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



47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

PROJECT NAME: Mornovia BP

5405 Twin Knolls Rd

REPORT DATE: 26-Mar-13

Suite 1

Columbia, MD 21045-

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- 14:4
DELIVERED BY- M. Emery RECEIVED BY- JRB

TIME RECEIVED- 14:40

Page 1 of 12

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	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



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#- ECL028223-002 SAMPLE ID- 11712 Serene-PT1 Dissolved

LOCATION-

DATE SAMPLED- 3/12/2013

DATE RECEIVED- 3/12/2013 DELIVERED BY- M. Emery

TIME SAMPLED- 10:25

TIME RECEIVED- 14:40

RECEIVED BY- JRB

SAMPLER- Bennett/Emery

Page 2 of 12

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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

PROJECT NAME: Mornovia BP

5405 Twin Knolls Rd

REPORT DATE: 26-Mar-13

Suite 1

Columbia, MD 21045-

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

Page 3 of 12

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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Mornovia BP

SAMPLER- Bennett/Emery

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
DATE RECEIVED- 3/12/2013 TIME RECEIVED- 14:40

DELIVERED BY- M. Emery RECEIVED BY- JRB

Page 4 of 12

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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

PROJECT NAME: Mornovia BP

5405 Twin Knolls Rd

REPORT DATE: 26-Mar-13

Suite 1

Columbia, MD 21045-

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

Page 5 of 12

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



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

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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

DELIVERED BY- M. Emery

TIME RECEIVED- 14:40 RECEIVED BY- JRB

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

DATE RECEIVED- 3/12/2013 DELIVERED BY- M. Emery

TIME SAMPLED- 11:33

TIME RECEIVED- 14:40 RECEIVED BY- JRB

SAMPLER- Bennett/Emery

Page 7 of 12

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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

PROJECT NAME: Mornovia BP

5405 Twin Knolls Rd

REPORT DATE: 26-Mar-13

Suite 1

Columbia, MD 21045-

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

Page 8 of 12

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

SAMPLER- Bennett/Emery

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 TIME RECEIVED- 14:40

DATE RECEIVED- 3/12/2013 DELIVERED BY- M. Emery

RECEIVED BY- JRB

Page 9 of 12

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



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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#- ECL028223-010

SAMPLE ID- 11712 Serene-PT4 Dissolved

LOCATION-

DATE SAMPLED- 3/12/2013

DATE RECEIVED- 3/12/2013

TIME SAMPLED- 11:55

TIME RECEIVED- 14:40

DELIVERED BY- M. Emery

RECEIVED BY- JRB

SAMPLER- Bennett/Emery

Page 10 of 12

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

SAMPLER- Bennett/Emery

REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-011 SAMPLE ID- 11712 Serene-FB Total

LOCATION-

DATE SAMPLED- 3/12/2013

DATE RECEIVED- 3/12/2013

DELIVERED BY- M. Emery RECEIVED BY- JRB

TIME SAMPLED- 12:22

TIME RECEIVED- 14:40

Page 11 of 12

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	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	



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Mornovia BP

REPORT DATE: 26-Mar-13

REPORT NUMBER: 5044

LAB#- ECL028223-012 SAMPLE ID- 11712 Serene-FB Dissolved

LOCATION-

DATE SAMPLED- 3/12/2013

DATE RECEIVED- 3/12/2013

DELIVERED BY- M. Emery RECEIVED BY- JRB

TIME SAMPLED- 12:22

TIME RECEIVED- 14:40

SAMPLER- Bennett/Emery

Page 12 of 12

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

Sample Chain of Custody

((NH4)2, SC4) +(NH4CH)

		3		delipie chall of custous	5		<u>></u>		+Control				
Enviro-chem Laboratories, Inc.			47 Lo	47 Loveton Circle, Suite K	cle, Su	te K			4			Sparks. MD	s. MD 21152
Client: Chestocake (200 Sciences, Inc. (CGS) Phone No.: (410) 740- 1911 x 102	s, Inc. (665)	Phone No.: (4	10)740-1		ECL Log	ECL Log in Batch Number	Jumbei		_		Page	0	
Project Manager: Sean Dante		Fax No.: (4	410) 740 3299			Preservative	2	N.A.	_			Preserv	Preservative Key:
Sampler Lan Bennett + Matt Emery Email: Sdaniel	MCCY Email: 6	daniel	છ છ	a cas.us.cem	Š	Sample Type	80	100	2.8			S = Si N = HO	NA = Nuitc Acid, pH <2 SA = Suffuric Acid, pH <2 OH = NaOH nH >12
Project Name: Former Green Valle	y Cho Project No	umber: CG	-12-0788.04	38.04	ō	C = Comp.	100 PC	איניות ל		_	_	TI = Thi	TI = Thiosulfate Zn = Zinc Acetate
P.O.Number: CG 12078B	·	-			Containers	G = Grab	1874 180	uas y		_	_	N=N /	N = None, Chilled
	Sample Identification	Date	Time	Matrix			1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	May next Office		<u> </u>		5 	Remarks
ECL028723-001 TOTAL 002 DVS 117126	-	.l ~^	10:25	MO	6		7 ≯ 1 ×) ×	-		1		
JATOT SUC	2		8:80	36	3								
006 DISS 11712 Se	11712 Secene-PT2		0::	DW	B		×	×					
S TOTAL	11712 Secene-PT3		11:33	MO	W	9	×	×					
201711 (2/4 0/0	117126erene-PT4	→	11:55	DM	W	9	×	×					
25.1711 - TOTOT 110 ((ICT 510)	11712Serve-FB	3/12/13	12:22	M	M	†	×						
							/						
The second of the second of					/								
Makt Enery My	<u> </u>	Date 3/13/13	Time	Received By	U				Deliverables Required	Required	#	# Coolers	Seal
Kelinquished By	<u>a</u>	Date T		Received By	}			-	Due Date		T	ice Present	Temp
Relinquished By		1								-		78	
	Ď.		e E	Received By				E1	Turnaround Requested	equested	æ	Rush?	
Relinquished By		Date	Time	Received By				- 1	STD	1-Day	Other		
				kg pakea				<u>"</u>	Defive	Special instructions, Comments. Defiverable-Level 4	ents:	7 7	
COC/Labels match Y N # of Samples	s # of Bottles		Explain any "NO" answers	"answers				Τ					-
Bottles intact/appropriate Y N Preserved correctly	orrectly Y N	N A											
	- Table 1				-			1					£01, Doc 1 (11/01/10)

Phone 410-472-1112

Fax: 410-472-1116

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

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 PrucnalLaboratory Manager

Dan Perunal



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.

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-PTSec	diment	Date/Time	Sampled:	03/12/2	2013 1	2:34	PSS Sample	e ID: 13031510	6-001
Matrix: SOIL		Date/Time	Received:	03/15/2	2013 1	2:15	% S	olids: 90	
TAL Metals	Analytic	al Method: S	W-846 6020	Α		Pre	eparation Meth	nod: 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	3 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:	jer:					Parameters	<u>မ</u>	CHAIN-OF	CHAIN-OF-CUSTODY RECORD	RECORD
Project Name: Monrovia BP /Former Green Valley Citgo (FGVC) (2005-0834FR)	Project ID: CG-12-0788								/303/5/0 Phase Separation Science, Inc. 6630 Baltimore National Pike, Suite 104-A	Phase Separation Science, Inc. Baltimore National Pike, Suite	nce, Inc. 9, Suite 104-A
Sampler(s): Lara Bennett & Sean Daniel	P.O. Number: CG120788SD			<u> </u>	Containers	-004	,		Baltir (4	Baltimore, MD 21228 (410) 747-8770	228
Field Sample ID	Date Time	Φ Water	lioS	Ofher		<u> </u>			Preservative/Remarks	kemarks	PSS Lab ID
11712Serene-PTSediment	3/12/13 12:34	4	×		<u>-</u>						
			1								
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Relinquished by: (Signature)	Date/Time	Rece	ived by	, Labo	Received by Laboratory: (Signature)	ignature)	Date/Time		Remarks: MDE-OCP Level 4 Deliverables/Rates RMS 2008 Rates Please include BTEX, Nabhthalene, MTBE, TAME, TBA, ETBE, DIPE, 1,2-DCA.	ables/Rates RMS 3	RMS 2008 Rates TBA, ETBE, DIPE, 1,2-DCA.
(Printed)		(Printed)	(pa				<u> </u>	and 1,2. E-mail r	and 1,2-Dibromoethane in EPA 524.2 & 8260 Analyses. E-mail results to <u>sdaniel@cgs.us.com</u> , memery@cgs.us.com, &	2 & 8260 Analyses. n, memery@cgs.us.α	<u>o</u> m, &
								nauliadi	Delli elilacus, us. colli		

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Phase Separation Science, Inc

Sample Receipt Checklist

CEEDING THE STANDA		Janipi	e nece	ipt Offeckinst	
Work Order #	13031516			Received By	Rachel Davis
Client Name	Chesapeake GeoSc	ciences, Inc.		Date Received	03/15/2013 12:15:00 PM
Project Name	Monrovia BP/Forme	er Green Val	ley C	Delivered By	Client
Project Number	CG-12-0788			Tracking No	Not Applicable
Disposal Date	04/19/2013			Logged In By	Rachel Davis
Shipping Contain	ner(s)				
No. of Coolers	1			Ice	Present
Custody Seal(s) Seal(s) Signed			N/A N/A	Temp (deg C) Temp Blank Pres	
Documentation				Sampler Name	Lara Bennett
COC agrees with Chain of Custoo	th sample labels? dy		Yes Yes	MD DW Cert. No.	. <u>N/A</u>
Sample Containe	ar			Custody Seal(s) I	ntact? Not Applicable
-	Specified Analysis?		Yes Yes Yes	Seal(s) Signed / [Dated Not Applicable
Total No. of Sar	mples Received 1			Total No. of Conta	ainers Received 1
Preservation					
Metals			(pH<2)	N/A	
Cyanides Sulfide			(pH>12) (pH>9)	N/A N/A	
TOC, COD, Phe	enols		(ph<2)	N/A	
TOX, TKN, NH3			(pH<2)	N/A	
VOC, BTEX (VO	OA Vials Rcvd Prese	rved)	(pH<2)	N/A	
Do VOA vials ha	ave zero headspace	?		N/A	
Comments: (Ar	ny "No" response	must be d	etailed i	in the comments	section below.)
documentation of should be analyzed preservation shall hand delivered on	any client notification a d as soon as possible, be considered accepta	is well as clier preferably in the ble when rece bllected may no	nt instructi he field at eived at a t ot meet the	ons. Samples for pH, the time of sampling. emperature above free ese criteria but shall be	t ID number) below as well as chlorine and dissolved oxygen Samples which require thermal ezing to 6°C. Samples that are e considered acceptable if there
	Checklist Completed By:	Lacled &			03/15/2013
PI	M Review and Approval:	Vii Yryn	Ma_ Lynn Moran	Date:	03/18/2013

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

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 PrucnalLaboratory Manager

Dan Perunal



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.
- The target analyte was positively identified below the reporting limit but greater than the LOD.
- LOD Limit of Detection. An estimate of the minimum amount of a substance that an analytical process can reliably detect.

 An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.



Case Narrative Summary

Client Name: Chesapeake GeoSciences, Inc.

Project Name: Monrovia BP/Former Green Valley Citgo

Work Order Number(s): 13031213

Project ID: CG-12-0788.04

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

Sample Receipt:

All sample receipt conditions were acceptable.

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

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

Page 4 of 20

Final 1.000

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

Sample ID: 11712 Serene-TB			ne Sampled:			PSS Sample	e ID: 13031213	3-001
Matrix: WATER		Date/Tim	e Received:	03/12/2013	15:25			
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Pr	eparation Meth	nod: 524.2	
Library search was performed and TICs (if an					LOD	Dramarad	Analymad	Analyst
Ponzono	Result ND	Units ug/L	RL 0.50	Flag Dil 1	LOD 0.5	Prepared	Analyzed 03/13/13 16:54	Analyst 1014
Benzene Bromodichloromethane		-		1	0.5			
	ND	ug/L	0.50				03/13/13 16:54	
Bromoform	ND	ug/L	5.0	1	5		03/13/13 16:54	
Bromomethane	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
Carbon Tetrachloride	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
Chlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
Chloroethane	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
Chloroform	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
Chloromethane	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0	1	5		03/13/13 16:54	
Dibromochloromethane	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
1,2-Dibromoethane	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
1,2-Dichlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 16:54	
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 16:54	
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

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	e Received: 03/1	2/2013 1	5:25			
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Pre	paration Meth	nod: 524.2	
Library search was performed and TICs (if ar	ny) are listed	below, valu	ies of TICs are estimat	ted				
	Result	Units	RL Flag	_J 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

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

Sample ID: 11712 Serene-PT1			ne Sampled:			PSS Sample	e ID: 13031213	3-002
Matrix: WATER		Date/Tim	e Received:	03/12/2013				
VOC In Drinking Water plus Oxygenates	•		EPA 524.2		Pı	eparation Meth	nod: 524.2	
Library search was performed and TICs (if an	y) are listed Result	below, valu Units	ues of TICs are 6 RL		LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50	1 1ag 5 1	0.5	•	03/13/13 17:34	
Bromodichloromethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Bromoform	ND	ug/L	5.0	1	5		03/13/13 17:34	
Bromomethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Carbon Tetrachloride	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Chlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Chloroethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Chloroform	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Chloromethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0	1	5		03/13/13 17:34	
Dibromochloromethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,2-Dibromoethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,2-Dichlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,3-Dichlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,4-Dichlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
Dichlorodifluoromethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
1,1-Dichloroethane	ND	ug/L	0.50	1	0.5		03/13/13 17:34	
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

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

Matrix: WATER	L	Date/Tim	e Received: 03/1	12/2013 1	5.25			
VOC In Drinking Water plus Oxygenate	s Analytica	l Method:	EPA 524.2		Pre	paration Meth	nod: 524.2	
Library search was performed and TICs (if	any) are listed	below, valu	es of TICs are estima	ated				
	Result	Units	RL Flag	g 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

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

Sample ID: 11712 Serene-PT1DB		Date/Tim	ne Sampled:	03/12/2013	00:00	PSS Sample	e ID: 13031213	3-003
Matrix: WATER		Date/Tim	e Received:	03/12/2013	15:25			
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Р	reparation Meth	nod: 524.2	
Library search was performed and TICs (if an								
	Result	Units		Flag Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Bromodichloromethane	ND	ug/L	0.50	1	0.5		03/13/13 18:15	
Bromoform	ND	ug/L	5.0	1	5	03/13/13	03/13/13 18:15	5 1014
Bromomethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Carbon Tetrachloride	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Chlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Chloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Chloroform	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Chloromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0	1	5	03/13/13	03/13/13 18:15	5 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	5 1014
1,3-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,4-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Dichlorodifluoromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,1-Dichloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,2-Dichloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
cis-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,1-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
1,2-Dichloropropane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Ethylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Isopropylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Methyl-t-butyl ether	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Naphthalene	ND	ug/L	0.50	1	0.5		03/13/13 18:15	
Styrene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014
Diisopropyl ether	ND	ug/L	5.0	1	5	03/13/13	03/13/13 18:15	5 1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1	0.5		03/13/13 18:15	
Tetrachloroethylene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 18:15	5 1014

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 Matrix: WATER			ne Sampled: e Received:			PSS Sample	e ID: 13031213	3-003
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Р	reparation Meth	nod: 524.2	
Library search was performed and TICs (if an	y) are listed Result	below, valu Units		stimated 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

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

Sample ID: 11712 Serene-PT2	Date/Time Sampled: 03/12/20	13 11:10 PSS Sample ID: 13031213-004
Matrix: WATER	Date/Time Received: 03/12/20	13 15:25
VOC In Drinking Water plus Oxygenates	Analytical Method: EPA 524.2	Preparation Method: 524.2

Library search was performed and TICs (i	f any) are listed							
_	Result	Units		Flag Dil	LOD	Prepared		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

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

Matrix: WATER		Date/Tim	e Received: U3/12/	2013 1	15:25			
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Pre	paration Meth	nod: 524.2	
Library search was performed and TICs (if ar	ny) are listed	below, valu	ues of TICs are estimated	1				
	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

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

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

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT3

1,1,2,2-Tetrachloroethane

Tetrachloroethylene

Matrix: WATER	C	Date/Time	Received: 03/12/	2013 1	15:25					
VOC In Drinking Water plus Oxygenates		Analytical Method: EPA 524.2					Preparation Method: 524.2			
Library search was performed and TICs (if a	• /									
	Result	Units	RL Flag	Dil	LOD	Prepared	Analyzed	Analyst		
Benzene	ND	ug/L	0.50	1	0.5		03/13/13 19:36			
Bromodichloromethane	ND	ug/L	0.50	1	0.5		03/13/13 19:36			
Bromoform	ND	ug/L	5.0	1	5		03/13/13 19:36			
Bromomethane	ND	ug/L	0.50	1	0.5		03/13/13 19:36			
Carbon Tetrachloride	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Chlorobenzene	ND	ug/L	0.50	1	0.5		03/13/13 19:36			
Chloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Chloroform	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Chloromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0	1	5	03/13/13	03/13/13 19:36	5 1014		
Dibromochloromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,2-Dibromoethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,2-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,3-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 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	5 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	5 1014		
cis-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,1-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
1,2-Dichloropropane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	6 1014		
Ethylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Isopropylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Methyl-t-butyl ether	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Naphthalene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Styrene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 19:36	5 1014		
Diisopropyl ether	ND	ug/L	5.0	1	5	03/13/13	03/13/13 19:36	5 1014		
				_						

0.50

0.50

ND

ND

ug/L

ug/L

03/13/13 03/13/13 19:36 1014

03/13/13 03/13/13 19:36 1014

0.5

0.5

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	e Received:	03/12/2013	15:25			
VOC In Drinking Water plus Oxygenates	Analytica	Method:	EPA 524.2		Pr	eparation Meth	nod: 524.2	
Library search was performed and TICs (if ar	ny) are listed	below, valu	ies of TICs are e	stimated				
	Result	Units	RL	Flag Dil	LOD	Prepared	Analyzed	Analyst
Toluene	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
1,2,4-Trichlorobenzene	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
1,1,1-Trichloroethane	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
1,1,2-Trichloroethane	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
Trichloroethene	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
Vinyl Chloride	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
o-Xylene	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 19:36	1014
m,p-Xylenes	ND	ug/L	1.0	•	l 1	03/13/13	03/13/13 19:36	1014
tert-Butyl ethyl ether	ND	ug/L	5.0	•	J 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

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 13031213

Chesapeake GeoSciences, Inc., Columbia, MD

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

March 26, 2013

Project Name: Monrovia BP/Former Green Valley Citgo

Project ID: CG-12-0788.04

Sample ID: 11712 Serene-PT4

1,1,2,2-Tetrachloroethane

Tetrachloroethylene

Matrix: WATER		Date/Time	Received:	03/12/2013	15:25			
VOC In Drinking Water plus Oxygenates	•	l Method: E			Pre	eparation Meth	nod: 524.2	
Library search was performed and TICs (if a	ny) are listed Result	below, value Units		stimated Flag Dil	LOD	Prepared	Analyzed	Analyst
Benzene	ND	ug/L	0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.5	•	03/13/13 20:17	
Bromodichloromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Bromoform	ND	ug/L	5.0	1	5	03/13/13	03/13/13 20:17	7 1014
Bromomethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 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	7 1014
1,2-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,3-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,4-Dichlorobenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Dichlorodifluoromethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,1-Dichloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,2-Dichloroethane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
cis-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
trans-1,2-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,1-Dichloroethene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
1,2-Dichloropropane	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Ethylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Isopropylbenzene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Methyl-t-butyl ether	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Naphthalene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Styrene	ND	ug/L	0.50	1	0.5	03/13/13	03/13/13 20:17	7 1014
Diisopropyl ether	ND	ug/L	5.0	1	5	03/13/13	03/13/13 20:17	7 1014

0.50

0.50

1

0.5

0.5

ND

ND

ug/L

ug/L

03/13/13 03/13/13 20:17 1014

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

Matrix: WAILIN	L	pate/ i ime	e Keceivea: o	3/12/2013	3.23			
VOC In Drinking Water plus Oxygenates	Analytica	l Method:	EPA 524.2		Pre	paration Meth	nod: 524.2	
Library search was performed and TICs (if a	ny) are listed	below, valu	es of TICs are est	timated				
· · · · · · · · · · · · · · · · · · ·	Result	Units	RL F	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

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-FB		Date/Time	Sampled:	03/12/	2013 <i>1</i>	12:22	PSS Sample	D: 1303121	13-007
Matrix: WATER		Date/Time	Received:	03/12/	2013 ′	15:25			
VOC In Drinking Water plus Oxygenate	es Analytica	Method: E	PA 524.2			Pre	paration Meth	od: 524.2	
Library search was performed and TICs (i	if any) are listed	below, value	s of TICs are e	stimated	1				
_	Result	Units	RL	Flag	Dil	LOD	Prepared	Analyzed	Analyst
n e	ND	/1	0.50			0.5	00/40/40	00/40/40 40 4	10 1011

Library search was performed and TICs (i	f any) are listed							
_	Result	Units		Flag Dil	LOD	Prepared		Analyst
Benzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Bromodichloromethane	ND	ug/L	0.50	•	0.5	03/13/13	03/13/13 16:13	1014
Bromoform	ND	ug/L	5.0	,	5	03/13/13	03/13/13 16:13	1014
Bromomethane	ND	ug/L	0.50	,	0.5	03/13/13	03/13/13 16:13	1014
Carbon Tetrachloride	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Chlorobenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Chloroethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Chloroform	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Chloromethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,2-Dibromo-3-Chloropropane	ND	ug/L	5.0		5	03/13/13	03/13/13 16:13	1014
Dibromochloromethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,2-Dibromoethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichlorobenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,3-Dichlorobenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,4-Dichlorobenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Dichlorodifluoromethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,1-Dichloroethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichloroethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
cis-1,2-Dichloroethene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
trans-1,2-Dichloroethene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,1-Dichloroethene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
1,2-Dichloropropane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Ethylbenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Isopropylbenzene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Methyl-t-butyl ether	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Naphthalene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Styrene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Diisopropyl ether	ND	ug/L	5.0		5	03/13/13	03/13/13 16:13	1014
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	1014
Tetrachloroethylene	ND	ug/L	0.50		0.5	03/13/13	03/13/13 16:13	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-FB Date/Time Sampled: 03/12/2013 12:22 PSS Sample ID: 13031213-007

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

Matrix: WATER	L	Date/Time	e Received: 03/1	12/2013 1	5.25			
VOC In Drinking Water plus Oxygenates	s Analytica	l Method:	EPA 524.2		Pre	paration Meth	nod: 524.2	
Library search was performed and TICs (if	any) are listed	below, valu	es of TICs are estima	ated				
	Result	Units	RL Flag	g 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:	ınager:						Parameters	2 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	CHAIN-OF-CUSTODY RECORD	USTODY F	RECORD
	Seall Dall	<u></u>								120	21212	
Project Name: Monrovia BP /Former Green Valley	Project ID: CG-12-0788 .54	88.			Γ					Phase Separation Science, Inc.	> (←/ ⊃ ration Scier	nce, Inc.
Citgo (FGVC) (2005-0834FR)		•			s.				99) Baltimore N	ational Pike	6630 Baltimore National Pike, Suite 104-A
Sampler(s): Lara Bennett & Matt Emery	P.O. Number: CG120788SD	er: ISD			L nentaineO	3 EPA 52				Baltimo (410	Baltimore, MD 21228 (410) 747-8770	528 -
Field Sample ID	Date -	Time	Water	Soil]			Preservative/Remarks	narks	PSS Lab ID
11713Secar - TB	3/12/13	OJ:15	×		3	×			포	Ha 121 +492		
11712 Serve- PT 1		10:25	×		3	×			Acl	10 to 440C		
11712 Secre- PT 108	0	0:00	×		3	×			 	HC1 131 +40C		
11712 Serac - PT2		11:10	×		3	×			HCI	Hc 1:1 + 4°C		
11712 Serenc - 173		1:33	×		3	×			HC1	Hed 1:1 +40C		
11712 Serenc - PT4	≒	1:55	×		3	×			HC!	70h+ 11		
# 11713 Seen - FB	3/12/13	12:27	×		3	×			五元	70h+ [1]		
9 of												
20												
							_	_		# of Coolers.		
			$\overline{\mathcal{I}}$					_		Custody Sext:	CASS	
										Ice Present:	Saud	Temp:4%
										Shipping Carrie	is cuel	
Fina												
1.000						Z						
							/		/			
Relinquisyed by. (Signeture)	Date/Time 3/13//3	<u> </u>	Seive	Received by)(Signature)		re)		Relinquished by: (Signature)	nature)	Date/Time	Received by: (Signature)	gnature)
(Printed) T	15:25	(P	(Printed		A (S) PX	_	(Printed)			(Printed)	
Relinquished by: (Signature)	Date/Time	Re	ceive	d by L£	aborat	Received by Laboratory: (Signature)	ature)	Date/Time	Remarks: MDE-O Please include B ⁷	Remarks: MDE-OCP Level 4 Deliverables/Rates Please include BTEX, Naphthalene, MTBE, TAMI	es/Rates RMS BE, TAME, TBA, E	Remarks: MDE-OCP Level 4 Deliverables/Rates RMS 2008 Rates Please include BTEX, Naphthalene, MTBE, TAME, TBA, ETBE, DIPE, 1,2-DCA,
(Printed)		, .	(Printed)				Si di	Ι	and 1,2-Dibromoe E-mail results to g	and 1,2-Dibromoethane in EPA 524.2 & 8260 Analyses. E-mail results to <u>sdaniel@cgs.us.com, memery@cgs.us.com,</u> &	8260 Analyses. nemery@cgs.us.o	<u>:om</u> , &
									Tipelijeti(@cds.us.com			



Phase Separation Science, Inc

Sample Receipt Checklist

ONG THE STAND		oup.	0 11000	ipt oncommet	
Work Order #	13031213			Received By	Rachel Davis
Client Name	Chesapeake GeoSe	ciences, Inc.		Date Received	03/12/2013 03:25:00 PM
Project Name	Monrovia BP/Forme	er Green Val	ley 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 Contai	ner(s)				
No. of Coolers	1			Ice	Present
Custody Seal(s) Seal(s) Signed			N/A N/A	Temp (deg C) Temp Blank Pres	
Documentation				Sampler Name	Lara Bennett
COC agrees wir Chain of Custoo	th sample labels? dy		Yes Yes	MD DW Cert. No.	. <u>N/A</u>
Sample Containe	er			Custody Seal(s) I	ntact? Not Applicable
-	Specified Analysis?		Yes Yes Yes	Seal(s) Signed / [Dated Not Applicable
Total No. of Sar	mples Received 7			Total No. of Conta	ainers Received 21
Metals			(pH<2)	N/A	
Cyanides			(pH>12)		
Sulfide TOC, COD, Pho	anala		(pH>9) (ph<2)	N/A N/A	
TOX, TKN, NH			(pH<2)	N/A	
	OA Vials Rcvd Prese	erved)	(pH<2)	Yes	
	ave zero headspace		(r /	Yes	
Comments: (Ar	ny "No" response	must be d	etailed i	n the comments	section below.)
documentation of should be analyzed preservation shall hand delivered on	any client notification a d as soon as possible, be considered accepta	ns well as clier preferably in the oble when rece ollected may no	nt instructine field at a telephone in the field at a telephone in the field at the	ons. Samples for pH, the time of sampling. emperature above free se criteria but shall be	t ID number) below as well as chlorine and dissolved oxygen Samples which require thermal ezing to 6°C. Samples that are e considered acceptable if there
Samples Inspected/0	Checklist Completed By:	Cacled 6	Daws achel Davis	Date:	03/12/2013
Pľ	M Review and Approval:	Vin Yron	Ma_ ynn Moran	Date:	03/13/2013

TABLE OF CONTENTS

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Case Narrative	2		
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QC Summary Table			
Instrument Blanks	30		
Calibration Data	32		
Metals Digestion Logs	41		
Raw Data	43		

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

((NH")250") + (NH"OH) Sample Chain of Custody

Sparks, MD 21152 SA = Sulfuric Acid, pH <2 OH = NaOH, pH >12 NA = Nitric Acid, pH <2 Remarks Temp Zn = Zinc Acetate N = None, Chilled X = Other Seal TI = Thiosulfate Ice Present # Coolers Page Special instructions, Comments: 1-Day umaround Requested STD \$ × Chromium Chromium Chromium Chromium Z ECL Log in Batch Number Preservative G ≖ Grab Ch Sample P Type 17 Loveton Circle, Suite K Containers M ω M 3 (3 (1) 3 M ģ ō Sampler, Matt Emery + Lara Bennett Email: 5 dansel @ cgs. US.com Project Number: CG-12-0788, Q6 Received By Received By Matrix Received By 14:48 DM 410) 740 3299 Explain any "NO" answers Ma/5/12/D 30 30 0° h 13:45 DW Malberol Ma | 20:0] MG 00:11 MO | 00:00 Client: Chescipearke Gerschances, Inc. ((65) Phone No.: (410) 740-1911 60:0 16/21/3 16:47 11713 Serene-POU 6/21/13/91:41 Time Sampled 1735erene-WP3 6/21/13 Date Date 117135erene-PTIOB 11713Serene-PTa 11735 Evene -P 73 11713 Serene-PT4 11713 Sevens-WPI 11713Serene-WP2 11713 Serene-FB Sample Identification (As it is to appear on report) 11713Serene-PT1 CG120788,0650 Enviro-Chem Laboratories, Inc. Project Name: Green Valley Cityo Sean Danie 255 1012 FOTA Teres せまり 252 2220 1212 Enviro-Chem Lab No. 55/5 2155 200 2250 llected / Relinguished By ECL0 2978 CUD ECL029318-002 Ecco 29318-006 ECCU029318-009 100-38-001 ECLO29318-010 FC1-348-008 Ecro 2928-013 Ecco 29 318-014 500 1828 - CC £6029318-020 FC0-38.62073 ECLO 2938-001 2010-415P10-010 ECLO 2934-003 ECLO29318-005 FCL029318-011 FC00298-018 からなんてのつろ (CCO29318-017 Project Manager: O.Number: Relinquished By Relinquished By elinquished By

Phone 410-472-1112

₹

Preserved correctly

Bottles intact/appropriate

COC/Labels match

of Bottles

of Samples

Fax: 410-472-1116

Analytical Reports



47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

DATA

FLAG

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

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

COMMENTS-

ANALYSIS

Page 1 of 20

SAMPLE ID- 11713 Serene-POU Total

TIME SAMPLED- 9:41 TIME RECEIVED- 16:47 RECEIVED BY- VPS

> REPORTING ANALYSIS LIMIT BY RESULT DATE/TIME

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

EPA 218.7 6/25/2013 01:38 SES < 0.020 ug/L Cr 0.020

LOCATION-

DELIVERED BY- L Bennett

LAB#- ECL029318-002 SAMPLE ID- 11713 Serene-POU Dissolved

DATE SAMPLED- 6/21/2013 TIME SAMPLED- 9:41
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47 TIME SAMPLED- 9:41 RECEIVED BY- VPS

COMMENTS-

Chromate

Page 2 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	1 LABORATORIE	S, MD CERT #192					
Chromium*# Lead*#		7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 < 1.0	μg/L μg/L	1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABO	RATORIES, MD CE	RT #19:	2			



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

LAB#- ECL029318-003

LOCATION-

DATE SAMPLED- 6/21/2013

DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS

SAMPLE ID- 11713 Serene-PT1 Total

TIME SAMPLED- 10:03

COMMENTS-

Page 3 of 20

ANALYSIS	3. 3.	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULI	, .	REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO	-CHEM	LABORATORI	ES, MD CERT #19	2				
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	



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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

SAMPLER- Emery, Bennett

REPORT NUMBER: 6605

LAB#- ECL029318-004

SAMPLE ID- 11713 Serene-PT1 Dissolved

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47

DELIVERED BY- L Bennett

TIME SAMPLED- 10:03

RECEIVED BY- VPS

COMMENTS-

Page 4 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CI	HEM LABORATORIE	S, MD CERT #192					
Chromium*# Lead*#	10111 00000	7/19/2013 15:37 7/19/2013 15:37	CHK	4.4 < 1.0	μg/L μg/L	1.0	
WET CHEMISTRY BY E	NVIRO-CHEM LABO	RATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	6/25/2013 01:57	SES	0.111	ug/L Cr	0.020	



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

OS SAMPLE ID- 11713 Serene-PT1DB Total

LOCATION-

DATE SAMPLED- 6/21/2013
DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 0:00

TIME RECEIVED- 16:47
RECEIVED BY- VPS

COMMENTS-

ANALYSIS

Page 5 of 20

ANALYSIS	DATA	
METHOD DATE/TIME BY RESULT LIMIT	FLAG	

SAMPLER- Emery, Bennett

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 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 0:00 TIME RECEIVED- 16:47 RECEIVED BY- VPS SAMPLER- Emery, Bennett

COMMENTS-

Page 6 of 20

rage of or 20		ANALYSIS				REPORTING	DATA
ANALYSIS	METHOD	DATE/TIME	ВУ	RESULT		LIMIT	FLAG
METALS BY ENVIRO-CH	EM LABORATORI	ES, MD CERT #192	2				
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK	4.6 < 1.0	μg/L μg/L	1.0	
WET CHEMISTRY BY EN	VIRO-CHEM LAB	ORATORIES, MD C	ERT #19	2			
Chromate	EPA 218.7	6/25/2013 02:16	SES	0.112	ug/L Cr	0.020	



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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 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 10:26 TIME RECEIVED- 16:47 RECEIVED BY- VPS

COMMENTS-

ANALYSIS

Page 7 of 20

DATA REPORTING ANALYSIS LIMIT FLAG RESULT DATE/TIME BY

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

1.0 CHK 17.9 μg/L 7/19/2013 15:37 EPA 200.8 Chromium*# 1.0 μg/L 3.9 7/19/2013 15:37 CHK EPA 200.8 Lead*#



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#- ECL029318-008 SAMPLE ID- 11713 Serene-PT2 Dissolved

LOCATION-

TIME SAMPLED- 10:26 SAMPLER- Emery, Bennett

DATE SAMPLED- 6/21/2013 TIME SAMPLED- 10:26
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

Page 8 of 20

Page 8 OL 20							
ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CH	EM LABORATORIE	S, 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 EN	VIRO-CHEM LABO	RATORIES, MD CE	RT #192	! •			
Chromate	EPA 218.7	6/25/2013 02:35	SES	0.128	ug/L Cr	0.020	



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#- ECL029318-009

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

COMMENTS-

ANALYSIS

Page 9 of 20

SAMPLE ID- 11713 Serene-PT3 Total

TIME SAMPLED- 10:39 TIME RECEIVED- 16:47

RECEIVED BY- VPS

REPORTING DATA ANALYSIS LIMIT FLAG BY RESULT DATE/TIME

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

1.0 7/19/2013 15:37 CHK 6.5 μq/L EPA 200.8 Chromium*# 1.0 CHK < 1.0 μq/L EPA 200.8 7/19/2013 15:37 Lead*#



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 21045PROJECT NAME: Grn Vall. Citgo

REPORT DATE: 23-Jul-13

SAMPLER- Emery, Bennett

REPORT NUMBER: 6605

LAB#- ECL029318-010

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

COMMENTS-

Page 10 of 20

SAMPLE ID- 11713 Serene-PT3 Dissolved

TIME SAMPLED- 10:39 TIME RECEIVED- 16:47

RECEIVED BY- VPS

REPORTING DATA ANALYSIS RESULT LIMIT FLAG ΒY METHOD DATE/TIME ANALYSIS

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

1.0 2.9 µg/L 7/19/2013 15:37 CHK EPA 200.8 Chromium*# 1.0 < 1.0 μg/L 7/19/2013 15:37 CHK EPA 200.8 Lead*#

WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192

0.020 ug/L Cr 6/25/2013 02:53 SES 0.112 EPA 218.7 Chromate



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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

LOCATION-

DATE SAMPLED- 6/21/2013 TIME SAMPLED- 11:00
DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:47
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

ANALYSIS

Page 11 of 20

LAB#- ECL029318-011 SAMPLE ID- 11713 Serene-PT4 Total

ANALYSIS DATE/TIME	ВҮ	RESULT	REPORTING LIMIT	DATA FLAG

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

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



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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

SAMPLER- Emery, Bennett

ug/L Cr

0.110

REPORT NUMBER: 6605

LAB#- ECL029318-012

SAMPLE ID- 11713 Serene-PT4 Dissolved

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DATE RECEIVED- 6/21/2013
DELIVERED BY- L Bennett

TIME SAMPLED- 11:00

TIME RECEIVED- 16:47
RECEIVED BY- VPS

EPA 218.7 6/25/2013 03:50 SES

COMMENTS-

Chromate

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	S, MD CERT #192					
Chromium*# Lead*#		7/22/2013 15:00 7/22/2013 15:00	CHK CHK	2.8 < 1.0	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABO	DRATORIES, MD CE	RT #192	2			

0.020



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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

SAMPLER- Emery, Bennett

REPORT NUMBER: 6605

LAB#- ECL029318-013

LOCATION-

DATE SAMPLED- 6/21/2013

DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

DATE RECEIVED- 6/21/2013

SAMPLE ID- 11713 Serene-FB Total

TIME SAMPLED- 14:10 TIME RECEIVED- 16:47

Page 13 of 20

		ANALYSIS			REPORTING	DATA
ANALYSIS	METHOD	DATE/TIME	BY	RESULT	LIMIT	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



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

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 DATE RECEIVED- 6/21/2013 TIME RECEIVED- 16:4
DELIVERED BY- L Bennett RECEIVED BY- VPS TIME RECEIVED- 16:47

COMMENTS-

Chromate

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	, MD CERT #192					
Chromium*# Lead*#		/19/2013 15:37 /19/2013 15:37	CHK CHK	< 1.0 < 1.0	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABOR	ATORIES, MD CE	RT #192	2			

EPA 218.7 6/25/2013 04:09 SES < 0.020 ug/L Cr

0.020



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045PROJECT NAME: Grn Vall. Citgo

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

LAB#- ECL029318-015

LOCATION-DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

COMMENTS-

ANALYSIS

Page 15 of 20

SAMPLE ID- 11713 Serene-WP1 Total

TIME SAMPLED- 12:45 TIME RECEIVED- 16:47

RECEIVED BY- VPS

REPORTING DATA ANALYSIS FLAG LIMIT RESULT DATE/TIME ΒY

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

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



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

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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

DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

SAMPLER- Emery, Bennett

TIME SAMPLED- 12:45 TIME RECEIVED- 16:47 RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	I LABORATORIE	s, MD CERT #192					
Chromium*# Lead*#		7/19/2013 15:37 7/19/2013 15:37	CHK CHK	< 1.0 < 1.0	μg/L μg/L	1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABO	RATORIES, MD CER	RT #19:	2			
Chromate	EPA 218.7	6/25/2013 04:28	SES	0.032	ug/L Cr	0.020	$s = \frac{1}{s_1}$



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

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Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

