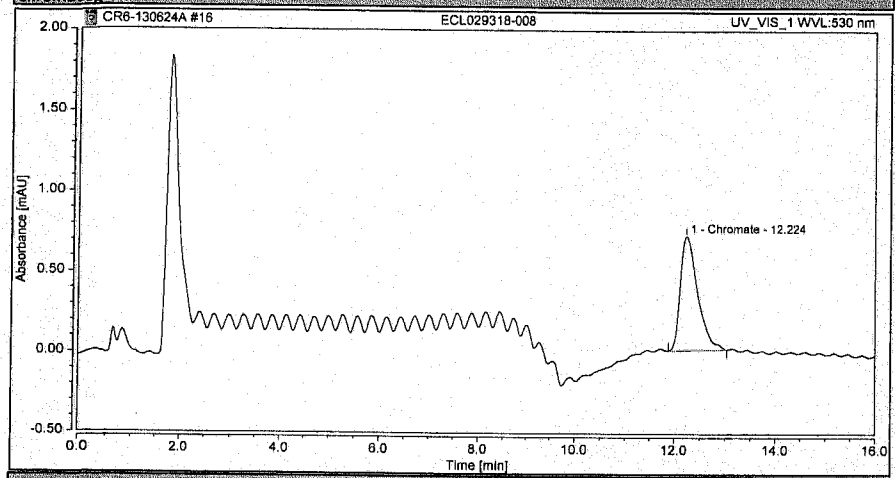
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-008** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.224 | 0.282 | 0.712 | 100.00 | 100.00 | 0.1280 |
| **Total:** | | | **0.282** | **0.712** | **100.00** | **100.00** | |



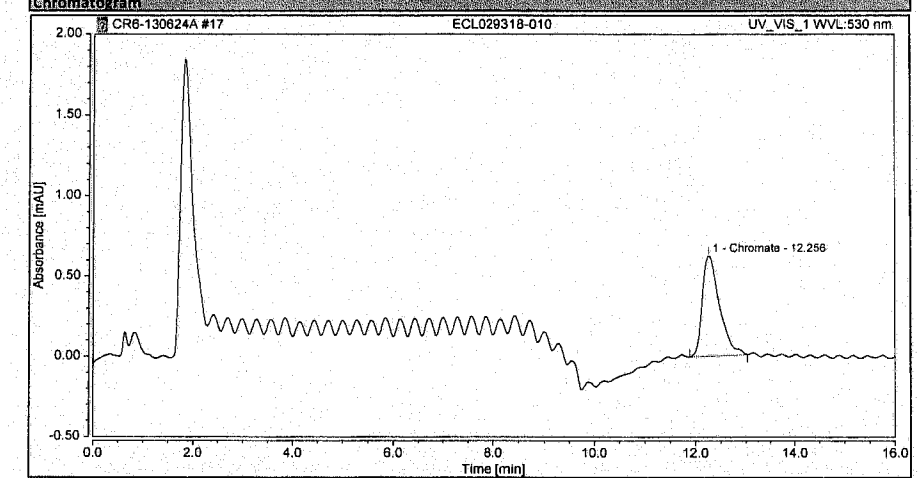


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

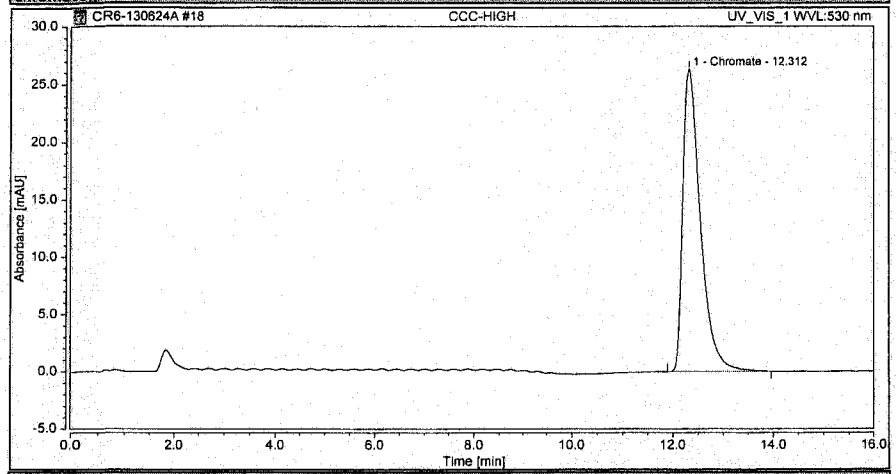
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.256 | 0.248 | 0.626 | 100.00 | 100.00 | 0.1122 |
| **Total:** | | | **0.248** | **0.626** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.312 | 10.618 | 26.326 | 100.00 | 100.00 | 4.9698 |
| **Total:** | | | **10.618** | **26.326** | **100.00** | **100.00** | |



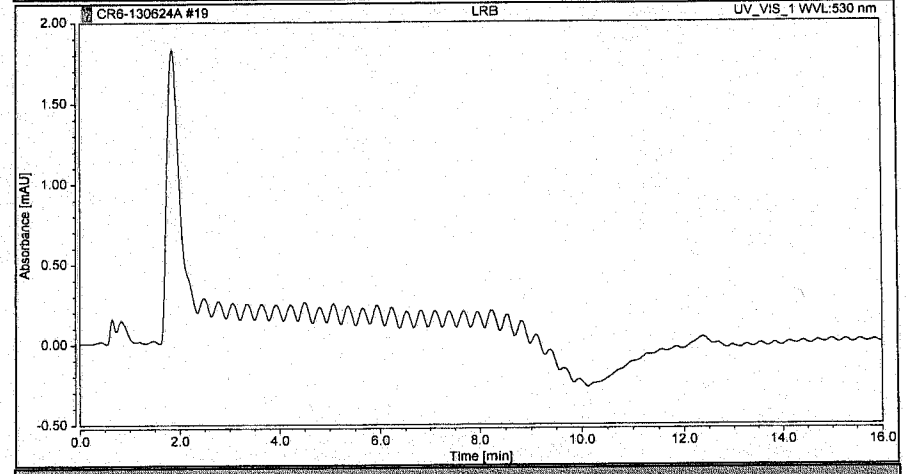


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

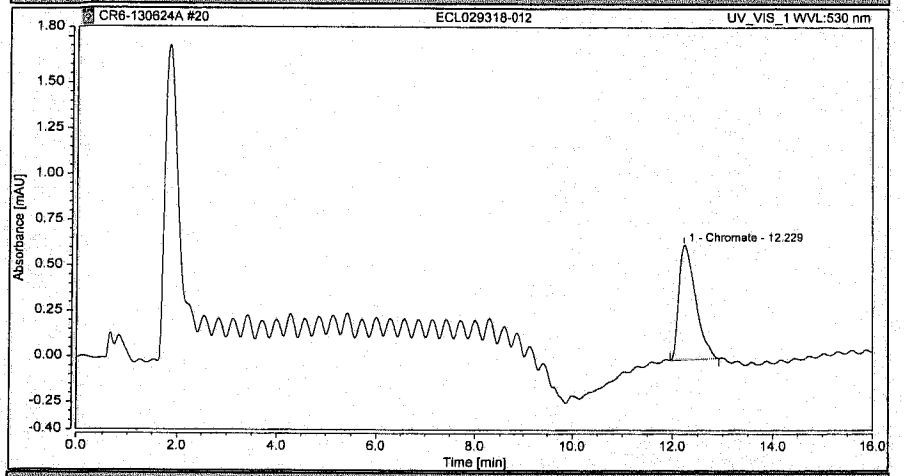
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.229 | 0.243 | 0.629 | 100.00 | 100.00 | 0.1097 |
| **Total:** | | | **0.243** | **0.629** | **100.00** | **100.00** | |



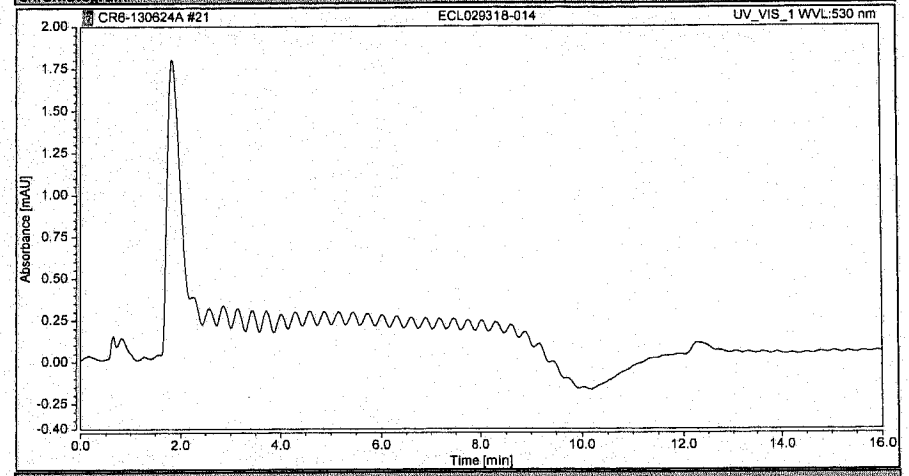


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

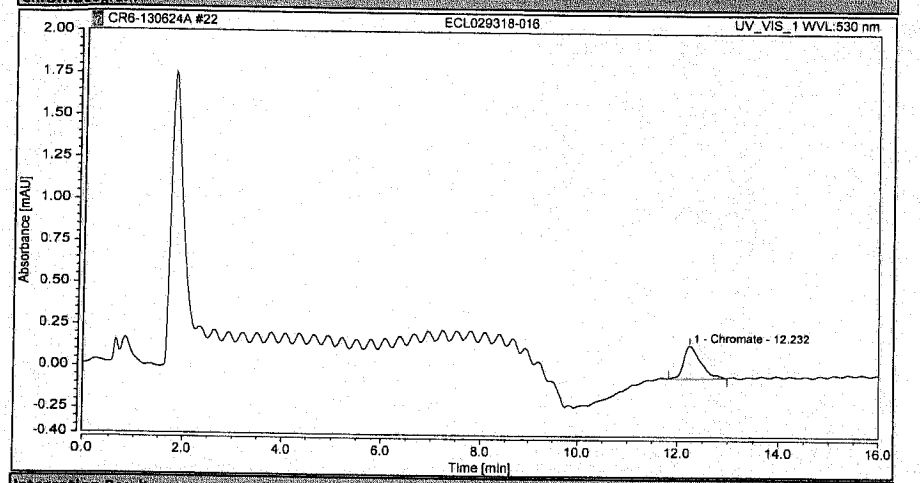
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.232 | 0.077 | 0.196 | 100.00 | 100.00 | 0.0320 |
| **Total:** | | | **0.077** | **0.196** | **100.00** | **100.00** | |



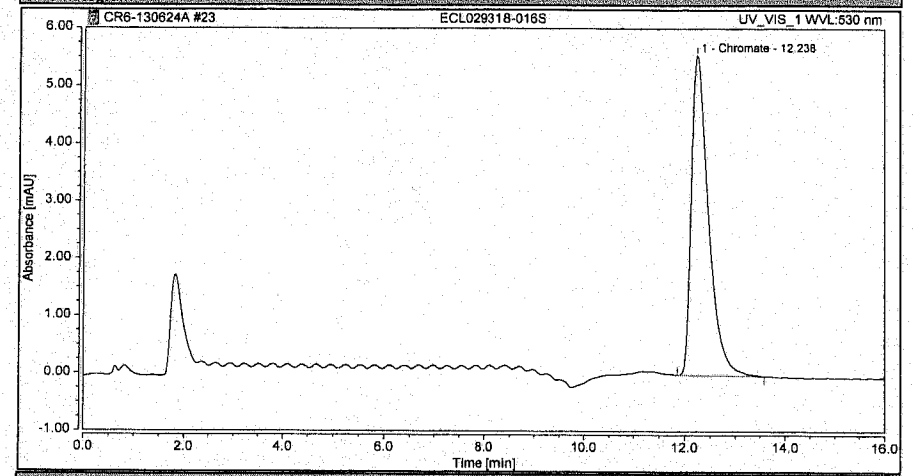


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

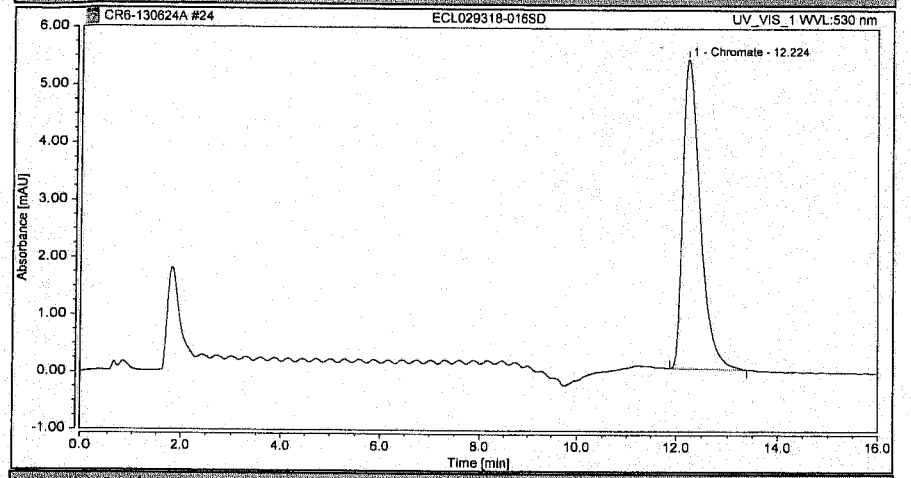
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.238 | 2.213 | 5.564 | 100.00 | 100.00 | 1.0327 |
| **Total:** | | | **2.213** | **5.564** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-016SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.224 | 2.138 | 5.386 | 100.00 | 100.00 | 0.9975 |
| **Total:** | | | **2.138** | **5.386** | **100.00** | **100.00** | |



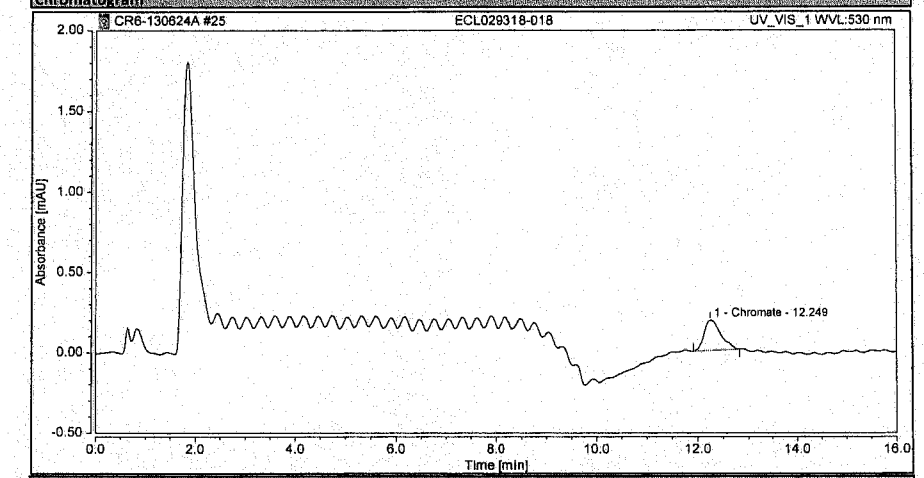


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029318-018** | *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 05:25** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

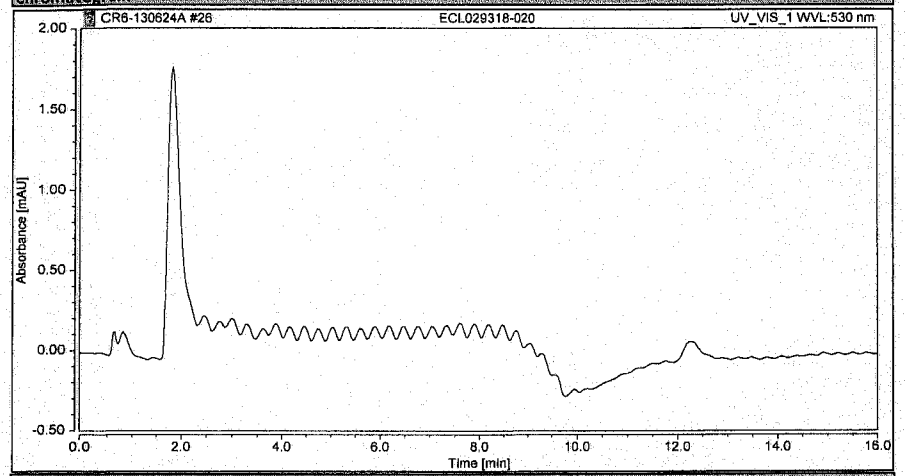
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.249 | 0.072 | 0.189 | 100.00 | 100.00 | 0.0298 |
| **Total:** | | | **0.072** | **0.189** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



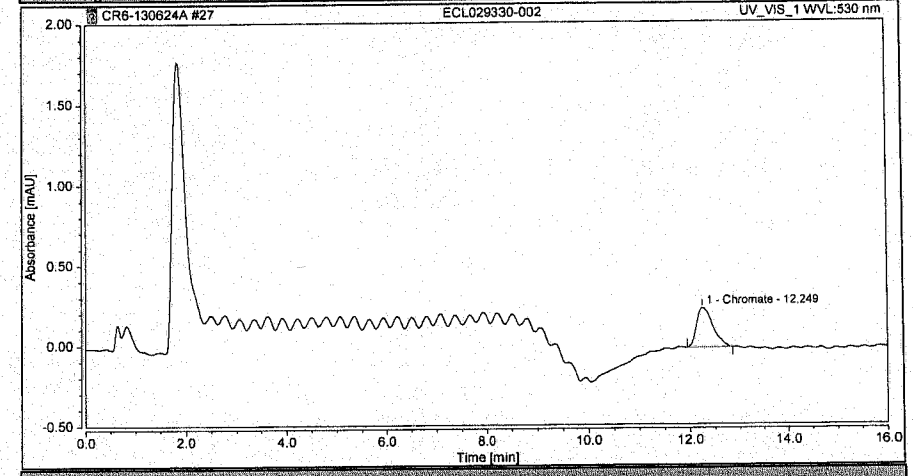


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

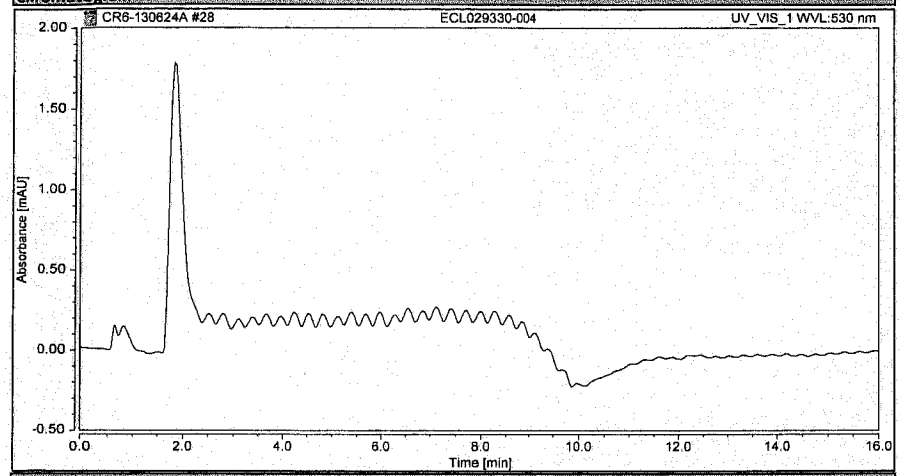
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.249 | 0.093 | 0.247 | 100.00 | 100.00 | 0.0393 |
| **Total:** | | | **0.093** | **0.247** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