REPORT DATE: 23-Jul-13

SAMPLER- Emery, Bennett

REPORT NUMBER: 6605

LAB#- ECL029318-017

LOCATION-

DATE SAMPLED- 6/21/2013

DATE RECEIVED- 6/21/2013 DELIVERED BY- L Bennett

COMMENTS-

Lead*#

Page 17 of 20

SAMPLE ID- 11713 Serene-WP2 Total

TIME SAMPLED- 13:45 TIME RECEIVED- 16:47

RECEIVED BY- VPS

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	, MD CERT #192					
Chromium*# Lead*#		/19/2013 15:37 /19/2013 15:37	CHK	3.9	μg/L μg/L	1.0 1.0	



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

LAB#- ECL029318-018

SAMPLE ID- 11713 Serene-WP2 Dissolved

LOCATION-

DATE RECEIVED- 6/21/2013 TIME SAMPLED- 13:45
DELIVERED BY- L Bennett RECEIVED BY- WDC

TIME SAMPLED- 13:45

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO	-CHEM LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK CHK	< 1.0 < 1.0	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY	ENVIRO-CHEM LAB	ORATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	6/25/2013 05:25	SES	0.030	ug/L Cr	0.020	



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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

CHK

3.4

REPORT NUMBER: 6605

LAB#- ECL029318-019

SAMPLE ID- 11713 Serene-WP3 Total

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett RECEIVED BY- VPS

TIME SAMPLED- 14:45 TIME RECEIVED- 16:47

EPA 200.8 7/19/2013 15:37

SAMPLER- Emery, Bennett

μg/L

COMMENTS-

Lead*#

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESUL	T	REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	1 LABORATORI	ES, MD CERT #192					
Chromium*#	EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK	3.3	μg/L μg/L	1.0 1.0	



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6605

LAB#- ECL029318-020

SAMPLE ID- 11713 Serene-WP3 Dissolved

LOCATION-

DATE SAMPLED- 6/21/2013 DATE RECEIVED- 6/21/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 14:45 TIME RECEIVED- 16:47

RECEIVED BY- VPS

COMMENTS-

Page 20 of 20							D 7 (1) 7
ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT		REPORTING LIMIT	DATA FLAG
						1.	
METALS BY ENVIRO-CHEM	LABORATORIES	S, MD CERT #192					
Chromium*#		7/19/2013 15:37 7/19/2013 15:37	CHK CHK	< 1.0 < 1.0	μg/L ug/L	1.0 1.0	
Lead*#	Lin 200.				mg/ —		
WET CHEMISTRY BY ENVI	RO-CHEM LABOR	CATORIES, MD CEI	X1 π132	•			
Chromate	EPA 218.7	6/25/2013 05:44	SES	< 0.020	ug/L Cr	0.020	

LABORATORY DIRECTOR

[#] State of Maryland Certified Parameter

^{*} NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

METALS BY ENVIRC	METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192	, MD CERT #192	True	Associated		Value/Spike	Value/Spike Sample Result	%R or	Low	High	
Q	QC Type	Test Name		Result	Units	Added		%RPD	Limit	Limit	Flag
C.500 0 500 0 10 10 10 10 10 10 10 10 10 10 10 10	Dinlicate	Chromium		× 1.0	µg/L		< 1.0	28.7	0	20	*
ECL029318-013D	Dunlicate	Chromium		6.6	µg/L		10.5	5.1	0	50	
ECL029318-003D	Duplicate	Lead		< 1.0	µg/L		< 1.0	5.7	0	20	
ECL029318-013D	Duplicate	Lead		< 1.0	hg/L		< 1.0	1.7	0	50	
LCS5058R	SOT	Chromium		54.7	hg/L	20		109.3	82	115	
LCS5058R	SOT	Lead		48.2	µg/L	20		96.3	82	115	
				```	/ <b>C</b> 11			0.231		-	
LPB5058R LPB5058R	Prep Blank Prep Blank	Chromium		× × 10.0	pg/t pg/L			0.187		<del>-</del>	
FC1 029318-003S	Spike	Chromium		61.6	µg/L	20	10.5	102.2	20	130	
ECLO20318-013S	Spike	Chromium		51.7	hg/L	20	× 1.0	102.9	2	130	
ECL020318 0138	Spike	Fead		48.3	µg/L	20	< 1.0	96.4	70	130	
ECL029318-013S	Spike	Lead		45.6	µg/L	20	< 1.0	6.68	20	130	
1010000											

WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192

					True Value/Spike	Associated Sample Result	%R or	Low	High	
Q	QC Type	Test Name	Result	Units	Added	•	%RPD	<u>Emit</u>	Limit Timit	Flag
ECL029303-002SD	MSD	Chromate	1.02	ng/L	<del>-</del> '.		< 0.020	101.8	82	115
CCC-HIGH 1	CCC-HIGH	Chromate	4.97	ng/L	Ŋ		99.4	82	115	
ссс-нівн 2	ссс-нівн	Chromate	5.01	ng/L	'n		100.2	82	115	
CCC-LOW 2	CCC-LOW	Chromate	0.022	ng/L	0.02		109.5	20	120	
CCC-LOW 1	CCC-LOW	Chromate	0.026	ug/L	0.02		127.5	20	150	
							a o	ď	<u>ر</u> بر	
CCC-MID 2	CCC-MID	Chromate	0.998	ng/L	<del>-</del>		9	3	)	
CCC-MID 1	CCC-MID	Chromate	0.989	T/Bn	<b>-</b>		98.9	82	115	
ECL029324-008SD	MSD	Chromate	0.965	ug/L	-	0.021	94.4	85	115	
ECL029318-016SD	MSD	Chromate	0.998	ng/L	<del>-</del>	0.032	9.96	82	115	
ECL029303-018SD	MSD	Chromate	1.02	ng/L	·	0.033	98.3	85	115	
ECL029318-016S	Spike	Chromate	1.03	ng/L	<del>-</del>	0.032	100.1	82	115	
ECL029303-018S	Spike	Chromate	1.00	ug/L	_	0.033	97.2	82	115	
ECL029324-008S	Spike	Chromate	0.971	ng/L	<del>-</del>	0.021	95	82	115	
ECL029303-002S	Spike	Chromate	1.01	ng/L	-	< 0.020	100.6	82	115	
ECL029303-002SD	Spike Dup	Chromate	1.02	ng/L	₹.	< 0.020	101.8	82	115	
ECL029318-016SD	Spike Dup	Chromate	0.998	ng/L	· .	0.032	96.6	82	115	
ECL029324-008SD	Spike Dup	Chromate	0.965	ug/L	-	0.021	94.4	82	115	
ECL029303-018SD	Spike Dup	Chromate	1.02	ng/L	·	0.033	98.3	82	115	
29										

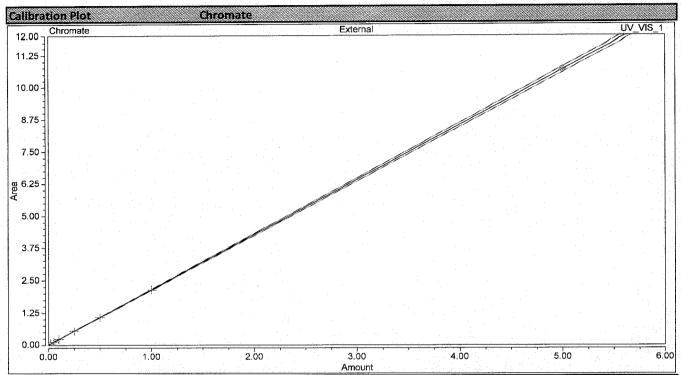
#### Instrument Blanks

#### INSTRUMENT BLANKS

	Analytical Run	F130719B	Date of Analysis	7/19/2013
ICB CCB CCB	Cr Pb <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L			
ICB CCB CCB	Analytical Run Cr Pb <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L	F130722D	Date of Analysis	7/22/2013
	Analytical Run	CR6-1306024	Date of Analysis	6/24-25/2013
LRB LRB LRB LRB LRB	CrO4 <0.02µg/L <0.02µg/L <0.02µg/L <0.02µg/L <0.02µg/L <0.02µg/L			

# Calibration Data

	Calibration		
Calibration Details	Chromate		
Calibration Type	Lin, WithOffset, 1/A	Offset (C6)	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



Calil	oration 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 GrO4	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

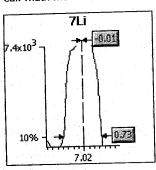
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

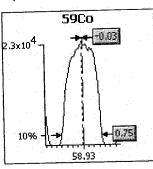
### **Mass Calibration verification**

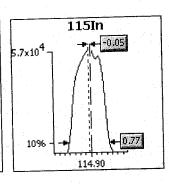
### **Acquisition parameters**

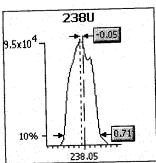
Sweeps: 10 Dwell: 5.0 mSecs Point spacing: 0.02 amu

Peak width measured at 10% of the peak maximum









		Limits		Results		
Analyte	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]

une conditi	ons			<u> </u>
Major		ſ	Minor	<u> </u>
Extraction	-164.7		Lens 3	-195.3
Lens 1	-1286	1	Forward power	1200
Lens 2	-79.2		Horizontal	67
Focus	8.0		Vertical	640
D1	-47.1	1	DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-2.0		Auxiliary	1.20
Hexapole Bias	-11.0		Sampling Depth	150
Nebuliser	0.78			

Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3124

Add. Gase	s
CCT-He/H2	0.00
CCT-Ammonia	0.00

## Sensitivity and stability results

**Acquisition parameters** 

Sweeps: 130

Jvvccps .	. 150				59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Run	Time	5Bkg	7Li	56Ar O		2072	30.0	100.0	10.0	10.0
Dw	eli (mSecs)	100.0	10.0	10.0	10.0	30.0	50.0	100.0	2.0%	-
	%RSD		2.0%		2.0%			_	>40000	-
Limits	Countrate		>4000		>10000 23644.030	113.077	728,479	0.000	58827.456	5574.071
1	2:20:31 PM	0.077	7819.649	495812.94 490288.03	23405.209	115.385	724.632	0.077	58125.606	5510.972
2	2:21:40 PM	0.000	7698.050 7622.628	486759.47	23126.333	109.488	725.145	0.000	56676.451	5525.592
3	2:22:49 PM	0.077	7501.800	485966.11	23715.677	109.488	718.222	0.000	57599.818	5595.617
4	2:23:58 PM	0.077 0.000	7508.727	486074.01	23364.379	102.821	703.093	0.077	57680.886	5528.670
5	2:25:08 PM	0.000	7630.171	488980.11	23451.125	110.052	719.914	0.031	57782.044	5546.984
X		0.04	133.97	4208.89	235.76	4.76		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

				2.00	A Secretary Control of the Control	
Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
	ell (mSecs)	10.0	10.0	30.0	100.0	10.0
DW	%RSD	10.0		-		2.0%
Limits					<1	>80000
Limito	Countrate	-		التصال		
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
		36064.650	47468.919	892.077	0.000	92216.709
3	2:22:49 PM					93091.876
4	2:23:58 PM	36585.860	48414.892	860.537	0.000	T 14
5	2:25:08 PM	36571.981	48545.296	867.460	0.000	93192.473
	2.25.00 11.	36499.815	48265.359	867.511	0.015	93148.374
X		T 7 / 7 / .	449.84	15.40	0.03	584.22
σ	1.	313.68	10.00			0.637
%RSD	]	0.859	0.932	1.776	223.607	0.627
	T					

Ratio results

Nauv i	Court		4457- (230Bles	156Ce O/140Ce
Run	Time	137Ba++/137Ba		
	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	2.25.00 11	0.0198	764756.93	0.0180
	1	0.00	0.00	0.00
σ %RSD		4.3808	0.0000	2.6715
	4			

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]

une condit	une conditions								
Major			Minor						
Extraction	-160.8		Lens 3	-195.3					
Lens 1	-1286		Forward power	1200					
Lens 2	-79.2		Horizontal	67					
Focus	-9.4		Vertical	640					
D1	-62.0		DA	-31.4					
D2	-140		Cool	13.0					
Pole Bias	-16.0		Auxiliary	1.20					
Hexapole Bias	-20.0		Sampling Depth	150					
Nebuliser	0.78								

the second secon	
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
Dw	ell (mSecs)	30.0	10.0	10.0	10.0	10.0
	%RSD	-	9	2.0%	÷	
Limits	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

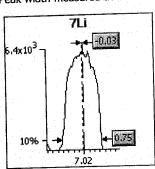
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

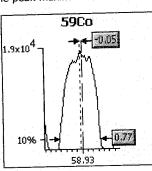
#### **Mass Calibration verification**

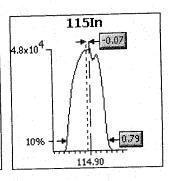
#### **Acquisition parameters**

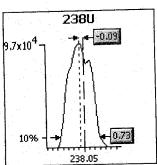
Sweeps: 10 Dwell: 5.0 mSecs Point spacing: 0.02 amu

Peak width measured at 10% of the peak maximum









		Limits		Results			
Analyte	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]

une conditi	ons			
Major			Minor	
Extraction	-160.8		Lens 3	-195.3
Lens 1	-1286		Forward power	1200
Lens 2	-79.2		Horizontal	67
Focus	8.0		Vertical	640
D1	-47.1		DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-2.0		Auxiliary	1.20
Hexapole Bias	-11.0		Sampling Depth	150
Nebuliser	0.78			

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

Add. Gase	S
CCT-He/H2	0.00
CCT-Ammonia	0.00

## Sensitivity and stability results

**Acquisition parameters** 

Sweeps: 130

упсерь .				ECA: O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Run	Time	5Bkg	7Li	56Ar O			30.0	100.0	10.0	10.0
Dw	ell (mSecs)	100.0	10.0	10.0	10.0	30.0	30.0	100.0	2.0%	
	%RSD		2.0%		2.0%	-	-			
Limits	Countrate		>4000		>10000	÷			>40000	
		0.000	5718,739	349017.27	18151.306	68.205	515.650	0.154	49135.598	4856.139
1	9:33:49 AM	7	5865.716	347823.40	17858.662	67.949	493.854	0.000	49369.410	4876.145
2	9:34:58 AM	0.000	- 5 T T T M - 1 A	7 11 7 7 7 7	17953.385	85.128	476.674	0.077	49472.042	4820.744
3	9:36:07 AM	0.000	5669.490	349617.39	T 1 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		481.289	0.000	49249.803	4846.136
4	9:37:16 AM	0.000	5708.735	346900.92	18111.260					4931.547
5	9:38:26 AM	0.077	5785.686	348263.81	17961.857	72.564	467.443	0.000	49773.767	
— <del>,</del>	Jigging	0.015	5749.673	348324.56	18007.294	74.154	486.982	0.046	49400.124	4866.142
X		0.013	77.18	1052.72	121.05	7.15	18.64	0.07	244.08	41.65
σ %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
	ell (mSecs)	10.0	10.0	30.0	100.0	10.0
	%RSD	-	. 14 g 44 <del>-</del>	i i i i i i i i i i i i i i i i i i i		2.0%
Limits	Countrate				<1	>80000
-	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
×	3.30.20 A) 1	31455.631	41945.149	748,736	0.062	94134.903
		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	1	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]

une conditi	ons			
Major		1	Minor	
Extraction	-160.8		Lens 3	-195.3
Lens 1	-1286		Forward power	1200
Lens 2	-79.2		Horizontal	67
Focus	-9.4		Vertical	640
D1	-62.0		DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-16.0		Auxiliary	1.20
Hexapole Bias	-20.0		Sampling Depth	150
Nebuliser	0.78			

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

The second second	
Add. Gase	s
CCT-He/H2	5.14
CCT-Ammonia	0.00

### Sensitivity and stability results

**Acquisition parameters** 

Sweeps: 100

	I	78Se	80Ar2	115In	140Ce	156Ce O
Run	Time				10.0	10.0
Dw	ell (mSecs)	30.0	10.0	10.0	10.0	10.0
	%RSD	-	-	2.0%	±	
Limits	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
×	37,0,02	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

Rauv i	C341C	
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
х		0.0059
σ	1	0.00
%RSD	1	11.8863

Result: The performance report passed.

Metals Digestion Logs

10/30	Analyst: Co4K  Analyst: (O9444) (Analyst)  Microwave or Hotblock 200, 8 Time in: 12,555  Acids added: (1,54,9)	Final volume (mL): ちしん Time out: 18:00	weight (g)/initial volume (l) Sample ID:	1058R 50mc DI	50MC DJ 7	50mC	5.002	8-003			8-00y					18-009	
n Batchi	Analyst: Microwave or Hotbloc	SOP: M - IC	Sample ID:	LPBSOSER	1155088h	29318-001	29218-005	29318-003	29318-0031)	29318-0033	29318 - UCY	29318-005	29318-006	29318-007	29318-008	29318-009	Comments:

MetalsDigestion

ECL Doc 21 (2/15/13)

42

33

Enviro-Chem Laboratories, Inc.

# Raw Data

### Summary

Sequence Details Name: CR6-130624

Directory: Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Data Vault: ChromeleonLocal

No. of Ir jections: 22 Updated On:

Created On:

26/Apr/11 09:00:46 **Enviro Chem** 

25/Jun/13 00:00:20 Updated By: **Enviro Chem** 

Chromate By Component

No.	Injection Name	RetTime	Area	Height	Amount	Inject Time	Peak Type
		min	mAU*min	mAU	ppb		-
		Chromate	Chromate	Chromate	Chromate	Chromate	Chromate
		UV VIS 1	UV VIS 1	UV VIS 1	UV VIS 1		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	ECL029303-0028	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.

Instrument: Chrome_VI Sequence: CR6-130624

Chromeleon (c) Dionex Version 7.1.1.1127

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01 Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 17:04

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Calibration Standard

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Injection Details

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Relative Area % % 100.00 100.00

Height mAU 0.153

Avea mAU*min 0.061 0.051

Retention Time min 12.317

Total:

DefaulVIntegration

Instrument: Chrome_VI Sequence: CR6-130624

16.00 5.00 UV_VIS_1 530.0

Run Time (min):
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Bandwidth:
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Sample Weight:

03 Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 17:42

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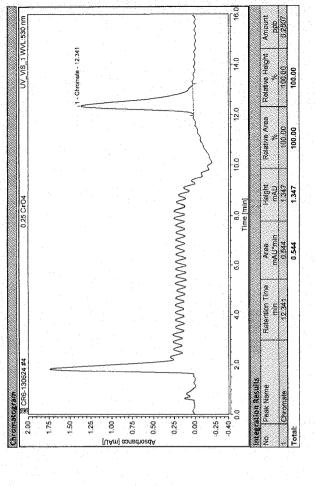
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3 Calibration Standard

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Chromatograi		5 CrO4		Ibration Standard		rome VI Instrument method	A 218.7 as Cr	Jun/13 18:00
Chromatograi		25 CrO4		alibration Standard		hrome VI Instrument method	PA 218.7 as Cr	4/Jun/13 18:00
Chromatograi		0.25 CrO4	4	Calibration Standard	04	Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 18:00
Chromatogra		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 18:00
Chromatograi		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method	EPA 218.7 as Cr	24/Juh/13 18:00
Chromatogra		0.25 CrO4	4	Calibration Standard	40	Chrome VI Instrument method	EPA 218.7 as Cr	24/Juh/13 18:00
Chromatogra		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 18:00
Chromatogra		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method	EPA 218.7 as Cr	24/Juh/13 18:00
Chromatogra		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 18:00
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Chromatogra		0.25 CrO4	4	Calibration Standard	70	Chrome VI Instrument method		
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Сhromatogra	jection Details	jection Name: 0.25 CrO4						
Chromatogra	hjection Details			trjection Type: Calibration Standard	el:	Instrument Method: Chrome VI Instrument method	Processing Method: EPA 218.7 as Cr	Ir jection Date/Time: 24/Jun/13 18:00
Chromatogra	Injection Details							



1 - Chromate - 12.307

0.25 00.0 0.25

Absorbance (NAm) sonstroadA

Ameunt ppb 0.0977

14.0

12.0

10.0

8.0 Time [min]

0.0

4.0

2.0

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0.40

integration Results No Peak Name

Chromate

Relative Height 9/6 160.00 100.00

Relative Area % 100.00 100.00

Height mAD 0.573 0.573

Area mAU*min 0.218 0.218

Ratention Time min 12 307

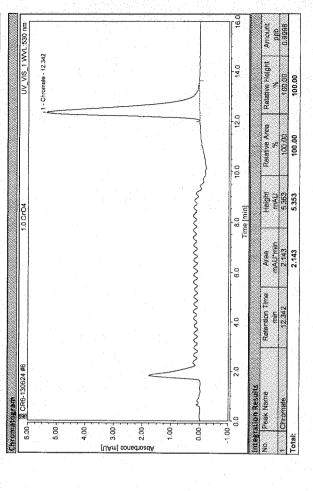
Chramelean (c) Dianex Version 7.1.1.1127

Default/Integration

46

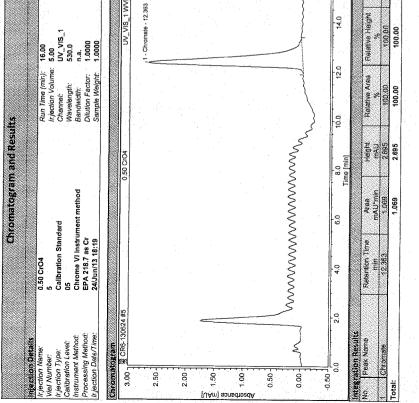
histrument/Chrame_VI Sequence:CR6-130624

Chromeleon (c) Dionex Version 7.1.1.1127



ppb 0.4986

Total:



[UAm] sonsdroedA

Instrument: Chrome_VI Sequence: CR6-130624

UV_V/S_1 WVL:530 nm

Run Time (Tinit): 16.00
Channel: 5.00
Channel: 10 VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Diulich Festor: 1,0000
Sample Weight: 1,0000

07 Chrome VI instrument method EPA 218.7 as Cr 24/Jun/13 18:57

Calibration Standard

Injection Datails
Injection Name:
Vial Number:
Injection Type:
Calibration Level:
Processing Mathod:
Injection Date/Time:

30.00

25.0

20.0

[UArri] sonsdroedA

5.0

0.0

1 - Chromate - 12.344

Chrameleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1.1.1127

Calibration   Chromate   Chro		 				_
Calibration  Chromate Ln, Winoffset, 1/A Area 7 8 0			0.0089	2.1346	0.000	1.0000
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Chron Lin, Wi Area 7 S 0	ibration					
Ch Lin Points 7 allbration Points 0	9	romata	, WithOffset, 1/A	96		
		£3	1	Š	Points 7	elibration Points 0

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2	Calibration Results	Chromate	Amount	υt			
<u>9</u>	kjeditn Name	Calibration Level	X Value Chromate	Y Value Chromate	Y Value Chromate	Area mAU*min Chromate	Height mAU Chromate
L	0.02 CrO4	100	0.0200	0.0506	0.0506	0.051	0.153
l.	0.05 CrO4	02	0.0500	0.1208	0.1208	0.124	0.317
9	0.10.0704	623	0.1000	0,2176	0.2176	0218	0.573
Į,	0.25 CrO4	04	0.2500	0.5440	0.5440	0.544	1.847
9	0,50 CrO4	90	0.5000	1,0689	1.0589	1,069	2,895
100	1.0 GrOd	90	1,0000	2.1432	2 (4)32	2143	5,353
	\$0 CrO4	07	5.0000	10,6889	10.6889	10.689	26.62B

14.0

12.0

10.0

8.0 Time [min]

0.0

4.0

2.0

5.0.1

Integration Results
No Peak Name Chromate

100.00

100.00

Height mAU 26.528 26.528

Area mAU*min 10.689 10.689

Retention Time min 12.344

Default/Integration

Page 9 of 24

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624

Chromeleon (c) Dionex Version 7.1.1.1127

	Chromatogram and Resul  CCC-LOW 9 Unknown Chome VI Instrument method EPA 218.7 as Cr 24/Jun/13 19.36										
Chromatogram and Resul CCC-LOW 9 Unknown Chrome VI Instrument method EPA 24/Jun/13 19:36 24/Jun/13 19:36	Chromatogram and Resul  CCC-LOW 9 Unknown Chome VI Instrument method EPA 218.7 as Cr 24/Jun/13 19.36	Section Section 1				-					-
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Chromatogram and Resul CCC-LOW 9 Unknown Chrome VI Instrument method EPA 24/Jun/13 19:36 24/Jun/13 19:36	Chromatogram and Resul  CCC-LOW 9 Unknown Chome VI Instrument method EPA 218.7 as Cr 24/Jun/13 19.36	The second			16):	, 5 me: 5	5	16	-	or: 1	
Chromatogram and Resul CCC-LOW 9 Unknown Chrome VI Instrument method EPA 24/Jun/13 19:36 24/Jun/13 19:36	Chromatogram and Resul CCC-LOW 9 Unknown Chrome VI Instrument method EPA 24/Jun/13 19:36 24/Jun/13 19:36	STORY STORY STORY			n Time (m	action Voli	annel:	vefenath	ndwidth:	ution Fact	mble Weig
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1 WVL:530 nm

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Chromatogram 11.00 | CR6-130624 #8

10.00 8.75 7.50-

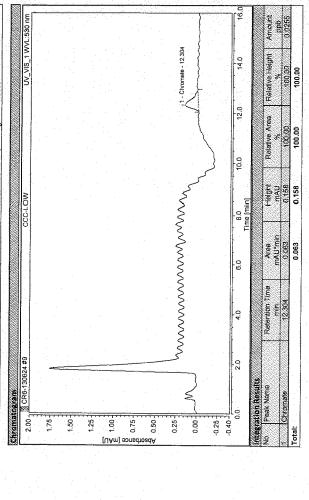
Run Time (min): 16.00
Itjection Volume: 5.00
Channel: UV VIS-1
Wavelength: 530_
Bendwidh: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 24/Jun/13 19:16

8 Unknown

Intection Details
II, lection Name:
Vial Number:
II, lection Type:
Galibration Levies
Processing Method:
Instrument Method:
Processing Method:
II, lection Date/Time:

- Chromate - 12.347



Amount ppb 1.8226

Relative Area % % 100.00 100.00

Height mAU 9.752

Area mAU*min 3.899 3.899

Retention Time min 12 347

12.0

10.0

8,0 Time [min]

0.0

4.0

2.0

1.00 J

1.25 0.00

2.50

Integration Results No Peak Name

100.00

**Default/Integration** 

Instrument: Chrame, VI Sequence: CR6-130624

Run Time (mir): 16.00
Channel: 5.00
Channel: 9.00
Wavelength: 530.0
Bandwidth: n.a.
Dluttion Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 24/Jun/13 19:54

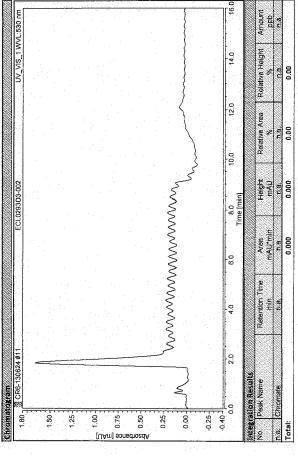
2.00 Jr CR6-130624 #10

1.75-1.50 1.25

LRB 10 Unknown

Injection Details
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Val Number:
It jection Type:
Calibration Level:
Instrument Method:
Processing Method:
It jection Detail Time:

od;	Chrome VI Instrument method	Bandwidth:	
hod:	EPA 218.7 as Cr	Dilution Factor: 1.0000	1.0000
lme:	24/Jun/13 20:13	Sample Weight:	1.0000



Amaunt ppb n,a

Relative Height

% U 0

Relative Area % n.a. 0.00

Height mAU n.a.

Area mAU*min n.s. 0.000

Ratention Time min n.a.

14.0

12.0

10.0

8,0 Time [min]

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5.0

Lo.

0.40 -0.25

Integration Results

n.a. Chromate Total:

Monomoromoromy

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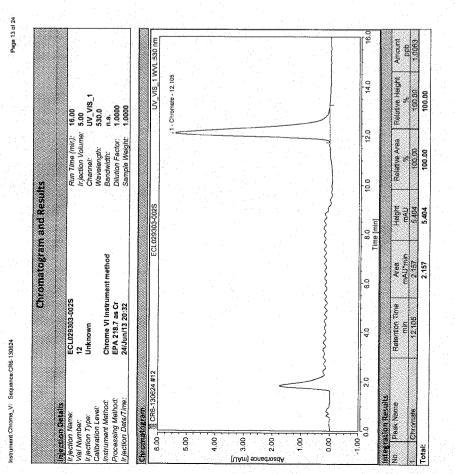
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[UAm] sonsdroedA

Chromeleon (c) Dionex Version 7.1.1.1127

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	4.0 6.0	8.0 Time [min]	10.0 12.0	14.0	16.0
rtegration Results					
No Peak Name Ret	Retention Time Area mAU*min	Height	Relative Area	Relative Height	Amount
Chromate	12,111 2,182		100,00	100.00	1.0182
			100.00	100,00	



Chromeleon (c) Dionex Version 7,1:1,1127

51

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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624

Amount ppb n.a

Relative Height

Relative Area % % Lt.8 0.00

Height mAD n.a.

0.00

14.0

12.0

10.0

8.0 Time [min]

0.9

4.0

2.0

0.9

0.4

2.0

0.0

-0.25 -0.40 integration Results. No Peak Name

n.a. Chromate Total:

Ratention Time min n.a.

Default/Integration

Chrometeon (c) Dionex Version 7.1.1.1127

Chramelean (c) Dignex Version 7.1.1.1127

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Instrument:Chrome

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Chromatog		303-006				VI Instrument method	8.7 as Cr	13 21:29
Chromatog		29303-006		nwo		ne VI Instrument method	18.7 as Cr	1/13 21:29
Chromatog		029303-006		nwor		me VI Instrument method	218.7 as Cr	un/13 21:29
Chromatog		L029303-006		known		rome VI Instrument method	A 218.7 as Cr	Jun/13 21:29
Chromatog		CL029303-006	9	Inknown		throme VI Instrument method	PA 218.7 as Cr	4/Jun/13 21:29
Chromatog		ECL029303-006	15	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 21:29
Chromatog		ECL029303-006	15	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 21:29
Chromatog		ECL029303-006	15	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 21:29
Chromatog		ECL029303-006	15	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	24/Jun/13 21:29
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Chromatog	Injection Details	.6	Vial Number: 15		Calibration Level:			trjection Date/Time: 24/Jun/13 21:29

Run Ilme (min): 16.00
Iljedion Volume: 5.00
Channel: UV VIS-1
Wevelength: 5.00
Bandwidh: n.a.
Dillution Festor: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 21:10

Chromatogram 1.80 3 CR6-130624 #14

1.50 1.25

ECL029303-004 14 Unknown

Infection Details
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Viat Number:
It jection Type:
Calibration Level:
Insturrent Method:
Processing Method:
It jection DeterTime:

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	Vial Number:	per:	15			Ir Jec
	Ir jection Type:	Туре:	Unknown			Char
	Calibration Level:	n Level:				Wav
	Instrumer	Instrument Method:	Chrome VI In	Chrome VI Instrument method		Banc
	Processir Ir.jection	Processing Method: Ir jection Date/Time:	24/Jun/13 21:29	53 C		Sam
	Chromatogram	ogram				
1 WVL:530 nm	1.80	CR6-130624 #15	#15	TOE	ECL029303-006	
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UV_VIS_1 WVL:530 nm

0.25 0.00

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Page 17 of 24

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130624

ECL029303-008 16 Unknown

In ection Name:
Val Number:
Val Number:
Val Number:
Calibration Type:
Calibration Level:
Institutent Method:
Processing Method:
It jection Data/Time

16.00 5.00 UV_VIS_1 530.0

Run Time (mir):
Ir/ection Volume:
Channel:
Wavelength:
Bandwidth:
Dilution Factor:
Sample Weight:

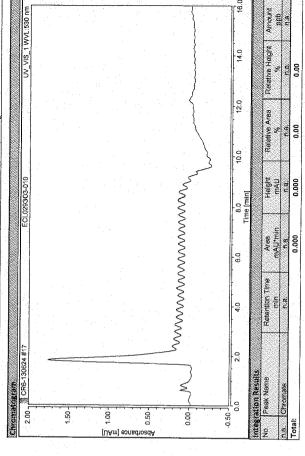
n.a. 1.0000 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 21:47

Ehrantatogram 1.80 ₂₁ CR6-130624#16

1.50

1.25



UV_VIS_1 WVL:530 nm Relative Height 14.0 12.0 Relative Area 10.0 hommonomy ECL029303-008 Height mAU n.a. 8.0 Time [min] Aree mAU*min n.s 0.000 6.0 Ratention Time Tiln P.B. 4.0

2.0

0.0

0.40

0.25

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0.25 0.00

[UAm] sonednosdA

Integration Results No. | Peak Name

n.a. Chromate Total:

00 E.

Instrument:Chrome_VI Sequence:CR6+130624

Run Time (min): 16.00
Ir/section Volume: 5.00
Channel: UV_VIS_1
Wavelength: 530.0
Bandwidth: n.s.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 22:25

ECL029303-012 18 Unknown

Injection Details
Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection DetacTime:

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2.00 1

1.75

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Chrameleon (c) Dionex Version 7.1.1,1127

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Ameunt ppb n.a

14.0

12.0

10.0

8.0 Time [min]

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0.40 J

integration Results No Peak Name

n.a. Chromate Total:

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0.25

[UAm] sonsdroedA 1.00 7.00 7.00 7.00 7.00

1.25

Relative Area % 2.00

Height mAU na 0.000

Area mAU*min n.a 0.000

Ratention Time min n.a.

Instrument: Chrome_VI Sequence: CR6-130624

Chrometeon (c) Dionex Version 7.1.1.1127

Run Time (min): 16.00 Ir jection Volume: 5.00 CCC-MID 21

Run Time (min): 16.00
Irjection Volume: 5.00
Channel: UV VIS-1
Wavelength: 530.0
Bendwidh: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 24/Jun/13 23:03

ECL029303-016 20 Unknown

Injection Details
Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Processing Method:
Irjection Date/Time:

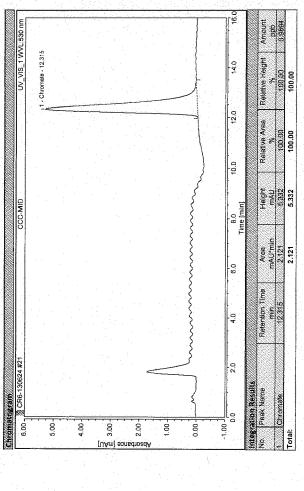
Chromatogram

2.00.2

1.75

1.50

1.25



1 - Chromate - 12.242

hominimonoming

0.25 0.00

ppb 0.0207

Retative Height 96 100.00

Relative Area % 100.00 100.00

Height mAU 0.159

Area mAU*min 0.053 0.053

Ratention Time min 12.242

14.0

12.0

10,01

8.0 Time [min]

6.0

-4

2.0

0.0

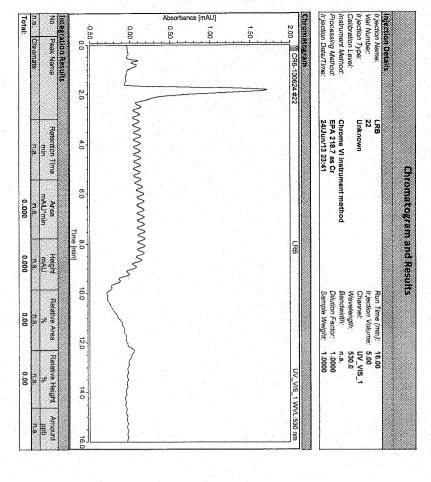
-0.40

-0.25

Integration Results No Peak Name

1 Chromate

Total:



#### Summary

Sequence Details

Name: Directory: Data Vault: No. of Injections: CR6-130624A

46

Chromate

Instrument Data\Chrome_VI\Sequences\CR6-: Created By: ChromeleonLocal

Updated On: Updated By:

Created On:

**Enviro Chem** 25/Jun/13 12:21:30

26/Apr/11 09:00:46

**Enviro Chem** 

#### By Component

No.	Injection Name	Ret.Time min	Area mAU*min	Height mAU	Amount ppb	Inject Time	Peak Type
	Haller Adapted Table 2	Chromate UV VIS 1	Chromate UV VIS 1	Chromate UV_VIS_1	Chromate UV_VIS_1	Chromate	Chromate UV_VIS_1
	0.02 CrO4	12.317	0.051	0.153	0.0195	24/06/13 17:04	M
	0.05 CrO4	12.319	0.121	0.317	0.0524	24/06/13 17:23	M
	0.10 CrO4	12.307	0.218	0.573	0.0977	24/06/13 17:42	M
	0.25 CrO4	12.341	0.544	1.347	0.2507	24/06/13 18:00	M
	0.50 CrO4	12.363	1.069	2.695	0.4966	24/06/13 18:19	M
	1.0 CrO4	12.342	2.143	5.353	0.9998	24/06/13 18:38	M
	5.0 CrO4	12.344	10.689	26.528	5,0032	24/06/13 18:57	M
	ECL029303-018	12.172	0.078	0.198	0.0326	25/06/13 00:04	M
	ECL029303-018S	12.181	2.154	5.364	1.0048	25/06/13 00:22	MB
0	ECL029303-018SD	12,180	2.178	5.470	1.0160	25/06/13 00:41	M
1	ECL029303-020	n.a.	n.a.	n.a.	n.a.	25/06/13 01:00	n.a.
2	ECL029303-022	n.a.	n.a.	n.a.	n.a.	25/06/13 01:19	n.a.
3	ECL029318-002	n.a.	n.a.	n.a.	n.a.	25/06/13 01:38	n.a.
4	ECL029318-004	12.242	0.246	0.613	0.1113	25/06/13 01:57	M
5	ECL029318-006	12.244	0.247	0.638	0.1117	25/06/13 02:16	М
6	ECL029318-008	12.224	0.282	0.712	0.1280	25/06/13 02:35	BM
7	ECL029318-010	12.256	0.248	0.626	0.1122	25/06/13 02:53	M
8	CCC-HIGH	12.312	10.618	26.326	4.9698	25/06/13 03:12	M
9	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	. <u>M</u>
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	57 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		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.