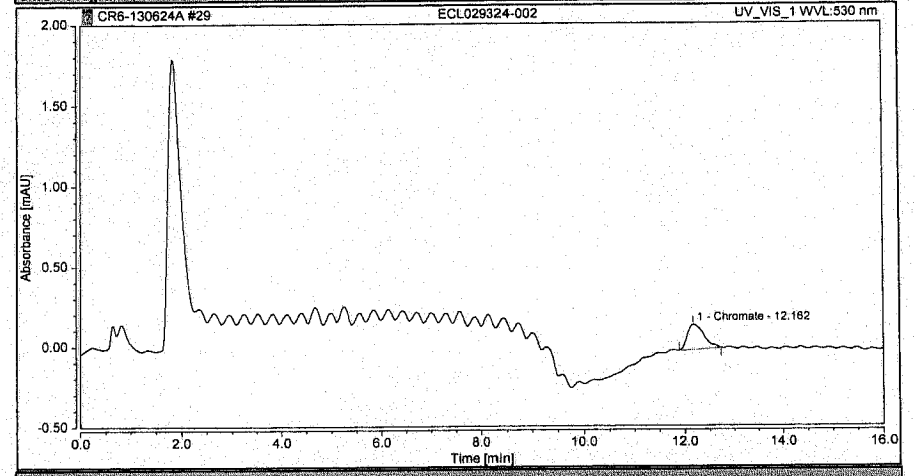


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

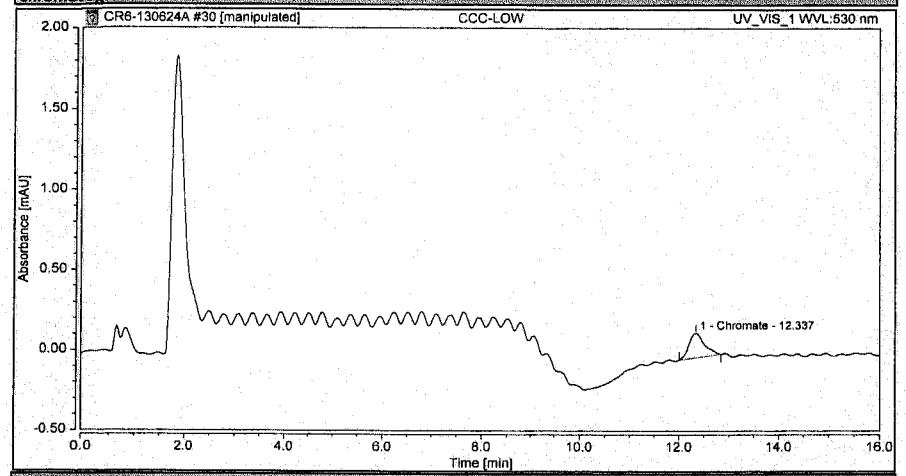
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.060 | 0.156 | 100.00 | 100.00 | 0.0240 |
| **Total:** | | | **0.060** | **0.156** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 06:59** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.337 | 0.056 | 0.152 | 100.00 | 100.00 | 0.0219 |
| **Total:** | | | **0.056** | **0.152** | **100.00** | **100.00** | |



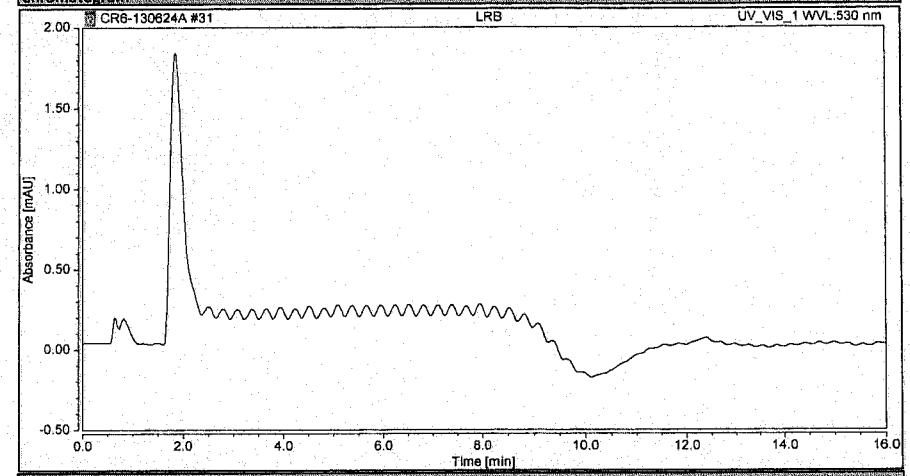


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



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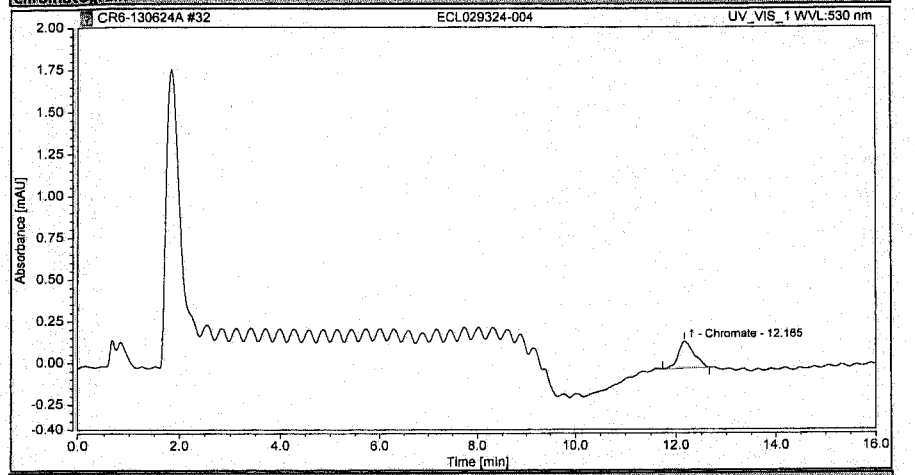
## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.165 | 0.058 | 0.162 | 100.00 | 100.00 | 0.0231 |
| **Total:** | | | **0.058** | **0.162** | **100.00** | **100.00** | |



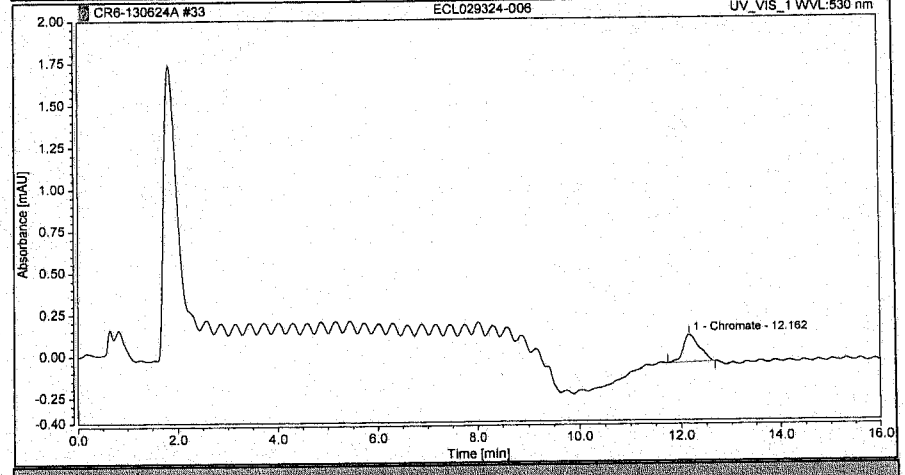


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

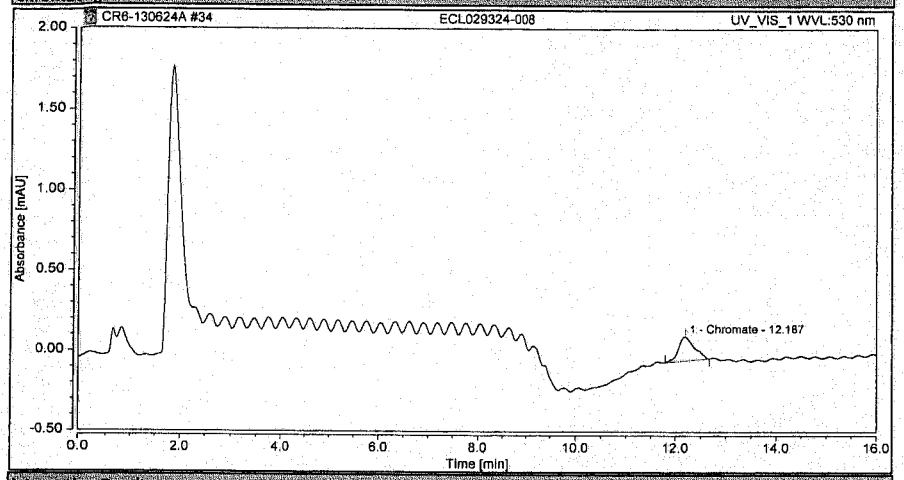
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.060 | 0.165 | 100.00 | 100.00 | 0.0238 |
| **Total:** | | | **0.060** | **0.165** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.187 | 0.054 | 0.149 | 100.00 | 100.00 | 0.0211 |
| **Total:** | | | **0.054** | **0.149** | **100.00** | **100.00** | |



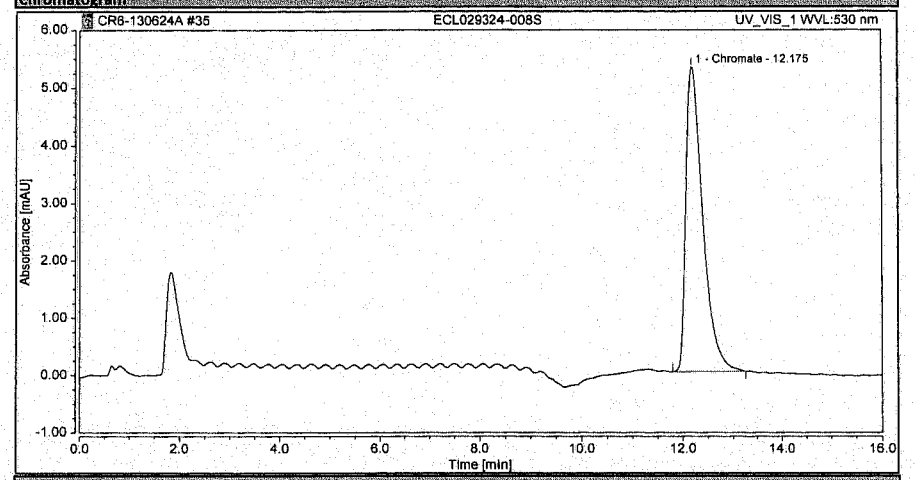


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008S** | *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** |

### Chromatogram




### Integration Results

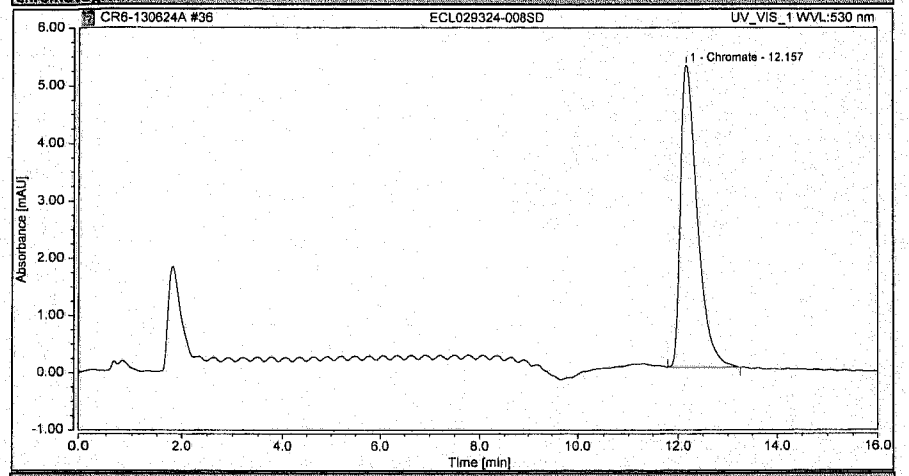
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.175 | 2.081 | 5.307 | 100.00 | 100.00 | 0.9708 |
| **Total:** | | | **2.081** | **5.307** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *Injection Name:* | **ECL029324-008SD** | *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.157 | 2.069 | 5.258 | 100.00 | 100.00 | 0.9652 |
| **Total:** | | | **2.069** | **5.258** | **100.00** | **100.00** | |



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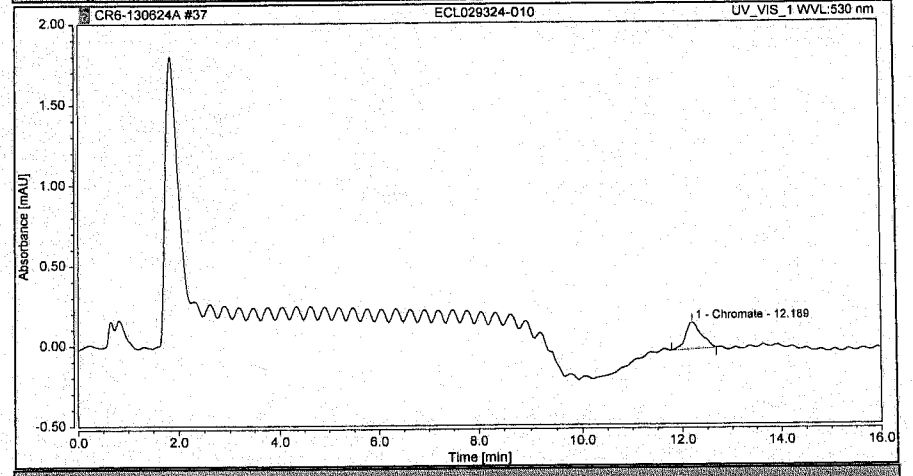
## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

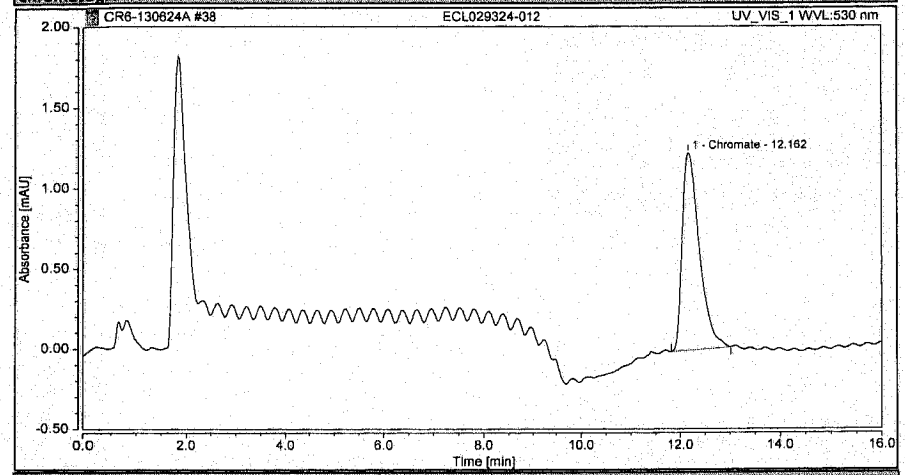
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.189 | 0.060 | 0.166 | 100.00 | 100.00 | 0.0241 |
| **Total:** | | | **0.060** | **0.166** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.162 | 0.489 | 1.230 | 100.00 | 100.00 | 0.2251 |
| **Total:** | | | **0.489** | **1.230** | **100.00** | **100.00** | |



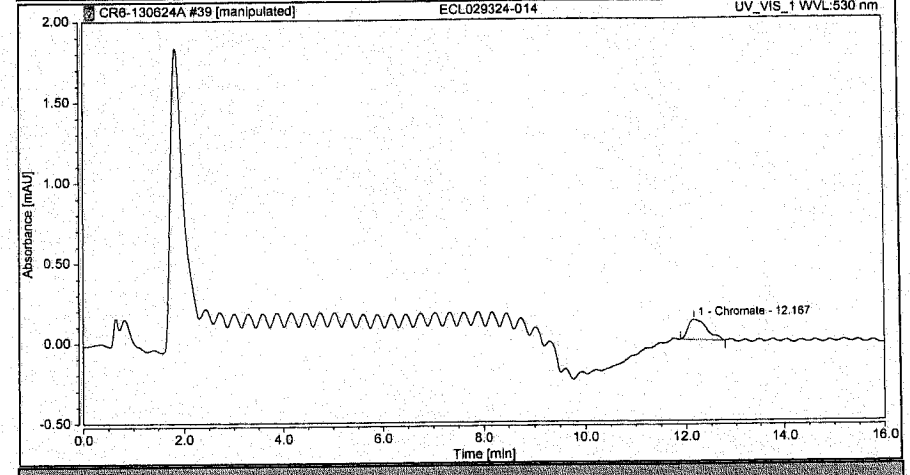


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 09:50** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