Instrument: Chrome_VI Sequence: CR6-130624A

ECL029303-018 1 Unknown

Injection Name:
Irjection Name:
Vial Number:
Itjection Type:
Calibration Levic:
Processing Method:
Irjection Detection:

UV_VIS_1 WVL:530 nm

Run Time (Titil): 16.00
Channel: 5.00
Channel: 100
Channel: 530.0
Wavelength: 530.0
Bandwidth: 6.00
Sample Weight: 1.0000

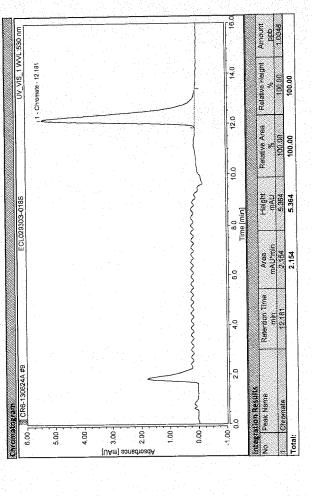
Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 00:04

Chromatogram 2.00 ₂ CR6-130624A #8

1,75 1.50-1.25 Default/integration

Chromelean (c) Dionex Version 7.1.1.1127

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tijetiten betatit It jection Name: It jection Name: It lection Type: Calibration Level: Instrument Method: Processing Method: It jection Dated Time:	Chron		ECL029303-018S	7	Unknown		Chrome VI Instrument	EPA 218.7 as Cr	25/Jun/13 00:22
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Injection Cetaits Ir jection Name: Viel Number: Ir jection Type: Calibration Level: Instrument Method: Processing Method: It jection Dated Time:	Chron		ECL029303-018S	7	Unknown		Chrome VI Instrument	EPA 218.7 as Cr	25/Jun/13 00:22
High chion Certails It fection Name: It fection Name: It fection Type: Calibration Level: Institutent Method: Processing Method: It fection Date/Timo:	Chron		ECL029303-018S	7	Unknown		Chrome VI Instrument	EPA 218.7 as Cr	25/Jun/13 00:22
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. Chromate - 12,172

mmmmmm

0.25 0.00 -0.25 0.40

Absorbance (mAu)

ppb 0.0326

Relative Height 96 t00.00

Relative Area % % 100.00 100.00

Height mAU 0.198

Avea 0.078

Retention Time min 12.172

Integration Results No Peak Name Chromate

0.078

Total:

14.0

12.0

0.0

8.0 Time [min]

0.0

0.4

2.0

0.0

Default/Integration

Page 3 of 41

CR6-130624A #11	(UAm) sonsethosdA	0.0	Integration Results No Peak Name	n.a. Chromate	Total
24A #11	3	2.0			
		4.0	Retention Time	n.a.	
ECLOS		6.0 E	Area mAU*min	9.9	0000
ECL 029303-020		8,0 Time [min]	Height mAU	n.a.	
		10.0	Retative Area %	กล	000
UV_VIS_1 WVL:530 nm		12.0 14.0	Ralative Height	0.8.	20.0
VL:530 nm		16.0	Amount	n 3	

Chromelson (c) Dionex Version 7:1.1:1127

60

Default/Integration

Default/integration

ECL029303-022 Unknown

Injection Details
Irjection Name:
Val Number:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

Chromelean (c) Dionex Version 7.1.1.1127

Instrument: Chrome_VI Sequence: CR6-130624A Page 5 of 41

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	G		318-002				VI instrum	7 as Cr	3 01:38
	Chr		9318-002		wn		e VI instrum	18.7 as Cr	7/13 01:38
	Chri		029318-002		nown		ome VI instrum	218.7 as Cr	un/13 01:38
	Chr		:L029318-002		ıknown		rome VI instrum	A 218.7 as Cr	/Jun/13 01:38
	Chr		ECL029318-002		Inknown		Chrome VI Instrum	EPA 218.7 as Cr	25/Jun/13 01:38
	Chr		ECL029318-002	9	Unknown		Chrome VI instrument method	EPA 218.7 as Cr	25/Jun/13 01:38
	Chr		ECL029318-002	9	Unknown		Chrome VI Instrum	EPA 218.7 as Cr	25/Jun/13 01:38
	Chr		ECL029318-002	9	Unknown		Chrome VI Instrum	EPA 218.7 as Cr	25/Jun/13 01:38
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	Chr		ECL029318-002	9	Unknown		Chrome VI Instrum	EPA 218.7 as Cr	25/Jun/13 01:38
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	Chr	yection Details	jection Name: ECL029318-002	ial Number: 6	5				jection Date/Time: 25/Jun/13 01:38
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		injection Details		9	5				~

Run Time (mis): 16.00
Irjection Volume: 5.00
Channel: UV_VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 01:19

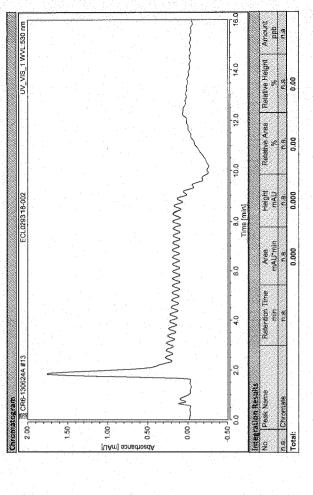
Chromatogram 2.00 _T CR6-130624A #12

1.75

1.50

1.25

[UAm] sonednoedA



Amount ppb n.e.

Relative Area 0.00

Height mAU n.a.

Area mAU'min n.a 0.000

Retention Time min n.e.

0.00

14.0

12,0

10.0

6.0

4.0

2.0

0.40

-0.25

Integration Results No Peak Name

n.a. Chromate Total:

mmmmmmm

0.25 0.00

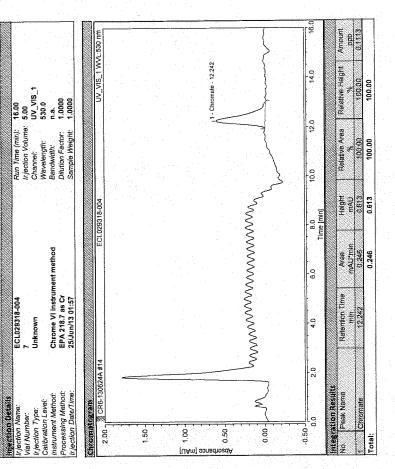
Instrument:Chrome_VI Sequence:CR6-130624A

ECL029318-004 7 Unknown Default/integration

Chromeleon (c) Dlonex Version 7.1.1.1127

	Chynmathoram and Regults	
Injection Details		
Ir lection Name:	ECL029318-006 Run Time (mir.): 16	00'
Vial Number	8 Ir jection Volume: 5.0	8
Iriaction Type:		/_VIS_1
Calibration Level	Wavelength:	530.0
Instrument Method:	Bandwidth:	n.a.
Processing Method	EPA 218.7 as Cr Dilution Factor: 1.1	0000
Ir in otion Date (Time:	25/11m/13 02:48 Sample Weight: 1.0000	0000

CR6-130624A #15	1.75 1.50 1.00 0.75 0.000 0.000	0	ntegration Results	No Peak Name	Chromate	
A#15		2.0 4.0		Ratention Time	12.244	
ECLU29318-006		6.0 8.0 Time [min]		Avea Height		
		10.0		æ Ľ		
10 A A C C A A A C C A A A C C A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A C C A A A A A C C A A A A A C C A A A A A C C A A A A A C C A A A A A C C A A A A A A A A A A A A A A A A A A A A	- Chromate - 12 244	14.0		Relative Height Ameunt %		40000



Page 9 of 41

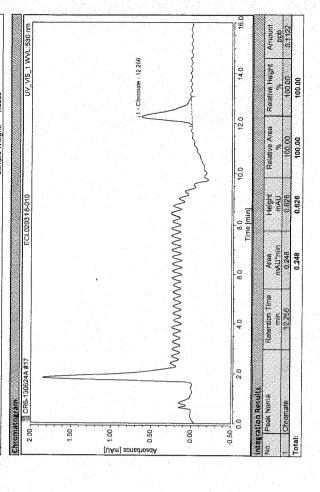
Chromatogram and Results

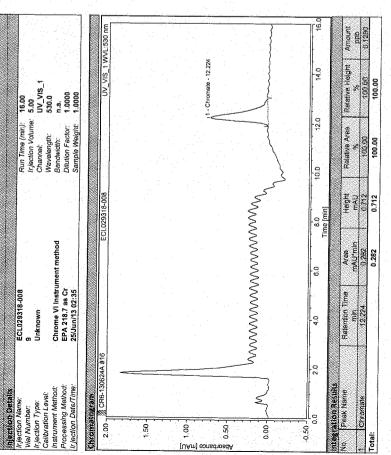
Instrument: Chroma_VI Sequence: CR6-130624A

ECL029318-008

Chromeleon (c) Dlanex Version 7.1.1.1127

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Instrument: Chrome_VI Sequence: CR6-130824A

UV_VIS_1 WVL:530 nn

Run Time (Timi): 16.00
Channel: 5.00
Channel: 5.00
Channel: 10 VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Dullich Fector: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 03:12

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[UAm] sonsdroedA

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Chromatogram

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Ir jection Name:
Vial Number:
It jection Type:
Calibration Level:
Instrument Method:
Processing Method:
It jection Date/Time:

- Chromate - 12.312

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Relative Height Amount % ppb 4.9598

Relative Area % 100.00 100.00

Height mAU 26.326 26.326

Araa MAU*min 10.618 10.618

Retention Time min 12.312

100.00

14.0

12.0

10.0

8.0 Time [min]

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Integration Results
No Peak Name

Chromate

Total:

ECL029318-012

Chromatogram

	UV_VIS_1 WVL:530 nm	14.0	Relative Height Amount % ppb	
1306244 #21 ECL0293  WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW				
130624A #	ECL029318-014	8.0 Time (min)	-	
130624A #		6.0		a c
130624A #	21	4.0	Retention T	D,B,
(UAm) sonsidized	CR6-130624A #;		Peak Name	romate

Chromeleon (c) Dionex Version 7.1.1.1127

65

Total:

Run Time (min): 16.00
Channel: 5.00
Channel: 5.00
Channel: 530.0
Wavelength: 530.0
Dilution Factor: 1.0000
Sample Weight: 1.0000 Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 04:47 16 Unknown

Chromatogram

UV_VIS_1 WVL:530 nm

Run Time (min): 16.00 Channel. 5.00 Channel. 10.VIS.1 Wavelength: 530.0 Bandwidh: n.a. Dilution Factor: 1,0000 Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 04:28

Chramatopram CR6-130624A #22

1.75

1.50-1.25

ECL029318-016 15 Unknown

Injection Details
Irjection Name:
Vial Number:
Irjection Type:
Calibration Levie:
Processing Mathod:
Irjection Date/Time:

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UV_VIS_1 WVL:530 nm		
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[UAm] sonsdroedA

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8.0 Time [min]

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Integration Results No Peak Name

Chromate

Total:

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1 - Chromate - 12.232.

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[UAm] sonsdnoedA

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% 100.00 100.00 Relative Height

Relative Area % 100.00 100.00 Height mAU 5.564 Aree mAU*min 2.213 2.213 Retention Time min 12,238 Integration Results No Peak Name

Chromate

Amount ppb 0.0320

Relative Height
%
100.90

Relative Area % 100.00 100.00

Height mAU 0.196

Area mAU*min 0.077

Ratention Time min 12,232

0.077

100.00

Total:

Chrometeon (c) Dionex Version 7.1.1.1127

Default/Integration

Chrameteon (c) Dianex Version 7.1.1.1127

66

Chromatogram

UV_VIS_1 WVL:530 nm

Run Time (min): 16.00
Channel, Channel, Suo
Channel, Suo
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 05:06

Chrorratogram
6.00 7

5.00

4.00

[UAm] sonschoedA 6 6

ECL029318-016SD 17 Unknown

Injection Details
Irjecton Name.
Vial Number:
Irjecton Type:
Calibration Level:
Instrument Method:
Processing Method:
Itjection Detectime:

11 - Chromate - 12.224

000	CR6-130624A #25	24A #25		EC	ECL029318-018		UV_VIS_1	UV_VIS_1 WVL:530 nm
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[UAm]	· · · · · · · · · · · · · · · · · · ·							
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0.50	0.0	2.0	4.0	6.0	8.0 Time (min)	10.0	12.0	16.0
integra	ttegration Results					-		
c Ž	Peak Name		Retention Time	Area mAU'min	Height	Kelative Area	ř	qud
	Chromate		12.249	0.072	0.189	100.00	100.00	0.0230
oral				2,0,0	001.0			-

Relative Height

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Helght 5.386 5.386

Was mAU*min 2.138

Retention Time min 12.224

Integration Results
No Peak Name Chromate

2.138

Total:

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4.0

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Default/Integration

Chramelean (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Instrument: Chrame_VI Sequence: CR6-130624A

UV_VIS_1 WVL:530 nm

ECL029318-020

Checinatogram 2.00 2

1.50

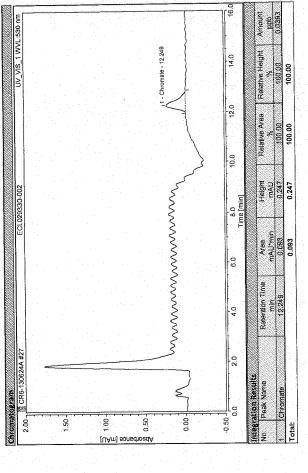
Run Time (mil): 16.00
Chenels 5.00
Chenels 10 VIS_1
Wavelength: 530.0
Bandvidh: n.a.
Dilution Fector 1,0000
Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 05:44

ECL029318-020 19 Unknown

hiscrion Details

It jection Name:
Vial Number:
It jection Type:
Calibration Level:
Instrument Method:
Processing Method:
It jection DeterTime:



Amount ppb n,8

Relative Height

Relative Area 0.0

Height mAU n.a.

Avaa mAU*min n.s. 0.000

Retention Time E e

0.00

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8.0 Time [min]

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integration Results Peak Name na Chromate

Total:

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Chramelean (c) Dionex Verslan 7.1.1.1127

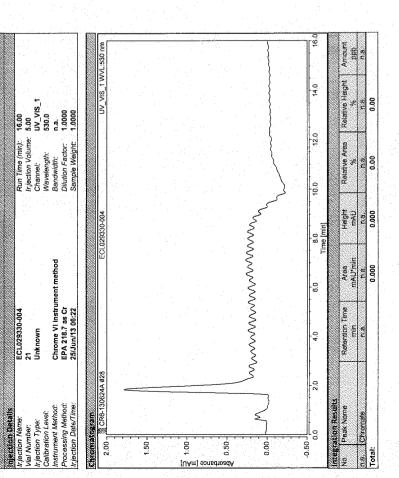
68

Default/Integration

Chromatogram and Results

ECL029330-004 21 Unknown

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0.0	2:0	4.0	6.0	8.0 Time [min]	12.0	14.0	16.0
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vo Peak Name	œ	Retention Time	nAU*min	Height mAU	Relative Area %	Relative Height	Amount
Chromate		12.162	0.060		100.00	100.00	0.0240
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Chrameleon (c) Dionex Version 7.1.1.1127

69

1 WVL:530 nn

Run Itme (min): 16.00
Itjection Volume: 5.00
Chamel: UV VIS_1
Wevelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 07:18

LRB 24 Unknown

Page 23 of 41

Chromatogram and Results

Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleun (c) Dianex Version 7.1.1.1127

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Amount ppb n.a

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8.0 Time [min]

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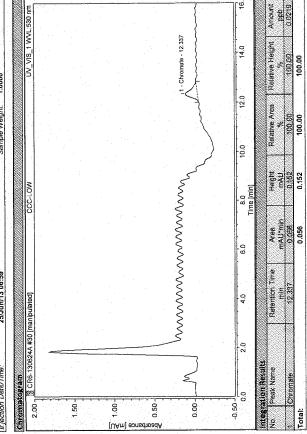
% n.a. 0.00 Ralative Height

Height mAU na.

Area mAU*min n.s. 0.000

Retention Time min n.a.

		16.00	5.00	UV_VIS_1	530.0	n.a.	1.0000	1.0000	
ults		Run Time (mir.):	Ir. jection Volume:	Channel: UV_VIS_1	Wavelength:	Bandwidth:	Dilution Factor:	Sample Weight:	
Chromatogram and Result.						ent method			
Chre		CCC-LOW	23	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	25/Jun/13 06:59	
	etails	Jection Name:	ial Number:	'jection Type:	Callbration Level:	Instrument Method:	Processing Method:	r.jection Dats/Time:	



Default/Integration

**Chromatogram and Results** 

Chrametean (c) Dianex Version 7.1.1.1127

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UV_VIS_1 WVL:530 nm

16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000

Run Time (min.): 1
Ir, laction Volume: 5
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Bandwidth: 5
Bandwidth: 7
Sample Weight: 1

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 07:37

2.00 J CR6-130624A #32

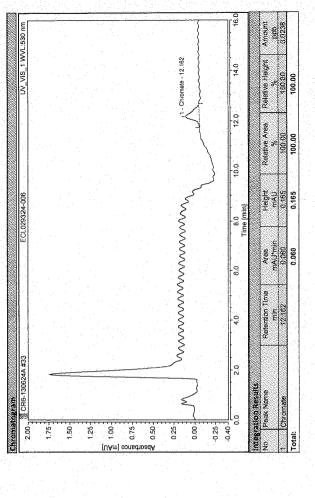
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Chromatogram

ECL029324-004 25 Unknown

Interction Details
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Instrument Mathod:
Processing Mathod:
It jection Deta/Time:



- Chromate - 12, 165

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8.0 Time [min]

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Relative Area % % 100.00 100.00

Height mAU 0.162 0.162

Avea mAU*min 0.058

Ratemion Time Min 12,165

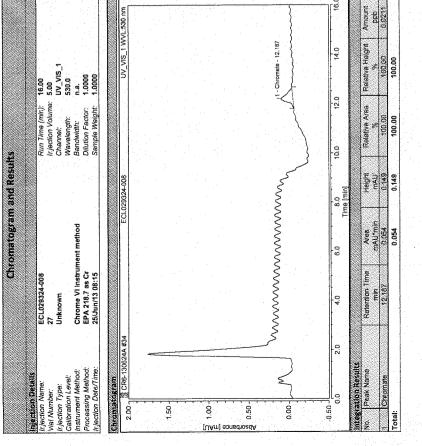
Integration Results
No Peak Name

Chromelean (c) Dionex Version 7.1.1.1127

Instrument: Chroma_V\ Sequence: CR6-130624A

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Chromato		24-008S				// Instrument method	7 as Cr	08:34
Chromato		324-008S		· =		VI Instrument method	1.7 as Cr	3 08:34
Chromato		9324-008S		wn		e VI Instrument method	18.7 as Cr	/13 08:34
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Chromato		ECL029324-008S	28	Unknown		Chrome VI instrument method	EPA 218.7 as Cr	25/Jun/13 08:34
Chromato		ECL029324-008S	28	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	25/Jun/13 08:34
Chromato		ECL029324-0085	28	Unknown		Chrome VI instrument method	EPA 218.7 as Cr	25/Jun/13 08:34
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Chromato		ECL029324-008S	28	Unknown		Chrome VI instrument method	EPA 218.7 as Cr	25/Jun/13 08:34
Chromato		ECL029324-008S	28	Unknown		Chrome VI Instrument method	EPA 218.7 as Cr	25/Jun/13 08:34
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Chromato	Injection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	Injection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	intection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	intection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	Inection Details		vial Number: 28	_	Calibration Level:	•		
Chromato	ittlection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	injection Details		Vial Number: 28	_	Calibration Level:	•		
Chromato	Inection Details		Vial Number: 28	_	Calibration Level:	•		

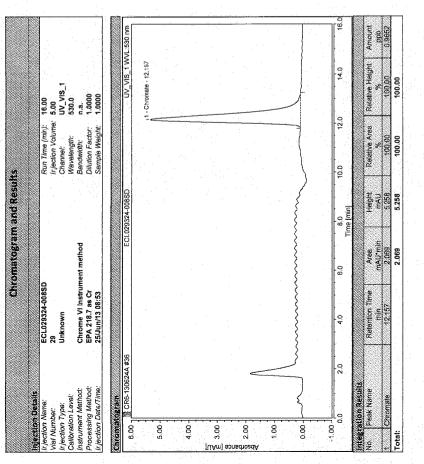
4.0 6.0 8.0 14.0 12.0 14.0 14.0 14.0 14.0 14.0 14.0 14.0 14		@ CR6-130624A #35	#35	EOL	ECL 029324-008S		UV_VIS_1 WVL:530 nm	L:530 nm
0 20 4,0 6,0 8,0 10,0 120 140  (b) Feetilitis Rateritor Time   Mae   Height   Rotative Area   Relative Height   mAU Time   mAU Time	9.00					-	1 - Chromate - 12 175	
0 20 40 60 Time [min] 100 120 140	5.00							
O         2.0         4.0         6.0         1.0         1.2         14.0           OF Results         Reservation Trine Institute         Avea         Height Institute         Relative Area         Relative Height Institute           nach Name         min         Avea         Institute         Relative Height Institute           records         months         150.00         100.00         100.00           2.051         5.307         100.00         100.00	:	<del></del>						
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0 20 40 60 Time [min]  OR Results  Sak Name	[UArr e. 8	· · · · · · · · · · · · · · · · · · ·						
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14.0   6.0   8.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14								
140   150   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140	00.00	}		<b>&gt;</b>		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
14.0   10.0   12.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0		<del></del>						
Peak Name   Retention Time   Area   Height   Rolative Area   Resistive Height   Peak Name   Height	3	0			8.0 ime [min]			
Peak Name         Reterition time         Area         Height map         Relative Area	Integra	tion Resuits						
Chromate         72,176         2,041         5,307         100,00         100,00           2,081         5,307         100,00         100,00	o N	Peak Name	Retention Time min			Relative Area %	Relative Height	
2.081 5.307 100.00	Ě	Chromate	12,175	2.081		100.00	400.00	
				2.081		100.00	100.00	



Instrument: Chrome_VI Sequence; CR6-130624A

Chromelean (c) Dionex Version 7.1.1.1127

2 00 CR6-130624A #37	(UAm) sonsdroedA	0.0	stegration Results	No Peak Name	Chromate	
624A #37		2,0				
		4.0		Retention Time min	12,189	
11		6.0		Area mAU*min	0.080	
EVEV.3324-010		8.0 Time [min]		Height		
		10.0 12.0		Relative Area %	100.00	
	1 - Chromate - 12.189	0.410		Retative Height	100.00	
/L.000.				Amount	0.0241	



Chrometean (c) Dlanex Version 7.1.1.1127

Amount ppb 0.2251

Relative Height

Relative Area % 100.00 100.00

Helight mAU 1230

Area mAU*min 0.489

Retention Time min 12,162

ntegration Results Chromate

Total:

100.00

14.0

12.0

10,0

8,0 Time [min]

0.9

4.0

20

0.50

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0.00

[UAm] sonschoedA

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		3	3	Calibration Level:	S	ď	. ≼ે
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UV_VIS_1 WVL:530 nn

ECL029324-012

Ehramatogram 2 no ... | CR6-130624A #38

2,00,2

1.50 -

Run Time (min): 16.00
Channel: 5.00
Channel: 5.00
Wavelength: 530.0
Bandwidth: n.a.
Dilution Fector: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 09:31

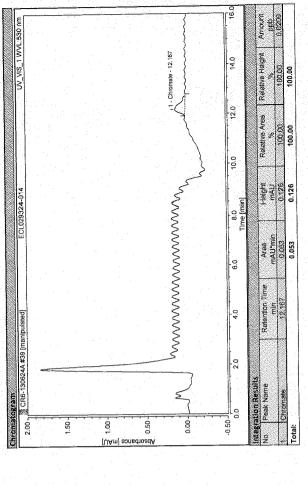
ECL029324-012 31 Unknown

Injection Details
Injection Name:
Vial Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Detectime:

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624A

1. - Chromate - 12,162



Page 33 of 41

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130624A

UV_VIS_1 530.0 n.a. 1.0000 1.0000

Run Time (mitr):
Ir jection Volume:
Chennel:
Wavelength:
Bandwidh:
Dilution Fector:
Sample Weight:

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 10:09

Chromatogram 2.00 T

ECL029324-016 33 Unknown

Italicino Details
Italicino Name:
Vial Number:
It jection Type:
Calitarion Levis
Processing Method:
Processing Method:
It jection Detect Time:

Chrometeon (c) Dlanex Versian 7.1.1.1127

UV_VIS_1 WVL:530 nm

1 - Chromate - 12.147

homonimonominamon

0.00

0.50

1.00

[UAm] sonschoad/

1.50

Relative Height 9/6 100.00 100.00

100.001

Height 0.147 0.147

Area mAU*min 0.062 0.062

Retention Time min 12.147

integration Results
No Peak Name

Total:

14.0

12.0

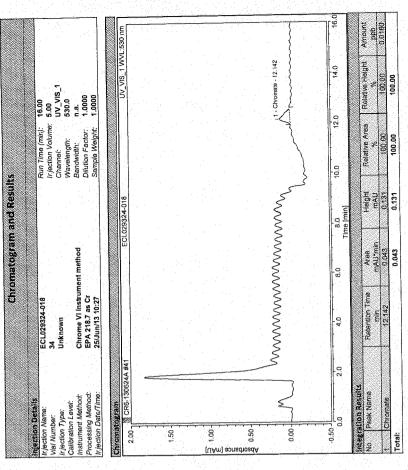
10.0

6.0

0.4

2.0

0 0.50

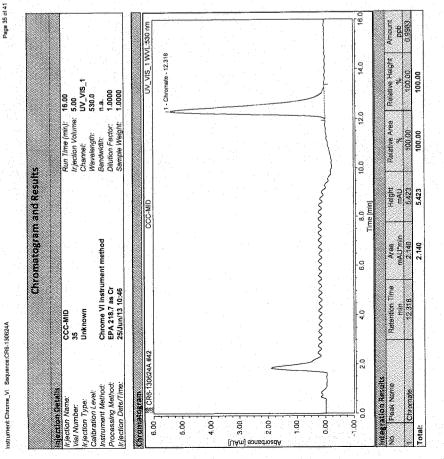


Default/Integration

Default/integration

Chrometeon (c) Dionex Version 7.1.1.1127

W Weigh	12.0   10.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0   12.0
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Default/Integration

Chromatogram and Results

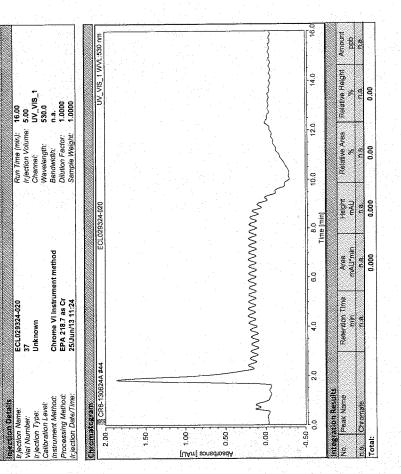
Page 37 of 41

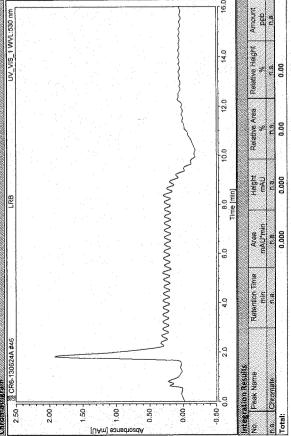
Chromelson (c) Dionex Version 7.1.1.1127

Run Time (min): 16.00
It jection Volume: 5.00
Channel: UV VIS_1
Wevelength: 530.3
Bandwidth: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000 Chromatogram and Results 38 Unknown CCC-HIGH Interction Details
Ir jection Name:
Vial Number:
Ir jection Type:
Calibration Level:
Instrument Mathod:
Processing Mathod:
It jection Date/Time:

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 11:43

30.05	30.0 CR6-130624A #45		0	CCC-HIGH		UV_VIS_1 WVL;530 nm
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ed cv	Peak Name	Retention Time nith	Area mAU*min	Height	Retative Area %	Relative Height Amount
É	Chroniste	12.312	10.699	26.705	100.00	





Chromeleon (c) Dionex Version 7.1.1.1127

# **Dilution Corrected Concentrations**

7/19/2013 3:21:25 PM

	dilution: 1.00	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Run	Time	ppb	ppb	ppb	ppb	ppb	ppb
	45.20.20	100.817%	0.053	99,419%	101.867%	0.066	101.749%
	15:20:30	98.148%	0.034	99.930%	99.831%	0.065	99.320%
2	15:20:35		0.054	100.651%	98.302%	0.060	98.931%
3	15:20:41	101.035%		100.000%	100.000%	0.064	100.000%
X		100.000%	0.047	0.619%	1.788%	0.003	1.527%
σ		1.608% 1.608	0.011	0.619	1.788	5.311	1.527

F130719B CMC7/19/13 W5-20856

RINSE 7/19/2013 3:24:13 PM

User Pre-dilution: 1.000

User Pre-	-dilution: 1.00	)0	وحنجي		4.751	208Pb	209Bi
Run	Time	45Sc	52Cr	89Y	175Lu		
1,7011		ppb	ppb	ppb	ppb	ppb	ppb
I 1	15:23:19	94.934%	0.016	100.359%	103.046%	0.055	101.731%
1 2	15:23:24	99.601%	0.030	101.329%	100.660%	0.054	99.984%
		99.691%	0.052	101.695%	98.917%	0.058	99.151%
3_	15:23:29	1 - 1 - 1 - 1 - 1 - 1	0.032	101.128%	100.874%	0.056	100.289%
X		98.075%		0.690%	2.073%	0.002	1.317%
σ		2.721%	0.018			4.381	1.313
%RSD	]	2.774	54.760	0.683	2.055	7.301	1.515

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

Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1 11110		daa	ppb	ppb	ppb	ppb
15:26:05		-0.003	99.925%	103.185%	-0.003	102.260%
		0.002	99.904%	99.407%	0.002	99.512%
				97.408%	0.002	98.228%
15:26:16					-0.000	100.000%
						2.060%
						2.060
	15:26:05 15:26:11 15:26:16	15:26:05     99.150%       15:26:11     98.960%	ppb         ppb           15:26:05         99.150%         -0.003           15:26:11         98.960%         0.002           15:26:16         101.890%         0.002           100.000%         0.000         1.640%         0.003	ppb         ppb         ppb           15:26:05         99.150%         -0.003         99.925%           15:26:11         98.960%         0.002         99.904%           15:26:16         101.890%         0.002         100.171%           100.000%         0.000         100.000%           1.640%         0.003         0.148%	Time         435C         32C1         upph         pph         pph	Time         435C         92CI         OBD         OBD         ppb         ppb<

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

User Pre-dilution: 1.000

User Pre	alluuon, 1.00	JU				208Pb	209Bi	1
Run	Time	45Sc	52Cr	89Y	175Lu	208PD		1
<u> </u>		ppb	daa	ppb	ppb	ppb	ppb	1
	15:28:49	93.939%	198.900	100.708%	106.254%	тм 200.000	105.920%	
<u> </u>		30	м 201.300	100.824%	103.111%	т 199.600	104.463%	
2	15:28:55	102.064%			101.008%	тм 200.400	102.936%	
3	15:29:00	97.851%	199.800	102.088%			104,440%	
X		97.951%	м 200.000	101.207%	103.458%	11720015		
-		4.064%	м 1.215	0.765%	2.640%	<u>тм 0.378</u>	1.492%	
0 0	-	4.149	м 0.608	0.756	2.552	тм 0.189	1.429	
%RSD		7.1.1	3.000					

7/19/2013 3:32:28 PM

User Pre-dilution: 1.000

User Pre-	dilution: 1.00	)()					209Bi
Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	
		dqq	ppb	ppb	ppb	ppb	ppb
<u> </u>	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%
2	15:31:44	104.108%	0.082	102.084%	97.718%	0.019	98.896%
3	15.51,44	100.708%	0.083	101.033%	100.325%	0.018	100.899%
x			0.015	1.372%	2.851%	0.002	2.438%
σ		3.314%		1.37270	2.842	12.420	2.416
%RSD		3.291	18.150	1.336	2.042	12.120	21,120

M03479

CKS 7/19/2013 3:35:12 PM

User Pre-dilution: 1.000

User Pre	dilution: 1.00			001/	175Lu	208Pb	209Bi
Run	Time	45Sc	52Cr	89Y			
		ppb	ppb	ppb	ppb	ppb	ppb
	15:34:18	93.242%	197,700	100.085%	106.236%	<u> 199.000</u>	106.297%
	15:34:23	98.786%	198.600	100.825%	102.201%	_т 199.300	103.946%
		100.227%	198.400	101.634%	101.023%	т 198.800	103.118%
3	15:34:28		. 77 700	100.848%	103.153%	т 199,000	104.454%
X		97.418%	198.300	100.04070			1.649%
G		3.688%	0.491	0.775%	2.734%	<u>⊤0.234</u>	
%RSD		3.786	0.248	0.768	2.651	<u> + 0.117</u>	1.579

MU3479

TCV 7/19/2013 3:37:57 PM

M 03481

User Pre-dilution: 1.000

D	Time	45Sc	52Cr	89Y	175Lu	208Pb	20961
Run	Tille	ppb	ppb	ppb	ppb	ppb	ppb
	15:37:03	94.921%	99.940	98.430%	104.879%	96.420	105.299%
1	15:37:08	98.326%	100.200	100.063%	101.073%	96.820	102.413%
Z	15:37:13	96.948%	100.200	100.431%	99.030%	96.970	101.434%
3	15:37.13	96.732%	100.100	99.641%	101.661%	96.740	103.049%
X		30	0.133	1.065%	2.968%	0.286	2.009%
σ		1.713%	0.133	1.069	2.920	0.296	1.950
%RSD	l	1.771	0.133	1.000	2.520		

roopr

ICB 7/19/2013 3:40:42 PM

User Pre-dilution: 1.000

		52Cr	897	175Lu	208Pb	209Bi
Time					ppb	ppb
15:30:47		0.116	99.992%	101.042%	0.023	100.721%
		0.098	100.147%	98.347%	0.023	98.397%
		0.091	100.596%	95.764%	0.021	96.832%
13.39.30		0.102	100.245%	98.384%	0.023	98.650%
	33.20	0.202	0.314%	2.639%	0.001	1.957%
		13.030	0.313	2.682	5.406	1.984
	15:39:47 15:39:53 15:39:58	15:39:47     96.568%       15:39:53     99.388%	Time         45Sc         52Cr           ppb         ppb           15:39:47         96.568%         0.116           15:39:53         99.388%         0.098           15:39:58         101.367%         0.091           99.108%         0.102           2.412%         0.013	Time         45Sc         52Cr         89Y           ppb         ppb         ppb           15:39:47         96.568%         0.116         99.992%           15:39:53         99.388%         0.098         100.147%           15:39:58         101.367%         0.091         100.596%           99.108%         0.102         100.245%           2.412%         0.013         0.314%	Time         45Sc         52Cr         89Y         175Lu           ppb         ppb         ppb         ppb           15:39:47         96.568%         0.116         99.992%         101.042%           15:39:53         99.388%         0.098         100.147%         98.347%           15:39:58         101.367%         0.091         100.596%         95.764%           99.108%         0.102         100.245%         98.384%           2.412%         0.013         0.314%         2.639%	Time         45Sc         52Cr         89Y         175Lu         208Pb           ppb         ppb         ppb         ppb         ppb           15:39:47         96.568%         0.116         99.992%         101.042%         0.023           15:39:53         99.388%         0.098         100.147%         98.347%         0.023           15:39:58         101.367%         0.091         100.596%         95.764%         0.021           99.108%         0.102         100.245%         98.384%         0.023           2.412%         0.013         0.314%         2.639%         0.001

LLQC-1 7/19/2013 3:43:29 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kuis		ppb		ppb	ppb	ppb	ppb
	15:42:35	86.210%	0.811	90.801%	109.227%	0.818	112.220%
- 5	15:42:40	86.067%	0.826	92.660%	107.834%	0.819	111.611%
	15:42:45	85.893%	0.826		105.841%	0.826	110.126%
	13,72,73	86.056%			107.634%	0.821	111.319%
x		0.159%	0.009	1.104%	1.702%	0.004	1.077%
σ			1.049	1 199	1.581	0.510	0.967
%RSD	l	0.184	1.049	1.133	1.501	0,510	

50pl M03479 -> 10 ml

LPB5058R 7/19/2013 3:51:18 PM

Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
I Kuii	1	ppb		ppb	ppb	ppb	ppb
	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%
<b>-</b>		103.786%	0.232	102.707%	93.496%	0.187	93.279%
		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

User Pre	dilution: 1.uc				175Lu	208Pb	209Bi
Run	Time	45Sc	52Cr	89Y	1/5Lu		
Kun	1	ppb	ppb	ppb	ppb	ppb	ppb
	15:53:07	106.595%		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%		105.522%	85.513%	48.110	85.497%
	13,05,120	109.631%		104.626%	88.767%	48.150	88.387%
		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

1	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1	Kull	i iii C	ppb	dqq	dqq	ppb	ppb	ppb
. 1		15:55:51	99.435%	0.213	100.311%	97.625%	0.155	94.186%
		15:55:56	104.805%		101.683%	93.065%	0.162	90.772%
				0.189	101.182%	90.956%	0.156	89.238%
	3	15:56:02	103,122,70			93.882%	0.158	91.399%
	X		103.221%	0.203	101.059%		0	2 533%
	σ	. :	3.293%	0.012	0.694%	3.409%	0.004	2,555.0
	%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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
١			ppb	ppb	ppb	ppb	ppb	ppb
1	- 1	15:58:35	104.820%	0.387	104.444%	95.768%	0.107	92.312%
i	2	15:58:40	109.145%	0.415	105.486%	91.850%	0.105	89.027%
l	3	15:58:45	110.317%	0.395	105.288%	90.041%	0.106	87.658%
		15/55/10	108.094%	0.399	105.073%	92.553%	0.106	89.666%
			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 User Pre-dilution: 1.000 7/19/2013 4:02:13 PM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1.300		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			111.477%		0.621	75.384%
	10.01.22	115.470%		111.675%		0.620	77.598%
		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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-			ppb	ppb	ppb	ppb	ppb	ppb
	ī	16:04:04	109.984%	9.846	109.735%	89.622%	0.587	81.255%
F	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%
	х		112.952%	9.938	109.755%	85.579%	0.585	77.838%
	б		2.586%	0.202	0.165%	3.716%	0.006	3.116%
F	%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

4	USEI PIE	diduon. 1.00		52Cr	89Y	175Lu	208Pb	209Bi
	Run	Time	45Sc				ppb	ppb
•	100	***	ppb	ppb	ppb	ppb		
ſ	1	16:06:49	103.015%	61.730	103.363%	89.073%	45.320	80.408%
ļ		16:06:55	108.305%	61.170	104.160%	83.694%	45.550	76.531%
ļ		16:07:00	109.002%	61,760	104.132%	81.518%	45.790	75.357%
ļ	3	16:07:00	105.002 %		103.885%	84.762%	45.550	77.432%
	X	14 7 7 4 19	100.774%	7777			0.336	2.644%
Ī	ď		3.274%	0.330	0.452%	3.889%	0.236	
	%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

	1	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Ru	<u> </u>	111110	ppb	ppb	ppb	ppb	ppb	ppb
	1	16:09:35		4.433		91.124%	0.448	82.067%
<u> </u>	ᆃ	16:09:40	102.318%		101.231%	86.565%	0.448	78.516%
-	싂	16:09:45	102.730%			84.349%	0.456	77.080%
-	2	10.05.43	102.750%	4.447	101.731%	87.346%	0.451	79.221%
	X		0.301%	0.078	0.614%	3.454%	0.005	2.567%
	σ		0.30170	1.763	0.603	3.955	1.029	3.240
%F	30		0.293	1.703	0.003	5,555		

### ECL029318-005

7/19/2013 4:13:15 PM

User Pre-dilution: 1.000

Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
		dag	ppb	ppb	ppb	ppb	ppb
T il	16:12:20	95.333%	6.450	99.050%	91.027%	0.698	82.176%
7	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%
	TOTAL	The second second		99.030%	87.421%	0.688	79.681%
<del>                                     </del>		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

Г	Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
L	Kuii	i ime	ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	16:15:06	94.937%	4.653	95.445%	91.601%	0.454	82.529%
Ť	2	16:15:11	95.776%	4.532	95.479%	87.764%	0.461	79.838%
Ť	3	16:15:17	97.202%	4.475	95.246%	85.050%	0.463	78.170%
Ì	×		95.972%	4.553	95.390%	88.138%	0.460	80.179%
ř	σ.		1.145%	0.091	0.126%	3.292%	0.005	2.200%
Ì	%RSD		1.193	1.995	0.132	3.735	1.082	2.744

**CCB** 7/19/2013 4:18:46 PM

Ī	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	1. 1. 1. 1.		ppb	ppb	ppb	ppb	ppb	ppb
-	1	16:17:51	88.269%	0.119	94.860%	97.864%	0.016	97.379%
İ	2	16:17:57	92.561%	0.127	94.136%	94.356%	0.017	94.511%
j	3	16:18:02	91.294%	0.110	96.052%	91.934%	0.011	92.304%
j	х	4	90.708%	0.119	95.016%	94.718%	0.015	94.732%
١	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

	User Pre-	anuuon. 1.00			89Y	175Lu	208Pb	209Bi
Ī	Run	Time	45Sc	52Cr	891			nnh
Ļ			ppb	daa	ppb	ppb	ppb	ppb
		16:20:37	91.468%	199,400	95.105%	101.217%	<u> 199.700</u>	99.183%
ļ			94.050%	197.500	96.597%	98.273%	T198.600	97.485%
Į	2	16:20:43			97.808%	95.861%	_T 199.600	т 102.293%
	3	16:20:48	95.127%	150.555		98.451%	т 199.300	т 99.654%
	х		93.548%	198.400		77.		т 2.439%
j			1.880%	0.925	1.354%	2.683%	<u> 70.610</u>	
	%RSD	A. T.	2.010	0.466	1.403	2.725	<u>+0.306</u>	<u> 72.447</u>
		•						

ECL029318-007

7/19/2013 4:24:18 PM

User Pre-dilution: 1.000

	OSEI PIE-diludon. 1.000		,,,	وحصيت		175Lu	20006	209Bi	
٠.	Run	Time	45Sc	52Cr	89Y	1/5Lu	ZUOPU		
ı	Kuii		ppb	ppb	ppb	ppb	ppb	ppb	
	<del>- 1</del>	16:23:24	96.758%		97.143%	86.695%	3.906	77.785%	
		16:23:29	102.619%		96.954%	82.559%	3.899	74.825%	
	<u>Z</u>	16:23:35		17.760	97.307%	81.126%	3.896	73.618%	
	3_	10.23.33	100.227%	17.920	97.135%	83.460%	3.900	75.409%	
	X		3.075%	0.141	0.177%	2.892%	0.005	2.144%	
	σ %RSD		3.075%	0.788	0.17770	3.465	0.126	2.843	
	701025	1							

ECL029318-008

7/19/2013 4:27:05 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kun	11116	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%
2	16:26:21		3.437	94.069%	82.043%	1.313	75.511%
	10.20.21	94.393%	3.410	94.614%	85.024%	1.294	77.474%
X		1.489%	0.048	0.703%	3.346%	0.017	2.149%
− σ %RSD		21.100.1	1.402	0.743	3.936	1.279	2.773
24.4	<b>'</b>						

ECL029318-009 7/19/2013 4:29:50 PM

User Pre-dilution: 1.000

Time			89Y	175Lu	208Pb	209Bi
7,1110		dqq	ppb	ppb	ppb	ppb
16:28:55	88.522%	6.377	92.530%	90.990%	0.868	82.485%
100	92.894%	6.422	92.688%	85.783%	0.882	78.750%
				82.932%	0.884	76.830%
10.25.00	, ,		100	86.568%	0.878	79.355%
				- 7617 for 33	0.009	2.876%
		0.20.	71.15	4.720	0.984	3.624
		Time         45Sc           ppb           16:28:55         88.522%           16:29:01         92.894%	Time         45Sc         52Cr           ppb         ppb           16:28:55         88.522%         6.377           16:29:01         92.894%         6.422           16:29:06         91.420%         6.686           90.945%         6.495           2.224%         0.167	Time         45Sc         52Cr         889Y           ppb         ppb         ppb           16:28:55         88.522%         6.377         92.530%           16:29:01         92.894%         6.422         92.688%           16:29:06         91.420%         6.686         91.761%           90.945%         6.495         92.326%           2.224%         0.167         0.496%	Time         45Sc         52Cr         89Y         175Lu           ppb         ppb         ppb         ppb         ppb           16:28:55         88.522%         6.377         92.530%         90.990%           16:29:01         92.894%         6.422         92.688%         85.783%           16:29:06         91.420%         6.686         91.761%         82.932%           80.945%         6.495         92.326%         86.568%           2.224%         0.167         0.496%         4.086%	Time         45Sc         52Cr         89Y         175Lu         208Pb           16:28:55         88.522%         6.377         92.530%         90.990%         0.868           16:29:01         92.894%         6.422         92.688%         85.783%         0.882           16:29:06         91.420%         6.686         91.761%         82.932%         0.884           90.945%         6.495         92.326%         86.568%         0.878           2.224%         0.167         0.496%         4.086%         0.009

ECL029318-010

7/19/2013 4:32:34 PM

	0001110		and the second second						
- [	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi	
			ppb	ppb	ppb	ppb	ppb	ppb	
1	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%	
ı	Y		88.580%	2.885	89.381%	85.871%	0.507	76.641%	
	^		0.596%	0.044	0.246%	3.216%	0.011	1.901%	
	%RSD			1.512	0.276	3.745	2.229	2.480	
	σ %RSD		0.596% 0.672		•	J.==	0.0		

ECL029318-011

7/19/2013 4:35:17 PM

User Pre-dilution: 1.000

	user Pre	-dilution: 1.00	<i>.</i>		89Y	175Lu	208Pb	209Bi
Г	Run	Time	45Sc	52Cr			100	
<u></u>			ppb	ppb	ppb	ppb	ppb	ppb
_		16:34:23	86.415%	6.898	87.601%	88.886%	0.055	81.064%
F		16:34:28	87.556%	7.086	87.356%	84.867%		78.274%
Ļ			85.972%	7.122	87.463%	81.911%	0.702	75.789%
L	3	16:34:33				85.221%	0.699	78.376%
٦,	X		86.648%	7.036	87.473%			2 (200/
F		i	0.817%	0.120	0.123%	3.501%	0.007	2.639%
F	%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

	User Pre-	unuuon, 1.oc		ونسيت		4751	208Pb	209Bi	
Г	Run	Time	45Sc	52Cr	89Y	175Lu	ZUOPD		
L	Kuii		ppb	ppb	dqq	ppb	ppb	ppb	
Г		16:37:08	86.701%		89.237%	92.941%	0.065	91.340%	
Ļ		16:37:13	86.020%		87.944%		0.066	88.277%	
Ļ		16:37:18		0.280	88.834%	85.521%	0.069	85.828%	
ļ		10:37:10	87.561%	0.270	88.672%	89.000%	0.067	88.482%	
Ļ	X		2.108%	0.009	0.662%	3.731%	0.002	2.762%	
ļ	σ			3.318	0.00276	4.193	3.052	3.121	
-1	%RSD		2,400	3,310	0.7 10				

ECL029318-013D

7/19/2013 4:40:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kun	111110	ppb	ppb	ppb	ppb	ppb	ppb
T 1	16:39:52			89.095%	88.525%	0.067	87.368%
1 2	16:39:57	89.947%	0.374		85.075%	0.063	84.314%
3	16:40:03	93.321%	0.363	89.946%	82.983%	0.067	82.897%
	T 10.40.03	90.671%	0.360		85.528%	0.066	84.860%
×	4	2.373%	0.015	0.717%	2.798%	0.003	2.285%
σ			4.293	0.71770	3.272	3.922	2.692
%RSD		2.017	4.293	0.007	3,272	3.322	

ECL029318-013S

7/19/2013 4:43:32 PM

User Pre-dilution: 1.000

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
_	1 1 1		ppb	ppb	ppb	ppb	ppb	ppb
Г	1	16:42:37		50.970	89.164%	90.776%	48.240	89.994%
F	2	16:42:43			88.965%	87.837%	48.200	87.551%
H	3	16:42:48				85.553%	48.360	86.146%
F		10. 12. 10			89.567%			87.897%
H			3.305%	0.649	0.876%	2.618%	0.085	1.947%
F	%RSD		3.714	1.256	0.978	2.974	0.175	2.215

ECL029318-014

7/19/2013 4:46:17 PM

_			450-	52Cr	89Y	175Lu	208Pb	209Bi
	Run	Time	455C	32Ur		10 J T 5.07 Telling		
-			ppb	ppb	ppb	ppb	ppb	ppb
Г	1	16:45:22	91.912%	0.437	91.771%	91.615%	0.064	90.631%
F	2	16:45:28	91.674%	0.432	91.272%	86.218%	0.062	86.256%
Ė	3	16:45:33	94.145%	0.452	91.745%	83.697%	0.062	83.768%
ř	x		92.577%	0.440	91.596%	87.177%	0.063	86.885%
r	σ.	-	1.363%	0.010	0.281%	4.045%	0.001	3.475%
F	%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

USEI FIE	unduon, 1.0						acan:
Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1500.		ppb	ppb	ppb	ppb	ppb	ppb
F 1	16:48:07	86.257%	0.106	88.704%	97.709%	0.011	97.049%
	16:48:12	85.133%		88.889%	92.826%	0.018	94.300%
	16:48:18	88.839%	0.119	90.076%	90.493%	0.013	92.103%
3	10.40.10	86.743%	0.114	89.223%	93.676%	0.014	94.484%
<u>x</u>		1.900%	0.007	0.744%	3.682%	0.004	2.478%
σ		2.191	6.517	0.834	3.931	26.300	2.623
%RSD	j ·	2.171	0.017	. 3.00			

CKS 7/19/2013 4:56:00 PM

User Pre-dilution: 1.000

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	Kun	· · · · ·	ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	16:55:05	87.968%		92.735%	99.831%	± 198,400	97.079%
ı İ	2	16:55:11	89.520%	199,200	93.395%	96.371%	<u> 197.500</u>	94.706%
1	3		90.264%	м 200.500	93.304%	93.052%	т 199.000	т98.469%
-		10.55.10		м 200.200	93.145%	96.418%	т 198.300	т96.751%
	X		1.172%	м 0.808	0.358%	3.389%	т0.711	⊤1.903%
	%RSD	]	1.313	м 0.404	0.384	3.515	+0.359	⊤1.967

### ECL029318-015 7/19/2013 4:58:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1,011.		dad	ppb	ppb	ppb	ppb	ppb
T 1	16:57:52	91.040%	14.860	92.966%	87.848%	3.499	79.391%
	16:57:57		14.770	94.251%	82.139%	3.506	75.152%
3				93.868%			73.315%
	20.00.00			93.695%		3.508	75.953%
<del></del>		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

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-		<u> </u>	ppb	ppb	ppb	ppb	ppb	ppb
Т	1	17:00:38	84.642%	0.701	89.549%	87.005%	0.272	78.663%
ř	2	17:00:43	91.056%	0.730	90.323%	83.829%	0.281	76.782%
ř	3	17:00:49	90.581%	0.691	89.511%	81.202%	0.273	74.999%
ř	x		88.760%	0.707	89.794%	84.012%	0.275	76.815%
ř	G		3.574%	0.020	0.458%	2.906%	0.005	1.833%
F	%RSD		4.027	2.864	0.510	3.459	1.832	2.386

# ECL029318-017 7/19/2013 5:04:19 PM

-	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%
Ì	3	17:03:35	84.214%	3.906	85.265%	80.295%	2.303	75.733%
1	×		84.774%	3.894	85.982%	83.350%	2.280	77.370%
i	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

User Pre	dilution: 1.00	,0	ب ب		4551	208Pb	209Bi
Run	Time	45Sc	52Cr	89Y	175Lu	ZUOPU	
Kuii		dqq	ppb	ppb	ppb	ppb	ppb
	17:06:11	77.261%		81.298%	87.785%	0.211	80.068%
<u></u>		82.076%	0.713	82.312%	83,449%	0.211	77.311%
2	17:06:16			T 1 1 1 1 1 2 2 2 3	81.780%	0.212	76.334%
3	17:06:21	83.089%	0.592			0.211	77.905%
X		80.809%	0.656		84.338%		117 (
~		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

1		<b>T</b> :	4ESc	52Cr	89Y	175Lu	208Pb	209Bi
	Run	Time	ppb	ppb	ppb	ppb	ppb	ppb
1		17:08:56		3.374	82.559%	87.830%	3.423	81.809%
	2	17:09:01	,	3.231	81.738%	83.567%	3.454	78.901%
	2	17:09:06		3.232	81.609%	82.525%	3.440	77.940%
		17.05.00	78.919%	3.279	81.969%	84.641%	3.439	79.550%
	<del> </del>		1.711%	0.082	0.515%	2.811%	0.016	2.014%
	%RSD	1	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		52Cr	89Y	175Lu	208Pb	209Bi
Kun	,,,,,,	ppb	ppb	ppb	ppb	ppb	ppb
1	17:11:39		0.569	81.091%	86.929%	0.169	80.096%
	17:11:45		0.516		82.762%	0.172	77.510%
2	17:11:50	82.678%	0.517		80.840%	0.169	76.211%
3	17.11.50	78.333%				0,170	77.939%
×		4.032%	0.031	0.612%		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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	Kuii		dgg	ppb	ppb	ppb	ppb	ppb
Г	1	17:14:23	78.908%	0.092	80.493%	91.574%	0.012	91.731%
F	7	17:14:28	76.849%	0.104		87.558%	0.015	88.763%
F	3	17:14:34	78.876%	0.073	82.903%	85.581%	0.013	87.022%
F		17111131	78.211%	0.090	81.460%	88.238%	0.013	89.172%
╌┝			1.180%	0.015	1.274%	3.054%	0.001	2.381%
Ļ	%RSD		1.508	17.060	1.564	3.461	11.140	2.670
٠ ٢	70100	,		_,				

7/19/2013 5:18:02 PM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kun	11,110	dad	ppb	ppb	ppb	ppb	ppb
T 1	17:17:07	76.928%	195.900	82.897%	92.438%	тм 203.100	<u>+ 102.907%</u>
2	17:17:13	77.008%	196.200	83.032%	89.018%	тм 202.400	<u> 799.417%</u>
3	17:17:18	80.429%	195.700	83.538%	86.940%	тм 203.500	<u> 797,837%</u>
X		78.122%	195.900	83.156%	89.465%	тм 203.000	<u>т 100.054%</u>
σ		1.998%	0.231	0.338%	2.776%	тм 0.554	<u> 72.595%</u>
%RSD		2.558	0.118	0.406	3.103	<u>тм 0.273</u>	<u>т 2.593</u>

LPB5059R

7/19/2013 5:20:47 PM

User Pre-dilution: 1.000

	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Rur	i I ime	ppb	ppb	ppb	ppb	ppb	ppb
	17:19:53	75.978%		83.070%	94.145%	0.151	95.520%
	17:19:58	80.175%	0.026	83.542%	91.209%	0.152	91.729%
	17:20:03	80.840%	0.021		88.947%	0.150	90.917%
<u> </u>	7	78.998%		83.330%	91,434%	0.151	92.722%
	읰		0.005	0.240%	2.606%	0.001	2.457%
%RSI		2.636% 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
Kun	1 11110	ppb	ppb	ppb	ppb	ppb	ppb
1	17:22:37	79.035%	48,780	83.126%	93.775%	48.570	93.526%
7	17:22:42		49.010	83.674%	89.939%	48.620	91.361%
2	17:22:48				88.551%	48.590	90.171%
	17.22.10	80.893%		83.482%	90.755%	48.590	91.686%
<b>-</b>		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		52Cr	89Y	175Lu	208Pb	209Bi
- Mail		ppb	dqq		ppb	ppb	ppb
T 1	17:25:21		0.564	77.400%	92.861%	6.348	85.970%
	17:25:27	74.220%	0.581	77.876%	89.139%	6.386	83.707%
		73.016%			88.395%	6.349	83.184%
	17,23,32	72.832%			90.132%	6.361	84.287%
		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
1		ppb	ppb		ppb	ppb	ppb
1	17:28:07		0.599	76.445%	93.346%	6.450	86.384%
100	17:28:12			77.436%		6.462	84.080%
			0.596	77.140%	87.981%	6.438	82.455%
-	17,120117			77.007%		6.450	84.306%
		1.196%		0.509%		0.012	1.974%
%RSD		1.675		0.661		0.191	2.342

ECL029324-003

7/19/2013 5:31:46 PM

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	17:30:51	67.568%	0.449	76.315%	93.632%	6.305	87.153%
ř	2	17:30:57	73.096%	0.443	76.885%	90.001%	6.347	84.567%
Ť	3	17:31:02	73.428%	0.417	77.381%	87.305%	6.286	82.444%
ř	x		71.364%	0.437	76.860%	90.312%	6.313	84.722%
ř			3.291%	0.017	0.534%	3.175%	0.032	2.358%
Ì	%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

ľ	Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
L	Kun	111116	ppb	ppb	ppb	ppb	ppb	ppb
Г	1	17:33:35	67.679%		75.366%	91.332%	6.259	84.123%
F	7	17:33:40	70.245%	0.527	76.615%	87.502%	6.254	81.297%
ŀ		17:33:46	70.562%	0.485	76.551%	86.075%	6.271	80.641%
F	<u> </u>	17.55.10	69.495%	0.514		88.303%	6.261	82.020%
ŀ		1	1.581%	0.026	0.704%	2.719%	0.009	1.850%
Ļ	%RSD	<u> </u>	2.275	5.029	0.924	3.079	0.142	2.256
L	70100	]						

### ECL029324-003S

7/19/2013 5:37:14 PM

User Pre-dilution: 1.000

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	<u> </u>		ppb			ppb	ppb	ppb
Γ	1	17:36:20			73.828%	91.522%	53.040	84.953%
F		17:36:25			74.701%		53.030	82.541%
Ė					74.530%		53.300	81.227%
ŀ		17.30.31	68.197%		74.353%		53.120	82.907%
Ļ	<u> </u>		0.451%		0.462%		0.156	1.890%
ļ	%RSD		0.43170	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%
×		69.897%	1.765	75.339%	87.876%	6.467	81.779%
<u> </u>		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
	17:41:51	68.139%	3.381	74.282%	88.965%	13.520	81.307%
2	17:41:56			74.568%		13.560	78.999%
3	17:42:02	71.274%	3.430	75.973%	83.187%	13.520	78.031%
×		69.912%	3.409	74.941%	85.691%	13.540	79.445%
σ	1	1.608%	0.025	0.905%	2.965%	0.021	1.683%
%RSD	1	2.300	0.744	1.208	3.460	0.158	2.118

## ECL029324-006

7/19/2013 5:45:31 PM

		and all are		and the second	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s				
•	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi	
1			ppb	ppb	ppb	ppb	ppb	ppb	
24	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%	
	х		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	

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User Pre-dilution: 1.000

	User Pre	-dilingon, 1.00	JU				2000	209Bi
-	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	20901
-	Kun		ppb	ppb	ppb	ppb	ppb	ppb
'n	-	17:47:22	67.347%	0.094	71.390%	86.224%	0.018	86.130%
		17:47:27	68.645%	0.094	72.598%	83.803%	0.017	84.355%
		17:47:33	69.786%	0.123	72.349%	82.605%	0.015	83.767%
	3	17:47:33	68.593%	0.104		84.210%	0.016	84.751%
. 3	X				0.638%	1.844%	0.001	1.230%
d	σ		1.220%	0.016		2.189	8.812	1.452
	%RSD	]	1.779	15.870	0.884	2.109	0.012	2.102

CKS 7/19/2013 5:51:01 PM

User Pre-dilution: 1.000

	OSCI III	dilocioni					20001	209Bi
-	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	20961
1	Kun		ppb	ppb	ppb	ppb	ppb	ppb
. 1	T 1	17:50:06	68.012%	195,500	73.898%	88.537%	тм 205.600	<u> † 100.354%</u>
		17:50:12	69.976%	195.500	74.036%	85.928%	тм 204.500	т 97.169%
	2	17:50:17	70.768%	197.600	73.817%	83.857%	тм 205.100	<u> 796.066%</u>
		17,30,17	69.585%	196.200	73.917%	86.107%	тм 205.100	⊤97.863%
	X		05.00	1.222	0.110%	2.345%	тм 0.530	т 2.226%
	σ	ļ.	1.419%		0.11078	2.31370	тм 0.259	т 2.275
	%RSD		2.039	0.623	0.149	2.727	1110.200	, <u>m, n, n</u>

ECL029324-007 7/19/2013 5:53:46 PM

User Pre-dilution: 1.000

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
ᆫ	Kun	, ,,,,,,,,	ppb	ppb	ppb	ppb	ppb	ppb
Г	1	17:52:52	61.392%	1.900	64.935%	89.275%	12.770	79.984%
F	3	17:52:57	67.632%	1.350	75.426%	85.342%	12.750	77.691%
F	- 2	17:53:03	67.869%	1.593	70.030%	83.576%	12.750	76.893%
F		17.33.03	65.631%	1.614	70.130%	86.064%	12.760	78.189%
F	X		3.673%	0.276	5.246%	2.917%	0.015	1.605%
F	%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		0.465	72.043%	86.038%	5.238	78.435%
F - 5	17:55:43	67.616%	0.413	70.702%	82.453%	5.263	75.772%
<del>- 3</del>	17:55:49	69.326%	0.482	70.995%	80.041%	5.260	74.295%
- <del>-</del> -	17.1331.13	67.912%		71.247%		5.254	76.167%
<del>                                     </del>		1.293%	0.036	0.705%	3.018%	0.013	2.098%
%RSD	1	1.903	7.882	0.990	3.643	0.252	2.755

ECL029324-009 7/19/2013 5:59:18 PM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
A 14 A 14 A		ppb	ppb	ppb	ppb	ppb	ppb
1	17:58:23	65.082%	0.855	71.036%	85.805%	7.640	78.399%
					82.238%		75.881%
				72.718%			75.622%
Y		67.458%		71.655%	82.945%	7.699	76.634%
<u> </u>		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

Ru	n Time	455c	52Cr	89Y	175Lu	208Pb	209Bi
L RU	ii i iiie	ppb	ppb	ppb	ppb	ppb	ppb
	1 18:01:09		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%
-	J 10.01.13	66.133%	0.413	70.886%	81.767%	4.608	75.220%
<u> </u>	4	2.381%	0.021			0.015	1.907%
%F	G SD	3.600	5.142			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
_ Kuii j		ppb	ppb	ppb	ppb	ppb	ppb
1	18:03:53	64.274%	0.227	68.783%	84.889%	0.291	76.014%
	18:03:58	64.749%	0.194	68.321%	81.394%	0.290	73.783%
2	18:04:04	66.270%	0.246	67.998%	80.104%	0.293	72.861%
	10.04.04	65.098%	0	68.367%	82.129%	0.291	74.219%
		1.042%	0.026	0.395%	2.476%	0.002	1.621%
σ %RSD			0.020		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%
		65.457%	0.382	68.985%	82.517%	0.242	74.954%
		1.179%	0.026	0.240%	3.687%	0.005	2.927%
%RSD			6.932	0.348	4.468	1.930	3.905

# ECL029324-013

7/19/2013 6:10:17 PM

User Pre-dilution: 1.000

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-			ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	18:09:23	63.150%	0.175	69.226%	85.829%	2.288	78.457%
F	2	18:09:28	64.211%	0.148	69.002%	82.353%	2.299	76.372%
ř	3	18:09:33	66.951%	0.208	70.018%	80.639%	2.295	75.070%
ř	x		64.771%	0.177	69.415%	82.940%	2.294	76.633%
ř	G	Section 1	1.961%	0.030	0.534%	2.645%	0.006	1.709%
F	%RSD		3.028	16.960	0.769	3.189	0.247	2.230

### ECL029324-013D

7/19/2013 6:13:02 PM

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%
х		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	4	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

٠,	USCITIC		45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	Run	Time	ppb	ppb	ppb	ppb	ppb	ppb
1	- T	18:14:52	66.143%	47.300	70.017%	86.551%		79.083%
		18:14:58			70.788%	81.510%	47.940	75.519%
	3	18:15:03	67.062%	48.210	70.103%	79.471%	48.060	74.210%
		10120.05	66.956%	47.490	70.303%	82.511%	47.910	76.271%
			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

ppb
388%
503%
420%
104%
524%
2.002

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User Pre-dilution: 1.000

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L-	12011		ppb	ppb	ppb	ppb	ppb	ppb
	1	18:20:23	66.412%	0.113	70.553%	83.898%	0.013	83.456%
H	7	18:20:28	67.363%	0.141	70.158%	80.369%	0.019	80.670%
H	3	18:20:34	67.790%	0.115	69.437%	78.448%	0.011	78.723%
H	÷	IOILOIO I	67.188%	0.123	70.049%	80.905%	0.014	80.950%
-	<del></del>		0.705%	0.015	0.566%	2.764%	0.004	2.379%
$\vdash$	%RSD		1.050	12.490	0.808	3.417	31.100	2.939

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User Pre-dilution: 1.000

208Pb	209Bi
ppb	ppb
09.700	<u>+99.001%</u>
94.800	79.952%
94.400	78.674%
99.600	т85.875%
м8.724	т 11.385%
м 4.370	<u>т 13.257</u>
	09.700 94.800 94.400 99.600

ECL029324-015

7/19/2013 6:26:47 PM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		dqq	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%
х		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

	USEI FIE	didicion, rioc	, ,				DOOD!	209Bi
I	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	20961
- 1	Kun	Time	ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	18:28:39	63.419%	0.235	69.777%	86.050%	1.210	79.143%
1		18:28:44	68.455%	0.200	70.841%	82.408%	1.197	76.491%
-	- Z	18:28:49	69.960%		70.768%	80.824%	1.190	75.042%
	3	18:20:49	67.278%	0.207	70.462%	83.094%	1.199	76.892%
	X			0,20		2.680%	0.010	2.080%
	σ		3.426%	0.025	0.594%		0.02	2.705
	%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

ij	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
į	Kun	71110	ppb	daa	ppb	ppb	ppb	ppb
		18:31:25		0.378	70.732%	84.771%	2.002	77.709%
	3	18:31:30		0.335	70.723%	80.060%	2.010	74.129%
	2	18:31:35	68.645%			78.626%	1.989	72.909%
		10.31.33	67.611%	0.363		81.152%	2.000	74.916%
	<u>×</u>		1.062%	0.024	0.417%	3.215%	0.011	2,495%
			1.571	6.695	0.11770	3.961	0.526	3.330
	%RSD		1.5/1	0.053	0.307	3.302	•	

### 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
	18:34:11			69.645%	83.224%	1.346	75.874%
	18:34:16	1,000	0.239	70.032%	79.559%	1.358	73.606%
	18:34:21				78.135%	1.354	72.380%
	10.37.21	66.565%	0.250	70.253%	80.306%	1.353	73.953%
×		0.622%	0.017	0.743%	2.626%	0.006	1.773%
%RSD		0.02278	6.978	1.058	3.269	0.438	2.397

### ECL029324-019

7/19/2013 6:37:51 PM

User Pre-dilution: 1.000

Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	and the first of the Transport	ppb		ppb	ppb	ppb
18:36:56		0.010	69.977%	84.121%	0.453	83.556%
		0.009	70.477%	80.175%	0.452	80.194%
	66.365%	0.000	71.253%	79.163%	0.462	79.621%
1013/10/		0.006	70.569%	81.153%	0.456	81.123%
		0.005			0.005	2.126%
		81.110	0.911	3.228	1.183	2.621
	18:36:56 18:37:01 18:37:07	ppb       18:36:56     65.969%       18:37:01     67.537%       18:37:07     66.365%       66.623%     0.815%	ppb         ppb           18:36:56         65.969%         0.010           18:37:01         67.537%         0.009           18:37:07         66.365%         0.000           66.623%         0.006	ppb         ppb         ppb           18:36:56         65.969%         0.010         69.977%           18:37:01         67.537%         0.009         70.477%           18:37:07         66.365%         0.000         71.253%           66.623%         0.006         70.569%           0.815%         0.005         0.643%	ppb         ppb         ppb         ppb         ppb           18:36:56         65.969%         0.010         69.977%         84.121%           18:37:01         67.537%         0.009         70.477%         80.175%           18:37:07         66.365%         0.000         71.253%         79.163%           66.623%         0.006         70.569%         81.153%           0.815%         0.005         0.643%         2.620%	ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb

### ECL029324-020

7/19/2013 6:40:36 PM

I	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
. 1			ppb	ppb	ppb	ppb	ppb	ppb
1	1	18:39:41	65.145%	0.294	67.920%	84.308%	0.100	84.491%
i	2	18:39:47	64.132%	0.348	68.272%	81.884%	0.105	82.442%
i	3	18:39:52	67.077%	0.344	68.290%	80.507%	0.100	81.584%
١	х		65.452%	0.328	68.160%	82.233%	0.102	82.839%
İ	<u> </u>		1.497%	0.030	0.209%	1.924%	0.003	1.494%
	%RSD		2.286	9.111	0.306	2.340	2.561	1.803

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User Pre-dilution: 1.000

	. User Pre-	-allacion: 1.oc	JU	·					
ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi	
L	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ppb	ppb	ppb	ppb	ppb	ppb	
Γ	1	18:42:27	63.498%	0.145	66.513%	83.237%	0.016	83.127%	
ŀ	7	18:42:32	65.874%	0.109	67.839%	81.820%	0.014	82.506%	
i		18:42:37	64.243%	0.124	68.069%	79.952%	0.013	80.653%	
i	<del></del>	10, 12,0	64.538%	0.126	67,474%	81.670%	0.014	82.095%	
ŀ			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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	1(41)		ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	18:45:11		197.500	68.817%	82.588%	тм 210.100	81.773%
Ì	2	18:45:17	67.188%		69.811%	79.661%	тм 209.300	79.862%
ŀ	- 2	18:45:22	66.555%	199.000	69.467%	78.390%	193.400	78.851%
ŀ		10. 15.22	66.539%	197.600	69.365%	80.213%	тм 204.300	80.162%
ŀ			0.657%	1.382	0.505%	2.153%	тм 9,411	1.484%
ļ	%RSD		0.037 78	0.700	0.727	2.684	тм 4.607	1.851

## **Eilution Corrected Concentrations**

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%
х		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

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7/22/2013 2:46:26 PM

User Pre-dilution: 1 000

Run	Time		52Cr	89Y	175Lu	208РЬ	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%
х		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

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User Pre-dilution: 1.000

Rur	1 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%
	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%
,	(	100.000%	-0.000	100.000%	100.000%	0.000	100.000%
·	7	2.226%	0.004	0.328%	3.178%	0.001	2.485%
%RSI	5	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
		7 1	ppb	ppb	ppb	ppb	ppb	ppb
	1	14:51:02	101.608%	198.700	99.077%	97.535%	тм 200.400	94.521%
d	2	14:51:08	105.604%	199.300	100.709%	93.599%	т 199.900	91.206%
	3	14:51:14	101.630%	м 202.000	100.696%	90.972%	<u> + 199.800</u>	±87.592%
	х		102.947%	м 200.000	100.161%	94.035%	тм 200.000	<u>т 91.106%</u>
	σ		2.301%	м 1.758	0.939%	3.303%	тм 0.323	<u> 73.466%</u>
	%RSD	la di s	2.235	<u>м 0.879</u>	0.937	3.513	<u>тм 0.161</u>	<u> 73.804</u>

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

F130722D CMC7/22/13 WS-20857

User Pre-dilution: 1.000

Run	Time	45Sc	T	<b>-</b>		1.1	
			52Cr	89Y	175Lu	7000	T
1	14:56:32	ppb	l ppb	ppb		208Pb	209Bi
		102.714%	196.700	100.078%	L ppb	lppb	ppb
<u> </u>	14:56:37	101.545%	199.900		96.587%	<u>1198.400</u>	94.102%
3	14:56:43	104.265%		99.903%	91.449%	™ 200.200	
X			м 200.000	101.317%	89.495%		<u> 187.782%</u>
			м 198.900	4 6 6			<u>+85.798%</u>
		1.365%	м 1.880			™ 199.400	±89.227%
%RSD		1.327		0.771%	3.663%	тм 0.885	
		1.527	м 0.945	0.768	3.960		<u>т4.336%</u>
TOL	2.3				3,300	<u>™</u> 0.444	+4 RED

7/22/2013 3:00:11 PM

User Pre-dilution: 1.000

H63481

100,00

L Kun I	Time	45Sc	52Cr	1			18
		ppb		89Y	175Lu	208Pb	209Bi
1	14:59:17		<b>ppb</b> 100.100	ppb	ppb	ppb	ppb
	14:59:22	1.5 2.4 3.5 3.5 3.5		98.751% 99.518%	96.483%	-10.500	94.325%
3	14:59:27				91.560%	-0,	90.579%
X					89.523%		88.457%
σ		1.253%	0.513	0.405%	92.522%		91.120%
%RSD		1.230	0.511	0.408	3.578% 3.868	0.383	2.971%
ICB	7/22/204	2.2			3.008	0.369	3.260

7/22/2013 3:02:57 PM

User Pre-dilution: 1.000

Run Time		45c-1 T					
		45Sc	52Cr	89Y	175Lu	T 300	r
		pb	ppb			208Pb	209Bi
1	15:02:02	99.844%	0.026	ppb	ppb	ppb	ppb
2	15:02:07	103.904%		99.140%	100.524%	0.027	99.166%
	15:02:13			99.236%	96.163%	0.026	
	15:02:13	101.077%	0.014	100.086%		- 2 % T.3	95.709%
X		101.608%	0.022		93.749%	0.026	94.120%
σ			- JATE 1	99.487%	96.812%	0.026	96.332%
%RSD		2.081%	0.007	0.521%	3.434%	- 6: BT*	
L_/orGD		2.048	31.160	0.524		0.000	2.580%
				0.324	3.547	1.584	2 678

LLQC-1 7/22/2013 3:05:45 PM 50,41 MO3479 7 10MC

User Pre-dilution: 1.000

Run	Time							
···	<u> ime</u>	45Sc	52Cr	89Y	175Lu	208Pb		
		ppb	ppb			ZUSPB	209Bi	
1	15:04:50	100.801%		ppb	ppb	ppb	ppb	
2	15:04:55		1.041	99.664%	101.138%	1.060	100.172%	
		100.546%	1.029	101.277%	96.787%	1.050		
	15:05:01	100.546%	1.016	101.003%	94.656%	10.7	96.502%	
x		100.631%	1.029		4.00	1.052	95.003%	
		7.7		100.648%	97.527%	1.054	97.226%	
		0.147%	0.013	0.863%	3.304%	0.005		
%RSD		0.146	1.229	0.857			2.659%	
				0.037	3.387	0.521	2.735	

ECL029318-012

7/22/2013 3:08:34 PM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi	
	T	ppb	ppb		nnh	ppb		
1	15:07:39	102.437%	2.846	98.133%	00 7710		ppb	
2	15:07:44	102 1610	2.600			0.561	79.908%	
		102.161%			84.828%	0.572	76.312%	
3	15:07:50	101.927%	2.779	100.429%	82.457%			
Y		102.175%				0.559	74.284%	
		· · · · · ·	2.769	99.446%	86.018%	0.564	76.835%	
		0.255%	0.082	1.183%	4.283%	0.007		
%RSD		0.250	2.975			0.007	2.848%	
		0.230	2.975	1.189	4.979	1 204	3 707	

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

User Pre-dilution: 1.000

Г	Divis	Time	450-	52Cr	001/	1 4751		
L	Run	l ime	45Sc	52CF	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%
	х		108.602%	0.040	105.582%	97.781%	0.003	97.727%
L	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

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
27	1	15:13:10	106.072%	196.200	104.579%	95.588%	<u>т 198.700</u>	92.636%
	2	15:13:15	104.308%	199.100	104.180%	90.783%	<u>+199.300</u>	<u> 786.300%</u>
	3	15:13:21	108.814%	196.500	105.768%	87.799%	<u>тм 200.500</u>	⊤83.819%
	x		106.398%	197.200	104.842%	91.390%	<u>тм 199.500</u>	<u> 7 87.585%</u>
	σ		2.271%	1.587	0.826%	3.930%	тм 0.932	<u> </u>
	%RSD		2.134	0.805	0.788	4.300	<u>тм 0.467</u>	± 5.191

# TABLE OF CONTENTS

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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

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Enviro-cnem Laboratories, Inc.	ories, inc.		4/ LO	4/ Loveton Circle, Suite A	cle, ou	ופו					-	Opains, mo #1104
Client: Chasapeake GeoSciences, Inc. (CGS)	wences, Inc. (CGS)	Phone No. (410) 740 - 1411	110,740. \	411	ECL Log in Batch Number	in Batch	Number			Page	_	
Project Manager: Sean Dantel	wiel	Fax No.: (	(410)740 - 3899	1899		Preservative	2	NA				Preservative Key: NA = Nitric Acid, pH <2
Sampler Matt Enery + Lara BewellEmail: Sdaniel @ Cgs. US. Com	t Lara Beunetternail:	Sdamel	(a) Cq5.6	JS. Com	Š	Sample Type	ang mag	0.0			S.= SA = 5	SA = Sulfuric Acid, pH <2 OH = NaOH, pH >12
Project Name: Green Valley Cityo	ey Cityo Project N	Project Number: CG-12-0788.06	-12-07	88.06	jo	C = Comp.	D/1	10 4 194 200 1		_	TI=TI /	TI = Thiosulfate Zn = Zinc Acetate
P.O. Number: (G. 120788.0650					Containers	G = Grab	100 100 100 100 100 100 100 100 100 100	ماريو ماريو ماريو		<u></u>	N X	N = None, Chilled X = Other
Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time	Matrix			Tokal Dies	Hexe Hexe				Remarks
29324-001 29324-002 DISS.	3991 Farm-PT1	6/22/13	8:25	DW DW	m	B	メメ	×				
5007	3991Farm-PT108		00:00	Ma	3	Property	X	×				
29324 Cost 185.	3991 Farm-PT2		78:8	Ma	60	৬	X	×				
8000	3991 Farm-PT3		8:47	Ma	R	5	X	×				
1937 Y 501	3991 Farm-PT4		8:53	Ma	m	৬	X	X				
=0' 70'	3991 Farm-POU		8:12	A M	m	5	X X	×				
ر 19 ۱۳/۲	3991 Farm - WP!		7E:b	Ma	3	৸	X X	X				
	3991 Farm-WP2		94.6	30	m	9	×	×				
1 、1	3991 Farm -WP3	<b>-&gt;</b>	90:01	30	3	৬	×	メ				
,019	3991 Farm - FB 6/22/13		4:53	Ma	3	5	×	>				
wished By		Date 6/24/13	Time 4:50	Received By				De	Deliverables Required	red	# Coolers	Seal
Rejingulished By		Date	Time	Received By				ā	Due Date		loe Present	Coll below
Relinquished By		Date	Time	Received By		-		<u> </u>	Tumaround Requested STD 1-Day		Rush? Other	
Relinquished By		Date	Time	Received By				ds.	Special instructions, Comments:	ons, Comments:	tha D	Deliverables
(5)	3	tes 3 0	Explain any "NO" answers	)" answers								
Bottles infact/appropriate	Preserved correctly (Y)	Z Z			-							801 Per 1 (11/01/40)