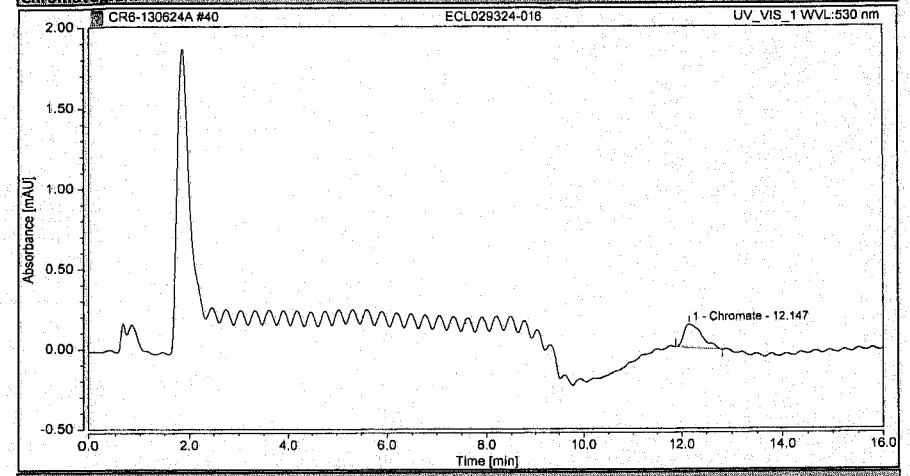
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.167 | 0.053 | 0.126 | 100.00 | 100.00 | 0.0209 |
| **Total:** | | | **0.053** | **0.126** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.147 | 0.062 | 0.147 | 100.00 | 100.00 | 0.0250 |
| **Total:** | | | **0.062** | **0.147** | **100.00** | **100.00** | |



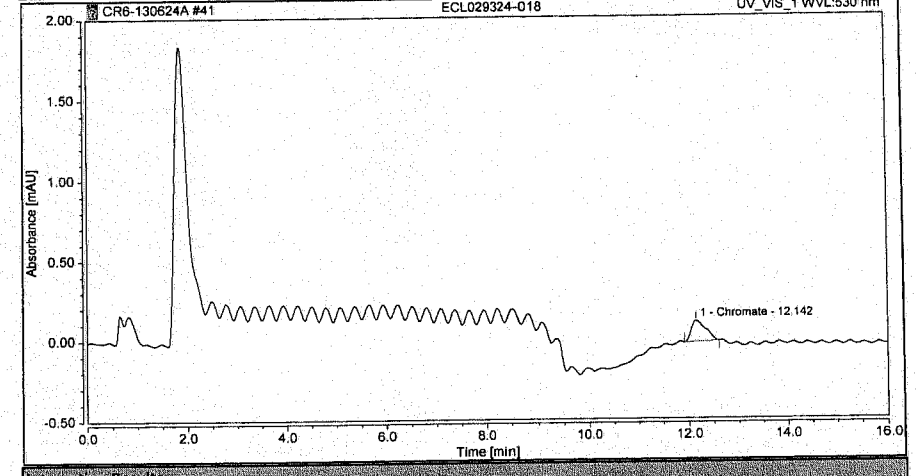


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

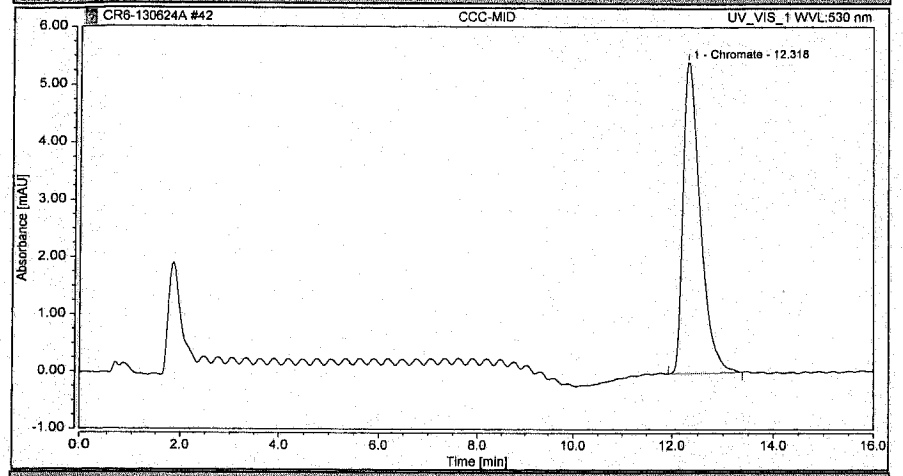
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.142 | 0.043 | 0.131 | 100.00 | 100.00 | 0.0160 |
| **Total:** | | | **0.043** | **0.131** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.318 | 2.140 | 5.423 | 100.00 | 100.00 | 0.9983 |
| **Total:** | | | **2.140** | **5.423** | **100.00** | **100.00** | |



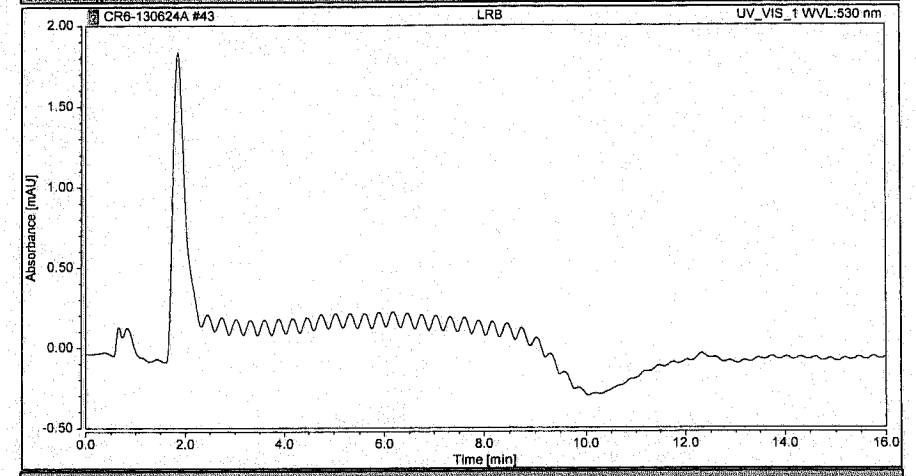


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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 11:05** | *Sample Weight:* | **1.0000** |

### Chromatogram




### Integration Results

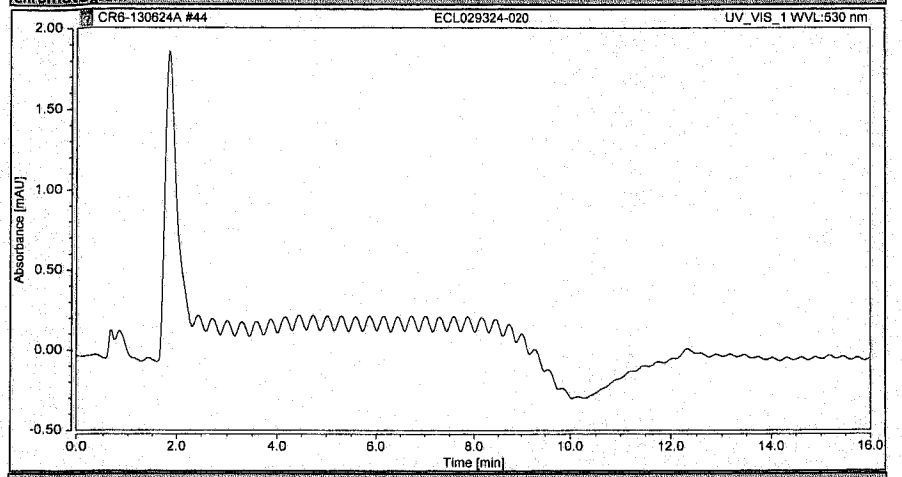
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



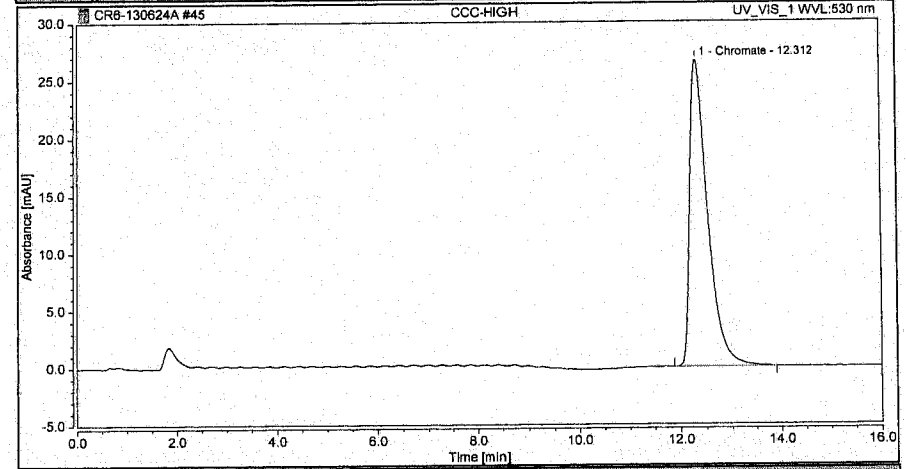


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

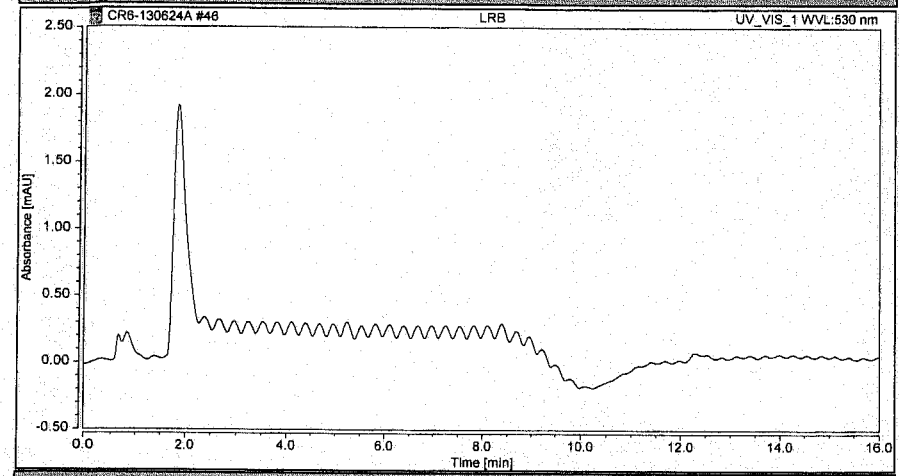
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.312 | 10.699 | 26.705 | 100.00 | 100.00 | 5.0077 |
| **Total:** | | | **10.699** | **26.705** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |

## 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 |

**BLANK** 7/19/2013 3:27:00 PM

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~~ 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

M03481

User Pre-dilution: 1.000

100 ppb

| 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

50 µL 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 |

**LPB5058R** 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 |

**LCS5058R** 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 |

**CKS** 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% | T199.700 | 99.183% |
| 2 | 16:20:43 | 94.050% | 197.500 | 96.597% | 98.273% | T198.600 | 97.485% |
| 3 | 16:20:48 | 95.127% | 198.300 | 97.808% | 95.861% | T199.600 | T102.293% |
| x | | 93.548% | 198.400 | 96.503% | 98.451% | T199.300 | T99.654% |
| σ | | 1.880% | 0.925 | 1.354% | 2.683% | T0.610 | T2.439% |
| %RSD | | 2.010 | 0.466 | 1.403 | 2.725 | T0.306 | T2.447 |

**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% | M 200.700 | 92.735% | 99.831% | T 198.400 | 97.079% |
| 2 | 16:55:11 | 89.520% | 199.200 | 93.395% | 96.371% | T 197.500 | 94.706% |
| 3 | 16:55:16 | 90.264% | M 200.500 | 93.304% | 93.052% | T 199.000 | T 98.469% |
| x | | 89.251% | M 200.200 | 93.145% | 96.418% | T 198.300 | T 96.751% |
| σ | | 1.172% | M 0.808 | 0.358% | 3.389% | T 0.711 | T 1.903% |
| %RSD | | 1.313 | M 0.404 | 0.384 | 3.515 | T 0.359 | T 1.967 |

**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 |

**LPB5059R** 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% |
| x | | 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% | TM 205.600 | T 100.354% |
| 2 | 17:50:12 | 69.976% | 195.500 | 74.036% | 85.928% | TM 204.500 | T 97.169% |
| 3 | 17:50:17 | 70.768% | 197.600 | 73.817% | 83.857% | TM 205.100 | T 96.066% |
| x | | 69.585% | 196.200 | 73.917% | 86.107% | TM 205.100 | T 97.863% |
| σ | | 1.419% | 1.222 | 0.110% | 2.345% | TM 0.530 | T 2.226% |
| %RSD | | 2.039 | 0.623 | 0.149 | 2.724 | TM 0.259 | T 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 |

**ECL029324-020** 7/19/2013 6:40:36 PM

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 |

**CCB** 7/19/2013 6:43:21 PM

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 |

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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 | collectdate | collectby |
|---|---|---|---|---|
| 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

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

ECL Log in Batch Number 29474 Page 1 of 2

Preservative: N NA

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 Method 200.8 | Dissolved Lead/Chromium EPA Method 200.8 | Hexavalent Chromium EPA Method 218.7 | 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 | Time | Received By |
|---|---|---|---|
| Lara Bennett | 7/10/13 | 9:18 | Clara Hughes |
| 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 *
Deliverables

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 (11/07/10)

# 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-



| 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
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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 | |

# 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#- ECL029474-004 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 | |

# 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#- ECL029474-006 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 | |

# 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#- ECL029474-008 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 |

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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 | |

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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.

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#- ECL029474-015 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.

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#- ECL029474-016 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**

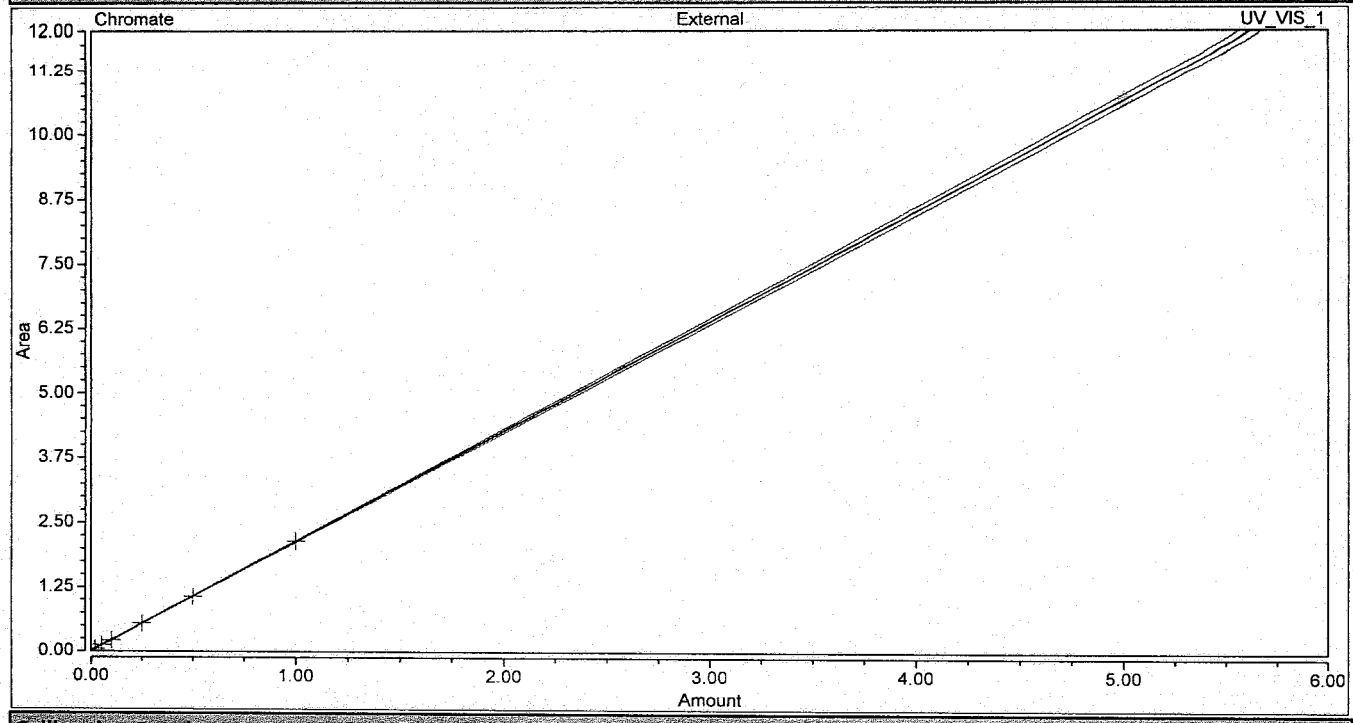
| | CrO4 |
|---|---|
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |

# Calibration Data

# Calibration

| Calibration Details | Chromate | | |
|---|---|---|---|
| *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 |

**Calibration Plot** Chromate




**Calibration Results** Chromate

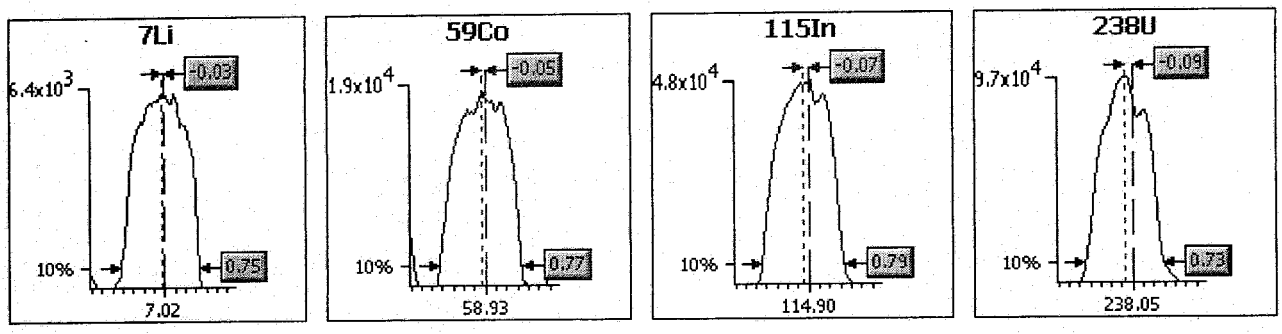
| No. | Injection Name | Calibration Level | X Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 01 | 0.0200 | 0.0506 | 0.0506 | 0.051 | 0.153 |
| 2 | 0.05 CrO4 | 02 | 0.0500 | 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 | 1.0 CrO4 | 06 | 1.0000 | 2.1432 | 2.1432 | 2.143 | 5.353 |
| 7 | 5.0 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) |
|---|---|
| LPB 5093 | 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

# Summary

| Sequence Details | | | |
|---|---|---|---|
| *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** |