Phone 410-472-1112

www.enviro-chem.net

Fax: 410-472-1116

# Analytical Reports

# ENVIRO-CHEM LABORATORIES, INC.



## 47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

1.0

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

6.4

SAMPLER- Emery, Bennett

μg/L

REPORT NUMBER: 6607

LAB#- ECL029324-001

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:25
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

SAMPLE ID- 3991 Farm-PT1

EPA 200.8 7/19/2013 15:37 CHK

COMMENTS-

Lead*#

Page 1 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT	REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHE	M LABORATORIES	, MD CERT #192				
Chromium*#	EPA 200.8 7	/19/2013 15:37	CHK	< 1.0 µg/L	1.0	



# 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

SAMPLER- Emery, Bennett

REPORT NUMBER: 6607

LAB#- ECL029324-002 SAMPLE ID- 3991 Farm-PT1 Dissolved

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:25
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

TIME SAMPLED- 8:25

COMMENTS-

Page 2 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CH	EM LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 6.4	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY EN	VIRO-CHEM LAE	SORATORIES, MD CE	RT #19:	2			
Chromate	EPA 218.7	6/25/2013 06:40	SES	0.024	ug/L Cr	0.020	



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

TIME RECEIVED BY- VPS

COMMENTS- Time of sampling not Provided

Page 3 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	, MD CERT #192					
Chromium*# Lead*#		7/19/2013 15:37 7/19/2013 15:37	CHK CHK	< 1.0 6.3	μg/L μg/L	1.0 1.0	



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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 SAMPLED- 6/22/2013 TIME SAMPLEDDATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS- Time of sampling not Provided

Page 4 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	s, 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 ENVI	RO-CHEM LABO	RATORIES, MD CE	RT #192				
Chromate	EPA 218.7	6/25/2013 07:37	SES	0.023	ug/L Cr	0.020	



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:36
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

LAB#- ECL029324-005 SAMPLE ID- 3991 Farm-PT2

COMMENTS-

Page 5 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT	1	REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	1 LABORATORI	ES, MD CERT #192	<b>!</b>				
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK	3.4 13.5	μg/L μg/L	1.0 1.0	



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-006

SAMPLE ID- 3991 Farm-PT2 Dissolved

LOCATION-

DATE SAMPLED- 6/22/2013
DATE RECEIVED- 6/24/2013
DELIVERED BY- L Bennett

TIME SAMPLED- 8:36 TIME RECEIVED- 9:50

RECEIVED BY- VPS

COMMENTS-

Page 6 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT			REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-C	HEM LABORATORIES	5, MD CERT #192						
Chromium*# Lead*#		7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 5.7	μg/L μg/L		1.0	
WET CHEMISTRY BY E	NVIRO-CHEM LABOR	RATORIES, MD CE	RT #19:	2				
Chromate	EPA 218.7	5/25/2013 07:56	SES	0.024	ug/L Cr	c	0.020	



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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

SAMPLER- Emery, Bennett

REPORT NUMBER: 6607

LAB#- ECL029324-007 SAMPLE ID- 3991 Farm-PT3

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:47
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

Page 7 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-C	HEM LABORATORI	ES, MD CERT #192	2				
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	



# 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

SAMPLER- Emery, Bennett

0.021 ug/L Cr

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-008 SAMPLE ID- 3991 Farm-PT3 Dissolved

EPA 218.7 6/25/2013 08:15 SES

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 8:47
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

TIME SAMPLED- 8:47

COMMENTS-

Chromate

Page 8 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	S, MD CERT #192					
Chromium*# Lead*#		7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 5.3	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABO	RATORIES, MD CE	RT #19:	2			

0.020



47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

21045-Columbia, MD

PROJECT NAME: Grn Vall. Citgo

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-009

LOCATION-

DATE SAMPLED- 6/22/2013 DATE RECEIVED- 6/24/2013

DELIVERED BY- L Bennett

COMMENTS-

Page 9 of 20

SAMPLE ID- 3991 Farm-PT4

TIME SAMPLED- 8:53 TIME RECEIVED- 9:50

RECEIVED BY- VPS

ANALYSIS

CHK

CHK

REPORTING LIMIT

DATA FLAG

RESULT BY ANALYSIS METHOD DATE/TIME

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*# Lead*#

EPA 200.8 EPA 200.8

7/19/2013 15:37 7/19/2013 15:37 < 1.0 7.7

μq/L μq/L

SAMPLER- Emery, Bennett

1.0 1.0

15



### 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

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-010

SAMPLE ID- 3991 Farm-PT4 Dissolved

LOCATION-

DATE SAMPLED- 6/22/2013
DATE RECEIVED- 6/24/2013
DELIVERED BY- L Bennett

DELIVERED BY- L Bennett

TIME SAMPLED- 8:53 TIME RECEIVED- 9:50

RECEIVED BY- VPS

COMMENTS-

Page 10 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK CHK	< 1.0 4.6	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LAB	SORATORIES, MD CE	RT #192	2			
Chromate	EPA 218.7	6/25/2013 09:12	SES	0.024	ug/L Cr	0.020	



## 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
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

TIME SAMPLED- 8:12

SAMPLER- Emery, Bennett

COMMENTS-

Page 11 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	, MD CERT #192					
Chromium*#		/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	



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Grn Vall. Citgo

SAMPLER- Emery, Bennett

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
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

Page 12 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CI	HEM LABORATORIES	, MD CERT #192					
Chromium*# Lead*#		/19/2013 15:37 /19/2013 15:37		< 1.0 < 1.0	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY EI	NVIRO-CHEM LABOR	ATORIES, MD CE	RT #192				
Chromate	EPA 218.7 6	/25/2013 09:31	SES	0.225	ug/L Cr	0.020	



### 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 21045PROJECT NAME: Grn Vall. Citgo

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-013

LOCATION-

DATE SAMPLED- 6/22/2013

DATE RECEIVED- 6/24/2013 DELIVERED BY- L Bennett

COMMENTS-

SAMPLE ID- 3991 Farm-WP1

TIME SAMPLED- 9:26 TIME RECEIVED- 9:50

RECEIVED BY- VPS

Page 13 of 20

ANALYSIS
----------

DATE/TIME

RESULT

SAMPLER- Emery, Bennett

μg/L

μg/L

REPORTING LIMIT

DATA FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*# Lead*#

ANALYSIS

EPA 200.8 EPA 200.8

METHOD

7/19/2013 15:37 7/19/2013 15:37 CHK CHK

BY

< 1.0 2.3 1.0 1.0



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

SAMPLER- Emery, Bennett

ug/L Cr

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

SES

0.021

LAB#- ECL029324-014

SAMPLE ID- 3991 Farm-WP1 Dissolved

LOCATION-

DATE RECEIVED- 6/22/2013

DATE RECEIVED- 6/24/2013 DELIVERED BY- L Bennett TIME SAMPLED- 9:26

TIME RECEIVED- 9:50 RECEIVED BY- VPS

EPA 218.7 6/25/2013 09:50

COMMENTS-

Chromate

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHI	EM LABORATORIES	S, MD CERT #192					
Chromium*# Lead*#	DIII 200.0	7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 1.7	μg/L μg/L	1.0	
WET CHEMISTRY BY EN	VIRO-CHEM LABO	RATORIES, MD CE	RT #19	2			

0.020



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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

LOCATION-

DATE SAMPLED- 6/22/2013

DATE RECEIVED- 6/24/2013 DELIVERED BY- L Bennett

SAMPLE ID- 3991 Farm-WP2

TIME SAMPLED- 9:46 TIME RECEÏVED- 9:50 RECEIVED BY- VPS

COMMENTS-

Page 15 of 20

ANALYSIS	

DATE/TIME

RESULT BY

REPORTING

LIMIT

DATA FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*# Lead*#

ANALYSIS

EPA 200.8

METHOD

7/19/2013 15:37 EPA 200.8 7/19/2013 15:37

CHK CHK

< 1.0 3.6

SAMPLER- Emery, Bennett

1.0 ug/L 1.0 μg/L

21



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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

SAMPLER- Emery, Bennett

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
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

TIME SAMPLED- 9:46

COMMENTS-

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rage to or 20							
ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-C	CHEM LABORATORII	ES, 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 LAB	ORATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	6/25/2013 10:09	SES	0.025	ug/L Cr	0.020	



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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

LOCATION-

DATE SAMPLED- 6/22/2013 DATE RECEIVED- 6/24/2013

DELIVERED BY- L Bennett

COMMENTS-

ANALYSIS

Page 17 of 20

SAMPLE ID- 3991 Farm-WP3

TIME SAMPLED- 10:06 TIME RECEIVED- 9:50

RECEIVED BY- VPS

ANALYSIS REPORTING DATA DATE/TIME BY RESULT LIMIT FLAG

SAMPLER- Emery, Bennett

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

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



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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#- ECL029324-018

SAMPLE ID- 3991 Farm-WP3 Dissolved

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 10:06
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

SAMPLER- Emery, Bennett

COMMENTS-

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ANALYSIS	ANALYSIS METHOD DATE/TIME E	Y RESULT	REPORTING DATA LIMIT FLAG
METALS BY ENVIRO-CHEM	LABORATORIES, MD CERT #192		
Chromium*# Lead*#	EPA 200.8 7/19/2013 15:37 CHK EPA 200.8 7/19/2013 15:37 CHK		1.0 1.0
WET CHEMISTRY BY ENVI	RO-CHEM LABORATORIES, MD CERT #	192	
Chromate	EPA 218.7 6/25/2013 10:27 SES	< 0.020 ug/L Cr	0.020



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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

LOCATION-

DATE SAMPLED- 6/22/2013 TIME SAMPLED- 9:53
DATE RECEIVED- 6/24/2013 TIME RECEIVED- 9:50
DELIVERED BY- L Bennett RECEIVED BY- VPS

COMMENTS-

SAMPLE ID- 3991 Farm-FB

ANALYSIS

Page 19 of 20

ANALYSIS	METHOD	DATE/TIME	В

METALS BY	ENVIRO-CHEM LABORATORIES, MD CERT #192	
Chromium*#	EPA 200.8 7/19/2013 15:37	CHK

Lead*# EPA 200.8 7/19/2013 15:37 CHK

BY

< 1.0 μq/L < 1.0

RESULT

SAMPLER- Emery, Bennett

1.0 μg/L 1.0

REPORTING

LIMIT

DATA

FLAG



### 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

SAMPLER- Emery, Bennett

REPORT DATE: 23-Jul-13

REPORT NUMBER: 6607

LAB#- ECL029324-020 SAMPLE ID- 3991 Farm-FB Dissolved

LOCATION-

DATE SAMPLED- 6/22/2013
DATE RECEIVED- 6/24/2013
DELIVERED BY- L Bennett

TIME SAMPLED- 9:53 TIME RECEIVED- 9:50

RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	1 LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/19/2013 15:37 7/19/2013 15:37	CHK	< 1.0 < 1.0	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LAB	ORATORIES, MD CEI	RT #192	2			
Chromate	EPA 218.7	6/25/2013 11:24	SES	< 0.020	ug/L Cr	0.020	

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	LABORATORIES,	MD CERT #192			True Value/Snika	Associated	%R or	30	H Sign	
Q	QC Type	Test Name	Result	Units	Added	Sample Mesant	%RPD	Limit	Limit	Flag
ECL029324-003D	Duplicate	Chromium	< 1.0	J/Brl		< 1.0	16.3	0	70	
ECL029324-013D	Duplicate	Chromium	< 1.0	J/Brl		< 1.0	0.5	0	70	
ECL029324-003D	Duplicate	Lead	6.3	T/Brl		6.3	0.8	0	8	
ECL029324-013D	Duplicate	Lead	2.0	J/Brl		2.3	13.6	0	20	
LCS5059R	SOT	Chromium	49.1	J/grl	20		98.3	82	115	
LCS5059R	CCS	Lead	48.6	T/Bri	20		97.2	82	115	
LPB5059R	Prep Blank	Chromium	× 1.0	µg/L			0.026		· <del>-</del>	
LPB5059R	Prep Blank	Lead	< 1.0	µg/L			0.151		<del>-</del>	
ECL029324-003S	Spike	Chromium	47.9	hg/L	20	< 1.0	94.9	2	130	
ECL029324-013S	Spike	Chromium	47.5	J/gd/	20	< 1.0	94.6	2	130	
ECL029324-013S	Spike	Lead	47.9	hg/L	20	2.3	91.2	20	130	
ECL029324-003S	Spike	Lead	53.1	µg/L	20	Ø.0	93.6	70	130	

WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192

					True Value/Spike	Associated	0% 20	č	II Api	
Q	QC Type	Test Name	Result	Units	Added		%RPD	Limit	Limit	Flag
CCC-HIGH 1	CCC-HIGH	Chromate	4.97	ng/L	ß		99.4	85	115	
CCC-HIGH 2	CCC-HIGH	Chromate	5.01	ug/L	i.		100.2	85	115	
CCC-LOW 2	CCC-LOW	Chromate	0.022	ng/L	0.02		109.5	20	150	
CCC-LOW 1	CCC-LOW	Chromate	0.026	ng/L	0.02		127.5	20	150	
CCC-MID 2	CCC-MID	Chromate	0.998	ng/L	<del>-</del>		8 66	82	115	
CCC-MID 1	CCC-MID	Chromate	0.989	ng/L	÷ <del>•</del>		0.80	82	115	
ECL029324-008SD	MSD	Chromate	0.965	ng/L	~	0.021	94.4	85	115	
ECL029318-016SD	MSD	Chromate	0.998	ng/L	<del>-</del>	0.032	90.96	85	115	
ECL029303-018SD	MSD	Chromate	1.02	T/Bn	-	0.033	98.3	85	115	
ECL029303-002SD	MSD	Chromate	1.02	ng/L	. <del>***</del>	< 0.020	101.8	85	115	
ECL029318-016S	Spike	Chromate	1.03	ng/L	~	0.032	100.1	82	115	
ECL029303-018S	Spike	Chromate	1.00	ug/L	🔨	0.033	97.2	85	115	
ECL029324-008S	Spike	Chromate	0.971	ng/L		0.021	95	82	115	
ECL029303-002S	Spike	Chromate	1.01	ng/L	-	< 0.020	100.6	82	115	
ECL029303-002SD	Spike Dup	Chromate	1.02	ng/L		< 0.020	101.8	82	115	
ECL029318-016SD	Spike Dup	Chromate	0.998	ng/L		0.032	96.6	82	115	
ECL029324-008SD	Spike Dup	Chromate	0.965	ng/L	τ	0.021	94.4	82	115	
ECL029303-018SD	Spike Dup	Chromate	1.02	ng/L	<b>←</b>	0.033	98.3	82	115	

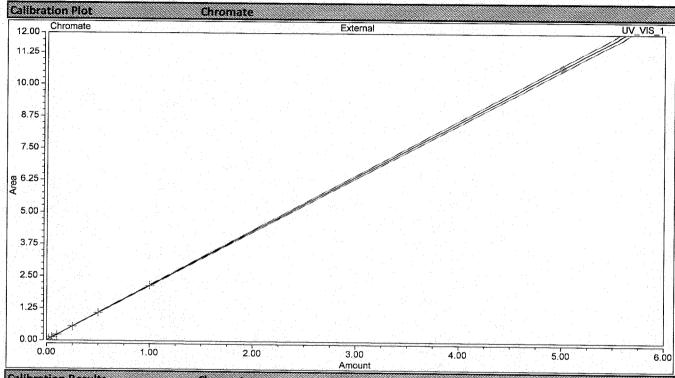
# Instrument Blanks

# INSTRUMENT BLANKS

	Analytical Run	F130719B	Date of Analysis	7/19/2013
ICB	Cr Pb <1.0 μg/L <1.0 μg/L			
CCB CCB	<1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L			
CCB CCB	<1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L <1.0 μg/L			
CCB 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
LRB	CrO4 <0.02µg/L			
LRB LRB	<0.02µg/L <0.02µg/L			
LRB LRB	<0.02µg/L <0.02µg/L			
LRB	<0.02µg/L			

# Calibration Data

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



No. Injection Name	Calibration Level	X Value	Y Value	Y Value	Area mAU*min	Height
		Chromate UV VIS 1	Chromate UV VIS 1	Chromate UV VIS 1	Chromate UV VIS 1	mAU Chromate UV VIS 1
0.02 CrO4	01	0.0200	0.0506	0.0506	0.051	0.153
0.05 CrO4	02	0.0500	0.1208	0.1208	0.121	0.317
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

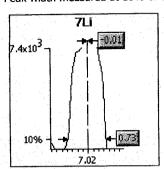
Report name: 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

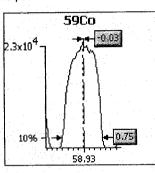
### **Mass Calibration verification**

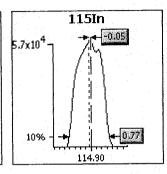
### **Acquisition parameters**

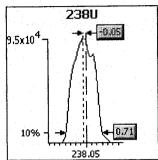
Sweeps: 10 Dwell: 5.0 mSecs Point spacing: 0.02 amu

Peak width measured at 10% of the peak maximum









		Limits		Res	ults
Analyte	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]

ions			
	Minor		
-164.7	Lens 3	-195.3	
-1286	Forward power	1200	
-79.2	Horizontal	67	
8.0	Vertical	640	
-47.1	DA	-31.4	
-140	Cool	13.0	
-2.0	Auxiliary	1.20	
-11.0	Sampling Depth	150	
0.78			
	-164.7 -1286 -79.2 8.0 -47.1 -140 -2.0 -11.0	Hinor   Cool	

Global	<u> </u>
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3124

and the second second	
Add. Gase	S
CCT-He/H2	0.00
CCT-Ammonia	0.00

## Sensitivity and stability results

**Acquisition parameters** Sweeps: 130

		EBles	7Li	56Ar O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Run	Time	5Bkg						100.0	10.0	10.0
Dw	ell (mSecs)	100.0	10.0	10.0	10.0	30.0	30.0	100.0		10.0
	%RSD		2.0%		2.0%		<u> </u>		2.0%	-
Limits	Countrate	-	>4000	-	>10000	_	-	-	>40000	<u> </u>
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
Dw	Dwell (mSecs)		10.0	30.0	100.0	10.0
	%RSD			÷.		2.0%
Limits	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
х		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
×		0.0198	764756.93	0.0180
σ	Ì	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]

une condit	ions			
Major			Minor	
Extraction	-160.8		Lens 3	-195.3
Lens 1	-1286		Forward power	1200
Lens 2	-79.2		Horizontal	67
Focus	-9.4		Vertical	640
D1	-62.0		DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-16.0		Auxiliary	1.20
Hexapole Bias	-20.0		Sampling Depth	150
Nebuliser	0.78	1		

Globai	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3124

Add. Gase	s
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
	%RSD	-		2.0%	+	-1
Limits	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
х		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
4.1	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
Х		0.0057
σ		0.00
%RSD		9.0872

Result: The performance report passed.

# INITIAL AND CONTINUING CALIBRATION VERIFICATION

	1	Analytical	Run	F130719B	 Date of Ar	nalysis	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

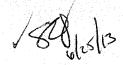
Metals Digestion Logs

# ENVIRO-CHEM LABORATORIES INC. METALS DIGESTION LOG

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		65	Temp:	tial volume	Ĵ					+										•		ECL Doo
		11 17CD		weight (g)/initial volume (l)	56m C												<b>→</b>					
		303 + 1.0mc	Time out: 2010	>1								an and a second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second		7								
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Spiking Solution(s) added to LCS/MS/MSD:		ded:	Final volume (mL):	Sample ID:	2982	2952	2 421	2932	393	2452	3936	393	293	79324	4286C	295	29324					stion
Spiking Solution LCS/MS/MSD:		Acids added:	Final vol				-															MetalsDigestion
		_	اــــــا	volume (I)		+					1											
		Time in: 18.0	Temp in: 83-7	weight (g)/initial volume (l)	50mC 07	20 7475	Soml										7					
7/5/13	CAN			weigh	50,	504																
72	3	nicrowave or Hotblock2 200. &	M-100 KB > S		2	7	2	20	503	0031)	-0435	-004	2007	-606	39324-007	-008	1-009					as, Inc.
)ate:	nalyst:	rowave or 挺	OP: M-	ample ID:	LPASUSAR	LUSSUSON R	39324-001	29324-002	29524-003	29324-003D	29324 -0635	49524-004	39324-005	29324-606	3022	302-67866	29324-009	omments:			39	o-Chem Laboratories, Inc.

Enviro-Chem Laboratories, Inc.

# Raw Data



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

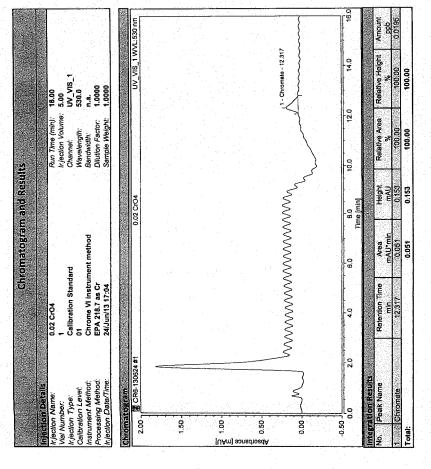
By Component Chromate

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
12464	0.02 CrO4	12,317	0.051	0.153	0.0195	24/06/13 17:04	M
	0:05 CrO4	12.319	0.121	0,317	0.0524	24/06/13 17:23	M
	0.10 CrO4	12,307	0.218	0.573	0.0977	24/06/13 17:42	M
	0.25 CrO4	12.341	0.544	1,347	0.2507	24/06/13 18:00	M
	0.50 CrO4	12.363	1.069	2.695	0.4966	24/06/13 18:19	M
	1.0 CrO4	12,342	2.143	5.353	0.9998	24/06/13 18:38	M
, t = 1	5.0 CrO4	12.344	10.689	26.528	5.0032	24/06/13 18:57	M
	OCS	12,347	3.899	9.752	1.8226	24/06/13 19:16	BM
	CCC-LOW	12,304	0.063	0.158	0.0255	24/06/13 19:35	M
0	LRB	n.a.	n.a.	n.a.	n.a.	24/06/13 19:54	n.a.
1	ECL029303-002	n.a.	n.a.	n.a.	n.a.	24/06/13 20:13	n.a.
2	ECL029303-002S	12.105	2,157	5.404	1.0063	24/06/13 20:32	M
3	ECL029303-002SD	12.111	2.182	5.464	1.0182	24/06/13 20:51	M
4	ECL029303-004	n.a.	n.a.	п.а.	n.a,	24/06/13 21:10	n,a.
5	ECL029303-006	n.a.	'n.a.	n.a.	n,a.	24/06/13 21:29	n,a.
6	ECL029303-008	n.a.	n.a.	n.a.	n.a.	24/06/13 21:47	n,a,
7	ECL029303-010	n.a.	n.a.	n.a.	n.a.	24/06/13 22:06	n,a.
8	ECL029303-012	n.a:	n.a.	z. n.a.	n.a.	24/06/13 22:25	n.a.
9	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	ERB .	n.a.	n.a.	n.a.	n.a.	24/06/13 23:41	n.a.

Instrument:Chrome_VI Sequence:CR6-130624

Run Time (min): 16.00
Channel: 5.00
Channel: 10.V IS
Wevelength: 330.0
Diluton Fedor: 1.0000
Sample Weight: 1.0000 Chromatogram and Results 2
Calibration Standard
Calibration Standard
Chrome VI Instrument method
EPA 218.7 as Cr
24/Jun/13 17:23 0.05 CrO4 injection Devails
Injection Name.
Vial Number:
Injection Type:
Calibration Levid:
Casting Method:
Processing Method:
Injection Date/Time

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Peak Name         Retention Time         Area         Height         Relative Area         Relative Height           min         mAU mAU         %         %         %         %           Chromate         12:319         0.721         0.317         100:00         100:00	Integra	tion Results							
Chromate 12.319 0.121 0.317   100:00 100:00	2	Peak Name		Retention Time min	Area mAU*min	Height	Relative Area %	Relative Height	Amount
	ž į	Chromate		12,319	0.121	0.347	100.00	100.00	0.0524



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Chromeleon (c) Dionex Version 7.1,1.1127

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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624

Default/Integration

769.00 100.00

% 100.00

Height mAU 0.573

Area mAU*min 0.218

Retention Time min 12.307

14.0

12.0

10.0

6.0

0.

2.0

-0.25 0.40 Integration Results No. | Peak Name Chromate

, mmmmmmm

0.25 0.00

Absorbance [MAm] 50.00

1.25

	16.00	5.00	UV_VIS_1	530.0	n.a.	1.0000	1.0000
S	Run Time (min): 16.00	Ir. Jection Volume: 5.00	Channel:		Bandwidth:	Dilution Factor:	Sample Weight: 1.0000
rand Result							
omatogram			ard pre		nent method		
Chi	.25 CrO4		Calibration Standard		Chrome VI instrument method	EPA 218.7 as Cr	4/Jun/13 18:00
4	0	4	υ	•			
Details	riaction Name	lat Number	n Type:	Calibration Level:	nstrument Method	Processing Method	riection Date/Time:

UV_VIS_1 WVL:530 nm

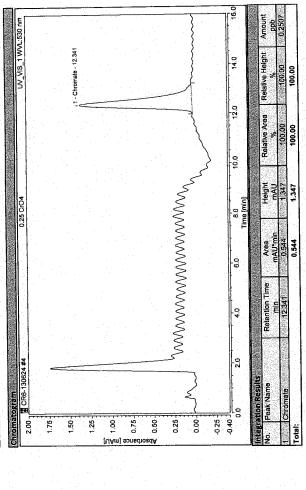
Run Time (min): 16.00 Channel: 5.00 Channel: 10V.VIS_1 Wavelength: 530.0 Bandwidth: n.a. Dilution Factor: 1,0000 Sample Weight: 1,0000

Calibration Standard
03
Chrome VI instrument method
EPA 218.7 as Cr
24/Jun/13 17:42

Injection Details
It jection Name:
Vial Number:
Vial Number:
Calibration Level:
Instrument Method:
Processing Method:
Processing Method:

Chromatogram 2 00 3 CR6-130624#3

2.00 1.75 1.50



- Chromate - 12,307

Chromeleon (c) Dionex Version 7.1.1.1127

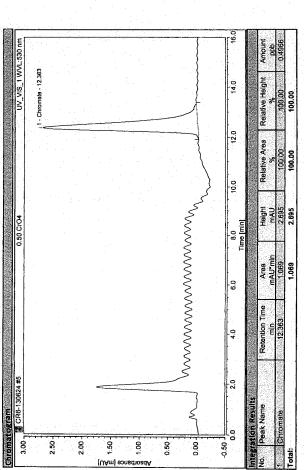
Page 5 of 24

.50 CrO4	
	Run Time (min): 16.00
	Ir Jection Volume: 5.00
Salibration Standard	
	Wavelength: 530,0
Chrome VI Instrument method	Bandwidth: n.a.
PA 218.7 as Cr	Dilution Factor: 1.0000
4/Jun/13 18:19	Sample Weight: 1.0000

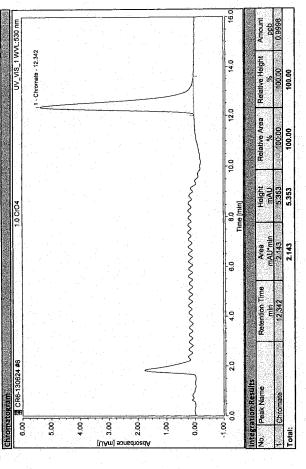
Irjection Name: Vial Number: Irjection Type: Calibration Level: Instrument Method: Processing Method: Irjection Date/Time:

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624







Helght mAU 26.528 26.528

Area mAU*min 10.689 10.689

Retention Time min 12.344

12.0

100

9.0

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5.0

0.0

10.0

Integration Results No. | Peak Name Chromate

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Calibration Details Chromate	Calibration Type	4	Number of Calibration Points 7	Number of disabled Calibration Points 0	

UV_VIS_1 WVL:530 nm

Run Tima (min): 16.00
Irjection Volume: 5.00
Channel: Wevelength: 530.0
Bandwidth: n.a.
Dilution Festor: 1,0000
Sample Weight: 1,0000

Calibration Standard
07
Chrome VI instrument method
EPA 218.7 as Cr
24/Jun/13 18:57

Injection, Details
Injection Name:
Val Number:
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Processing Method:
Injection Date/Time:

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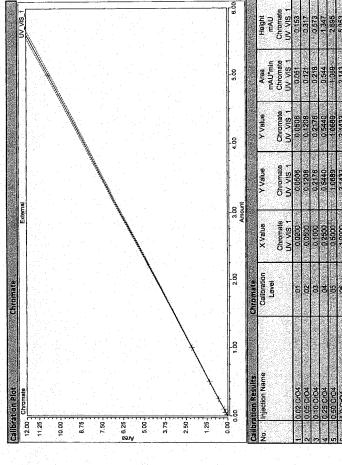
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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624

1 - Chromate - 12.344

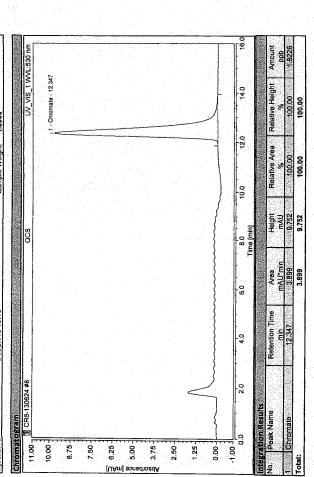


Instrument:Chrome_VI Sequence:CR6-130624

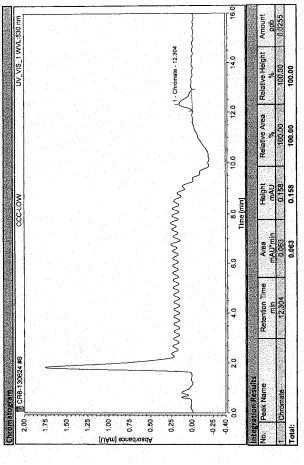
Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1.1.1127

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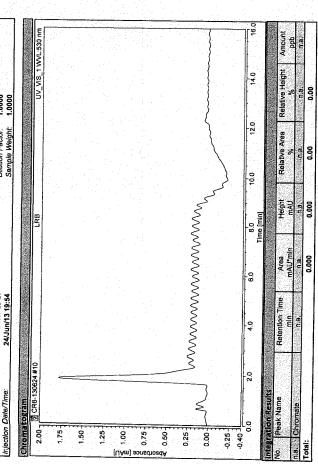


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nstrument: Chrome_VI Sequence: CR6-130624

Chromeleon (c) Dionex Version 7.1.1.1127

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Page 13 of 24

Chromatogram and Results

Instrument; Chrome_VI Sequence; CR6-130624

Chromeleon (c) Dionex Version 7.1.1.1127

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Chrome VI instrument method EPA 218.7 as Cr 24/Jun/13 20:32

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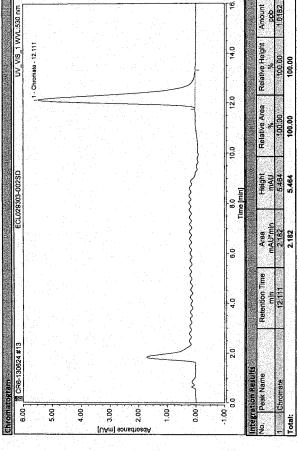
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Injection Details
Irjection Name:
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Irjection Type:
Calibration Level:
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1 - Chromate - 12,105



Run Time (min): 16.00
Irjection Volume: 5.00
Channel: UV VIS_1
Wavelength: 530.0
Bandwidth: n.a.
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Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 24/Jun/13 21:10

Chromatogram 1.80_1 S CR6-130624 #14

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Injection Details
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Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624

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Chromeleon (c) Dionex Version 7.1.1.1127

Default/integration

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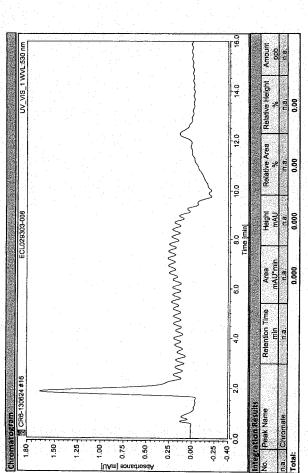
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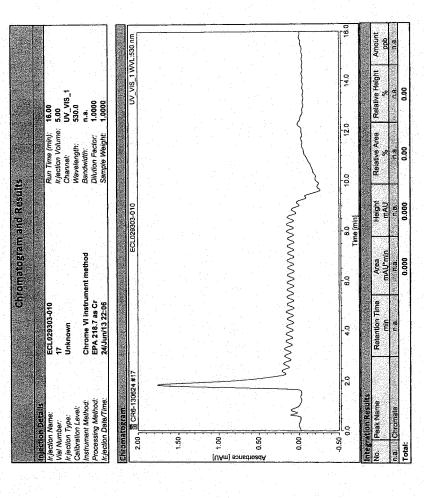
Chromeleon (c) Dionex Version 7.1.1.1127

Page 18 of 24

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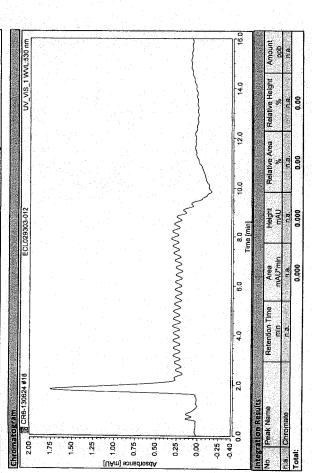
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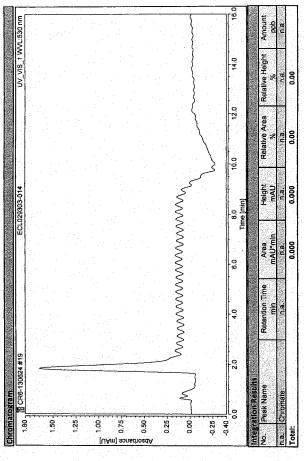


Instrument:Chrome_VI Sequence:CR6-130624

Instrument:Chrome_VI Sequence:CR6-130624







Default/integration.

Chromeleon (c) Dionex Version 7.1.1.1127

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Instrument: Chrome_VI Sequence: CR6-130624

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Chromeleon (c) Dionex Version 7.1.1.1127

## Summary

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 CR6-130624A
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 26/Apr/11 09:00:46

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 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	Area mAU*min	Height mAU	Amount ppb	Inject Time	Peak Type
		Chromate UV_VIS_1	Chromate UV VIS 1	Chromate UV VIS 1	Chromate UV_VIS_1	Chromate	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 GrO4	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	E0L029808-018S	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	EGL029318-008	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	EGL029318-018	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	a⊬⊒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
SHOULD STREET, FISCH	EGL029324-008S	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		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	54 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	na.

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Page 1 of 41

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624A

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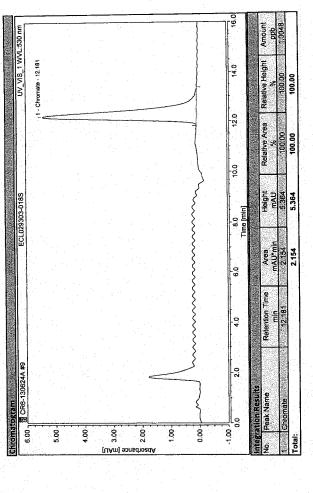
Run Tirne (min): 16.00
Iljection Volume: 5.00
Channel: UV VIS_1
Wevelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 00:04

Chromatogram
2:00 1 3 CR8-130624A #8

1.75

1.50 1.25



- Chromate - 12.172

mmmmmm

0.00

57.0 75.

1.00

dA 0.50 -0.25 14.0

12.0

10.0

8.0 Time [min]

6.0

4.0

2.0

0

-0.40

-0.25

100,00

Relative Area % 100.00 100.00

Height mAU 0,198

Area mAU'min 0.078

Retention Time min 12.172

Chromate

Chromeleon (c) Dionex Version 7.1,1.1127

Default/Integration

56

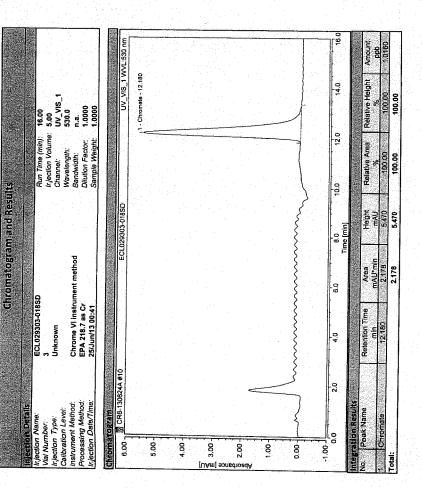
Instrument: Chrome_VI Sequence: CR6-130624A

Instrument: Chrome_VI Sequence: CR6-130624A

Run Time (min): 16.00 Channel: 5.00 Channel: 5.00 Wavalength: 530.0 Bandwidth: n.a. Dilution Factor: 1.0000 Sample Weight: 1.0000 Chitomatogram and Results Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 01:00 ECL029303-020 Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

Chromatogram

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Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1.1.1127

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Chromatogram and Results

hstrument:Chrome_VI Sequence:CR6-130624A

ECL029303-022

Injection Details
Injection Name:
Val Number:
Val Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Date/Time:

Run Time (min): 16.00
Channel: 5.00
Channel: 5.00
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 01:19

Chromatogram 2.00 1 3 CR6-130624A #12

1.75

1.50 1.25

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Relative Area % n.a. 0.00

Height mAU n.a.