**By Component** **Chromate**

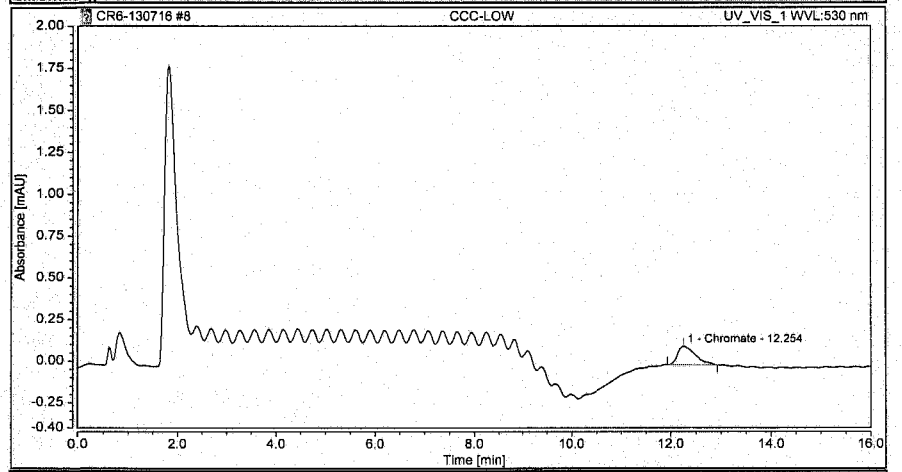
| No. | Injection Name | Ret.Time min Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 | Amount ppb Chromate UV_VIS_1 | Inject Time Chromate | Peak Type Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | CCC-LOW | 12.254 | 0.046 | 0.112 | 0.0173 | 16/07/13 23:07 | M |
| 9 | LRB | n.a. | n.a. | n.a. | n.a. | 16/07/13 23:26 | n.a. |
| 10 | ECL029474-002 | n.a. | n.a. | n.a. | n.a. | 16/07/13 23:45 | n.a. |
| 11 | ECL029474-002S | 12.101 | 1.604 | 4.238 | 0.7472 | 17/07/13 00:03 | BM |
| 12 | ECL029474-002SD | 12.107 | 1.638 | 4.316 | 0.7630 | 17/07/13 00:22 | M |
| 13 | ECL029474-004 | 12.111 | 0.060 | 0.149 | 0.0239 | 17/07/13 00:41 | M |
| 14 | ECL029474-006 | 12.091 | 0.062 | 0.154 | 0.0247 | 17/07/13 01:00 | M |
| 15 | ECL029474-008 | n.a. | n.a. | n.a. | n.a. | 17/07/13 01:19 | n.a. |
| 16 | ECL029474-010 | 12.098 | 0.016 | 0.050 | 0.0035 | 17/07/13 01:38 | M |
| 17 | ECL029474-012 | 12.092 | 0.016 | 0.053 | 0.0036 | 17/07/13 01:57 | M |
| 18 | ECL029474-014 | 12.105 | 0.059 | 0.144 | 0.0234 | 17/07/13 02:16 | BM |
| 19 | ECL029474-016 | n.a. | n.a. | n.a. | n.a. | 17/07/13 02:35 | n.a. |
| 20 | CCC-MID | 12.268 | 2.257 | 5.361 | 1.0533 | 17/07/13 02:54 | M |
| 21 | LRB | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:13 | n.a. |
| 22 | ECL029507-002 | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:32 | n.a. |
| 23 | ECL029507-004 | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:50 | n.a. |
| 24 | ECL029507-006 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:09 | n.a. |
| 25 | ECL029507-008 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:28 | n.a. |
| 26 | ECL029507-010 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:47 | n.a. |
| 27 | ECL029507-012 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:06 | n.a. |
| 28 | ECL029507-014 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:25 | n.a. |
| 29 | ECL029507-016 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:44 | n.a. |
| 30 | ECL029507-018 | n.a. | n.a. | n.a. | n.a. | 17/07/13 06:03 | n.a. |
| 31 | ECL029507-020 | 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. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

| 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 | 0.0173 |
| **Total:** | | | **0.046** | **0.112** | **100.00** | **100.00** | |



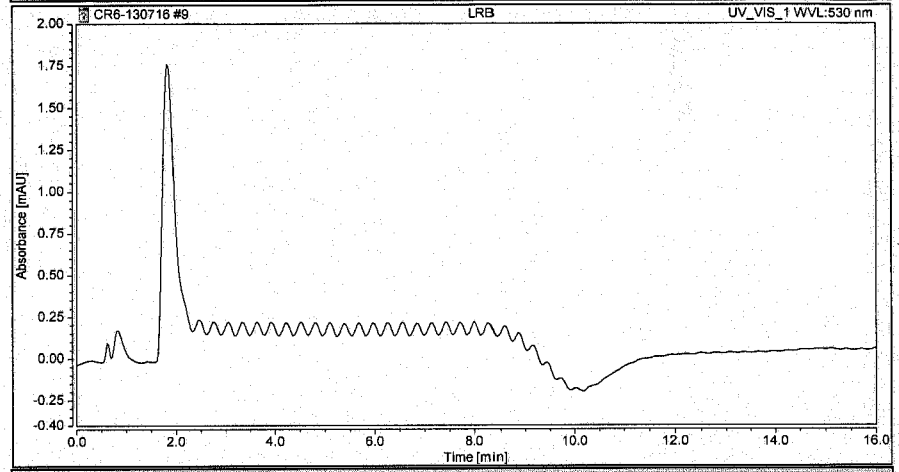


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

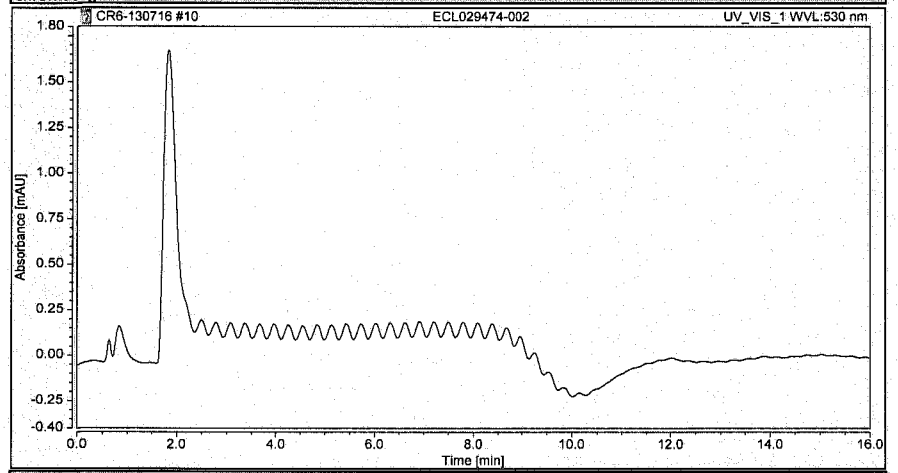
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



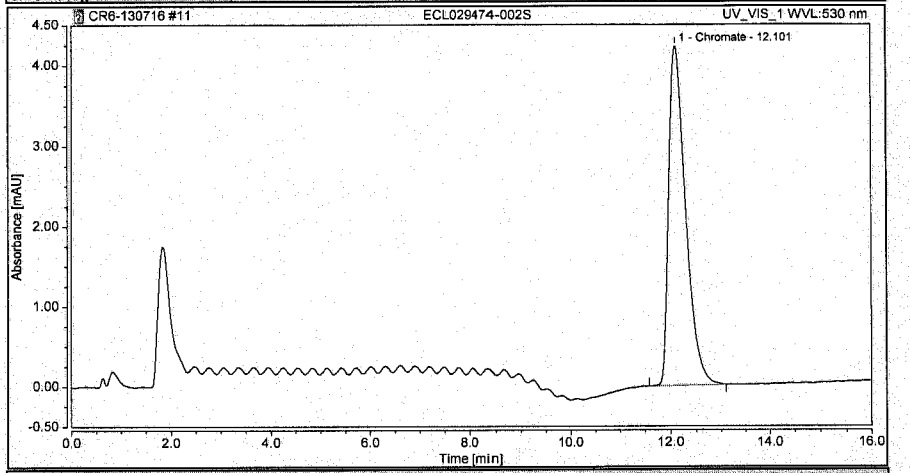


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

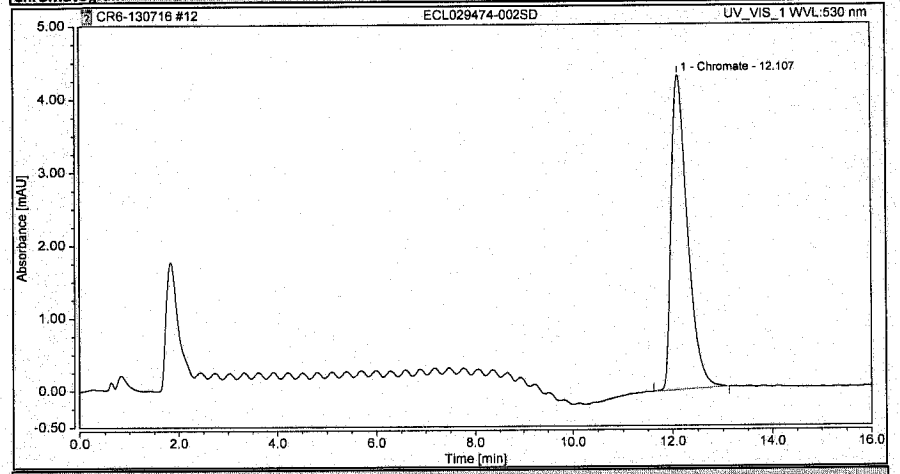
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.101 | 1.604 | 4.238 | 100.00 | 100.00 | 0.7472 |
| **Total:** | | | **1.604** | **4.238** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



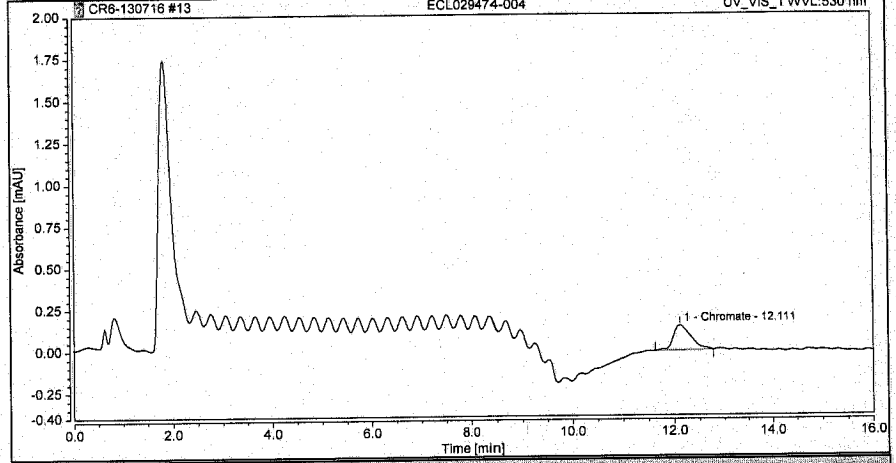


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

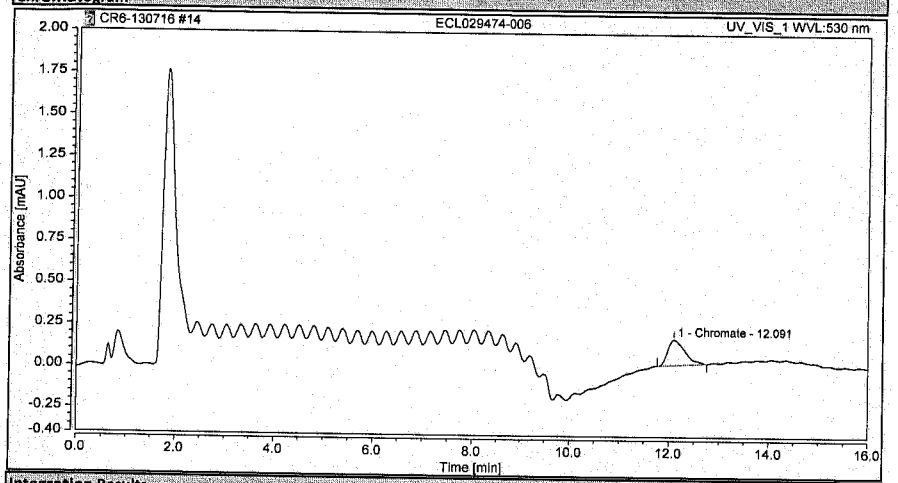
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.111 | 0.060 | 0.149 | 100.00 | 100.00 | 0.0239 |
| **Total:** | | | **0.060** | **0.149** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



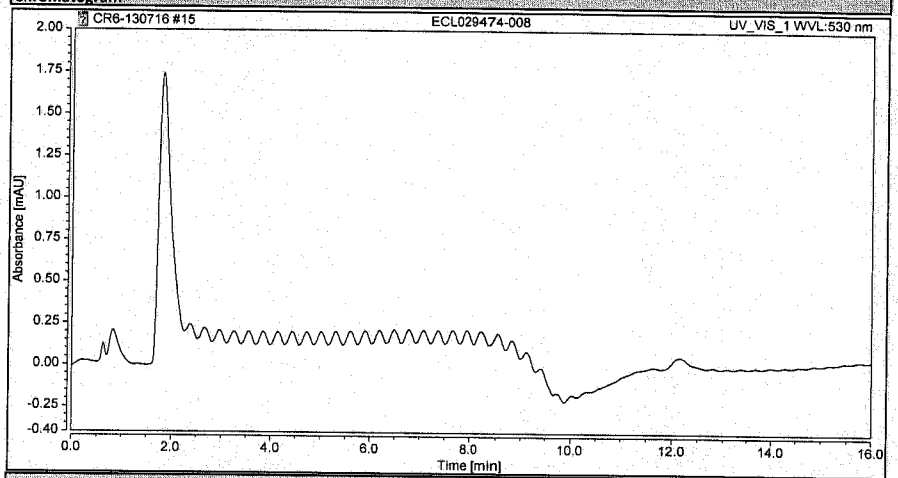


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

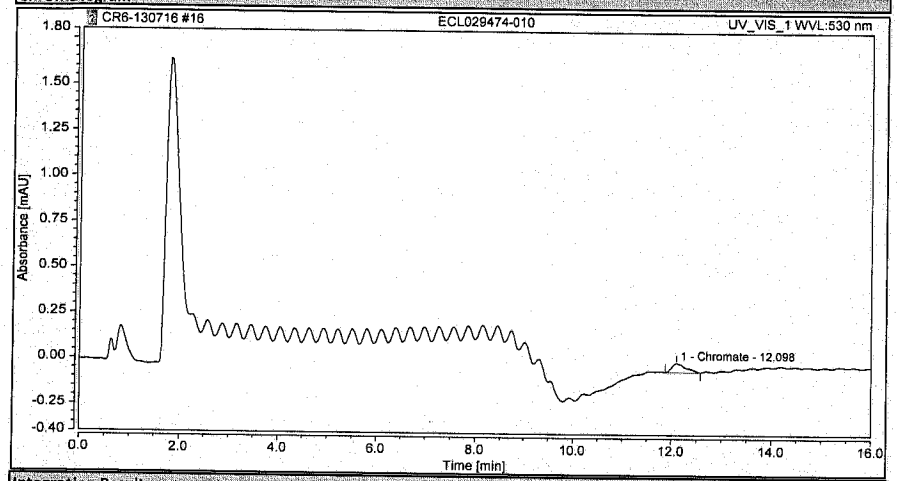
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

| 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 | 0.0035 |
| **Total:** | | | **0.016** | **0.050** | **100.00** | **100.00** | |



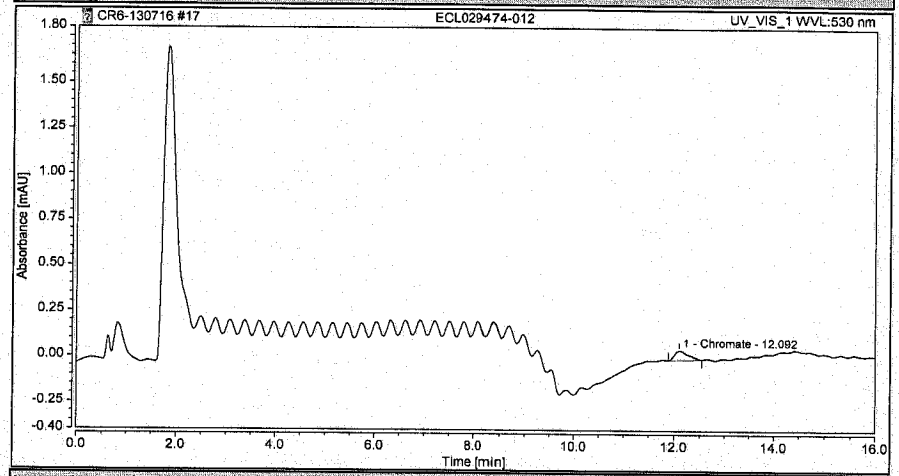


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

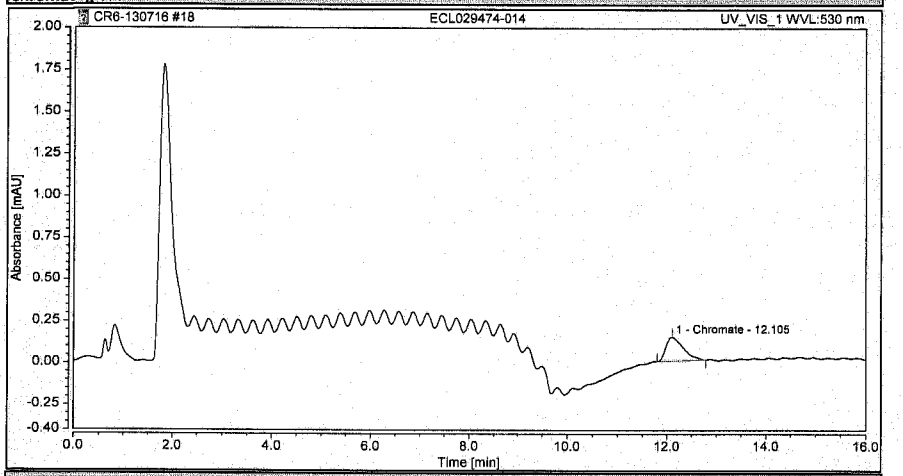
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.092 | 0.016 | 0.053 | 100.00 | 100.00 | 0.0036 |
| **Total:** | | | **0.016** | **0.053** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