Area mAU*min n.a. 0.000

Retention Time min

n.a. | Chromate Total:

14.0

12.0

10.0

8.0 Time (min)

-0.9

0

2.0

-0.40

-0.25

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0.25 0.00

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Instrument: Chrome_VI Sequence: CR6-130624A

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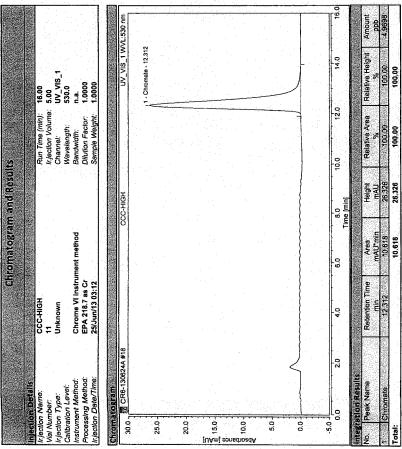
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UV_VIS_1 WVL: 530 nm	1 - Chromate - 12.286		Relative Height	100:00	10000
VVE:530 nm	9		Amount	0.1122	

Chromeleon (c) Dionex Version 7.1.1.1127

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Instrument:Chrome_VI Sequence:CR6-130624A

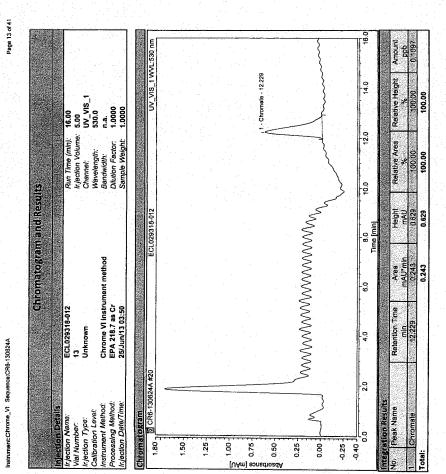
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Instrument: Chrome_VI Sequence: CR6-130624A

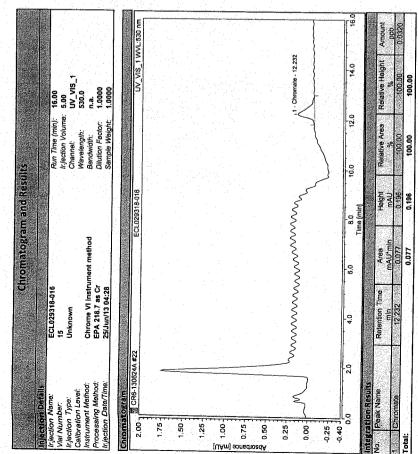
Sample Weight: 1.0000	Injection Date/Time: 25/Jun/13 04:09	
Dilution Factor: 1.0000	Processing Method: EPA 218.7 as Cr	
Bandwidth: n.a.		
Wavelength: 530.0		
Channel: UV_VIS_1	Injection Type: Unknown	
Ir Jection Volume: 5.00	Vial Number:	
Run Time (min): 16.00	Injection Name: ECL029318-014	
	Injection Details	
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14.0   10.0   12.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0   14.0	(UAm) sonectrosdA																	
0.0         2.0         4.0         6.0         8.0         10.0         12.0         14.0           attion Results         Area         Height malum         Relative Area         Relative Height malum         Relative Height malum         %         %         %           Chromiste         m.a.         <	<b>5</b> 5 5	25 25	7		>				>						<b>.</b>			
Peak Name         Retention Time         Area         Height mAU min         Relative Height %         Relative Height %           Chromate         m.a.         m.a.         m.a.         m.a.         m.a.         m.a.           0.000         0.000         0.000         0.00         0.00         0.00	Integ	0.0 tration Re		2.0	4		6.0		8.0 Time (m		10.0		12.0		14.0		16.0	0 200
Сhomate n.a. n.a. n.a. n.a. n.a. n.a. n.a. 0.00	S.	Peak Na	me		Retent	lon Time		Area 4U°min		Height	-	Relative %	Area	Relati	ve Helgt %		Amount ppb	1/2 Table
	Total	Chromat I:	e e			ı,a		n.a.		0.000		0.00	-		0.00		8.8	123



Instrument; Chrome_VI Sequence: CR6-130624A

30 nm		16.0	Amount ppb	0327
UV_VIS_1 WVL:530 nm	- Chromate - 12 238	14,0	Relative Height Ar	
		10.0 12.0	Relative Area	100.00
ECL029318-016S		8.0 Time (min)		5.564
		6.0		2.213
23		4:0	Retention Time min	1 12.238
園 CR6-130624A #23		0.0 2.0	Peak Name	romatension
8 00	(UAm) annedrocadA	0:0	No.	Total:



Chromeleon (c) Dionex Version 7.1.1.1127

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130624A

1 - Chromate - 12.249
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12.249
12.249
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(UVini) consciousidA

- Chromate - 12.224

Run Time (min): 16.00
I/jeclan Volume: 5.00
Channel: UV VIS_1
Wavelength: 530.0
Bandwidh: n.a.
Dilution Factor: 1.0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 05:06

Chromatogram 6.00 1 CR6-130624A #24

5.00

4.00

Nami sonschoedA

9

0.00

ECL029318-016SD 17 Unknown

Itjection Name: Vial Number: Itjection Type: Calibration Level: Instrument Method: Processing Method: Itjection Date/Time:

mn		16.0	Amount	0.0298
UV_VIS_1 WVL:530 nm				0:0
VIS_1	- Chromate - 12.249	14.0	Relative Height %	100.00
3	1 - Chrom		Relative	₽ <b>₽</b>
5		12.0	Area	<b>0</b> c
		10:0	Relative Area %	100,00
8-018			Height mAU	0.189
ECL029318-018		8.0 Time (min		
ŭ	\www.www.		Area mAU*min	0.072
		6.0	E	
			Retention Time min	12.249
		4.0	Retenti	12.
#25				
130624A	3	2,0	9	
2 CR6-130624A #25		0.0	Peak Name	Chromate
6	(UAm) sonschoadA	0.0	No.	Total

% ppb ppb 100:00 0:9975 100:00

Relative Area % 100.00 100.00

Height mAU 5.386

Area mAU*min 2.138

Retention Time min 12.224

Relative Height

6

12.0

10.0

- 69

4.0

2,0

-1.00 J. 0.0

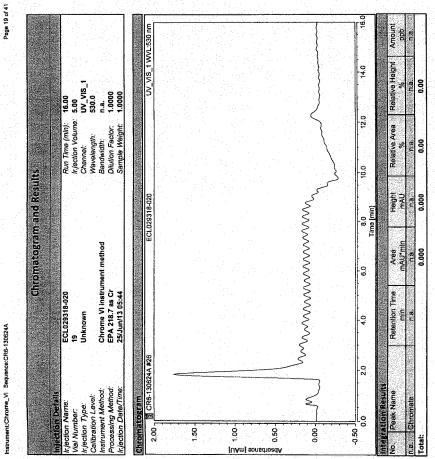
Integration Results
No. Peak Name Chromate

Total:

Chromeleon (c) Dionex Version 7.1.1.1127

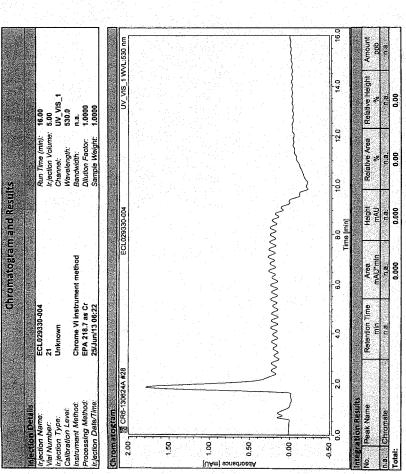
Default/Integration

2.00	[UAm] annedroedA	1	No.	Ö	Particular particular personal
2 00 - 3 CR6-130624A #27	\[ \begin{align*}	- Daniel Control	Реак Мате	Chromate	The second second
324A #27					2375000000000000000000000000000000000000
	4,0		Retention Time	12.249	AZNO N Service Species To Landson
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			Area mAtJ*min	0.093	
			Height	0.247	
	000				
	12.0		Relative Area %	100.00	
	1 - Chomate - 12.249		Relative Height	. 100,00	
	•			0.0393	



nstrument:Chrome_VI Sequence:CR6-130624A

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[UAm] sonsonoed/ S												
0:00	<b>\begin{align*}</b>			~			محمح			1 - Chromate - 12.162	12.162	
0.50	0.0	2.0	4.0		6.0	8.0 Time [min]		10.0	12.0		14:0	16.0
8	ntegration Results					-						
2	Peak Name		Retention Time	n Time n	Area mAU*min		Meight mAU	Relativ	Relative Area %	Kelative Heignt	reignt	ppp
	Chromate		(2)	12,162	090.0		156	70	00.0	100.00	2	0.0240



Page 24 of 41

UV_VIS_1 WVL:530 nn

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 06:59

Ghromatogram 2.00 T CR6-130624A #30 [manipulated]

1.50

CCC-LOW 23 Unknown

Injection Details
It jection Name:
Vist Number:
It jection Type:
Calibration Level:
Instument Method:
Processing Method:
It jection DeterTime:

Run Time (min): 16.00
I.jection Volume: 5.00
Channel: UV VIS_I
Wevelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000

1 - Chromate - 12,337

mmmmmm

٤

0.00

[UAm] sonsdnoadA

Relative Height

% 100.00 100.00

Relative Area "% " "% 100.00 100.00

Height mAU 0.152 0.152

Area mAU*min 0.056

Retention Time min 12.337

Integration Results No. | Peak Name

Chromate

Total:

14.0

12.0

10.0

8.0 Time [mln]

0.0

0.4

2.0

0.50

Default/Integration

Chromeleon (c) Dionax Version 7.1.1.1127

DefaulVIntegration

Chrometeon (c) Dionex Version 7.1.1.1127

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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624A

ECL029324-004

Injection Details
Injection Name:
Viel Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Date/Time:

2.00 -

1.75 1.50 1.25 8

ECL029324-006 26 Unknown

16.00 5.00 UV_VIS_1 530.0

Run Time (min): 11
Irjection Volume: 5.
Channel: U
Wavelength: 5.
Bandwidth: 5.
Sillution Factor: 1.

n.a. 1.0000 1.0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 07:37

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 07:56

Run Time (min): 16.00
Channel: 5.00
Channel: 8.30.0
Wavelength: 530.0
Blutton Factor: 1.0000
Sample Weight: 1.0000

UV_VIS_1 WVL:530 nm

Chromatogram 2.00 (UAm) sonscho 0.25

1.75 1.50 1.25 mmmmmm

0.0 -0.25

1 - Chromate - 12.165

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1 - Chromate - 12.162

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1 - Chromate

% 100.00 100.00

Height mAU 0.162 0.162

Area mAU†min 0.058***

Retention Time min 12.165

Chromeleon (c) Dionex Version 7.1.1.1127

68

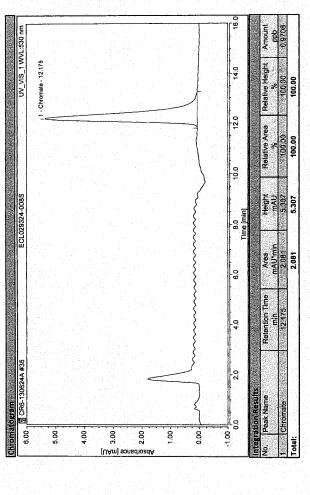
Default/Integration

Page 27 of 41

Instrument:Chrome_VI Sequence:CR6-130624A

ECL029324-008 UV_VIS_1 WVL.530 nm	Www.www.	Time (min) 15.0 14.0 16.0	Area         Height         Relative Area         Relative Height         Amount           mAU*nin         %         %         ppb           0.654         0.149         100.00         0.0211
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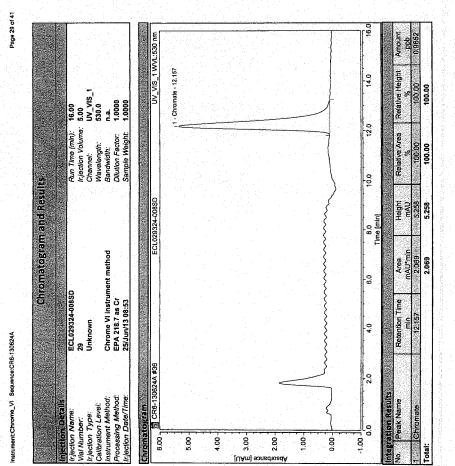




Chromeleon (c) Dionex Version 7.1.1.1127

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S CR6-130624A #37	[UAm] sonsotosdA	0.0 2.0	No. Peak Name	Ohromate
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		12.0	Relative Area %	400.00
UV_VIS_1 WVL.530 nm	- Ohromale - 12.189.	14.0	Relative Height Amount %	100.00



Page 31 of 41

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624A

ECL 029324-012 31 Unknown

Run Time (min): 16.00 Channel: 5.00 Channel: 9.00 Wavelength: 530.0 Bandvidh: n.a. Diulion Fedor: 10.000 Sample Weight: 1.0000 Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 09:31

Chromatogram 2.00 | 13 CR6-130624A #38 Ir, jedlon Name: Vial Number: Ir, jedlon Type: Calibration Level: Instrument Method: Processing Method: Ir, jedton Date/Time:

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[UAm] sonstreadA

Relative Height %6 100:00 100:00 100:00 1 - Chromate - 12.162 14.0 12.0 Relative Area % (00.00 100.00 10.0 Height mAU 1,230 Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Manney Ma 8.0 Time [min] Area mAU"min 0.489 0.0 Retention Time min 12:162 0. 2.0

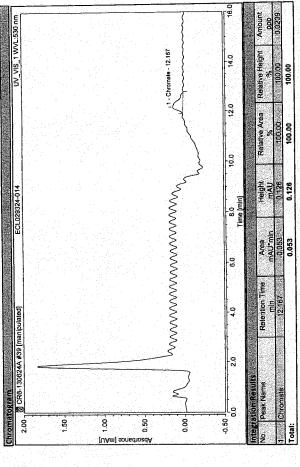
Peak Name

0

-0.50

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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130624A

VIS_1 WVL.530 nn

Run Time (min): 16.00 Channel. 5.00 Channel. UV VIS_1 Wevelength: 530.0 Bandwidth: n.a. Diution Feator: 1,0000 Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 25/Jun/13 10:09

Chromatogram 2.00 7 CR6-130624A #40

1.50

[UAm] sonsdroedA

ECL029324-016 33 Unknown

Ir.jadion Name: Vial Numbar: Ir.jadion Type: Calibration Level: Instrument Method: Processing Method: Ir.jection Date/Time:

UV_VIS_1 WVL:530 nm		2	16.0	t Amount	0.0 100
UV_VIS_1		1 - Chromate - 12,142	14,0	Relative Height	100.00
			10.0 12.0	39	100.00
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ECL		www	6.0 T	Area mAU*min	0.043
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間 CR6-130624A #41			0.0	ntegration Results No. Peak Name	Ohrsmate
CR6-13	(UAm) sonschozdA	000	-0.50	No.	

1 - Chromate - 12,147

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Relative Height % 100.00

Relative Area % 100.00

Height mAU 0.147

Area mAU*min 0.062 0.062

Retention Time min 12.147

Total:

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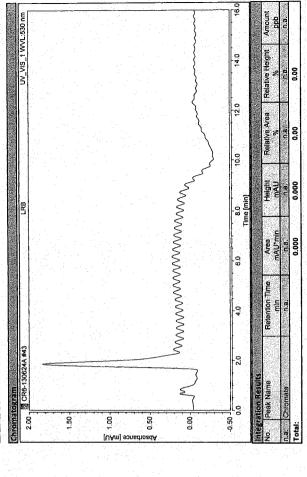
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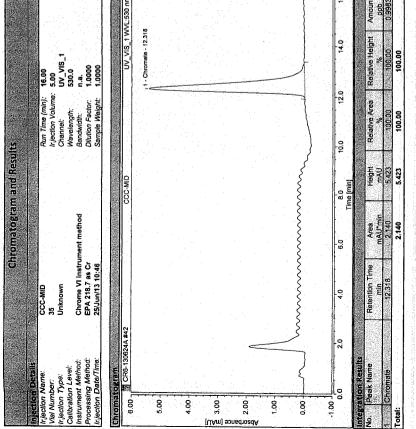
Page 35 of 41

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Chromatogram and Results

Instrument:Chrome_Vi Sequence:CR6-130624A

Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1.1.1127

Instrument:Chrome_VI Sequence:CR6-130624A

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Run Time (min): 16.00 Channel: 5.00 Channel: 100 Wavelength: 530.0 Bandwidh: n.a. Dilulion Factor: 1,0000 Sample Weight: 1,0000

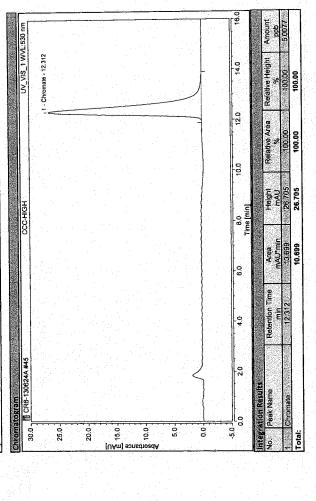
Chrome VI Instrument method EPA 218.7 as Cr 25/Jun/13 11:24

Chromatogram 2.00 1 CR6-130624A #44

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ECL029324-020 37 Unknown

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Calibration Level:
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Area mAU'min n.a 0.000

Retention Time min n.a.

Chromeleon (c) Dionex Version 7,1.1.1127

## **Dilution Corrected Concentrations**

RINSE

7/19/2013 3:21:25 PM

User Pre-dilution: 1.000

	USEL PIE	-01100011. 1.00	,,,					
ĺ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
ļ.			ppb	ppb	ppb	ppb	ppb	ppb
- 1	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%
÷			1.608%	0.011	0.619%	1.788%	0.003	1.527%
	%RSD	l.	1.608	24,420	0.619	1.788	5.311	1.527

F130719B CHC7/19/13

RINSE 7/19/2

7/19/2013 3:24:13 PM

User Pre-dilution: 1.000

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	Kun	I IIIIE	ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	15:23:19	94.934%	0.016	100.359%	103.046%	0.055	101.731%
Ì	2	15:23:24	99.601%	0.030	101.329%	100.660%	0.054	99.984%
ř	3	15:23:29	99.691%	0.052	101.695%	98.917%	0.058	99.151%
Ť	х		98.075%	0.033	101.128%	100.874%	0.056	100.289%
Ī	σ		2.721%	0.018	0.690%	2.073%	0.002	1.317%
ቨ	%RSD		2.774	54.760	0.683	2.055	4.381	1.313

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User Pre-dilution: 1.000

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	15:26:05	99.150%	-0.003	99.925%	103.185%	-0.003	102.260%
Ì	2	15:26:11	98.960%	0.002	99.904%	99.407%	0.002	99.512%
Ì	3	15:26:16	101.890%	0.002	100.171%	97.408%	0.002	98.228%
Ĭ	х		100.000%	0.000	100.000%	100.000%	-0.000	100.000%
Ì	σ		1.640%	0.003	0.148%	2.934%	0.003	2.060%
į	%RSD		1.640	0.000	0.148	2.934	0.000	2.060

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

Jser Pre-dilution: 1.000

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Ru	n Tin	ne 45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
	1 15:28:	49 93.939%	198.900	100.708%	106.254%	<u>тм 200.000</u>	105.920%
	2 15:28:	55 102.064%	м 201.300	100.824%	103.111%	т 199.600	104.463%
	3 15:29:	97.851%	199.800	102.088%	101.008%	тм 200,400	102.936%
-	x	97.951%	м 200.000	101.207%	103.458%	тм 200.000	104.440%
	5	4.064%	м 1.215	0.765%	2.640%	<u>™ 0.378</u>	1.492%
%RS	5	4.149	м 0.608	0.756	2.552	тм 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%
х		100.708%	0.083	101.033%	100.325%	0.018	100.899%
σ		3.314%	0.015	1.372%	2.851%	0.002	2.438%
%RSD		3.291	18.150	1.358	2.842	12.420	2.416

39 84 75A

CKS 7/19/2013 3:35:12 PM

User Pre-dilution: 1.000

175Lu 208Pb 52Cr Run Time 45Sc ppb ppb ppb ppb ppb 197.700 1 15:34:18 93.242% 100.085% 106.236% T199.000 100.825% 102.201% T199.300 2 15:34:23 98.786% 198.600 103.946% 101.023% <u>+ 198.800</u> 103.118% 3 15:34:28 100.227% 198.400 101.634% х 97.418% 198.300 100.848% 103.153% T199.000 104.454% 1.649% 3.688% 0.491 0.775% 2.734% ±0.234 +0.117 1.579 3.786 0.248 0.768 2.651 %RSD

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User Pre-dilution: 1.000

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Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
E	1	15:37:03	94.921%	99.940	98.430%	104.879%	96.420	105.299%
Г	2	15:37:08	98.326%	100.200	100.063%	101.073%	96.820	102,413%
Ē	3	15:37:13	96.948%	100.200	100.431%	99.030%	96.970	101.434%
Г	х		96.732%	100.100	99.641%	101.661%	96.740	103.049%
Γ	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

100prb

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

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%
×		86.056%	0.821	92.074%	107.634%	0.821	111.319%
G		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

50pl MU3479 -> 10 ml

LPB5058R 7/19/2013 3:51:18 PM

	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%
Г	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%
	Х		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

		underen zie.		4 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 Table 10 T				
Rı	un	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
5			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%
	х		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%
%F	SD		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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Ī	F 1 - 1 - 5		ppb	ppb	ppb	ppb	ppb	ppb
1	1	15:55:51	99.435%	0.213	100.311%	97.625%	0.155	94.186%
Ī	2	15:55:56	104.805%	0.205	101.683%	93.065%	0.162	90.772%
Ī	3	15:56:02	105.422%	0.189	101.182%	90.956%	0.156	89.238%
Ī	х		103.221%	0.203	101.059%	93.882%	0.158	91.399%
Ī	σ		3.293%	0.012	0.694%	3.409%	0.004	2.533%
Ì	%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%
Ī	3	15:58:45	110.317%	0.395	105.288%	90.041%	0.106	87.658%
Ī	х		108.094%	0.399	105.073%	92.553%	0.106	89.666%
Ī	σ		2.895%	0.014	0.553%	2.927%	0.001	2.392%
ĺ	%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%
	х		115.470%	10.460	111.675%	85.149%	0.620	77.598%
3	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

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
E	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%
	х		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%
G.		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%
х		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	i	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%
ì	3	16:12:31	99.625%	6.448	99.135%	84.588%	0.673	77.445%
	х		98.157%	6.476	99.030%	87.421%	0.688	79.681%
٠,	σ		2.447%	0.046	0.116%	3.288%	0.013	2.376%
ĺ	%RSD	Sea Se	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%
х		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

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	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%
E	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%
Г	%RSD		2.431	7.353	1.018	3.148	21.540	2.686

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User Pre-dilution: 1.000

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
	1	16:20:37	91.468%	199.400	95.105%	101.217%	±199.700	99.183%
	2	16:20:43	94.050%	197.500	96.597%	98.273%	T198.600	97.485%
	3	16:20:48	95.127%	198.300	97.808%	95.861%	T199.600	±102.293%
Г	х		93.548%	198.400	96.503%	98.451%	<u> 199.300</u>	<u> + 99.654%</u>
	σ		1.880%	0.925	1.354%	2.683%	<u> 70.610</u>	<u>+2.439%</u>
	%RSD		2.010	0.466	1.403	2.725	±0.306	<u>т 2.447</u>

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%
1	х		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%
्र	%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

ı	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%
[	х		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%
Ī	%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%
	х		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%
1	%R\$D		2.446	2.568	0.537	4.720	0.984	3.624

ECL029318-010

7/19/2013 4:32:34 PM

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
. :	<u> </u>		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

Γ	Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
L			ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	16:34:23	86.415%	6.898	87.601%	88.886%	0.691	81.064%
r	2	16:34:28	87.556%	7.086	87.356%	84.867%	0.705	78.274%
F	3	16:34:33	85.972%	7.122	87.463%	81.911%	0.702	75.789%
F	×		86.648%	7.036	87.473%	85.221%	0.699	78.376%
F			0.817%	0.120	0.123%	3,501%	0.007	2.639%
F	%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%
х		87.561%	0.270	88.672%	89.000%	0.067	88.482%
0		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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	44.		ppb	ppb	ppb	ppb	ppb	ppb
Γ	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%
Г	3	16:40:03	93.321%	0.363	89.946%	82.983%	0.067	82.897%
Γ	х	# - W.	90.671%	0.360	89.188%	85.528%	0.066	84.860%
Γ	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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
7			ppb	ppb	ppb	ppb	ppb	ppb
	1	16:42:37	85.164%	50.970	89.164%	90.776%	48.240	89.994%
Ī	2	16:42:43	90.644%	52.200	88.965%	87.837%	48.200	87.551%
Ī	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%
Ī	σ		3.305%	0.649	0.876%	2.618%	0.085	1.947%
Ī	%RSD		3.714	1.256	0.978	2.974	0.175	2.215

ECL029318-014

7/19/2013 4:46:17 PM

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%
х		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

ъ 209Ві
the country
b ppb
11 97.049%
18 94.300%
13 92.103%
14 94.484%
04 2.478%
00 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%	м 200.700	92.735%	99.831%	т 198.400	97.079%
L	2	16:55:11	89.520%	199.200	93.395%	96.371%	т 197.500	94.706%
E	. 3	16:55:16	90.264%	м 200.500	93.304%	93.052%	т 199.000	<u> + 98.469%</u>
	Х		89.251%	м 200.200	93.145%	96.418%	т 198.300	т96.751%
E	σ		1.172%	м 0.808	0.358%	3.389%	<u> + 0.711</u>	⊤1.903%
	%RSD		1.313	м 0.404	0.384	3.515	<u>т 0.359</u>	<u> + 1.967</u>

ECL029318-015 7/19/2013 4:58:47 PM

User Pre-dilution: 1.000

Run	Time	45Sc	52Cr	89Y	175Lu	208РЪ	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%
х		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
	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%
I	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

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1,46 pt 1 1 1 1		ppb	ppb			ppb	ppb
					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%
L	х		80.809%	0.656	82.024%	84.338%	0.211	77.905%
L	σ		3.114%	0.061	0.633%	3.100%	0.001	1.937%
Ē	%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%
х		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
E	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%
	х		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%
х	]	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

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	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
L		17:17:07		195.900	82.897%	92.438%	™ 203.100	T102.907%
	2	17:17:13	77.008%	196.200	83.032%	89.018%	тм 202.400	<b>±99.417%</b>
	3	17:17:18	80.429%	195.700	83.538%	86.940%	тм 203.500	±97.837%
L	х		78.122%	195.900	83.156%	89.465%	тм 203.000	т 100.054%
L	σ		1.998%	0.231	0.338%	2.776%	<u>™</u> 0.554	т 2.595%
	%RSD		2.558	0.118	0.406	3.103	тм 0.273	т 2.593

LPB5059R

7/19/2013 5:20:47 PM

Iser Pre-dilution: 1.000

	USEI PIE	-anadon, 1.00	,,	1				
:	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1			ppb	ppb	ppb	ppb	ppb	ppb
1	1	17:19:53	75.978%	0.032	83.070%	94.145%	0.151	95.520%
		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%
	Y		78.998%	0.026	83.330%	91.434%	0.151	92.722%
	^		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

٠.	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	- 1		dqq	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			83.648%		48.590	90.171%
	x		80.893%	49.130	83.482%		48.590	91.686%
			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

1	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
1	1	17:25:21	71.259%	0.564	77.400%	92.861%	6.348	85.970%
i	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%
٠	х		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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
Γ	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%
Г	X		71.401%	0.599	77.007%	90.285%	6.450	84.306%
Г	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

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

Г	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%
Γ	2	17:33:40	70.245%	0.527	76.615%	87.502%	6.254	81.297%
Г	3	17:33:46	70.562%	0.485	76.551%	86.075%	6.271	80.641%
Г	х		69.495%	0.514	76.177%	88.303%	6.261	82.020%
Г	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
	- 1	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%
×		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	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%
	х		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%
١	%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%
Х		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

	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%
-	х		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%
1	%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%
х		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	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
4.5		ppb	ppb	ppb	ppb	ppb	ppb
1	17:50:06	68.012%	195.500	73.898%	88.537%	тм 205,600	<u> 100.354%</u>
2	17:50:12	69.976%	195.500	74.036%	85.928%	тм 204.500	<u>т 97.169%</u>
3	17:50:17	70.768%	197.600	73.817%	83.857%	тм 205.100	т 96.066%
х		69.585%	196.200	73.917%	86.107%	тм 205.100	<u> 197.863%</u>
σ		1.419%	1.222	0.110%	2.345%	тм 0.530	±2.226%
%RSD		2.039	0.623	0.149	2.724	тм 0.259	<u>т 2.275</u>

#### ECL029324-007 7/19/2013 5:53:46 PM

User Pre-dilution: 1.000

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	4		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%
	х		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%
Ī	%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%
I	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

Run	Time	45Sc	52Cr	89Y	175Lu	208РЬ	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%
х		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
100		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%
х		66.133%	0.413	70.886%	81.767%	4.608	75.220%
ď		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	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%
	х		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
F			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%
ď	х	Participation of	65.457%	0.382	68.985%	82.517%	0.242	74.954%
ŀ	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

L	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	74.5		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%
	Х		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%
Г	%RSD		3.028	16.960	0.769	3.189	0.247	2.230

ECL029324-013D

7/19/2013 6:13:02 PM

		market described a dispersion in	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	and the second	and the second of	and the second of the	1.15	The same factors of the
	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	1.54		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%
E	3	18:12:18	69.200%	0.173	72.689%	79.039%	1.997	73.143%
	х		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%
Ē	%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

	OSC: 110	diddoin 110					a markin and dalam	عدكما أمارا أمارات
1	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	acho Mi		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%
- 1	х		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%
1	3	18:17:48	68.028%	0.184	71.958%	80.441%	1.711	74.420%
. [	х		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

L	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
٠	4 T.S		ppb	ppb	ppb	ppb	ppb	ppb
E	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

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User Pre-dilution: 1.000

L	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-		<u> </u>	ppb	ppb			ppb	
	1	18:23:07	66.111%	194.900	68.719%	84.098%	тм 209.700	±99.001%
		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%
	х		67.231%	196.600	68.943%	80.617%	тм 199.600	<u> +85,875%</u>
	σ		0.971%	1.557	0.433%	3.144%	тм 8.724	<u>+11.385%</u>
	%RSD		1.445	0.792	0.627	3.900	<u>тм 4.370</u>	± 13.257

### ECL029324-015

7/19/2013 6:26:47 PM

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
į.			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%
Œ	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%
E	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%
Ē	%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%
	х		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%
i	%RSD		1.571	6.695	0.587	3.961	0.526	3.330

### ECL029324-018

018 7/19/2013 6:35:05 PM

User Pre-dilution: 1.000

L	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1			ppb	ppb			ppb	
L	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%
	х		66.565%	0.250	70.253%	80.306%	1.353	73.953%
L	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

L	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%
	х		66.623%	0.006	70.569%	81.153%	0.456	81.123%
L	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

R	un	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	dad
	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%
	х		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%
%R	SD		2.286	9.111	0.306	2.340	2.561	1.803

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User Pre-dilution: 1.000

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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%	
х		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	

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١	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%	тм 210.100	81.773%
Ī	2	18:45:17	67.188%	196.200	69.811%	79.661%	тм 209.300	79.862%
İ	3	18:45:22	66.555%	199.000	69.467%	78.390%	193.400	78.851%
İ	x		66.539%	197.600	69.365%	80.213%	тм 204.300	80.162%
ĺ	σ		0.657%	1.382	0.505%	2.153%	тм 9.411	1.484%
Ì	%RSD		0.988	0.700	0.727	2.684	тм 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

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Sparks, MD 21152 (NH4) 2504 + NH40H 47 Loveton Circle, Suite K Enviro-Chem Laboratories, Inc.

			7	: [		2						2	101 17 THE TOTAL
Client: Chesapeake GeoScrancos, Inc. (CGS)		Phone No.: (4)	Phone No.: (410) 745-1411 x 10.2		ECL Log in Batch Number	n Batch	Jamper	.	57	75.5	Page	ō	3
Project Manager: Seaw Downe	161	Fax No. (4	(910)74B-3299	49		Preservative	Z	NΑ				Prese NA =	Preservative Key: NA = Nitric Acid, pH <2
	Email:	sdanielæ	sdaniel@cgs.us.com	Ž	Ŷ.	Sample Type	8°00 benius	_ (***)	Z-8	_	<u></u>	SA =	SA = Sulfuric Acid, pH <2 OH = NaOH, pH >12
Project Name: Green Valley Citab		umber: $CG$ -	Project Number: CG-12-0788.06	,06	ō	Comp.	Pe pe	oe p	le j	_	_	T=1T /	TI = Thiosulfate Zn = Zinc Acetate
P.O. Number: CG126788,0650					Containers	G = Grab	Jead, Meth 1	Maller	Эгиз	<u> </u>	_	N = None, X = Other	N ≈ None, Chilled X = Other
Enviro-Chem Lab No.	Sample Identification (As it is to appear on report)	Date Sampled	Time I	Matrix	:		Drssol	EPA N HEXOLI					Remarks
100-76-76-001	3998 Farm-POU	21/6/13	8:49 1	DW	$\mathcal{E}$	9	×	X					
اد ،	3998 Farm-PT1		9:05 p	MA	3	9	×	メ					
	3998 Farm-PTIDB		00:00	ρW	3	G	X	<b>×</b>					
	3998 Farm-PT2		1 Le. 6	D W	B	9	メメ	X					
ECLO 28474-019	3998 Farm-PT3		1 thib	DW	3	5	メメ	メ					
	3998 Farm-PT4	<b>*</b>	9:53	DWJ	3	9	XX	×				:	
	3998Farm-WP1	E1/16/L	15:05	DW	$\propto$	G	XX	X					
500 2474-016 ECLO 29474-016		g ganggagagari ing sagan ponga ga agan ganggagagari			10 Sta			An Algorithm of					
		Mariana _				Charles party							
(7 68	3998Farm-FB	21/6/13	105.01	Ma	M	১	×	×	-				
Collected / Relinquished By	+	Dafe / 7/10/13	Time Rec   Rec   /	Received By	1 14 GL	1			Deliverables Required	Required		# Coolers	Seal
Rejinquighed By		Date	Time Rec	Received By					Due Date			Ice Present	Temp
Relinquished By		Date	Time	Received By					Turnaround Requested	petenber		Rush?	
									STD	1-Day	Other	ē	
Relinquished By		Date	Time	Received By					Special instructions, Comments:	Level _	ments:	Data	Jata Package*
COC/Labels match Y N	# of Samples # of	# of Bottles	Explain any "NO" answers	nswers						De Li	2 PC	Deliverables	)
Bottles intact/appropriate Y N	Preserved correctly Y	N N											ECL Doct (11/01/10)

### Analytical Reports



### 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

LOCATION-

DATE SAMPLED- 7/9/2013 TIME SAMPLED- 8:49
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK

COMMENTS-

LAB#- ECL029474-001 SAMPLE ID- 3998 Farm-POU Total

SAMPLER- Bennett, Glancey

Page 1 of 16

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



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#- ECL029474-002 SAMPLE ID- 3998 Farm-POU Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013 TIME SAMPLED- 8:49
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK TIME SAMPLED- 8:49

SAMPLER- Bennett, Glancey

COMMENTS-

Page 2 of 16

rage 2 or 10							
ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHE	M 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 ENV	IRO-CHEM LABOR	ATORIES, MD CE	RT #19:	2			
Chromate	EPA 218.7 7	//16/2013 23:45	SES	< 0.020	ug/L Cr	0.020	S



47 Loveton Circle, Suite K • Sparks, Maryland 21152

410-472-1112

DATA

FLAG

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

DAD# DCD0291/1 000

LOCATION-

DATE SAMPLED- 7/9/2013
DATE RECEIVED- 7/10/2013
DELIVERED BY- L Bennett

COMMENTS-

ANALYSIS

Page 3 of 16

SAMPLE ID- 3998 Farm-PT1 Total

TIME SAMPLED- 9:05 TIME RECEIVED- 9:18

RECEIVED BY- CHK

ANALYSIS REPORTING DATE/TIME BY RESULT LIMIT

SAMPLER- Bennett, Glancey

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

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



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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-004

SAMPLE ID- 3998 Farm-PT1 Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013 DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 9:05

EPA 218.7 7/17/2013 00:41 SES

TIME RECEIVED- 9:18 RECEIVED BY- CHK

COMMENTS-

Chromate

Page 4 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CH	EM LABORATORIES	s, 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 EN	VIRO-CHEM LABOR	RATORIES, MD CE	RT #192	2			
Chromate	EPA 218.7	7/17/2013 00:41	SES	0.024	ug/L Cr	0.020	S



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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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-005

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

SAMPLE ID- 3998 Farm-PT1DB Total

TIME SAMPLED- 0:00 TIME RECEIVED- 9:18

RECEIVED BY- CHK

COMMENTS-

Page 5 of 16

			ANALYSIS			REPORTING	DATA
ANALYSTS		METHOD	DATE/TIME	BY	RESULT	LIMIT	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



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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-006

SAMPLE ID- 3998 Farm-PT1DB Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 0:00

TIME RECEIVED- 9:18 RECEIVED BY- CHK

COMMENTS-

Page 6 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-C	HEM LABORATORI	ES, MD CERT #192	2				
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/22/2013 10:58 7/22/2013 10:58	CHK CHK	< 1.0 4.7	μg/L μg/L	1.0 1.0	
WET CHEMISTRY BY E	NVIRO-CHEM LAE	ORATORIES, MD C	RT #19	2			
Chromate	EPA 218.7	7/17/2013 01:00	SES	0.025	ug/L Cr	0.020	S



### 47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

1.0

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

SAMPLER- Bennett, Glancey

μg/L

REPORT NUMBER: 6698

CHK

47.4

LAB#- ECL029474-007

SAMPLE ID- 3998 Farm-PT2 Total

LOCATION-

DATE SAMPLED- 7/9/2013 DATE SAMPLED- //9/2013 TIME SAMPLED- 9:27
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK

TIME SAMPLED- 9:27

EPA 200.8 7/22/2013 10:58

COMMENTS-

Lead*#

Page 7 of 16

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



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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#- ECL029474-008

SAMPLE ID- 3998 Farm-PT2 Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013 DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 9:27

TIME RECEIVED- 9:18 RECEIVED BY- CHK

SAMPLER- Bennett, Glancey

COMMENTS-

Page 8 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	, MD CERT #192					
Chromium*# Lead*#		/22/2013 10:58 /22/2013 10:58	CHK	< 1.0 2.5	μg/L μg/L	1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LABOR	ATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7 7	/17/2013 01:19	SES	< 0.020	ug/L Cr	0.020	S



47 Loveton Circle, Suite K . Sparks, Maryland 21152

EPA 200.8

410-472-1112

1.0

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 DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 9:42 TIME RECEIVED- 9:18 RECEIVED BY- CHK SAMPLER- Bennett, Glancey

µg/L

39.7

COMMENTS-

Lead*#

Page 9 of 16

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

7/22/2013 10:58 CHK



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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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-010

SAMPLE ID- 3998 Farm-PT3 Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 9:42

TIME RECEIVED- 9:18 RECEIVED BY- CHK

COMMENTS-

Page 10 of 16

		· · · · · · · · · · · · · · · · · · ·				DEDODETNO	DATA
ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҰ	RESULT		REPORTING LIMIT	FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, 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 ENVI	RO-CHEM LAB	ORATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	7/17/2013 01:38	SES	< 0020	ug/L Cr	0.020	S



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410-472-1112

1.0

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

112

SAMPLER- Bennett, Glancey

μg/L

REPORT NUMBER: 6698

LAB#- ECL029474-011

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013 DELIVERED BY- L Bennett RECEIVED BY- CHK

SAMPLE ID- 3998 Farm-PT4 Total TIME SAMPLED- 9:53

TIME RECEIVED- 9:18

EPA 200.8 7/22/2013 10:58 CHK

COMMENTS-

Lead*#

Page 11 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВУ	RESULT		RE	PORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHE	M LABORATORI	ES, MD CERT #192						
Chromium*#	EPA 200.8	7/22/2013 10:58	CHK	44.0	μg/L		1.0	



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-012 SAMPLE ID- 3998 Farm-PT4 Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013 DATE RECEIVED- 7/10/2013

DELIVERED BY- L Bennett

TIME SAMPLED- 9:53

TIME RECEIVED- 9:18
RECEIVED BY- CHK

COMMENTS-

Page 12 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/22/2013 10:58 7/22/2013 10:58	CHK	< 1.0 4.4	μg/L μg/L	1.0	

WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192

EPA 218.7 7/17/2013 01:57 SES < 0.020 ug/L Cr 0.020 Chromate



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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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LOCATION-

DATE SAMPLED- 7/9/2013 TIME SAMPLED- 15:05
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK

COMMENTS-

LAB#- ECL029474-013 SAMPLE ID- 3998 Farm-WP1 Total

Page 13 of 16

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



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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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6698

LAB#- ECL029474-014 SAMPLE ID- 3998 Farm-WP1 Dissolved

LOCATION-

DATE SAMPLED- 7/9/2013 TIME SAMPLED- 15:05
DATE RECEIVED- 7/10/2013 TIME RECEIVED- 9:18
DELIVERED BY- L Bennett RECEIVED BY- CHK

TIME SAMPLED- 15:05

COMMENTS-

Page 14 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	BY	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	S, MD CERT #192	<b>!</b>				
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 ENVI	RO-CHEM LABO	RATORIES, MD CE	RT #192	2			
Chromate	EPA 218.7	7/17/2013 02:16	SES	0.023	ug/L Cr	0.020	S



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

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Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-015

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013
DELIVERED BY- L Bennett

COMMENTS-

SAMPLE ID- 3998 Farm-FB Total

TIME SAMPLED- 10:30

TIME RECEIVED- 9:18 RECEIVED BY- CHK

Page 15 of 16

		ANALYSIS
ANALYSIS	METHOD	DATE/TIME

METALS	BY	ENVIRO-CHEM	LABORATORIES,	MD	CERT	#192

Chromium*# Lead*#

EPA 200.8 7/22/2013 10:58 CHK < 1.0 EPA 200.8 7/22/2013 10:58 CHK < 1.0

BY

RESULT

μg/L μq/L

SAMPLER- Bennett, Glancey

1.0 1.0

REPORTING DATA

LIMIT FLAG

21



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410-472-1112

FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

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Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6698

LAB#- ECL029474-016

LOCATION-

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013 DELIVERED BY- L Bennett

TIME SAMPLED- 10:30 TIME RECEIVED- 9:18

SAMPLE ID- 3998 Farm-FB Dissolved

RECEIVED BY- CHK

SAMPLER- Bennett, Glancey

COMMENTS-

Page 16 of 16

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, 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 ENVI	RO-CHEM LAB	ORATORIES, MD CE	RT #192	2			
Chromate	EPA 218.7	7/17/2013 02:35	SES	< 0.020	ug/L Cr	0.020	S

LABORATORY DIRECTOR

[#] State of Maryland Certified Parameter

^{*} NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

Ror Low High RPD Limit Flag
Value/Spike Sample Result %R or Added %RPD
Units
Result
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Test Name
QC Type

						True	Associated	. [			
Q.	QC Type	Test Name		Result	Units	Value/Spike Added	Sample Result	%R or %RPD	Low	High	Flag
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD	RO-CHEM LABOR		CERT #192								
нон-ооо	CCC-HIGH	Chromate		5,176	ng/L	ທ		103.5	85	5	
CCC-LOW	MOT-000	Chromate		< 0.020	ng/L	0.02		86.5	20	150	
CCC-MID	CCC-MID	Chromate		1.053	ng/L	. <del></del> . 		105.3	82	15	
ECL029474-002SD	MSD	Chromate		0.763	ng/L	**************************************	< 0.020	76.3	82	<u>7</u>	*
ECL029474-002S	Spike	Chromate		0.747	ng/L	÷ <del>√</del>	< 0.020	74.7	82	115	*
ECL029474-002SD	Spike Dup	Chromate		0.763	ug/L	<b>←</b>		2.1	0	20	

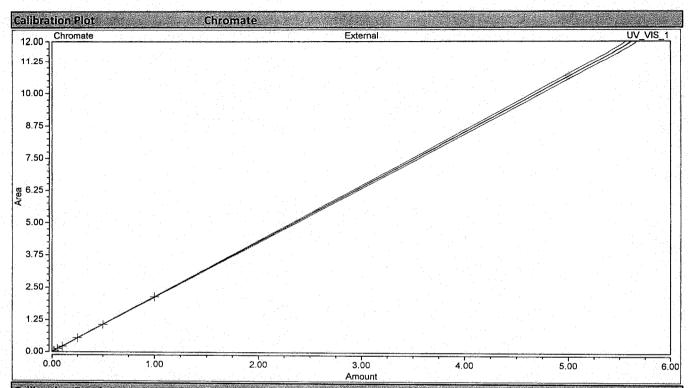
### Instrument Blanks

# INSTRUMENT BLANKS

	Analytical Run	F130722B	Date of Analysis	7/22/2013
ICB CCB CCB CCB	Cr Pb <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/	<u>/L</u>		
	Analytical Run	CR6-130716	Date of Analysis	7/16/2013
LRB LRB LRB	CrO4 <0.02µg/L <0.02µg/L <0.02µg/L			

# Calibration Data

<b>18.</b> 4. (19. (19. (19. (19. (19. (19. (19. (19		Calibration		
<b>Calibration Details</b>	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



Calib	gration Results	Chromate	1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1				
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

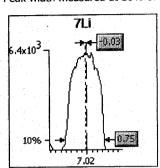
Report name: 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

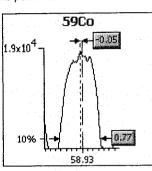
## **Mass Calibration verification**

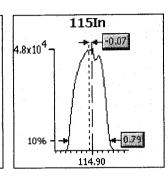
## **Acquisition parameters**

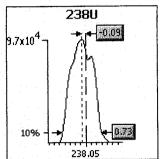
Sweeps: 10 Dwell: 5.0 mSecs Point spacing: 0.02 amu

Peak width measured at 10% of the peak maximum









			Limits	Results		
1	Analyte	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
1	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]

une conditi				
Major			Minor	
Extraction	-160.8		Lens 3	-195.3
Lens 1	-1286		Forward power	1200
Lens 2	-79.2		Horizontal	67
Focus	8.0		Vertical	640
D1	-47.1		DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-2.0		Auxiliary	1.20
Hexapole Bias	-11.0		Sampling Depth	150
Nebuliser	0.78			

Global		Add. G
Standard resolution	110	CCT-He/
High resolution	100	CCT-Ammo
Analogue Detector	1804	

PC Detector 3127

		Add. Gases				
on	110	CCT-He/H2	0.00			
on	100	CCT-Ammonia	0.00			
	1004					

# Sensitivity and stability results

**Acquisition parameters** Sweeps: 130

	<u> </u>			ECA-O	59Co	137Ba++	138Ba++	101Bkg	115In	137Ba
Run	Time	5Bkg	7Li	56Ar O		100	30.0	100.0	10.0	10.0
Dw	ell (mSecs)	100.0	10.0	10.0	10.0	30.0	30.0	100.0		20.0
	%RSD	-	2.0%		2.0%	-	-	-	2.0%	
Limits	Countrate		>4000	-	>10000	-	-		>40000	
		0.000	5718.739	349017.27	18151.306	68.205	515.650	0.154	49135.598	4856.139
1	9:33:49 AM		77.73	347823.40	17858.662	67.949	493.854	0.000	49369.410	4876.145
2	9:34:58 AM	0.000	5865.716			85.128	476,674	0.077	49472,042	4820.744
3	9:36:07 AM	0.000	5669.490	349617.39	17953.385			0.000	49249.803	4846.136
4	9:37:16 AM	0.000	5708.735	346900.92	18111.260	76.923	481.289			4931.547
	9:38:26 AM	0.077	5785.686	348263.81	17961.857	72.564	467.443	0.000	49773.767	
	3.03.23	0.015	5749.673	348324.56	18007.294	74.154	486.982	0.046	49400.124	4866.142
X		0.013	77.18	1052.72	121.05	7.15	18.64	0.07	244.08	41.65
%RSD		223.607	1.342	0.302		9.643	3.827	149.071	0.494	0.856

Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
	ell (mSecs)	10.0	10.0	30.0	100.0	10.0
, , , , , , , , , , , , , , , , , , ,	%RSD		-			2.0%
Limits	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	J.JOILO III.	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
10 TO TAKE	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
×		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]

une conditions							
Major			Minor				
Extraction	-160.8		Lens 3	-195.3			
Lens 1	-1286		Forward power	1200			
Lens 2	-79.2	٠.,	Horizontal	67			
Focus	-9.4		Vertical	640			
D1	-62.0		DA	-31.4			
D2	-140		Cool	13.0			
Pole Bias	-16.0		Auxiliary	1.20			
Hexapole Bias	-20.0		Sampling Depth	150			
Nebuliser	0.78		W	15.			

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

Add. Gase	s
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
Dw	ell (mSecs)	30.0	10.0	10.0	10.0	10.0
	%RSD			2.0%	-	-
Limits	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	a de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de l	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
5 7 5 5	Ratio limits	<u>-</u>
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
Х		0.0059
σ		0.00
%RSD		11.8863

Result: The performance report passed.

# INITIAL AND CONTINUING CALIBRATION VERIFICATION

	Analytical F	Run	F130722B	D	ate of Ar	alysis	7/22/2013
	(	Or				Pb	
	TRUE F	ound	%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.

MetaleDinection

# Raw Data

Sequence Details         Created On:         26/Apr/11 09:00:46           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	Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Enviro Chem		Summ	nary		
Directory: Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Enviro Chem Data Vault: Updated On: 17/Jul/13 07:19:00	Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Enviro Chem ChromeleonLocal Updated On: 17/Jul/13 07:19:00	equence Details				
Directory: Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Enviro Chem ChromeleonLocal Updated On: 17/Jul/13 07:19:00	Instrument Data\Chrome_VI\Sequences\CR6-: Created By: Enviro Chem ChromeleonLocal Updated On: 17/Jul/13 07:19:00	lame:	CR6-130716	Created On:	26/Apr/11 09:00:46	
ata Vault: ChromeleonLocal Updated On: 17/Jul/13 07:19:00	ChromeleonLocal Updated On: 17/Jul/13 07:19:00	irectory:	Instrument Data\Chrome_VI\Sec	uences\CR6-: Created By:		
	33 Updated By: Enviro Chem				17/Jul/13 07:19:00	
o. of Injections: 33 Updated By: Enviro Chem		lo. of Injections:	33	Updated By:	Enviro Chem	

No.	Injection Name	Ret.Time min Chromate	Area mAU*min Chromate	Height mAU Chromate	Amount ppb Chromate	Inject Time Chromate	Peak Type Chromate
	0.000 0.04	UV_VIS_1	UV_VIS_1	UV_VIS_1	UV_VIS_1	- F1	UV_VIS_1
l .	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	ВМ
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	М
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	ВМ
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 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	п.а.
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	п.а.
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.	п.а.	17/07/13 06:03	n.a.
31	ECL029507-020	n.a.	n.a.	n.a.	n.a.	17/07/13 06:22	
32	CCC-HIGH	12.243	11.058	26,223	5.1759	17/07/13 06:41	n.a. M
33	LRB	n.a.	n.a.	л.а.	n.a.	17/07/13 07:00	n.a.

Instrument:Chrome_VI Sequence:CR6-130716

Chromatogram and Results

UV_VIS_1 WVL:530 nm

16.00 5.00 UV_VIS_1 530.0

Run Time (min): 11
Irjection Volume: 5
Channel: U
Wavelength: 5
Bandwidth: 1
Dilution Factor: 1
Sample Weight: 1

n.a. 1.0000 1.0000

Chrome VI instrument method EPA 218.7 as Cr 16/Jul/13 23:07

2.00 T CR6-130716 #8

1.75

1.50 1.25 [UAm] sonsdnoedA

Iromatogram

1 Unknown

Injection Details
It jection Name.
Viel Number:
It jection Type:
Calibration Level:
Processing Method:
Instrument Method:
Processing Method:
It jection Detail Time:

8.0 Time [min]

0.9

4.0

2.0

0.00

0.25

0.25

Integration Results No. Peak Name

Chromate

Area mAU*min 0.046

Retention T mln 12,254

**Default/Integration** 

Chromatogram and Results

nstrument:Chrome_VI Sequence;CR6-130716

Run Time (min): 1
Irjection Volume: 5
Channel: UNavelength: 5
Bandwidth: 7
Dilution Factor: 1
Sample Weight: 1

Chrome VI instrument method EPA 218.7 as Cr 16/Jul/13 23:45

Chromatogram 1.80 J

3 Unknown

Injection Details
Itjection Name:
Vial Number:
Itjection Type:
Calibration Level:
Processing Method:
Itjection Date/Time:

4.50 -	2 CR6-130716 #11		ECL	ECL029474-002S		UV_VIS_1 WVL: 530 nm	ij
					-	- Chromate - 12,101	
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000	0.0	4.0	6.0	8.0	10.0 12.0	14.0	
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Integra	Integration Results						
No.	Peak Name	Retention Time	Area	Helght	Relative Area	Relative Helght	Amount
		min min	mAU*min	mAU	%	%	qdd
	Chromate Chromate	12,101	1.604	4.238	100.00	100.00	ျ

% □ 0.00 0.00

Relative Area % n.a. 0.00

Height mAU n.a.

Area mAU*min n.a. 0.000

Retention Time min n.a.

Integration Results No. Peak Name

n.a. Chromate Total:

12.0

10.0

8.0 Time [min]

6.0

0.4

2.0

-0.40 Jl 0.0

-0.25

0.00

0.25

mmmmmmmm

[UAm] sonsdroedA

1.25

1.50

Chromeleon (c) Dionex Version 7.1.1.1127

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Chromatogram and Results

ECL029474-002SD

Injection Details
It jection Name:
Val Number:
It jection Type:
Calibration Level:
Processing Method:
Instrument Method:
Processing Method:
It jection Detectime:

Chromatogram and Results

ECL 029474-004

Unknown

Vial Number:
It jection Type:
Calibration Level:
Instrument Method:
Processing Method:
It jection Date/Time:

16.00 5.00 UV_VIS_1 530.0

Run Time (min): 11
Irjection Volume: 5
Channel: U
Wavelength: 5
Bandwicth: 1
Dilution Factor: 1
Sample Weight: 1

n.a. 1.0000 1.0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 00:22

Chromatogram 5.00 13 CR6-130716#12

4.00

3.00

2.00 Absorbance [mAU]

1.75 1.50 1.25

Chromate - 12.107

Run Time (min): 16.00
Channel: 5.00
Channel: 9.00
Wavelength: 530.0
Bandvidth: n.a.
Diluton Fedor: 1.0000
Sample Weight: 1.0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 00:41

1 - Chromate - 12,111 hummmm

[UAm] sonsonoadA

700.00 100.00 % 100.00 100.00 8:0 Time [min] Area mAU*min 0.060 min 12.111 Integration Results

Total:

12.0

10.0

6.0

0.4

20

-0.40

14.0

12.0

10.0

8.0 Time [min]

6.0

0.4

2.0

0.50 JL

0.00

1.00

Relative Helght % 100.00 100.00

Relative Area % 100.00

Height 4.316 4.316

Area mAU*min 1.638

Retention Time min 12.107

Integration Results No. Peak Name Chromate

-0.25

0.00

0.25

Chromeleon (c) Dlonex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1:1:1127

40

Default/Integration

Chromeleon (c) Dionex Version 7.1.1.1127

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Run Time (min): 16.00
Irjection Volume: 5.00
Channel: Wavelength: 530.
Bandwidh: n.a.
Bandwidh: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 17/Jul/13 01:00

Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

Chromatogram 2.00 ] CR6-130716#14

1 75 -

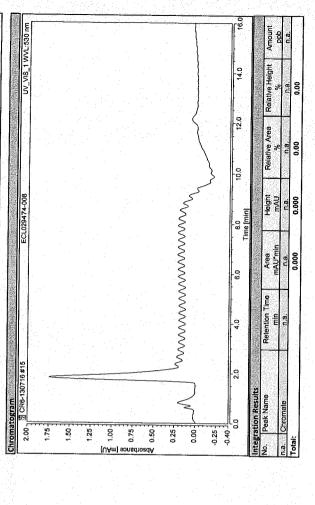
1.50 1.25 Networks (MAm) Sonstroad A

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

ECL029474-006 7 Unknown

Injection Details



1 - Chromate - 12.091

0.25 0.00 -0.25 0.40 Relative Height

700.00 100.00

Relative Area % 100.00 100.00

Height mAU 0.154 0.154

Area mAU*min 0.062

Retention Time min 12:091

14.0

12.0

10.0

8.0 Time [min]

0.9

0

5.0

Integration Results
No. Peak Name

Page 10 of 28

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

ECL029474-010 9 Unknown

Injection Details
It jection Name:
Vial Number:
It jection Type:
Calibration Level:
Processing Method:
Processing Method:
It jection Date/Time:

Instrument:Chrome_VI Sequence:CR6-130716

16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000 Run Time (min): 11
Irjection Volume: 5
Channel: U
Wavelength: 5
Bandwidth: n
Dilution Factor: 1
Sample Weight: 1 Chromatogram and Results Chrome VI Instrument method EPA 218.7 as Cr 17/Jul/13 01:57 ECL029474-012 10 Unknown Injection Details
It jection Name:
Vial Number:
It jection Type:
Calibration Level:
Processing Method:
Processing Method:
It jection Date/Time:

UV VIS 1 WVL 530 nm

Run Time (min): 16.00
Irjection Volume: 5.00
Channel: UV VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1.0000
Sample Weight: 1.0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 01:38

Chromatogram
1.80 3 CR6-130716#16

1.50

1.25

[UAm] sonsdroedA

#				E0020717-012	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	2000	UV_VIS_1 WVL::530 nm
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isdnoedA G	0						
0.25		wwwwwwww		www		1 - Chromate - 12.092	
-0.25	}			5			
9.0							
Integral	O.O. Z.O.	4.0	6.0	8.0 Time (min)	10.0 12.0	0 14.0	16.0
Š Š	Peak Name	Retention Time	Area	Height	Relative Area	Relative Height	Amount
	Chromote	nlm 19 ooc	mAU*min	mAU	%	%	qaa
100	Oll Ollace Market Program	STATE OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE P	0.010	0,053	100.00	100:00	0.0036
otal:			0.016	0.053	100.00	100.00	

./eh.

Relative Area % 100:00 100:00

Height MAU 0.050

Area mAU¹min 0.016 0.016

Retention Time min

Integration Results
No. Peak Name Chromate

1 - Chromate - 12,098

0.25 0.00 -0.25 14.0

12.0

10.0

8.0 Time [min]

0.0

4.0

2.0

-0.40 J

Chromeleon (c) Dionex Version 7.1.1.1127

Default/Integration

Chromeleon (c) Dlonex Version 7.1.1.1127

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Chromatogram and Results

Chromeleon (c) Dlonex Version 7.1.1.1127

Relative Height % % 0.00

Relative Area % n.a. n.a. 0.00

Height mAU n.a.

Area mAU*min n.a. 0.000

Retention Time min n.a.

Integration Results
No. Peak Name

14.0

12.0

10.0

8.0 Time [min]

6.0

0.4

20.

2.0

-0.40 J

-0.25

0.25

0.50

0.00

1.00 0.75 Integration Results No. | Peak Name

0.00 -0.25 0.40

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Ir.jection Name:	ECL029474-016	74-016				Run Tin	Run Time (min): 16.00	16.00	
Vial Number:	12					Ir.jection	Volume:	5.00	
Ir jection Type:	Unknown					Channe		Channel: UV_VIS_1	
Calibration Level:						Wavelength:	ngth:	530.0	
Instrument Method:	Chrome VI instrument method	/ instrun	nent met	pou		Bandwidth:	ılı.	n.a.	
Processing Method:	EPA 218.7 as Cr	7 as Cr				Dilution	Ollution Factor:	1.0000	
Ir.jection Date/Time:	17/Jul/13 02:35	02:35				Sample	Sample Weight:	1.0000	

UV_VIS_1 WVL:530 nm mmmmmm Chromatogram 3 CR6-130716 #19 2.00 1.75 1.50 [UAm] sonsdros 1.25 0.25 0.50

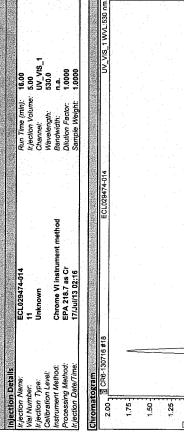
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# Run Time (min): 16.00 It jection Volume: 5.00 Channel: UV_VIS_1 Wavelength: 530.0 Bandwidth: n.a. Dilution Factor: 1,0000 Chromatogram and Results

ECL029474-014 11 Unknown

Instrument: Chrome_VI Sequence: CR6-130716





1,75 1.50 1.25

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Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

Chromeleon (c) Dionex Version 7.1.1.1127

UV_VIS_1 WVL:530 nm

Run Time (min): 16.00
Channel: 5.00
Channel: Wevelength: 530.0
Bandwidth: n.a.
Dilution Fector: 1,0000
Sample Weight: 1,0000

Chrome VI Instrument method EPA 218.7 as Cr 17/Jul/13 02:54

> Chromatogram 6.00 - 130716 #20

5.00-

4.00

Mani eonsdred 6 2 8

CCC-MID 13 Unknown

Injection Details Irjection Name. Vial Number: Irjection Type: Calibration Level: Instrument Method: Processing Method: Irjection Date/Time: Chromate - 12,268

[UAm] sonstroadA						
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-0.25 -0.40	4,0	6.0 TIM	8.0 I'me [min]	10.0 12.0	140	16.0
Integration Results No. Peak Name	Retention Time	Area	Height	Relative Area	Relative Height	Amount
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٠		0.000	0:000	00'0	0.00	

14.0

12.0

10.0

-0

-4

2.0

1.00 0.0

1.00

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% 100.00 100.00

Relative Area % 100.00

Height mAU 5.361 5.361

Area mAU*min

Retention Time min

Integration Results
No. Peak Name
Tohromate

2.257

Instrument:Chrome_VI Sequence:CR6-130716

Page 16 of 28

in fection Name:  Vial Number:  Injection Type:  Calibration Level:  Calibration Level:  Injection Date/Time:  Chromatogram  2.00  T.75  1.75	ECL029507-002 15 Unknown Chrome VI instrument method EPA 218,7 as Cr 17/Jul/13 03:32	ECL029607-002	Run Time (min): Lifection Volume: Lifection Volume: Wavelength: Wavelength: Blutton Factor: Sample Weight:	16.00 8.00 UV_VIS_1 530.0 1.0000 1.0000	1 WVL.:530 nm
1.50				SIN	VL.:530 nm
1.26					
Absorbance (n. 6.2.5.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0					
0.40	4.0	8,0 10	10,0	14,0	16.0
Integration Results No. Peak Name	Time	Height	Relative Area	Relative Height	Amount
na Chromate	nia.	mau na	% n.a	%   u u u	ppb n.a.

Chromeleon (c) Dionex Version 7.1.1.1127

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Chromatogram and Results

Page 18 of 28

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130716

ECL029507-006

17 Unknown

Injection Details
Irjection Name:
Viel Number:
Irjection Type:
Calibration Levie:
Processing Method:
Processing Method:
Irjection Date/Time:

Chromeleon (c) Dionex Version 7.1, 1.1127

Amount ppb n.a.

Height mAU л.а. 0.000

Area mAU*min n.a.

Retention Time min

Integration Result No. Peak Name

14.0

12.0

0.0

6.0

4.0

2.0

0.0

-0.50

0.00

Integration Results No. Peak Name

n.a. Chromate Total:

0.00

Relative Area % n.a 0.00

Height mAU n.a.

Area mAU*min n.a. 0.000

Retention Time min n.a.

0.00

1S_1 WVL:530 nm

UV_VIS_1 WVL:530 nm

Run Time (min): 16.00
Irjection Volume: 5.00
Channel: IV_VIS_1
Bandwidth: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 04:09

Chromatogram 2.00 1 3 CR6-130716 #24

1.50

Absorbance [mAul]

Chromeleon (c) Dionex Version 7.1.1.1127

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Page 20 of 28

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130716

ECL029507-010 19 Unknown

Injection Details
Injection Name
Val Number:
Val Number:
Calibration Type:
Calibration Level:
Instrument Method:
Processing Method:
It jection Date/Time:

Run Time (min): 16.00
Channel: 5.00
Channel: 10 VINS_1
Wavelength: 530.0
Bandwidth: n.a.
Dilution Festor 10000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 04:47

Chromatogram 2.00 1 3 CR6-130716#26

1.75

1.25

1.50

[UAm] sonsdroadA

L An S CR	[UAm] sonsdrockA	ntegration Results	No. Peak Name	
CR6-130716 #27	200	serific	ame	Service School Services
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	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW		Retention Time	
			Time	
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ECL029507-012	,	Time [min]	Ι,	
7-012			Height	
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UV_VIS_1 WVL:530 nm	14		leight	1.41 1.50 0.01 2.45
L:530 nr		September 1	Amount	224

14.0

12.0

10.0

8.0 Time [min]

6.0

4.0

2.0

-0.40 J

mmmmmmm

0.25

0.00 -0.25 % 0.00

Relative Area % n.a. 0.00

Height mAU n.a.

Area mAU*min n.a.

etention Time min

Chromate

Default/Integration

Chromeleon (c) Dionex Version 7.1.1.1127

47

Page 22 of 28

Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130716

ECL029507-014 21 Unknown

Injection Details
it jection Name:
Vial Number:
It jection Type:
Calibration Level:
Processing Method:
Processing Method:
It jection Date/Time:

Chromeleon (c) Dionex Version 7.1.1.1127

Amount ppb n.a.

Relative Height % n.a.

Relative Area % % 0.00

Height mAU n.a.

Area mAU*min n.a. 0.000

Retention Time min

12.0

10.0

8.0 Time [min]

0.9

0,4

2.0

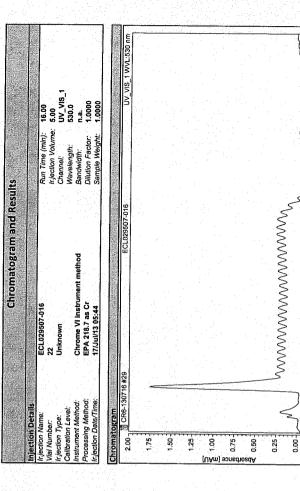
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Unknown Channel: UV_V Weelength: 530.0 Chrome VI instrument method EPA 218.7 as Cr 171Jul/13 05:25 Sample Weight: 1,000 Sample Weight: 1,000				
Chrome VI instrument method Bandwidh: 539.0 EPA 218.7 as Cr Dilution Factor: 1.000 17/Jul/13 05:25 Sample Weight: 1.000		Channel	VIS 1	
EPA 218.7 as Cr Dilution Factor. 1.000 17/Jul/13 05:25 Sample Weight. 1.000 ECL028507-014	ō	Wavelength: Randwidth:	ı .9	
17/Jul/13 05:25 Sample Weight: 1,000 0716 #28 ECL028507-014	:pq	Ollition Factor:		
ECL028507-014	.e.	Sample Weight:	3 8	
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ECL028507-014				188
	130716 #28		UV VIS 1 V	III <
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2.00 T CR6-130716 #28	16 #28		Ш	ECL029507-014		UV_VIS_1 WVL.530 nm	VL:530 nm
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megration Results							
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Chromatogram and Results

Instrument: Chrome_VI Sequence: CR6-130716

Run Time (min): 16.00
Channel: 5.00
Channel: 10 VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 06:03

3 CR6-130716 #30

2.00 -1.75 1.50-

Chromatogram

ECL029507-018 23 Unknown

Injection Details
irjection Name.
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection DeteTime:

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0.00	2:0	4:0	6.0 E	8.0 Time [min]	10.0	0 14.0	16.0
Integration Results No.   Peak Name		Retention Time	Area	Helaht	Relative Area	Relative Height	Amount
		uļш	mAU*min	mÃU	%	%	dag
7 · · ·			0.000	0.000	0.00	0:00	

4.0

12.0

0.0

8.0 Time [min]

6.0

0.4

20

-0.25 0.40

homomomony

0.25 0.00

[UAm] sonstnosdA

1.25

0.00

Relative Area % 0.00

Height mAU n.a. 0.000

Area mAU*min n.a. 0.000

Retention Time min

Integration Results
No. Peak Name

Default/Integration

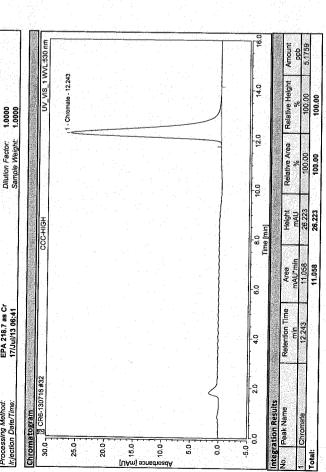
Chromeleon (c) Dionex Version 7.1.1:1127

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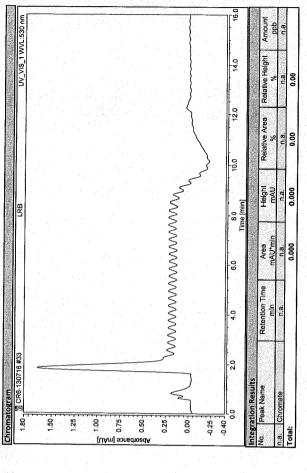
Instrument: Chrome_VI Sequence: CR6-130716

Chromeleon (c) Dionex Version 7.1.1.1127

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# **Dilution Corrected Concentrations**

RINSE 7/22/2013 10:42:22 AM

Hear Dra-dilution: 1 000

	user Pre	anduon, 1.00	JU	A				
	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1			ppb	ppb	ppb	ppb	ppb	ppb
	i	10:41:28	99.651%	0.195	97.698%	104.573%	0.077	102.546%
4	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%
	o o		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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
١	1	10:44:17	112.515%	0.181	110.763%	104.713%	0.073	113.718%
Ì	2	10:44:22	110.972%	0.189	111.124%	100.282%	0.078	109.263%
Ì	3	10:44:27	116.541%	0.156	111.426%	96.737%	0.076	105.852%
ł	×		113.343%	0.175	111.104%	100.577%	0.076	109.611%
i	G		2.875%	0.018	0.332%	3.996%	0.003	3.945%
i	%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%
х		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

7/22/2013 10:50:41 AM

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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%	тм 201.200	91.113%
2	10:49:52	105.739%	м 202.200	102.381%	92.817%	т 199.300	<u>т89,283%</u>
3	10:49:57	105.739%	м 201.500	103.753%	90.313%	<u>т 199.500</u>	т87.813%
х	Section 1989	105.709%	м 200.000	103.324%	93.367%	тм 200.000	<u>т 89.403%</u>
σ		0.053%	м 3.175	0.818%	3.363%	тм 1.03 <u>2</u>	<u> 1.653%</u>
%RSD		0.050	м 1.588	0.791	3.602	<u>тм 0.516</u>	<u>т 1.849</u>

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

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

User Pre-dilution: 1.000

	User Pre	-Ondudon, 1.00					2000	209Bi
1	Barra 1	Time	45Sc	52Cr	89Y	175Lu	208Pb	
ı	Run	I lilie	ppb	dad	ppb	ppb	ppb	ppb
			hhn			07.7340/	⊤ 197.200	93,642%
1	1	10:55:15	107.653%	196.900	106.758%	97.734%		
			.00 7350/	м 201.600	105.911%	92.853%	T 197.400	±91.080%
	2	10:55:20	108.736%	M 201.000		5.77.77	200, 200	т 118.773%
	- 3	10:55:25	110.280%	м 202.000	106.144%	86.805%	<u>тм 209.300</u>	
		10.23.22		200 200	106.271%	92.464%	тм 201.300	⊤101.165 <u>%</u>
	X		108.890%	м 200.200	100.27170			
		i	1.321%	м 2.818	0.437%	5.475%	<u>тм 6.966</u>	<u> † 15.303%</u>
	σ	]			0.413	5.921	тм 3.461	т 15.126
	%RSD	1	1.213	м 1.408	0.412	5.921	IM 3,701	1 201220

ICV 7/22/2013 10:58:55 AM

MUSYSI 100 pp3

User Pre-	dilution: 1.00	)()					
	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Run	Time	ppb	ppb	ppb	ppb	ppb	ppb
				104.629%	98,474%	97.110	95.106%
1	10:58:00	111.687%	97.680		7.7		• • • • • • • • • • • • • • • • • • • •
2	10:58:06	110.073%	100.100	104.353%	93.540%	97.650	91.537%
	10:58:11	103.919%	99.150	105.438%	90.937%	98.280	89.175%
	10.30.11	108.559%	98,990	104.807%	94.317%	97.680	91.939%
		4.099%	1.239	0.564%	3.828%	0.587	2.986%
%RSD	i	3.776	1.252	0.538	4.059	0.601	3.248
	1						

ICB 7/22/2013 11:01:39 AM

User Pre-dilution: 1.000

	-dilution: 1.00		52Cr	89Y	175Lu	208Pb	209Bi
Run	Time	45Sc	-			ppb	ppb
		ppb	ppb	ppb	ppb	bbn	
T 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%
<del>  3</del>	11:00:55	100.899%	0.008	103.770%	96.759%	0.015	96.572%
×		103.580%	0.011	103.635%	99.675%	0.015	99.398%
<u> </u>		4.117%	0.006	0.338%	3.077%	0.001	2.903%
%RSD	1	3.975	50.700	0.326	3.087	4.319	2.920

**LLQC-1** 7/22/2013 11:04:26 AM

208Pb 209Bi 1-0/pb

User Pre-dilution: 1.000

Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
i Kuii j		ppb	ppb	ppb	ppb	ppb	ppb
1	11:03:32		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%
¥	***************************************	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

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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%
х		108.675%	0.411	106.904%	96.053%	0.191	94.574%
o		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
	Run  1 2 3 X G %RSD	1 11:06:18 2 11:06:23 3 11:06:28 x σ	ppb           1         11:06:18         109.612%           2         11:06:23         106.984%           3         11:06:28         109.428%           x         108.675%           σ         1.467%	ppb         ppb           1 11:06:18         109.612%         0.387           2 11:06:23         106.984%         0.411           3 11:06:28         109.428%         0.436           x         108.675%         0.411           g         1.467%         0.024	ppb         ppb         ppb           1         11:06:18         109.612%         0.387         106.689%           2         11:06:23         106.984%         0.411         106.853%           3         11:06:28         109.428%         0.436         107.171%           X         108.675%         0.411         106.904%           5         1.467%         0.024         0.245%	ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb         ppb <td>Rull         Time         Opph         ppb         ppb</td>	Rull         Time         Opph         ppb         93

7/22/2013 11:09:56 AM

User Pre-dilution: 1.000

г			45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	Run	Time		ppb	ppb	ppb	ppb	ppb
			ppb			99.667%	46 330	97.152%
I	1	11:09:02	112.609%	44.960	107.187%	- T T		
Ì	7	11:09:07	108.252%	46.270	107.416%	95.188%	46.590	93.323%
ļ				46 0E0	107.544%	92.980%	46,520	91.731%
-	3	11:09:12			107131170			
Ī	Y		109.059%	45.760	107.382%	95.945%	46.480	94.068%
			3.223%	0.701	0.181%	3.407%	0.140	2.786%
	σ		J			3.551	0.300	2.962
	%RSD		2.955	1.531	0.168	2,231	0.500	2.502

ECL029474-001

7/22/2013 11:12:40 AM

User Pre-dilution: 1.000

4	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1	Kun	, tine	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%
	2	11:11:56	110.188%	0.115	108.782%	91.717%	0.623	82.440%
	3	11.11.50	110.557%	0.122	108.299%	95.159%	0.629	84.972%
	Х		2.099%	0.014	0.622%	4.083%	0.008	2.827%
	<u> </u>		1.899	11.130	0.575	4.290	1.222	3.326
	%RSD	l .	1.099	11,120	0.375			

ECL029474-001D

7/22/2013 11:15:23 AM

User Pre-dilution: 1.000

1	USELFIC	diduon, 1100				4	200Ph	209Bi
	Run	Time	45Sc	52Cr	89Y	1/5Lu	208Pb	
			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%
	¥		121.898%	0.130	116.744%	95.406%	0.525	85.088%
	<u> </u>		1.782%	0.022	0.125%	4.596%	0.007	3.363%
Š	%RSD		1,462	17.240	0.107	4.817	1.285	3.952

ECL029474-001S 7/22/20

7/22/2013 11:18:08 AM

User Pre-dilution: 1.000

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
١			ppb	ppb	ppb	ppb	ppb	ppb
[	1	11:17:13	118.348%	46.740	116.031%	99.508%	45.810	88.072%
1	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%
	Y	22,27,2	120.738%	46,960	116.115%	94.950%	46.060	84.737%
	<u>, , , , , , , , , , , , , , , , , , , </u>		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

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%
х		119.055%	0.228	117.896%	96.055%	0.509	85.646%
		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: 1.00			89Y	175Lu	208Pb	209Bi
Run	Time	45Sc	52Cr	A CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF TH		ppb	ppb
		ppb	ppb	ppb	ppb		
1	11:22:42	119.939%	0.550	117.207%	101.228%	10.160	91.046%
		120.676%	0.465	117.622%	95.582%	10.180	87.139%
2	11:22:48	F77 75 9	0.491	117.027%	93.096%	10.210	85.000%
3	11:22:53	120.838%			96.635%	10.180	87.728%
Y		120.484%	0.502	117.285%			
		0.479%	0.044	0.305%	4.167%	0.026	3.066%
or %RSD		0.17378	8.665	0.260	4.312	0.257	3.495

ECL029474-004

7/22/2013 11:26:22 AM

User Pre-dilution: 1.000

		45Sc	52Cr	89Y	175Lu	208Pb	20981
Run	Time		ppb	ppb	ppb	ppb	ppb
		ppb		سبلاسيا		4.680	91.028%
1	11:25:28	115.743%	0.278	112.280%	100.958%	4.080	
<del> </del>	11:25:33	115.743%	0.282	113.858%	96.207%	4.695	87.162%
2					93.153%	4.693	84.629%
3	11:25:38	113.415%	0.268	113.354%			
		114.967%	0.276	113.164%	96.773%	4.690	87.606%
X.	į			0.806%	3.933%	0.008	3.222%
σ	1	1.344%	0.007				3.678
%RSD	i	1.169	2.679	0.712	4.064	0.176	3.078

ECL029474-005

7/22/2013 11:29:08 AM

User Pre-dilution: 1.000

User Pre-	dilution: 1.00	)()			4761	208Pb	209Bi
Run	Time	45Sc	52Cr	89Y	175Lu	J	
		ppb	ppb	ppb	ppb	ppb	ppb
4	11:28:13	111.594%	0.356	108.253%	99.395%	6.779	87.408%
	11:28:18	107.146%	0.341	110.820%	94.458%	6.747	83.672%
		111.871%		111.065%	92.054%	6.723	82.526%
	11:28:24		0.347	110.046%	95.302%	6.749	84.536%
X		110.204%	0.0		3.743%	0.028	2.553%
σ		2.652%	0.008	1.557%			3.020
%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
Kun	1,,,,,,,	ppb	daa	ppb	ppb	ppb	ppb
1	11:30:59		0.344	109.255%	99.522%	4.746	89.807%
	11:31:04			109.666%	94.889%	4.726	85.749%
	11:31:10	108.644%	0.391		92.075%	4.742	84.029%
	11:31:10				95.495%	4.738	86.528%
X		110.081%	0.000		55116	0.011	2.967%
σ		1.247%	0.034	0.377%	3.760%		
%RSD	j	1.133	9.581	0.345	3.938	0.227	3.429

7/22/2013 11:34:39 AM

Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kun	( time	ppb	ppb	ppb	ppb	ppb	ppb
	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%
2	11:33:55	110.949%	-0.011	111.832%	98.271%	0.003	97.910%
	11.55.55	112.017%	-0.006	111.184%	101.369%	0.003	100.372%
<u>x</u>			0.005	0.751%	3.390%	0.000	2.712%
σ		1.654%	0.0	0.73176	3.344	8.476	2.702
%RSD	J	1.477	76.440	0.076	يتدند	0.170	2.,, 32

## CKS 7/22/2013 11:37:23 AM

User Pre-dilution: 1.000

1	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
•	******		ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	11:36:29	112.078%	191.200	109.986%	97.638%	T 195.700	±95.301%
Ī	2	11:36:34	109.981%	193.400	110.460%	93.376%	<u>т 195.700</u>	90.376%
Ī	3	11:36:39	110.788%	195.700	109.712%	90.528%	<u> 195.700</u>	<u> 788.864%</u>
וֹ	х		110.949%	193.400	110.053%	93.847%	<u> † 195.700</u>	<u> +91.514%</u>
Ì	σ		1.058%	2.247	0.378%	3.578%	<u> ⊤0.007</u>	<u>т 3.366%</u>
į	%RSD		0.954	1.162	0.344	3.813	<u> + 0.004</u>	<u>т 3.678</u>

#### ECL029474-007

7/22/2013 11:40:09 AM

User Pre-dilution: 1.000

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	11:39:13	107.560%	163.100	103.171%	95.936%	47.200	104.507%
Ī	2	11:39:18	103.250%	167.500	102.805%	91.243%	47.420	100.140%
Ť	3	11:39:24	102.743%	165.600	103.516%	88.805%	47.680	97.820%
Ť	х		104.518%	165.400	103.164%	91.995%	47.430	100.822%
Ì	σ		2.647%	2.239	0.355%	3.624%	0.238	3.395%
Ī	%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%
- 7	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

	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%
	х		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
Г	1	11:50:11	100.115%	43.490	101.467%	97.949%	112.200	115.136%
$\vdash$	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%
۲	¥		99.693%	44.030	101.351%	94.611%	112.100	111.871%
<del> </del>			0.375%	0.465	0.101%	3.151%	0.155	3.116%
H	%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%
ď		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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-			ppb	ppb	ppb	ppb	ppb	ppb
Г	1	11:55:39	96.773%	82.630	101.800%	98.852%	156.000	106.792%
Ī	2	11:55:44	96.980%	83.710	101.437%	94.203%	156.600	102.817%
Ī	3	11:55:50	99.608%	83.940	101.161%	91.984%	<u> † 156.800</u>	100.505%
Г	х		97.787%	83.430	101.466%	95.013%	<u> † 156,500</u>	103.371%
Г	σ		1.580%	0.700	0.320%	3.505%	<u> ⊤0.445</u>	3.180%
	%RSD		1.616	0.839	0.316	3.689	<u>т 0.284</u>	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

 	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi	ŀ
ħ			ppb	ppb	ppb	ppb	ppb	ppb	ļ
	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%	
	×		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

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Ru	ın	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
<del></del>			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%
	х	A State of the	106.262%	0.349	105.867%	94.939%	6.583	86.534%
	0		1.152%	0.019	0.806%	3.835%	0.017	3.214%
%R			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%
х		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	208РЬ	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
	1	12:09:25	110.857%	188.200	107.916%	99.496%	<u> † 191.900</u>	95.616%
	2	12:09:30	109.036%	192.000	106.890%	94.853%	т 192.800	92.059%
	3	12:09:36	107.284%	191.500	108.654%	92.368%	<u>r 192.200</u>	90.087%
	x		109.059%	190.600	107.820%	95.572%	<u> + 192.300</u>	92.587%
	σ		1.787%	2.061	0.886%	3.618%	±0.466	2.802%
١	%RSD		1.638	1.081	0.822	3.786	<u> + 0.242</u>	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%
Х		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

	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%
[	Х		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%
Ī	%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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1			ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	12:17:40	112.217%	0.005	107.715%	104.186%	0.006	102.761%
Ì	2	12:17:45	107.699%	0.007	108.053%	99.775%	0.007	99.486%
Ī	3	12:17:50	105.763%	0.009	107.744%	97.534%	0.008	97.328%
Ì	х		108.559%	0.007	107.837%	100.499%	0.007	99.858%
Ť	σ		3.312%	0.002	0.187%	3.385%	0.001	2.736%
t	%RSD		3.051	31.160	0.174	3.368	12.130	2.740

CKS 7/22/2013 12:21:18 PM

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ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
-			ppb	ppb	ppb	ppb	ppb	ppb
Г	1	12:20:23	109.704%	187.300	107.079%	96.670%	тм 201.900	87.373%
Ī	2	12:20:29	107.560%	191.300	106.666%	94.059%	т 195.800	86.488%
Ī	3	12:20:34	106.339%	190.500	107.558%	91.238%	<u>т 196.300</u>	<u> ⊤85.603%</u>
Ĩ	x		107.868%	189.700	107.101%	93.989%	тм 198.000	<u> + 86.488%</u>
Ĭ	σ		1.704%	2.133	0.446%	2.717%	™ 3.400	+0.885%
ř	%RSD	<i>2</i>	1.579	1.124	0.417	2.890	тм 1.717	<u>т 1.023</u>

# TABLE OF CONTENTS

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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.