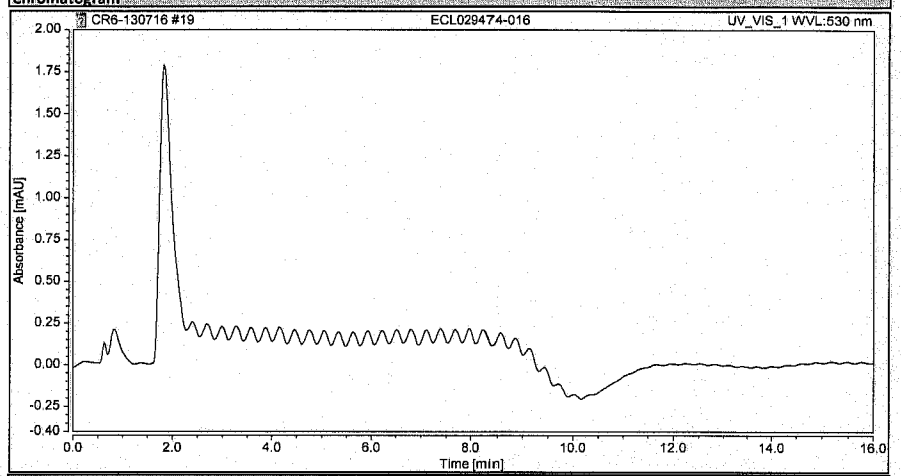


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

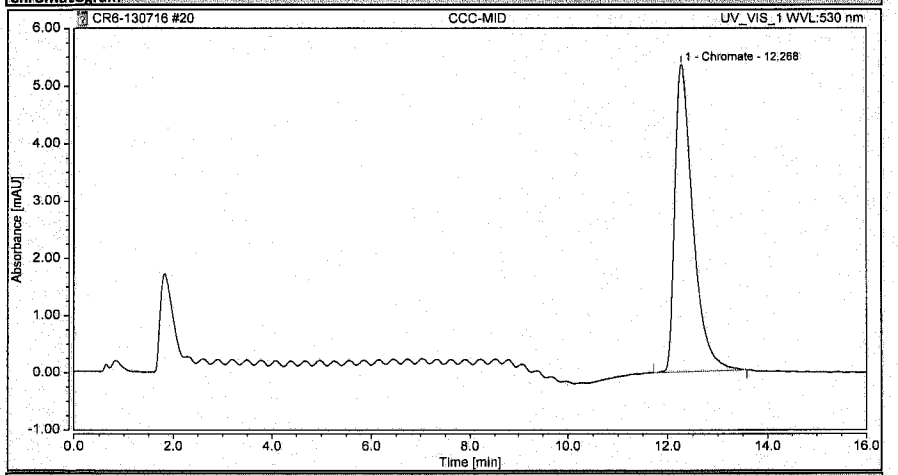
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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 | 1.0533 |
| **Total:** | | | **2.257** | **5.361** | **100.00** | **100.00** | |



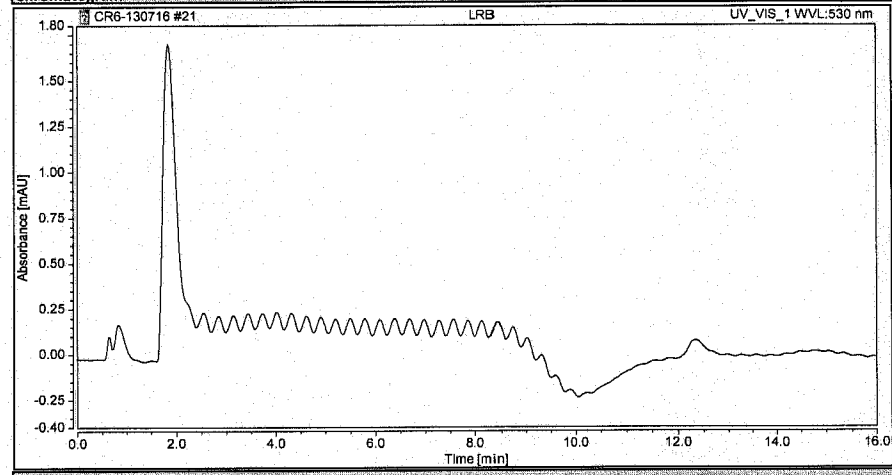


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

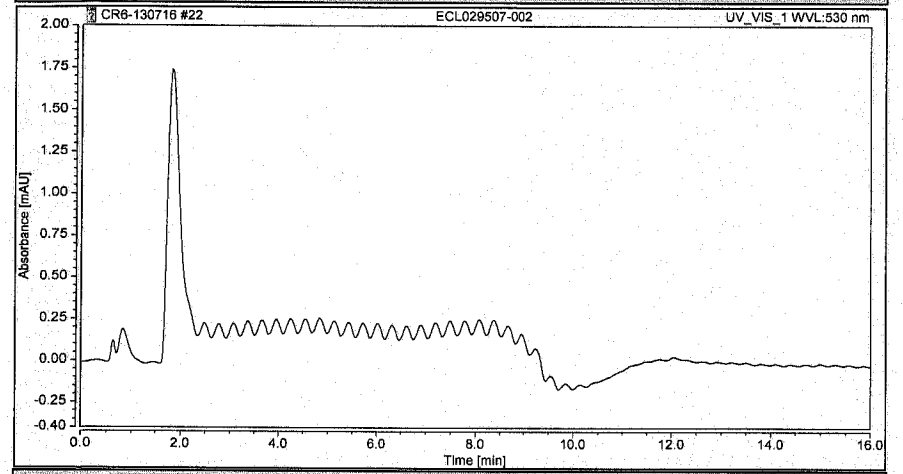
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



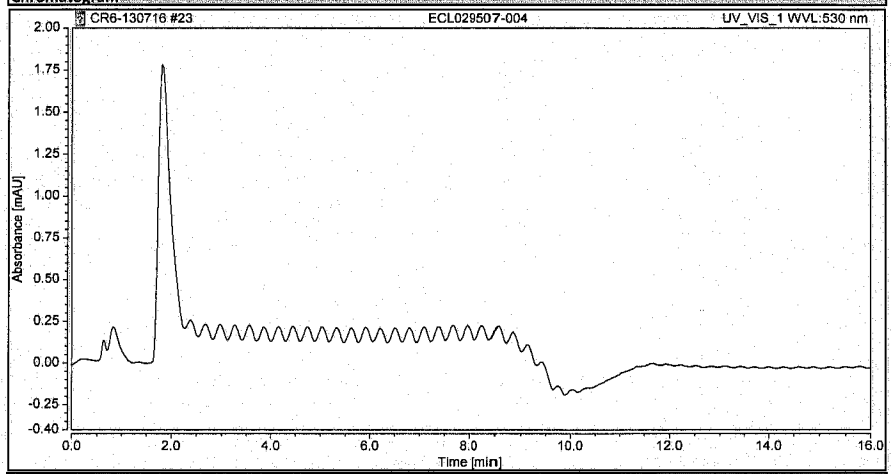


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

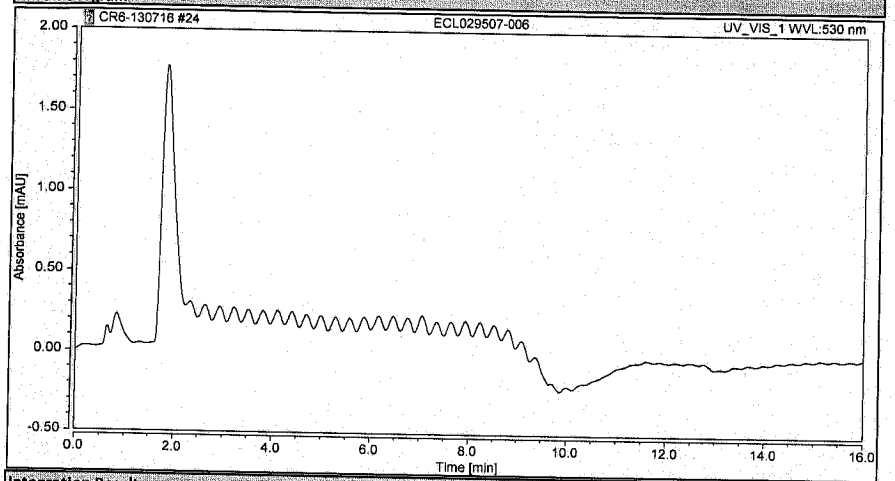
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



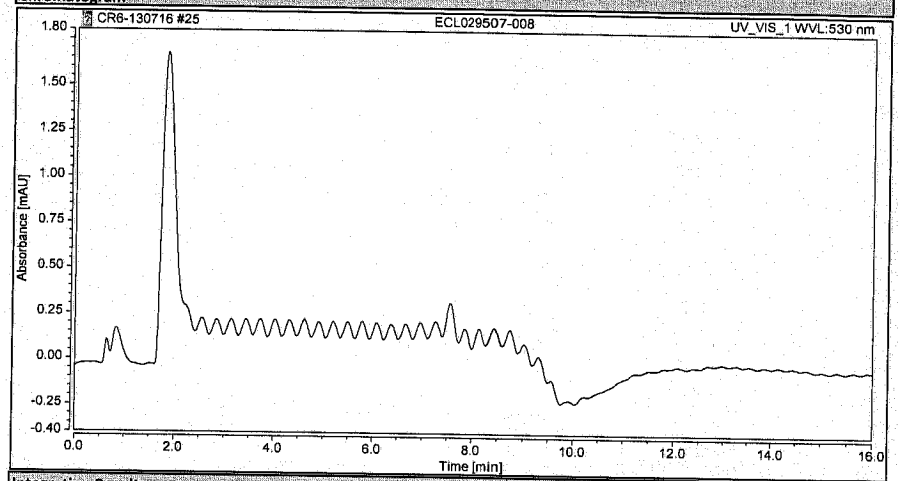


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

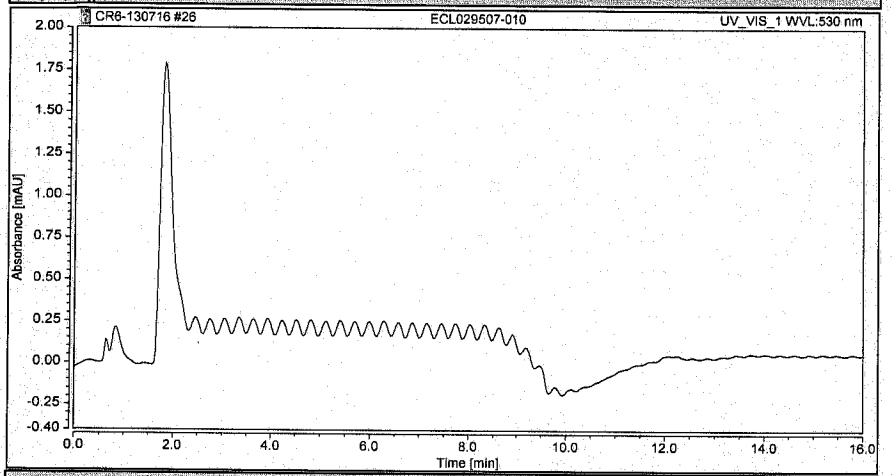
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



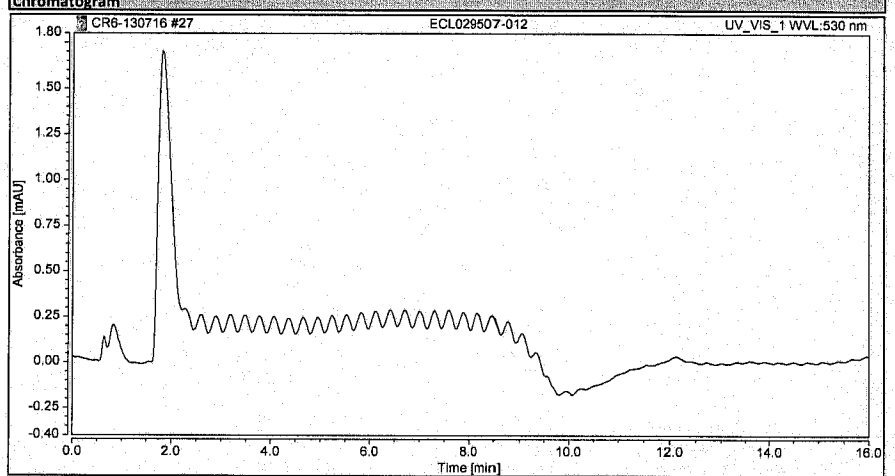


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

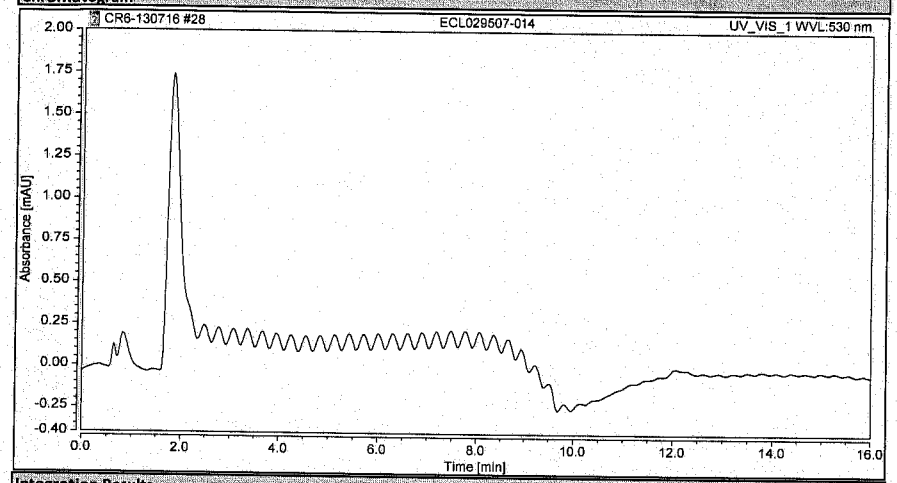
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration 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** | |



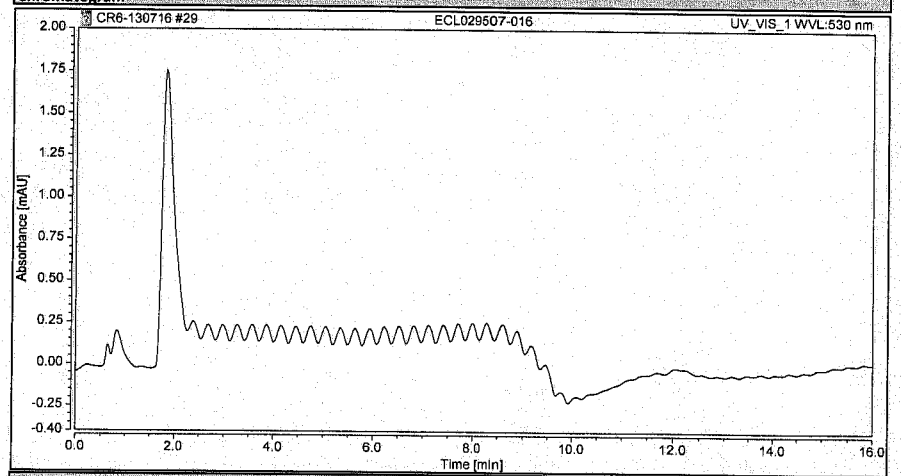


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

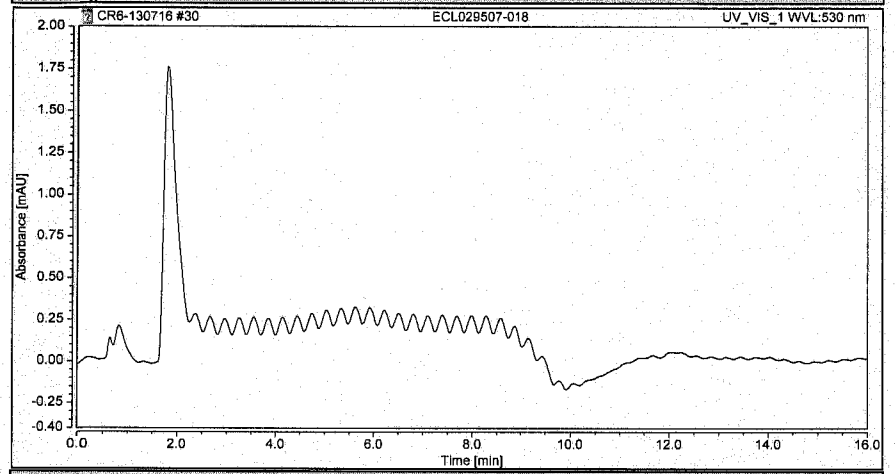
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



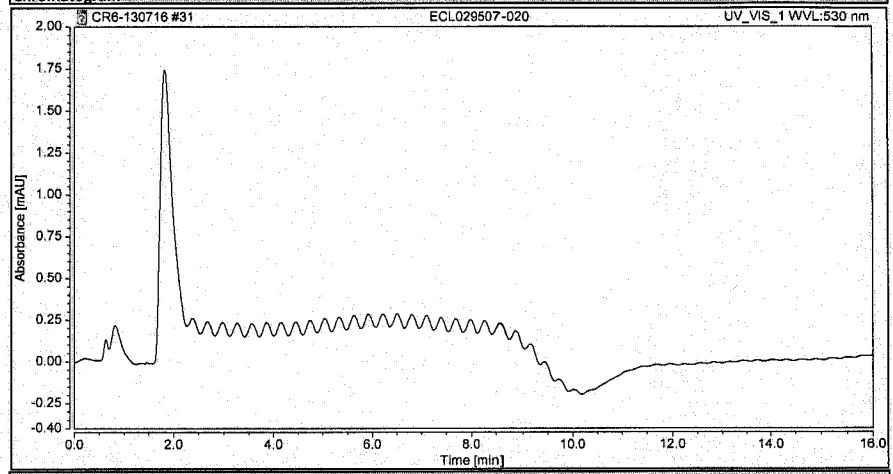


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

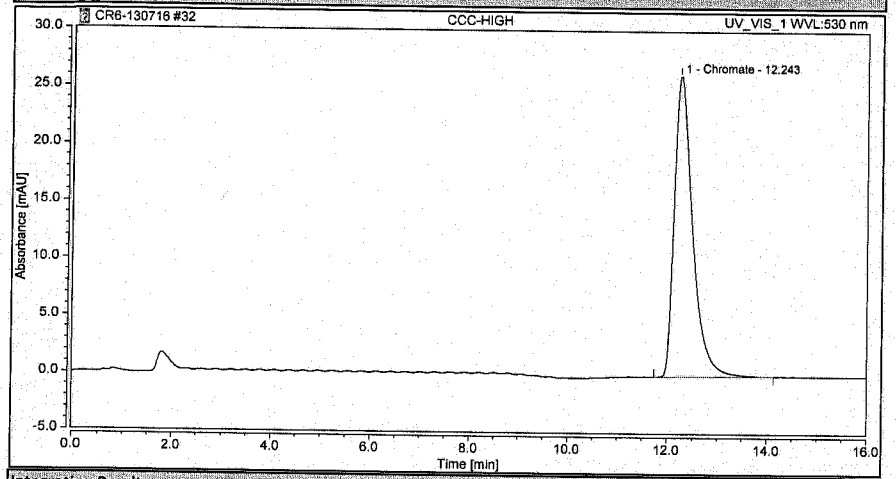
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

| 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** | |



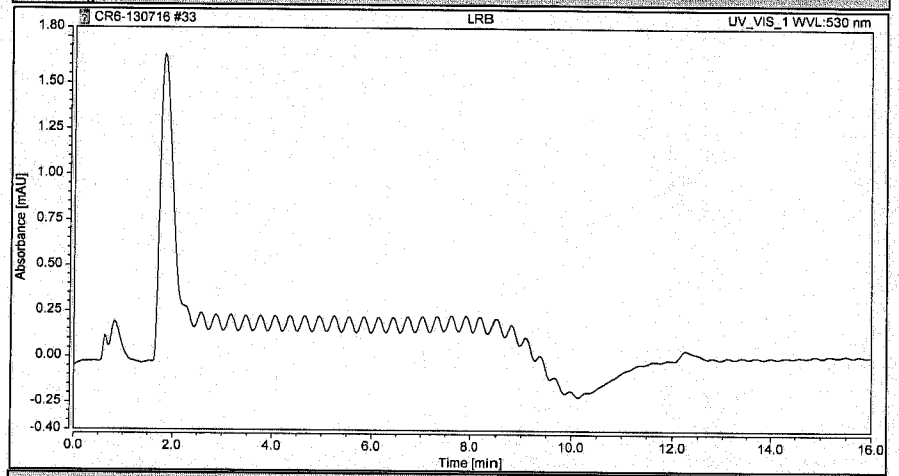


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration 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** | |

## 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 mo3479

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 |

**CKS** 7/22/2013 10:56:09 AM M03479

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% | T195.700 | T95.301% |
| 2 | 11:36:34 | 109.981% | 193.400 | 110.460% | 93.376% | T195.700 | 90.376% |
| 3 | 11:36:39 | 110.788% | 195.700 | 109.712% | 90.528% | T195.700 | T88.864% |
| x | | 110.949% | 193.400 | 110.053% | 93.847% | T195.700 | T91.514% |
| σ | | 1.058% | 2.247 | 0.378% | 3.578% | T0.007 | T3.366% |
| %RSD | | 0.954 | 1.162 | 0.344 | 3.813 | T0.004 | T3.678 |

**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% | T 191.900 | 95.616% |
| 2 | 12:09:30 | 109.036% | 192.000 | 106.890% | 94.853% | T 192.800 | 92.059% |
| 3 | 12:09:36 | 107.284% | 191.500 | 108.654% | 92.368% | T 192.200 | 90.087% |
| x | | 109.059% | 190.600 | 107.820% | 95.572% | T 192.300 | 92.587% |
| σ | | 1.787% | 2.061 | 0.886% | 3.618% | T 0.466 | 2.802% |
| %RSD | | 1.638 | 1.081 | 0.822 | 3.786 | T 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 |

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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 | collectdate | collectby |
|---|---|---|---|---|
| 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 | NA | Total Lead/Chromium EPA Method 200.8 | Dissolved Lead/Chromium EPA Method 200.8 | Hexavalent Chromium EPA Method 218.7 | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECL029507-001<br>ECL029507-002 | 3740Blueberry-POU | 7/11/13 | 8:46 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-003<br>ECL029507-004 | 3740Blueberry-PT1 | | 9:06 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-005<br>ECL029507-006 | 3740Blueberry-PT1DB | | 00:00 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-007<br>ECL029507-008 | 3740Blueberry-PT2 | | 9:21 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-009<br>ECL029507-010 | 3740Blueberry-PT3 | | 9:28 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-011<br>ECL029507-012 | 3740Blueberry-PT4 | | 9:38 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-013<br>ECL029507-014 | 3740Blueberry-WP1 | | 11:09 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-015<br>ECL029507-016 | 3740Blueberry-WP2 | | 12:32 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-017<br>ECL029507-018 | 3740Blueberry-WP3 | | 13:45 | DW | 3 | G | | X | X | X | | | | | | | | |
| ECL029507-019<br>ECL029507-020 | 3740Blueberry-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 | | | |
| Relinquished By | | | |
| Relinquished By | | | |

Deliverables Required

# Coolers 1 Seal

Due Date

Ice Present Yes Temp 7.1

Turnaround Requested Rush?

STD 1-Day Other

Special instructions, Comments:

* Level III Data Package Deliverables *

CK

COC/Labels match (Y) N

Bottles intact/appropriate (Y) N

# of Samples 10 # of Bottles 30

Preserved correctly (Y) N NA

Explain any "NO" answers

ECL Doc 1 (11-01-11)

# 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.

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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#- ECL029507-002 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.

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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#- ECL029507-004 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 |

# 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#- ECL029507-005 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 | |

# 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#- ECL029507-006 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 |

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#- ECL029507-007 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 | |

ENVIRO-CHEM
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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 |

# 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#- ECL029507-009 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 | |

# ENVIRO-CHEM LABORATORIES, INC.

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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 |

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#- ECL029507-011 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.

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#- ECL029507-012 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.

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#- ECL029507-013 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 | |

# 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#- ECL029507-014 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 |

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#- ECL029507-015 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 | |

# 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#- ECL029507-016 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 | |

# 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#- ECL029507-018 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 |

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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 | |

# 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#- ECL029507-020 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**

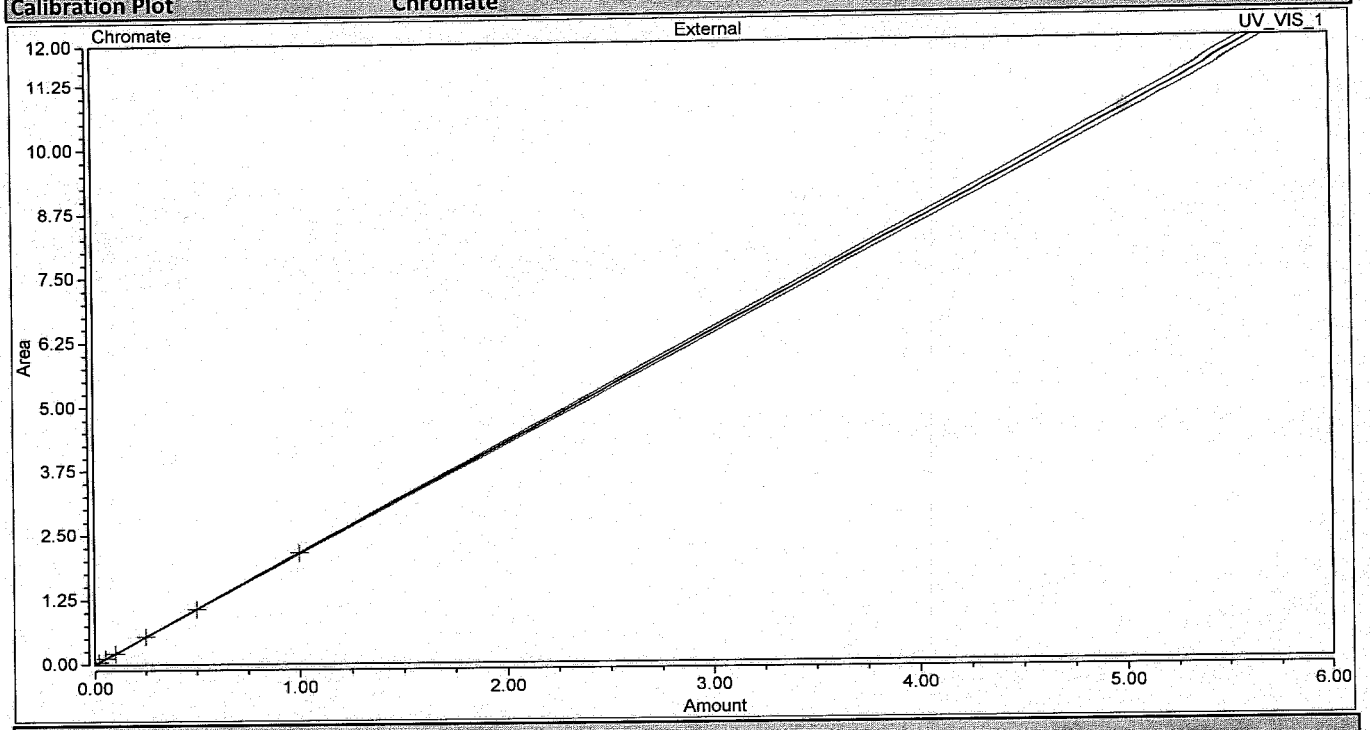
| | CrO4 |
|---|---|
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |
| LRB | <0.02µg/L |

# Calibration Data

# Calibration

| Calibration Details | Chromate | | |
|---|---|---|---|
| *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 |

**Calibration Plot** Chromate




**Calibration Results** Chromate

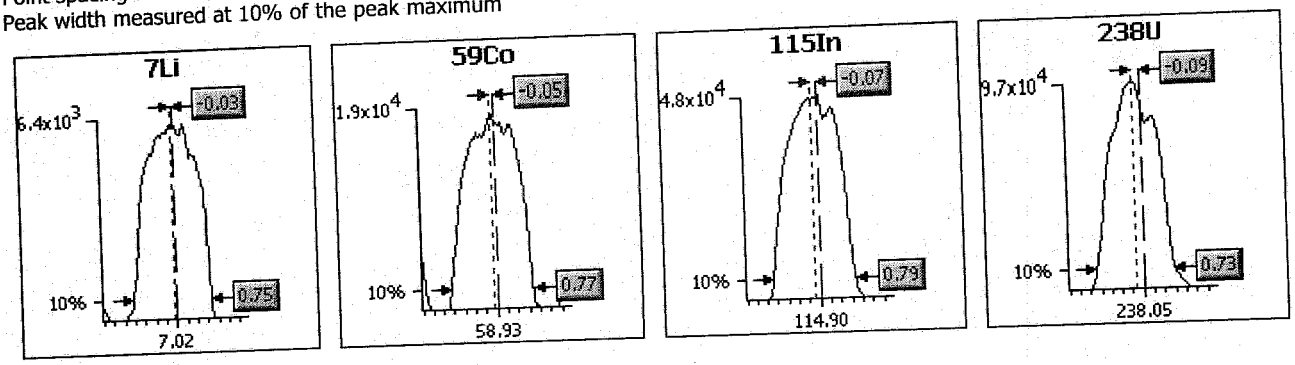
| No. | Injection Name | Calibration Level | X Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Y Value Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 01 | 0.0200 | 0.0506 | 0.0506 | 0.051 | 0.153 |
| 2 | 0.05 CrO4 | 02 | 0.0500 | 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 | 1.0 CrO4 | 06 | 1.0000 | 2.1432 | 2.1432 | 2.143 | 5.353 |
| 7 | 5.0 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** **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: CMC

Microwave or ~~Hotblock~~? 200.8 Time in: 1010

SOP: M-100.0005 Temp in: 84.2

Spiking Solution(s) added to LCS/MS/MSD: 25µL ICB 100-19 (C0431)

Acids added: (C0444) 1.0mL HNO3, 1.0mL 1+1 HCl (C0443)

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

## Summary

| Sequence Details | | | |
|---|---|---|---|
| *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** |

| By Component | Chromate |
|---|---|

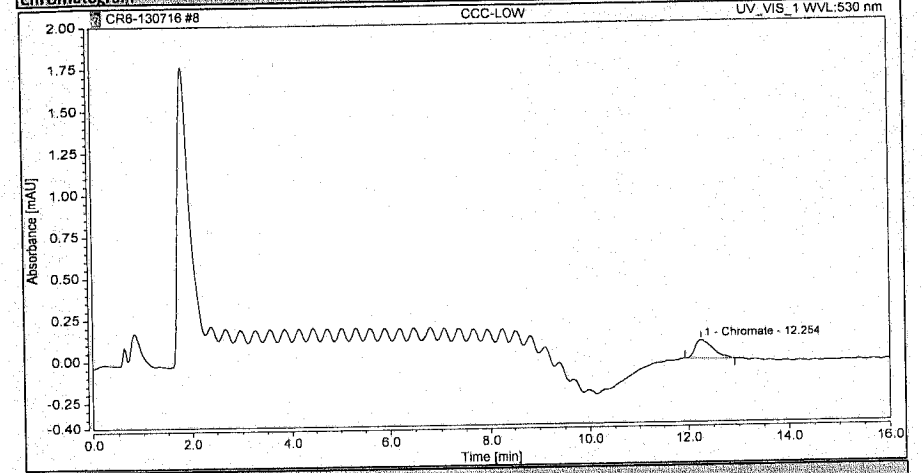
| No. | Injection Name | Ret.Time min Chromate UV_VIS_1 | Area mAU*min Chromate UV_VIS_1 | Height mAU Chromate UV_VIS_1 | Amount ppb Chromate UV_VIS_1 | Inject Time Chromate | Peak Type Chromate UV_VIS_1 |
|---|---|---|---|---|---|---|---|
| 1 | 0.02 CrO4 | 12.317 | 0.051 | 0.153 | 0.0195 | 24/06/13 17:04 | M |
| 2 | 0.05 CrO4 | 12.319 | 0.121 | 0.317 | 0.0524 | 24/06/13 17:23 | M |
| 3 | 0.10 CrO4 | 12.307 | 0.218 | 0.573 | 0.0977 | 24/06/13 17:42 | M |
| 4 | 0.25 CrO4 | 12.341 | 0.544 | 1.347 | 0.2507 | 24/06/13 18:00 | M |
| 5 | 0.50 CrO4 | 12.363 | 1.069 | 2.695 | 0.4966 | 24/06/13 18:19 | M |
| 6 | 1.0 CrO4 | 12.342 | 2.143 | 5.353 | 0.9998 | 24/06/13 18:38 | M |
| 7 | 5.0 CrO4 | 12.344 | 10.689 | 26.528 | 5.0032 | 24/06/13 18:57 | M |
| 8 | CCC-LOW | 12.254 | 0.046 | 0.112 | 0.0173 | 16/07/13 23:07 | M |
| 9 | LRB | n.a. | n.a. | n.a. | n.a. | 16/07/13 23:26 | n.a. |
| 10 | ECL029474-002 | n.a. | n.a. | n.a. | n.a. | 16/07/13 23:45 | n.a. |
| 11 | ECL029474-002S | 12.101 | 1.604 | 4.238 | 0.7472 | 17/07/13 00:03 | BM |
| 12 | ECL029474-002SD | 12.107 | 1.638 | 4.316 | 0.7630 | 17/07/13 00:22 | M |
| 13 | ECL029474-004 | 12.111 | 0.060 | 0.149 | 0.0239 | 17/07/13 00:41 | M |
| 14 | ECL029474-006 | 12.091 | 0.062 | 0.154 | 0.0247 | 17/07/13 01:00 | M |
| 15 | ECL029474-008 | n.a. | n.a. | n.a. | n.a. | 17/07/13 01:19 | n.a. |
| 16 | ECL029474-010 | 12.098 | 0.016 | 0.050 | 0.0035 | 17/07/13 01:38 | M |
| 17 | ECL029474-012 | 12.092 | 0.016 | 0.053 | 0.0036 | 17/07/13 01:57 | M |
| 18 | ECL029474-014 | 12.105 | 0.059 | 0.144 | 0.0234 | 17/07/13 02:16 | BM |
| 19 | ECL029474-016 | n.a. | n.a. | n.a. | n.a. | 17/07/13 02:35 | n.a. |
| 20 | CCC-MID | 12.268 | 2.257 | 5.361 | 1.0533 | 17/07/13 02:54 | M |
| 21 | LRB | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:13 | n.a. |
| 22 | ECL029507-002 | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:32 | n.a. |
| 23 | ECL029507-004 | n.a. | n.a. | n.a. | n.a. | 17/07/13 03:50 | n.a. |
| 24 | ECL029507-006 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:09 | n.a. |
| 25 | ECL029507-008 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:28 | n.a. |
| 26 | ECL029507-010 | n.a. | n.a. | n.a. | n.a. | 17/07/13 04:47 | n.a. |
| 27 | ECL029507-012 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:06 | n.a. |
| 28 | ECL029507-014 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:25 | n.a. |
| 29 | ECL029507-016 | n.a. | n.a. | n.a. | n.a. | 17/07/13 05:44 | n.a. |
| 30 | ECL029507-018 | n.a. | n.a. | n.a. | n.a. | 17/07/13 06:03 | n.a. |
| 31 | ECL029507-020 | 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. |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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




### Integration Results

| 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 | 0.0173 |
| Total: | | | 0.046 | 0.112 | 100.00 | 100.00 | |



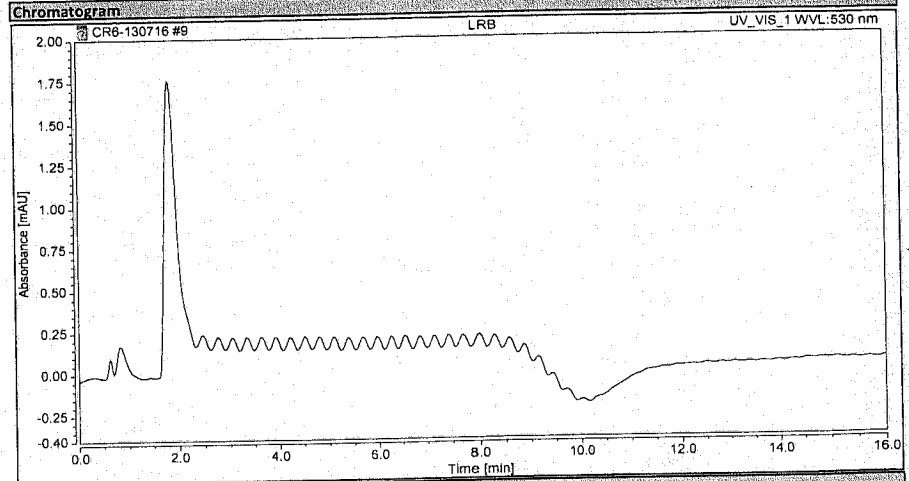


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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




### Integration Results

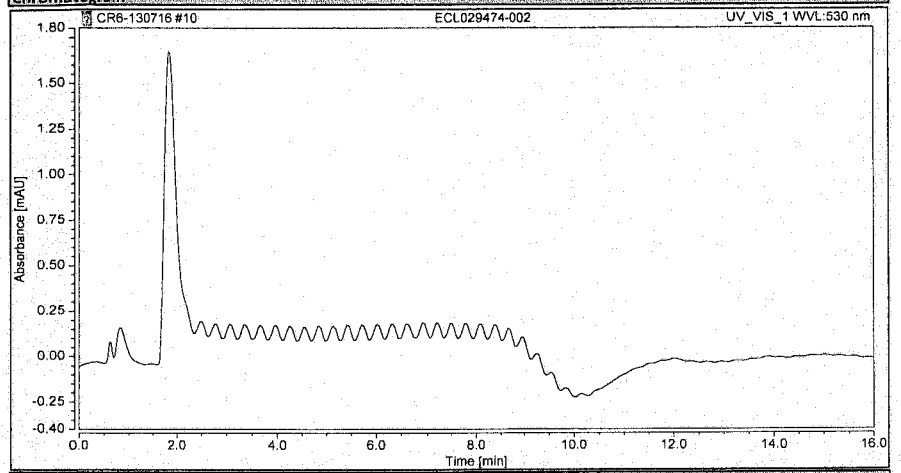
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Total: | | | 0.000 | 0.000 | 0.00 | 0.00 | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



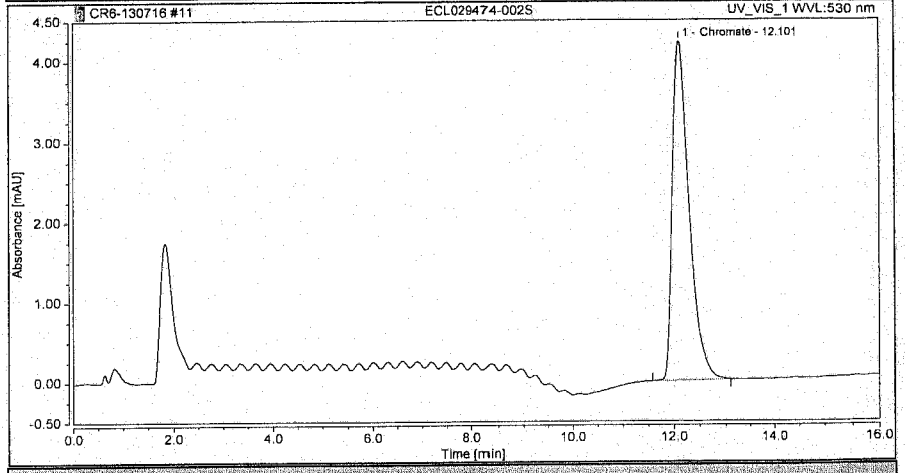


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

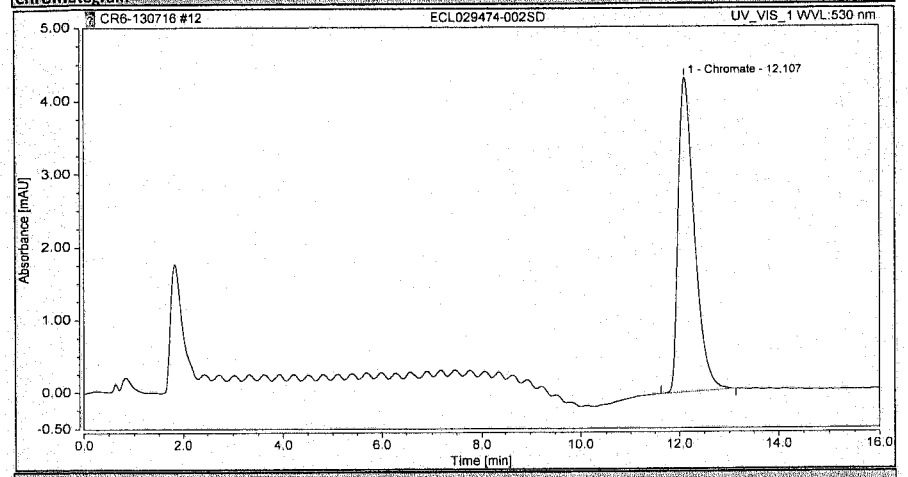
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.101 | 1.604 | 4.238 | 100.00 | 100.00 | 0.7472 |
| **Total:** | | | **1.604** | **4.238** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



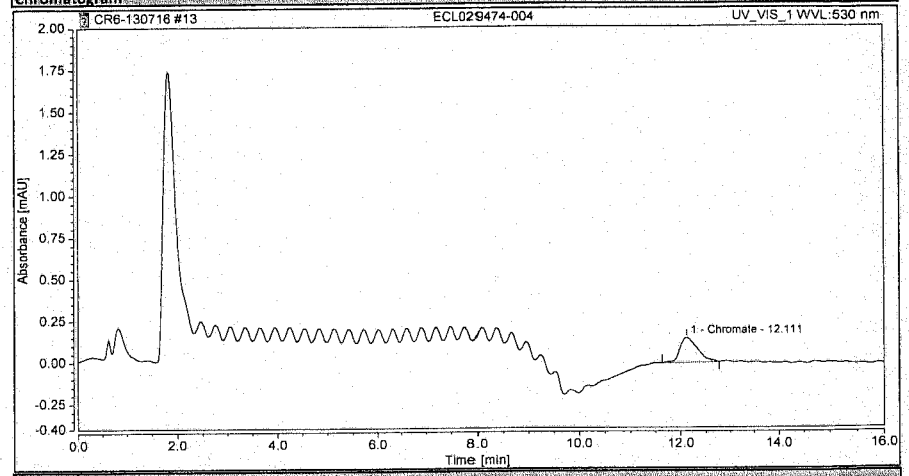


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

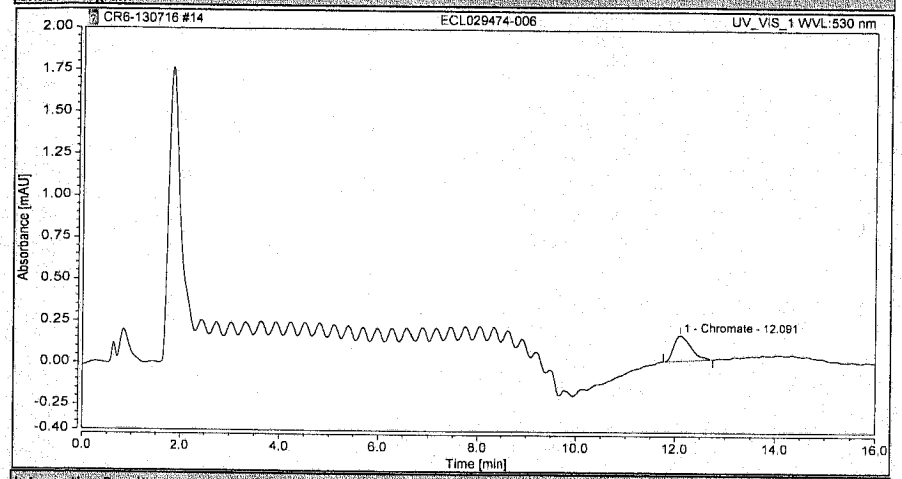
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.111 | 0.060 | 0.149 | 100.00 | 100.00 | 0.0239 |
| **Total:** | | | **0.060** | **0.149** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



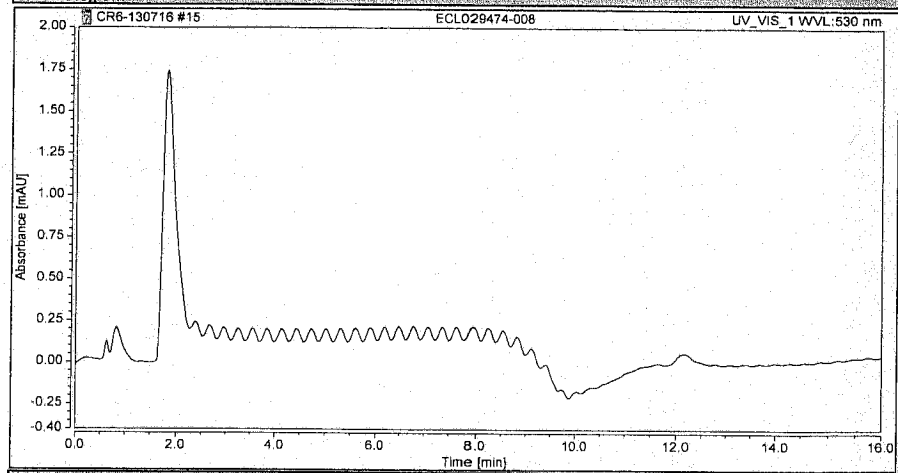


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

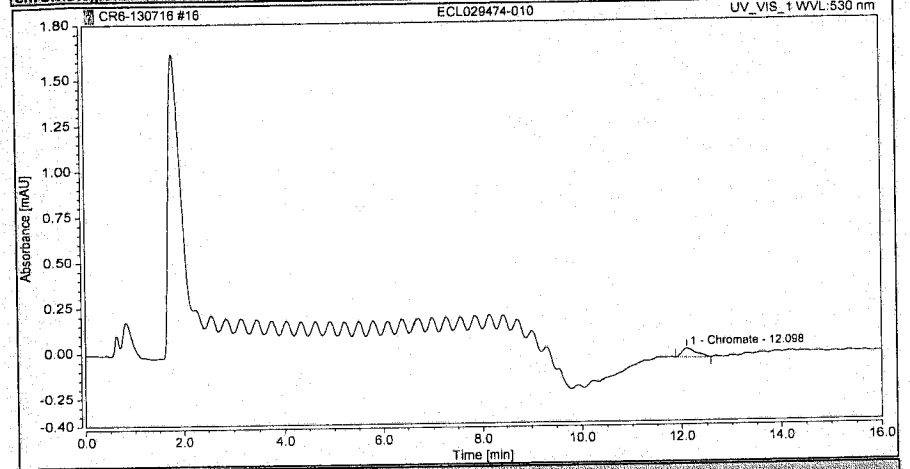
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

| 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 | 0.0035 |
| **Total:** | | | **0.016** | **0.050** | **100.00** | **100.00** | |



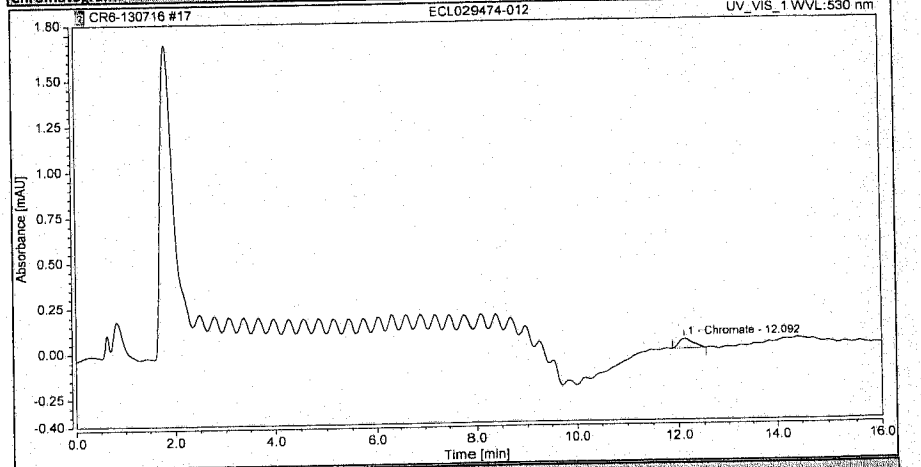


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

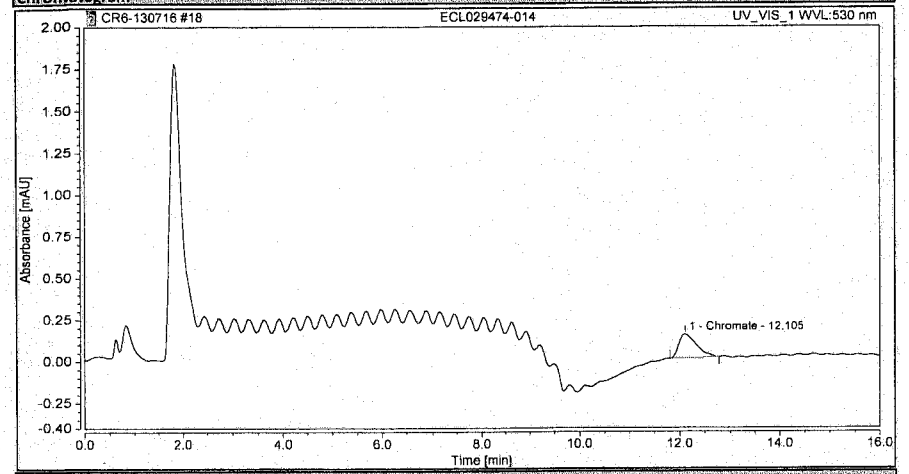
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| 1 | Chromate | 12.092 | 0.016 | 0.053 | 100.00 | 100.00 | 0.0036 |
| **Total:** | | | **0.016** | **0.053** | **100.00** | **100.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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** | |



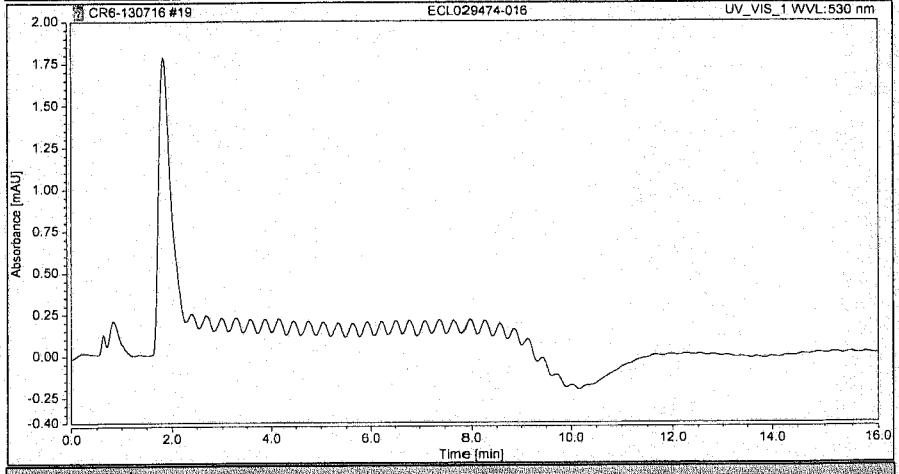


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

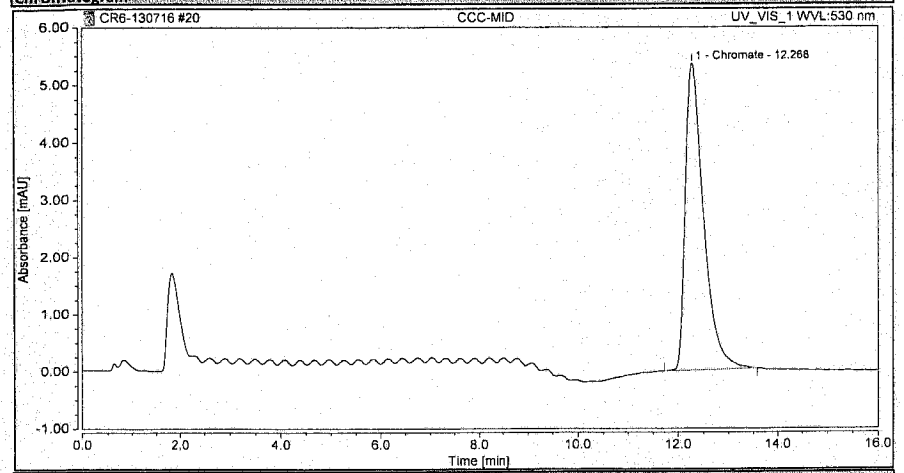
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

| 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 | 1.0533 |
| **Total:** | | | **2.257** | **5.361** | **100.00** | **100.00** | |



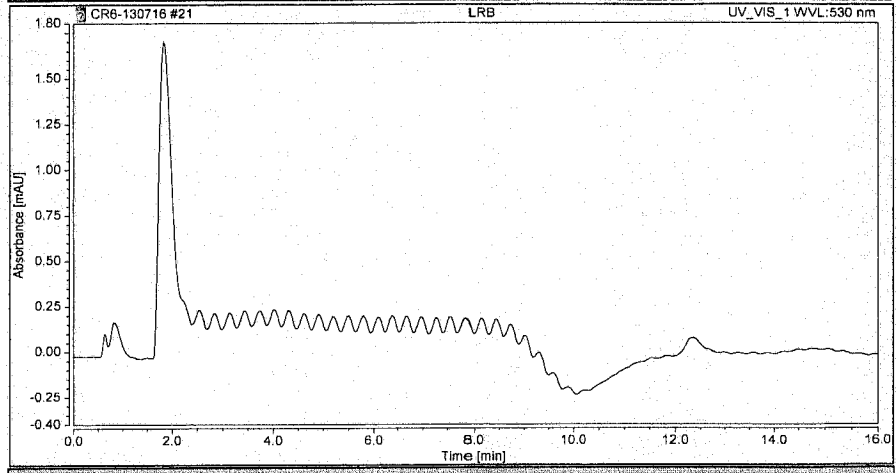


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

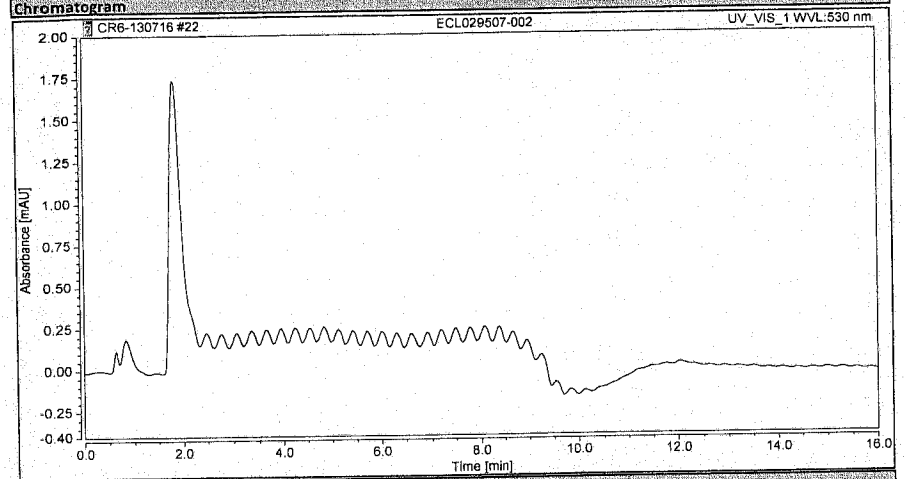
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



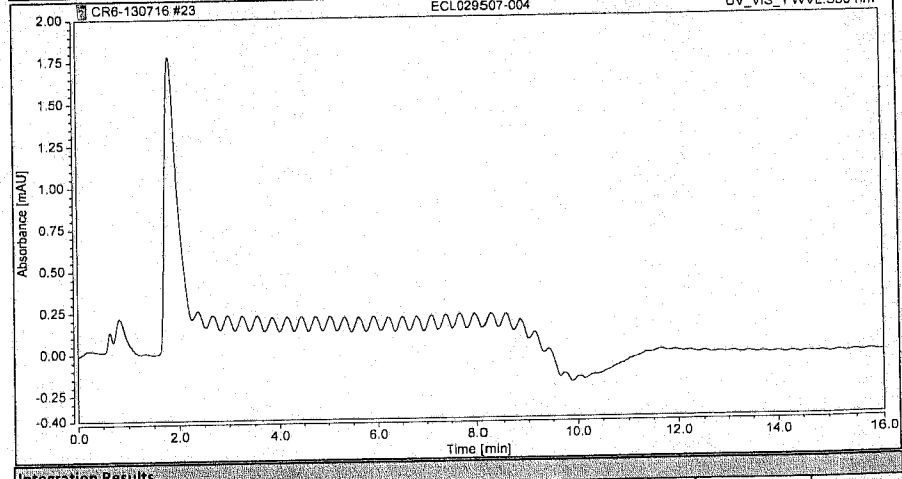


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

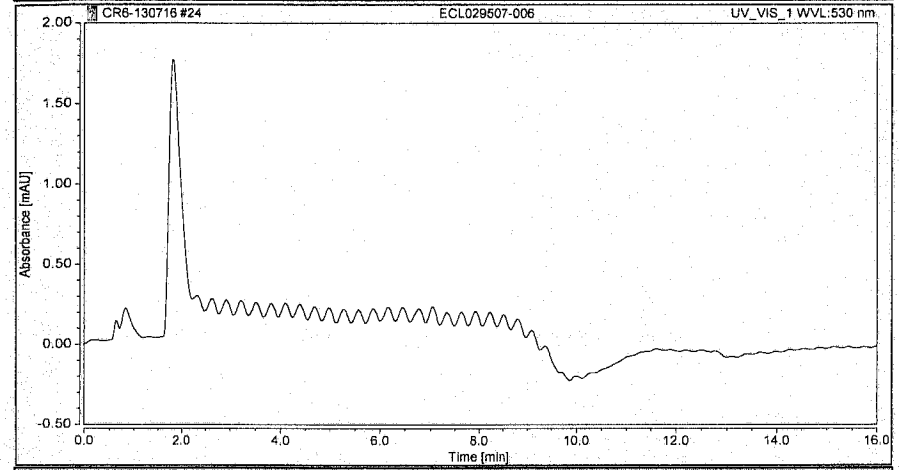
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



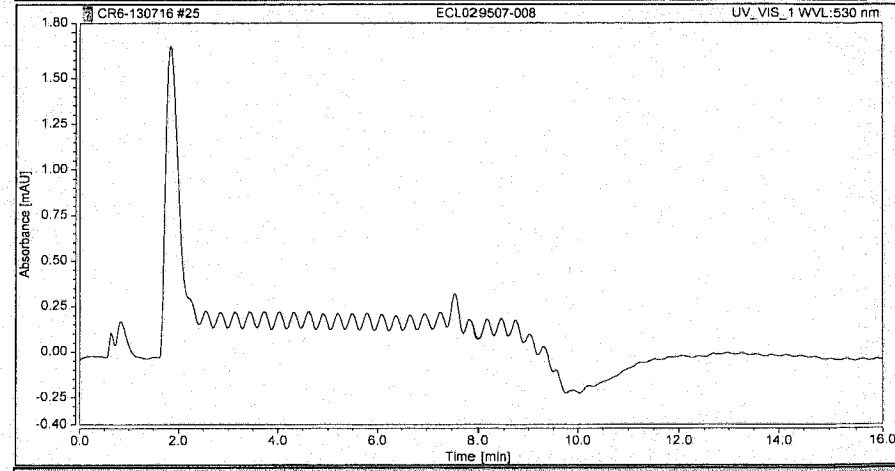


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

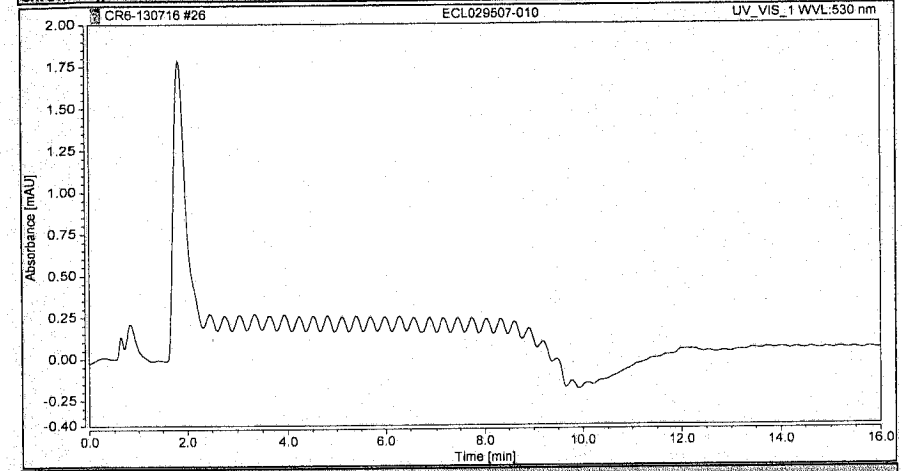
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



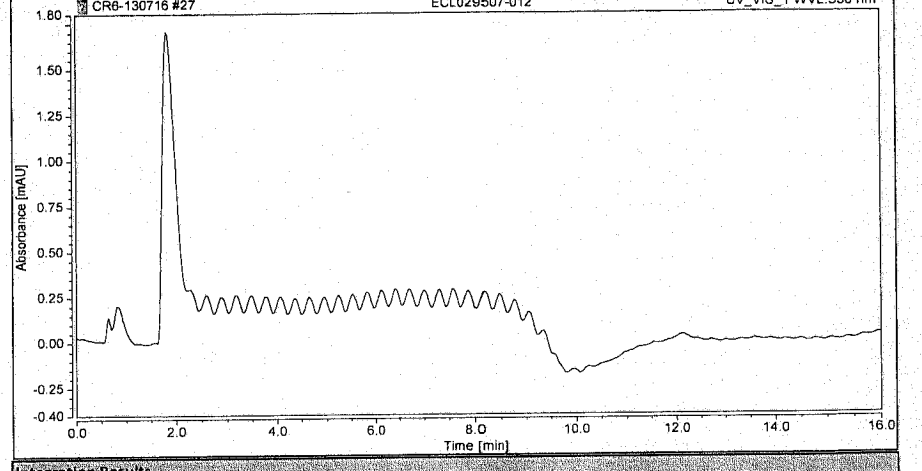


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

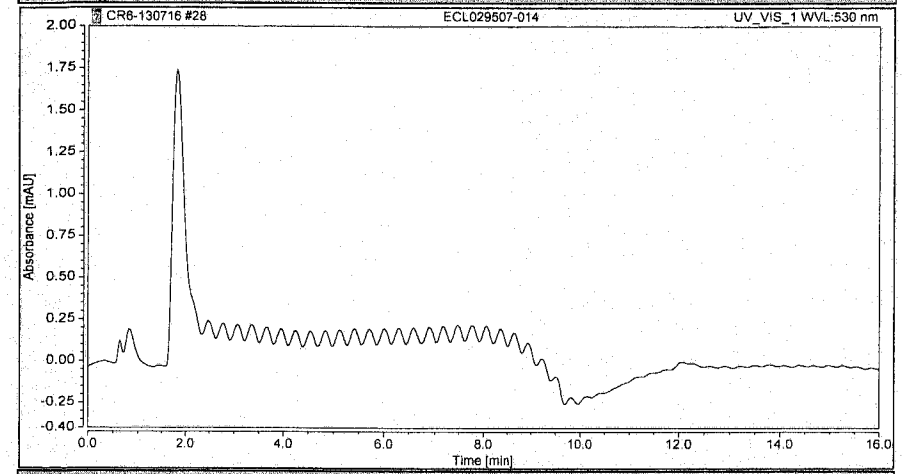
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration 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** | |



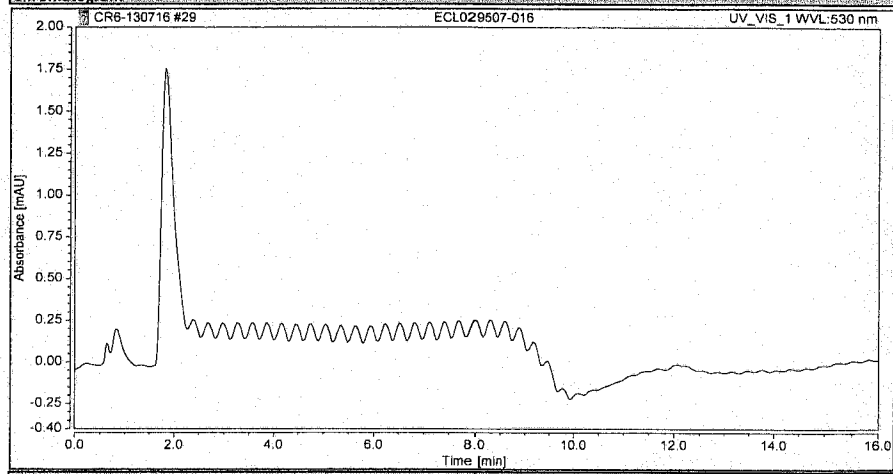


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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




### Integration Results

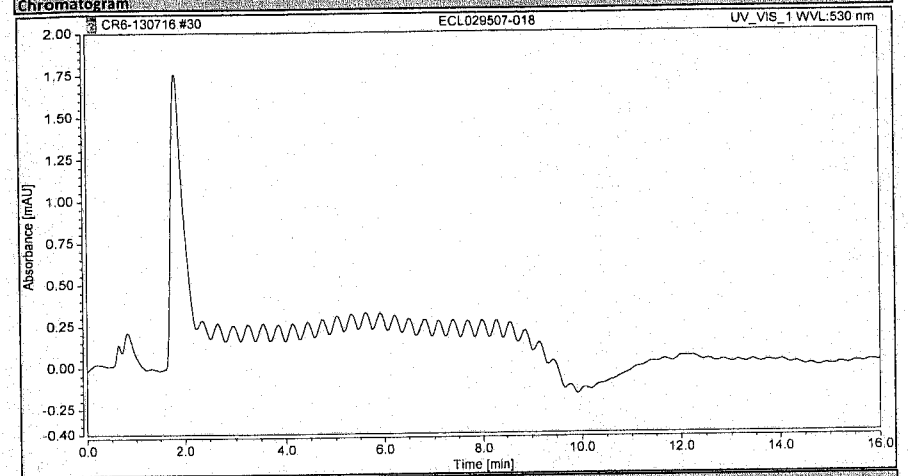
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration 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** | |



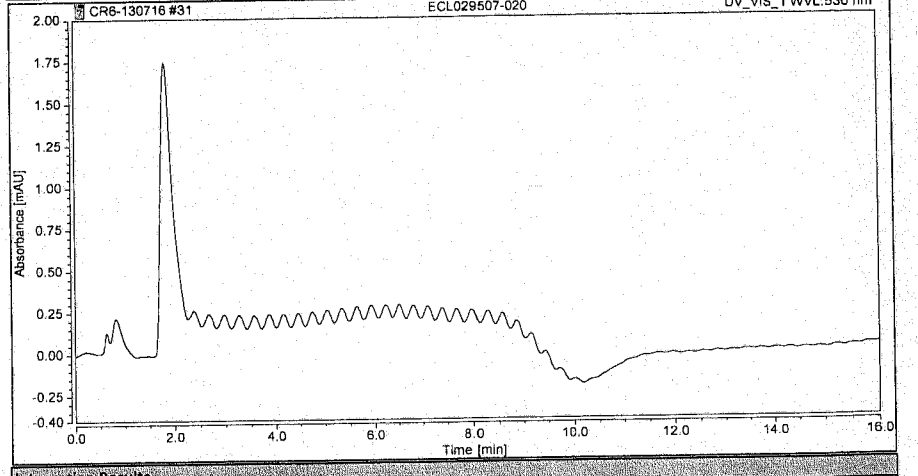


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| *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** |

### Chromatogram




### Integration Results

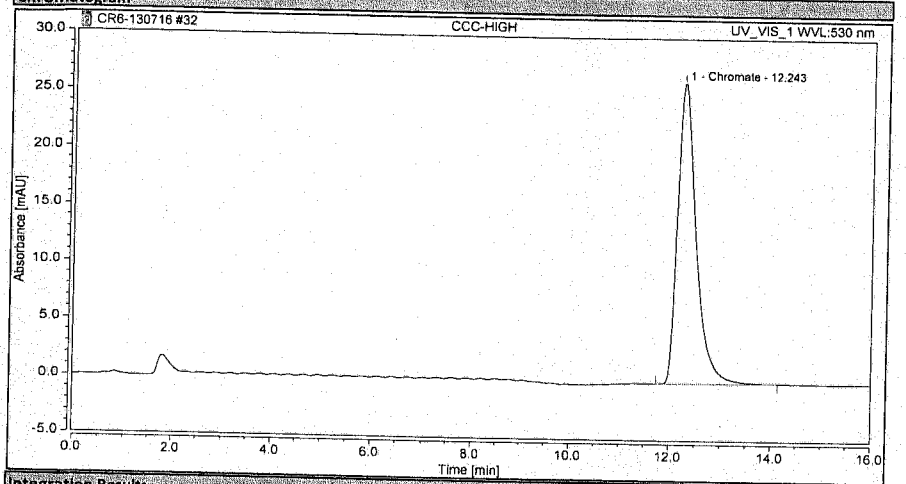
| No. | Peak Name | Retention Time min | Area mAU*min | Height mAU | Relative Area % | Relative Height % | Amount ppb |
|---|---|---|---|---|---|---|---|
| n.a. | Chromate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| **Total:** | | | **0.000** | **0.000** | **0.00** | **0.00** | |

## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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




### Integration Results

| 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** | |



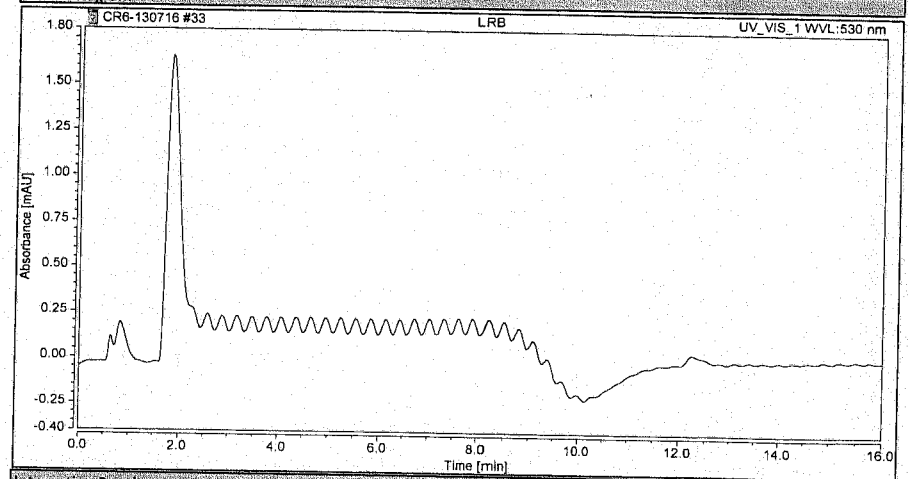


## Chromatogram and Results

### Injection Details

| | | | |
|---|---|---|---|
| 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




### Integration 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** | |

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ctk 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 |

**BLANK** 7/22/2013 12:32:26 PM

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 |

**200 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% | M 200.900 | 99.667% | 94.247% | TM 200.100 | 92.561% |
| 3 | 12:34:27 | 101.973% | M 201.100 | 99.619% | 91.773% | TM 200.400 | T 90.156% |
| x | | 102.782% | M 200.000 | 99.274% | 94.836% | TM 200.000 | T 92.889% |
| σ | | 1.136% | M 1.677 | 0.640% | 3.397% | TM 0.473 | T 2.911% |
| %RSD | | 1.105 | M 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% | M 200.900 | 100.820% | 94.308% | TM 201.100 | 93.296% |
| 3 | 12:39:56 | 104.506% | M 200.400 | 100.708% | 92.120% | TM 200.900 | 91.384% |
| x | | 104.016% | M 199.700 | 100.682% | 95.167% | TM 200.700 | 93.921% |
| σ | | 0.524% | M 1.675 | 0.154% | 3.555% | TM 0.603 | 2.899% |
| %RSD | | 0.504 | M 0.839 | 0.153 | 3.736 | TM 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 |

**LPB5106** 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

**LCS5106** 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 |

**CKS** 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% | T 193.900 | 91.279% |
| 2 | 13:21:12 | 104.953% | M 201.200 | 101.557% | 93.739% | T 195.000 | T 85.340% |
| 3 | 13:21:17 | 103.825% | 198.800 | 102.718% | 91.523% | T 195.100 | T 84.447% |
| x | | 104.101% | M 198.900 | 102.094% | 94.734% | T 194.700 | T 87.022% |
| σ | | 0.752% | M 2.221 | 0.586% | 3.807% | T 0.647 | T 3.714% |
| %RSD | | 0.723 | M 1.116 | 0.574 | 4.019 | T 0.332 | T 4.268 |

**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% | M 200.700 | 101.567% | 92.773% | T 193.400 | T 86.266% |
| 3 | 13:51:33 | 101.824% | M 200.500 | 102.004% | 89.508% | T 194.300 | T 83.355% |
| x | | 102.086% | M 199.900 | 101.476% | 93.168% | T 193.700 | T 87.517% |
| σ | | 0.401% | M 1.267 | 0.579% | 3.872% | T 0.447 | T 4.909% |
| %RSD | | 0.393 | M 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 |

**CKS** 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% | M 200.400 | 102.944% | 90.616% | T 194.700 | T 85.824% |
| x | | 105.194% | M 198.700 | 102.772% | 93.802% | T 194.700 | T 88.624% |
| σ | | 2.621% | M 2.032 | 0.543% | 3.581% | T 0.246 | T 3.170% |
| %RSD | | 2.492 | M 1.023 | 0.528 | 3.818 | T 0.126 | T 3.577 |

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

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

ECL Log in Batch Number

Page 2 of 2

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 | TAL Metals Method 6020 | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| ECL029478-001 | 3998 Farm-Sed 1 | 7/9/13 | 10:00 | SS | 1 | G | N | X | Hold for more information |

| Collected / Relinquished By | Date | Time | Received By |
|---|---|---|---|
| | 7/10/13 | 9:18 | |
| 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

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

ECL Doc 1 (11/07/12)