Taka	SampleID	Received Date	collectdate	collectby
Eab# ECL029507-001	3740 Blueberry - POU total	7/11/2013	7/11/2013	Bennett
ECL029507-001	3740 Blueberry - POU dissolved	7/11/2013	7/11/2013	Bennett
ECL029507-002	3740 Blueberry - PT1 total	7/11/2013	7/11/2013	Bennett
ECL029507-003	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.

Laboratory Director

Enviro-Chem Laboratories, Inc.

# Chain of Custody

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Enviro-Chem Laboratories, Inc.

(NIFU) a SON + NIFUOF 47 Loveton Circle, Suite K

Sparks, MD 21152 SA = Sulfuric Acid, pH <2 OH = NaOH, pH >12 Preservative Key: NA = Nitric Acid, pH <2 * Level TI Data Package Remarks N ≈ None, Chilled X = Other Zn = Zinc Acetate Deliverables* TI = Thiosulfate Seal 300 Ice Present # Coolers Rush? Other Page Special instructions, Comments: 1-Day umaround Requested Deliverables Required Due Date STD X  $\times$  $\times$  $\overline{\mathsf{x}}$ X ThesapeaKe GeoSciences, Inc. (CGS) Phone No. (410) 740. (911 x 102 ECL Log in Batch Number X X Preservative G = Grab C = Comp Type ch th (h)ch Containers Š ŏ  $\mathfrak{C}$ 3 3 3 3 3 3  $(\mathcal{N})$  $\mathfrak{M}$  $\gamma$ Email: Edantel @ CG 5.US.Com Project Number: CG -1 2'0788.06 Matrix 3 DW D 3 Received By 39 Received By 3 Received By Received By 30 3 3 3 3 Explain any "NO" answers Fax No.: (410) 740-3299 8:46 9:38 12:32 11:09 4.06 00:00 9:38 13:45 431 Time Sampled = 3,5 <u>u</u> Time 3740Blueberry -POU 7/11/13 Date # of Bottles 30 ₹ Date Date 3740 Blueberry-PTIDB 3740 Blueberry-WP3 3740Blueberry-PT2 3740 Blue Derry-PT4 3740 Blueberry-WP1 3740 Blueberry-WPA 3740Blueberry-PT3 Sample Identification 3740 Blueberry-PTI 3740 Blueberry-FB (As it is to appear on report) 9 Preserved correctly # of Samples P.O. Number: CG 120783.065D Project Name: Green Valley Citas Project Manager: Sean Danze z Sampler. Lava Bennot Enviro-Chem Lab No. 1018 100 ECLOS SOFT - 603 ECLOS SOFT - 604 ECLOS SOFT - 606 ECLO 29507 - 013 Eccordsof-015 50029507-016 (3) 010 5002955 - UIZ ECLO29507-011 ECLO29 507 - 069 300 - tasteroza 100 - LOSA013 ECLUZESOF-UN collected / Relinquished By Bottles intact/appropriate ECLO29507 ECLO29507 tastronad Ecrososas Ecrosopt COC/Labels match Relinquished By Relinquished By Client: (

# Phone 410-472-1112

3

Fax: 410-472-1116

Analytical Reports



#### 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

SAMPLER- Bennett

REPORT NUMBER: 6701

LOCATION-

LAB#- ECL029507-001 SAMPLE ID- 3740 Blueberry - POU total

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 8:46
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 1 of 20

		ANALYSIS			REPORTING	DATA
ANALYSIS	METHOD	DATE/TIME	BY	RESULT	LIMIT	FLAG

#### METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	μg/L	1.0
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	μg/L	1.0



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-002

SAMPLE ID- 3740 Blueberry - POU dissolved

LOCATION-

DATE SAMPLED- 7/11/2013 DATE RECEIVED- 7/11/2013

DELIVERED BY- Bennett

SAMPLER- Bennett

TIME SAMPLED- 8:46 TIME RECEIVED- 15:15 RECEIVED BY- VPS

COMMENTS-

Page 2 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG	
METALS BY ENVIRO-CHEM Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/22/2013 12:43 7/22/2013 12:43	CHK	< 1.0 < 1.0	μg/L μg/L	1.0 1.0		
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192								

EPA 218.7 7/17/2013 03:32 SES < 0.020 ug/L Cr 0.020 S Chromate



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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#- ECL029507-003

LOCATION-DATE SAMPLED- 7/11/2013

DATE RECEIVED- 7/11/2013

DELIVERED BY- Bennett

SAMPLE ID- 3740 Blueberry - PT1 total

TIME SAMPLED- 9:06 TIME RECEIVED- 15:15

RECEIVED BY- VPS

COMMENTS-

Page 3 of 20

ANALYSIS

RESULT

REPORTING

DATA

ANALYSIS

METHOD

DATE/TIME

BY

SAMPLER- Bennett

LIMIT

FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*# Lead*#

EPA 200.8

7/22/2013 12:43 CHK EPA 200.8 7/22/2013 12:43 CHK

< 1.0 32.3 μg/L μg/L 1.0 1.0



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-004 SAMPLE ID- 3740 Blueberry - PT1 dissolved

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:06
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG		
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	μg/L	1.0			
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	16.8	μg/L	1.0			
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromate	EPA 218.7	7/17/2013 03:50	SES	< 0.020	ug/L Cr	0.020	S		



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LOCATION-

DATE SAMPLED- 7/11/2013

DATE RECEIVED- 7/11/2013

DELIVERED BY- Bennett

COMMENTS-

Page 5 of 20

LAB#- ECL029507-005 SAMPLE ID- 3740 Blueberry - PT/DB total

TIME SAMPLED- 0:00 TIME RECEIVED- 15:15

RECEIVED BY- VPS

ANALYSIS

DATE/TIME

RESULT BY

SAMPLER- Bennett

REPORTING DATA LIMIT FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*# Lead*#

ANALYSIS

EPA 200.8

METHOD

7/22/2013 12:43 CHK EPA 200.8 7/22/2013 12:43 CHK

< 1.0 41.5 μg/L μg/L

1.0 1.0

11



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-006 SAMPLE ID- 3740 Blueberry - PT/DB dissolved

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 0:00
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG		
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/22/2013 12:43 7/22/2013 12:43	CHK CHK	< 1.0 16.6	μg/L μg/L	1.0 1.0			
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromate	EPA 218.7	7/17/2013 04:09	SES	< 0.020	ug/L Cr	0.020	S		



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-007 SAMPLE ID- 3740 Blueberry - PT2 total

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:21
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

ANALYSIS

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	ANALYSIS			REPORTING	DATA
METHOD	DATE/TIME	BY	RESULT	LIMIT	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
	EPA 200.8	7/22/2013 12:43	CHK	58.3	μg/L	1.0



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

SAMPLER- Bennett

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-008 SAMPLE ID- 3740 Blueberry - PT2 dissolved

LOCATION-

DATE SAMPLED- 7/11/2013

DATE RECEIVED- 7/11/2013

DELIVERED BY- Bennett

TIME SAMPLED- 9:21

TIME RECEIVED- 15:15

RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG		
METALS BY ENVIRO-CHE	M LABORATORII	ES, MD CERT #192							
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	μg/L	1.0			
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	8.6	μg/L	1.0			
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromate	EPA 218.7	7/17/2013 04:28	SES	< 0.020	ug/L Cr	0.020	S		



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

SAMPLER- Bennett

REPORT NUMBER: 6701

LAB#- ECL029507-009 SAMPLE ID- 3740 Blueberry - PT3 total

LOCATION-

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:28
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

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		ANALYSIS			REPORTING	DATA
ANALYSIS	METHOD	DATE/TIME	BY	RESULT	LIMIT	FLAG

#### METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	$\mu g/L$	1.0
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	14.7	$\mu g/L$	1.0



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-010 SAMPLE ID- 3740 Blueberry - PT3 dissolved

LOCATION-

DATE SAMPLED- 7/11/2013

TIME SAMPLED- 9:28
TIME RECEIVED- 15:15

SAMPLER- Bennett

DATE RECEIVED- 7/11/2013 DELIVERED BY- Bennett

RECEIVED BY- VPS

COMMENTS-

Page 10 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG		
METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromium*#	EPA 200.8	7/22/2013 12:43	CHK	< 1.0	μg/L	1.0			
Lead*#	EPA 200.8	7/22/2013 12:43	CHK	9.8	μg/L	1.0			
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192									
Chromate	EPA 218.7	7/17/2013 04:47	SES	< 0.020	ug/L Cr	0.020	S		



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

SAMPLER- Bennett

REPORT NUMBER: 6701

LAB#- ECL029507-011 SAMPLE ID- 3740 Blueberry - PT4 total

DATE RECEIVED- 7/11/2013 TIME SAMPLED- 9:38
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VDG
COMMENTS-

COMMENTS-

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		ANALYSIS			REPORTING	DATA
ΔΝΔΙ.ΥςΤς	METHOD	DATE/TIME	BY	RESULT	LIMIT	FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

1.0 7/22/2013 12:43 CHK < 1.0 μg/L EPA 200.8 Chromium*# 1.0 EPA 200.8 7/22/2013 12:43 CHK 24.9 μg/L Lead*#



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FINAL REPORT OF ANALYSES

Chesapeake GeoSciences, Inc.

5405 Twin Knolls Rd

Suite 1

Columbia, MD 21045-

PROJECT NAME: Green Valley

REPORT DATE: 31-Jul-13

REPORT NUMBER: 6701

LAB#- ECL029507-012 SAMPLE ID- 3740 Blueberry - PT4 dissolved

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 9:38
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

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ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, MD CERT #192					
Chromium*# Lead*#	EPA 200.8 EPA 200.8	7/22/2013 12:43 7/22/2013 12:43	CHK CHK	< 1.0 6.4	μg/L μg/L	1.0	
WET CHEMISTRY BY ENVI	RO-CHEM LAB	ORATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	7/17/2013 05:06	SES	< 0.020	ug/L Cr	0.020	S



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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

DATE RECEIVED- 7/11/2013

DELIVERED BY- Bennett

SAMPLER- Bennett

TIME SAMPLED- 11:09 TIME RECEIVED- 15:15 RECEIVED BY- VPS

COMMENTS-

ANALYSIS

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ANALYSIS			REPORTING	DATA
DATE/TIME	BY	RESULT	LIMIT	FLAG

METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192

METHOD

7/22/2013 12:43 CHK 1.0 < 1.0 μg/L Chromium*# EPA 200.8 EPA 200.8 7/22/2013 12:43 CHK < 1.0 μg/L 1.0 Lead*#



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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-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:09
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 14 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, 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 ENVI	RO-CHEM LABO	ORATORIES, MD CE	RT #19	2			
Chromate	EPA 218.7	7/17/2013 05:25	SES	< 0.020	ug/L Cr	0.020	S



#### 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

SAMPLER- Bennett

REPORT NUMBER: 6701

LOCATION-

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 12:32
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 15 of 20

LAB#- ECL029507-015 SAMPLE ID- 3740 Blueberry - WP2 total

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	ES, 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	ua/L	1.0	



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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-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 12:32
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 16 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORII	ES, 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 ENVI	RO-CHEM LAB	ORATORIES, MD CE	RT #19:	2			
Chromate	EPA 218.7	7/17/2013 05:44	SES	< 0.020	ug/L Cr	0.020	S



#### 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#- ECL029507-017 SAMPLE ID- 3740 Blueberry - WP3 total

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 13:45
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 17 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULI	י	REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIE	S, MD CERT #192					
Chromium*# Lead*#		7/22/2013 12:43 7/22/2013 12:43	CHK CHK	< 1.0 < 1.0	μg/L ug/L	1.0	



#### 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#- ECL029507-018 SAMPLE ID- 3740 Blueberry - WP3 dissolved

LOCATION-

SAMPLER- Bennett

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 13:45
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 18 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG		
METALS BY ENVIRO-CHEM	LABORATORI	ES, 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		



#### 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

SAMPLER- Bennett

REPORT NUMBER: 6701

LAB#- ECL029507-019 SAMPLE ID- 3740 Blueberry -FB total

LOCATION-

DATE SAMPLED- 7/11/2013 TIME SAMPLED- 11:15
DATE RECEIVED- 7/11/2013 TIME RECEIVED- 15:15
DELIVERED BY- Bennett RECEIVED BY- VPS

COMMENTS-

Page 19 of 20

ANALYSIS	METHOD	ANALYSIS DATE/TIME	ВҮ	RESULT		REPORTING LIMIT	DATA FLAG
METALS BY ENVIRO-CHEM	LABORATORIES	S, 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	



#### 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 DELIVERED BY- Bennett

TIME RECEIVED- 15:15 RECEIVED BY- VPS

COMMENTS-

Page 20 of 20

		ANALYSIS
ANALYSIS	METHOD	DATE/TIME

ANALYSIS			REPORTING	DATA
DATE/TIME	BY	RESULT	LIMIT	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

0.020 EPA 218.7 7/17/2013 06:22 SES < 0.020 ug/L Cr Chromate

LABORATORY DIRECTOR

[#] State of Maryland Certified Parameter

^{*} NELAC Certified Parameter

QC Summary Table

Enviro-Chem Laboratories, Inc. -Quality Control Report

r Flag		10 10		130 130 130 130
High Limit		115	÷ ÷	130 130 130
Low		85		07 07 07 07
%R or %RPD	0.7 35 0.2 73.4	98.3 102.8		96.1 97.2 97.6 98.3
Associated Sample Result	<ul><li>&lt; 1.0</li><li>&lt; 1.0</li><li>&lt; 24.9</li><li>&lt; 1.0</li></ul>			<ul><li>&lt; 1.0</li><li>&lt; 1.0</li><li>&lt; 1.0</li><li>&lt; 24.9</li></ul>
True Value/Spike Added		20		50 50 50
Units	µg/L µg/L µg/L	µg/L µg/L	µg/L	µg/L µg/L µg/L
Result	< 1.0 < 1.0 25.0 < 1.0	49.2 51.4	× 1.0 × 1.0	48.3 48.7 49.3 74.1
Test Name MD CERT #192		Chromium Lead	Chromium Lead	Chromium Chromium Lead Lead
QC Type	Duplicate Duplicate Duplicate	SOT SOT	Prep Blank Prep Blank	Spike Spike Spike
ID QC Type Test Name METALS BY ENVIRO-CHEM LABORATORIES, MD CERT #192	ECL029507-001D ECL029507-011D ECL029507-011D ECL029507-001D	LCS5106 LCS5106	LPB5106 LPB5106	ECL029507-011S ECL029507-001S ECL029507-001S ECL029507-011S

	QC Type	Test Name		Result	Units	True Value/Spike Added	Associated Sample Result	%R or %RPD	Low	High Limit	Flag
WET CHEMISTRY BY ENVIRO-CHEM LABORATORIES, MD CERT #192	VIRO-CHEM LABOR	ATORIES, MD CE	:RT #192								
HDIH-CCC-HIGH	нэн-эээ	Chromate		5,176	ng/L	ហ		103.5	85	115	
CCC-LOW	CCC-LOW	Chromate		< 0.020	ng/L	0.02		86.5	20	150	
CCC-MID	CCC-MID	Chromate		1.053	ng/L			105.3	85	115	
ECL029474-002SD	MSD	Chromate		0.763	ug/L	<b>√</b>	< 0.020	76.3	82	115	•
ECL029474-002S	Spike	Chromate		0.747	ng/L	<b>▼</b> 1	< 0.020	74.7	82	115	***
ECL029474-002SD	Spike Dup	Chromate		0.763	ng/L	-	< 0.020	2.1	0	20	

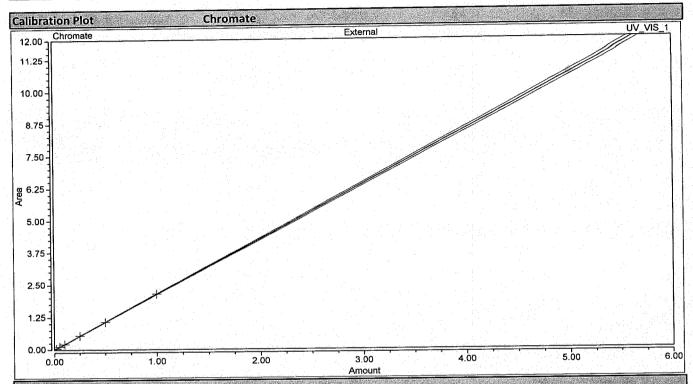
#### Instrument Blanks

#### INSTRUMENT BLANKS

	Analytical Run	F130722C	Date of Analysis	7/22/2013
ICB	Cr Pb <1.0 µg/L <1.0 µg/	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		
CCB CCB	<1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/ <1.0 µg/L <1.0 µg/	<b>L</b>		
CCB				7/40/2042
	Analytical Run	CR6-130716	Date of Analysis	7/16/2013
LRB LRB LRB	CrO4 <0.02µg/L <0.02µg/L <0.02µg/L			

#### Calibration Data

	Cali	ibration			
Calibration Details	Chromate			0.0089	7 T
Calibration Type	Lin, WithOffset, 1/A		Offset (C0) Slope (C1)	0.0069 2.1346	
Evaluation Type	Area		Curve (C2)	0.0000	
Number of Calibration Points  Number of disabled Calibration Points	0		R-Square	1.0000	



Calib	ration Results	Chromate					T
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
4	0.02 CrO4	01	0.0200	0.0506	0.0506	0.051	0.153
7	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

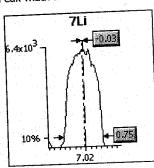
Report name : 1] XSII Xt 1ppb Tune A [6/14/2012 10:16:43 AM]

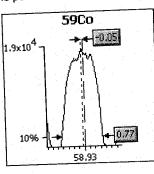
#### **Mass Calibration verification**

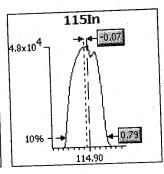
**Acquisition parameters** 

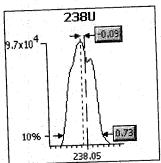
Sweeps: 10 Dwell: 5.0 mSecs Point spacing: 0.02 amu

Peak width measured at 10% of the peak maximum









		Limits		Resi	ults
Analyte	Max. width	Min. width	Max. error	Peak width	Peak error
7Li	0.85	0.65	0.10	0.75	-0.03
	0.85	0.65	0.10	0.77	-0.05
59Co	0.85	0.65	0.10	0.79	-0.07
115In		0.65	0.10	0.73	-0.09
238U	0.85	0.03		نا	<del></del>

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]

une conditi	ons			
Major			Minor	
Extraction	-160.8		Lens 3	-195.3
Lens 1	-1286	Fo	orward power	1200
Lens 2	-79.2		Horizontal	67
Focus	8.0		Vertical	640
D1	-47.1		DA	-31.4
D2	-140		Cool	13.0
Pole Bias	-2.0		Auxiliary	1.20
Hexapole Bias	-11.0	Sa	ampling Depth	150
Nebuliser	0.78			

* 15	
Global	
Standard resolution	110
High resolution	100
Analogue Detector	1804
PC Detector	3127

Add. Gase	s
CCT-He/H2	0.00
CCT-Ammonia	0.00
	-

#### Sensitivity and stability results

**Acquisition parameters** Sweeps: 130

Sweeps .	. 150		<u> </u>		FOC-	137Ba++	138Ba++	101Bkg	115In	137Ba
Run	Time	5Bkg	7Li	56Ar O	59Co			100.0	10.0	10.0
10000	rell (mSecs)	100.0	10.0	10.0	10.0	30.0	30.0	100.0	The second second	
			2.0%		2.0%		-	-	2.0%	<u> </u>
Limits	%RSD				>10000	- 1	<del>-</del> -1	- 1	>40000	
211110	Countrate		>4000	240017.27	18151.306	68,205	515.650	0.154	49135.598	4856.139
1	9:33:49 AM	0.000	5718.739	349017.27		67.949	493.854	0.000	49369,410	4876.145
2	9:34:58 AM	0.000	5865.716	347823.40	17858.662		476.674	0.077	49472.042	4820.744
3	9:36:07 AM	0.000	5669.490	349617.39	17953.385	85.128			49249.803	4846.136
4		0.000	5708.735	346900.92	18111.260	76.923	481.289	0.000		
		0.077	5785.686	348263.81	17961.857	72.564	467.443	0.000	49773.767	4931.547
5	9:38:26 AM		5749.673	348324.56	18007.294	74.154	486.982	0.046	49400.124	4866.142
Х		0.015			121.05	7.15	18.64	0.07	244.08	41.65
σ	1	0.03	77.18	1052.72			3.827	149.071	0.494	0.856
%RSD	1	223.607	1.342	0.302	0.672	9.643	3.027	143.071		
	-				The state of the		_			

				<del>ر حضیت در در</del>	· · · · · · · · · · · · · · · · · · ·	20011
Run	Time	138Ba	140Ce	156Ce O	220Bkg	238U
1000 11 12 12 12	ell (mSecs)	10.0	10.0	30.0	100.0	10.0
	%RSD	_			<del>-</del>	2.0%
Limits	Countrate	_		-	<1	>80000
4	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
7.1	9:37:16 AM	31429.270	42064.237	748.992	0.000	94569.169
4		31521.764	42040.327	743.351	0.077	95646.466
5	9:38:26 AM	31455.631	41945.149	748,736	0.062	94134.903
X		63.34	213.44	11.23	0.03	1200.79
%RSD	r L iv	0.201	0.509	1.499	55.902	1.276
70130	J					

**Ratio results** 

auvi	CSUILS	and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th		
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
<del></del>	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
	9.38.20 AH	0.0152	642690.15	0.0179
<u> </u>		0.00	287435.21	0.00
σ	1	10.1926	44,7238	1.2446
%RSD		10.1500		

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]

une conditi	ons							
Major		ſ	Minor					
Extraction	-160.8	Ī	Lens 3 -19					
Lens 1	-1286		Forward power	1200				
Lens 2	-79.2		Horizontal	67				
Focus	-9.4		Vertical	640				
D1	-62.0		DA	-31.4				
D2	-140		Cool	13.0				
Pole Bias	-16.0		Auxiliary	1.20				
Hexapole Bias	-20.0		Sampling Depth	150				
Nebuliser	0.78							

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

	Add. Gase	s
1	CCT-He/H2	5.14
	CCT-Ammonia	0.00
	<del></del>	

#### Sensitivity and stability results

**Acquisition parameters** 

Sweeps: 100

micepo.						
Run	Time	78Se	80Ar2	115In	140Ce	156Ce O
Dwell (mSecs)		30.0	10.0	10.0	10.0	10.0
	%RSD	-	÷.	2.0%	•	-
Limits	Countrate	<20	<200	>2000	-	
- 1	9:45:19 AM	0.333	93,000	6296.268	13606.922	84.000
2		0.333	82.000	6283.263	13836.123	71.000
3 9:45:39 A		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
	9.43.35 711	0.533	85.600	6246,248	13730.631	80.600
X		0.55	8.68	79.40	125.95	9.89
σ %RSD		94.786	10.137	1.271	0.917	12.270
	-					

**Ratio results** 

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

Result: The performance report passed.

### INITIAL AND CONTINUING CALIBRATION VERIFICATION

	Analytical Ru	ın	F130722C	Date	ysis	7/22/2013		
	Cr TRUE Fo		%recovery	TR	PI UE Fo	ound	% 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

METALS DIGESTION LOG	Spiking Solution(s) added to CS/MS/MSD:	Acids added: 1.0m + 1 + 1 + Ce	(mL): SOML Time out:	Sample ID: weight (g)/initial volume II!	29507-011	29507-011D	0115	20501-012	29507.013	29507-014	. 1	34507-01k	7.507 .011	24501-018	74567-614		
METALS	Digestion Batch: 5 lu C  1/19/13	Analyst:	Microwave or Hotblock? 100 kg 1 100 kg 1.7	le ID:	LPASIOL SOME 07 T	0	0100-0010	29507-0015	200- 505	29507-003	Y00-004	3950-005	29507-006	700-105	29507 -008	201507-009	Comments:

#### Raw Data

26/Apr/11 09:00:46

17/Jul/13 07:19:00

**Enviro Chem** 

**Enviro Chem** 

Updated By:

# Summary

Sequence Details

Data Vault:

Name: CR6-130716
Directory: Instrument Data\Chrom

CR6-130716 Created On:
Instrument Data\Chrome_VI\Sequences\CR6-: Created By:
ChromeleonLocal Updated On:

No. of Injections: 33

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	М
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	М
8	CCC-LOW	12.254	0.046	0.112	0.0173	16/07/13 23:07	М
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.ä.
11	ECL029474-002S	12.101	1.604	4.238	0.7472	17/07/13 00:03	ВМ
12	ECL029474-002SD	12.107	1.638	4.316	0.7630	17/07/13 00:22	М
13 👙	ECL029474-004	12.111	0,060	0.149	0.0239	17/07/13 00:41	М
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	М
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	ВМ
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.	п.а.	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.=	п.а.	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.	aw n.a.	n.a.	n.a.	17/07/13 05:25	п.а.
9	ECL029507-016	n.a.	n.a.	n.a.	n.a.	17/07/13 05:44	n.a.
0	ECL029507-018	n.a.	n.a.	n.a.	n.a.	17/07/13 06:03	n.a.
1	ECL029507-020	n.a.	n.a.	n:a.	n.a.	17/07/13 06:22	n.a.
2	CCC-HIGH	12.243	11.058	26.223	5.1759	17/07/13 06:41	М
33	LRB	n.a.	n.a.	n.a.	n.a.	17/07/13 07:00	n.a.

Run Time (min): 16.00
Irjection Volume: 5.00
Channel: UV.VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Ditution Fector: 1.0000
Sample Weight: 1.0000

Chrome VI instrument method EPA 218.7 as Cr 16/Jul/13 23:26

Run Time (min): 16.00 Channel. 5.00 Channel. 10 VIS.1 Wavelength: 530.0 Barbukhin: n.a. Dilution Factor. 1,0000 Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 16/Jul/13 23:07

Chromatogram 2.00 7 CR8-130716#8

1.75 1.50

Unknown

Injection Details
Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

2 Unknown

Chromatogram and Results

Page 2 of 28

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

Chromeleon (c) Dionex Version 7.1.1.1127

Irjection Name: National Name: Irjection Type: Calibration Level: Instrument Method: Processing Method:	Chromatogram Chromatogram CR6-130716 #9	1,76	Masorbason (Mal) 1.00	0.00	integration Results  No. Peak Name  n.a. Chromate  Total:	
				0		

1 - Chromate - 12.254

hommonomy

hommonomy

Amount

Relative Height

Relative Area % n.a. 0.00

Height mAU

Retention Time n a

0.000

Area mAU"min n.8. 0.000

Relative Height % 700.00 100.00

Relative: Area % 100.00

Height mAU 0.112

Area mAU*min 0.046

Retention Time mln 12.254

Integration Results
No. Peak Name

Total:

12.0

10.0

8.0 Time [min]

6.0

0.4

14.0

12.0

10.0

8.0 Time [min]

0.0

0.4

2.0

-0.25 -0.40

0.00

0.25

[UAm] sonsdroedA

1.25

Default/Integration

Instrument: Chrome_VI Sequence: CR6-130716

ECL029474-002 Unknown

Injection Details
Irjection Name:
Vial Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Detection

Run Time (min): 16.00
Channel: 5.00
Channel: 5.00
Wavelength: 530.0
Bandwidth: n.a.
Diution Factor: 1.0000
Sample Weight: 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 16/Jul/13 23:45

1.80 J CR6-130716#10

1.50

1.25

Chromatogram

	100 000		ECL029	ECL029474-002S		UV_VIS_1 WVL:530 nm	/L:530 nm
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3.00-							
[UAn							
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0.50	0.0 2.0	4.0	6.0 8.0	10,0	12.0	14.0	16.
Integral	Integration Results		PH I	little (IIIII)			
ē.	Peak Name	Retention Time	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ppb
7	Chromate	12.101	1.604	4 2 3 8	100,00	100.00	0.7472

Relative Helght

0.00

Relative Area % n.a. 0.00

Height mAU n.a. 0.000

Area mAU*min n.a. 0.000

Retention Time min n.a.

Integration Results No. Peak Name

n.a. Chromate Total:

14.0

12.0

10.0

6.0

4.0

0.40 J

-0.25

0.00

0.25

[UAm] sonsdoordA

monomonomy

Chromateon (c) Dionex Version 7.1.1.1127

Instrument:Chrame_VI Sequence:CR6-130716

CL029474-002SD Unknown

Injection Details
Injection Name:
Val Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
It; jection Detection

Chromatogram

UV_VIS_1 WVL:530 nm

Run Time (min): 16.00 Channel: 5.00 Channel: 9.00 Wavelength: 530.0 Bandwidh: n.a. Diution Festor: 1,0000 Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 00:22

Chromatogram 5.00 1 CR6-130716#12

1 - Chromate - 12,107

MWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	10.0 12.0 14.0  10.0 12.0 14.0  11.0 12.0 14.0  11.0 12.0 14.0  11.0 12.0 14.0  11.0 12.0 14.0  11.0 10.0 0 0.0020	S CIND-1301 10 #10
11. Chromate - 12.111	100   120   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140   140	
100 120 140	10.0 12.0 14.0  12.0 14.0  12.0 14.0  12.0 14.0  12.0 14.0  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00  12.0 10.00	
6.0 8.0 10.0 12.0 14.0	6.0 8.0 10.0 12.0 14.0  Area Height Relative Area Relative Height Amou natural matural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural natural	\$
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ime Area Height Relative Area Relative Height mAU*min mAU %		

Relative Height Amount % ppb % 0.7630 100.00 100.00

Relative Area % 100:00 100:00

Height mAU 4.316 4.316

Area mAU*min = 1.638

Retention Time min 12.107

Integration Results No. Peak Name

Total:

14.0

12,0

10.0

8.0 Time [min]

8.0

4.0

2.0

0.00 -0.50 JL

2.00

[UAm] sonsdroedA

1.00

3.00-

4.00

Default/Integration

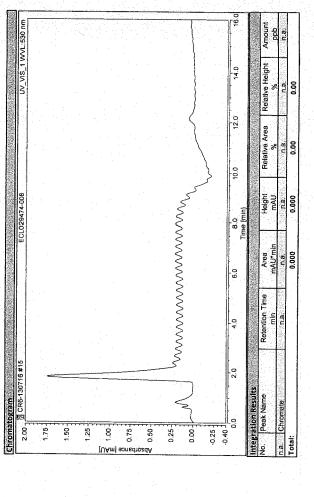
Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dlonex Version 7.1,1,1127

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Instrument: Chroma_Vi Sequence: CR6-130716

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1 - Chromate - 12.091

Relative Height Amount % ppb 100.00 0.0247

14.0

12.0

[UAm] sonednosdA

0.00

0.25

0.40

Total:

-0.25

1.25

1.75 1.50

UV_VIS_1 WVL:530 nm

16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000

Run Time (min): Ir, jection Volume: Ghannel: Wavelength: Bandwidth: Dilution Factor: Sample Weight:

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 01:38

1.80 TCR6-130716 #16

ECL029474-010 9 Unknown

Injection Details
Trjection Name:
Val Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Detailine:

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

CR6-130716 #17	Absorbance (IMAN) 201 1.150 0.00 0.00 0.00 0.00 0.00 0.00 0	0.0 2.0	ntegration Results	No. Peak Name	Chromate
		0.4.0		Retention Time min	12:092
		6,0 8.0 Time [min]		Area Height mAU*min mAU	
		10.0 12.0		8 9	100:00
	. Chromate - 12.092	14.0		Relative Height	100.00

11 - Chromate - 12.098

wwwwwww

00.0

0.25

[UAm] sonsdroedA 6 5 0

1.25

1.50

14.0

12.0

10.0

8.0 Time [min]

6.0

4.0

2.0

-0.40

-0.25

Relative Area %

100.00

Height mAU 0.050

Area mAU*min 0.016

Retention Time min 12:098

Integration Results No. Peak Name

Total:

Chromeleon (c) Dlonex Version 7,1.1.1127

		njection De	r jection Nan	'ial Number:	Ir.jection Type	Sallbration Le	nstrument M	Processing A	rjection Date
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						1. Chromate - 12.105	
	2.0	4.0	6.0	8.0	10.0 12.0	14.0	18.
ntegration Results				Di frilling			
Peak Name		Retention Time min	Area mAU*min	Height	Relative Area %	Relative Height	Amount
Chromate		12,105	0.059	0.144	100,00	100:00	0.0234
			0500	0.144	100 00	100.00	

rigerion renne. Vial Number: Irjection Type: Calibration Level Instrument Metho Processing Metho		12			triodion Volume		
r.jection Type: Calibration Level: Instrument Metho Processing Metho					ייילפרונים אינוים אינוים.	2.00	
Calibration Level: Instrument Method: Processing Method		Unknown			Channel:	UV_VIS_1	
Processing Method:	į	Chrome VI Instrument method	neut method		Wavelength: Bandwidth	530.0	
1000	ġ;	EPA 218.7 as Cr			Dilution Factor:	1.0000	
ומכווטון הפופי וייי	ne.	1/Jul/13 UZ:35			Sample Weigin.	1.0000	
Chromatogram		10.0					
CR6	\$\overline{8} CR6-130716 #19		ECI	ECL029474-016		UV_VIS_1 WVL:530 nm	/L:530 nm
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Page 14 of 28

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

Chromatogram and Results

Run Time (min): 16.00 Irjection Volume: 5.00 Channel: UV VIS_1 Wevelength: 530.0 Bandwidh: n.a. Dilution Fector: 1,0000 Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 02:54

Chromatogram 6.00 1 CR6-130716 #20

5.00-

4.00-

[UAm] sonsdroedA

CCC-MID 13 Unknown

Injection Details
Injection Name:
Vial Number:
Vial Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Date/Time:

Injection Details Irjection Name:

Run Time (min):
Irjection Volume:
Channel:
Wavelength:
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Sample Weight: Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 03:13

Unknown

16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000 1.0000

WWWWWWWWWW Chromatogram: 1.80 | 3 CR6-130716#21

1.50

UV_VIS_1 WVL:530 nm

11 - Chromate - 12.268

1.25 1.00 0.75 0.50

0.00 0.00 Height mAU n.a. 8.0 Time [min] Area mAU*min n.a. Retention Time min n.a. Integration Results No. Peak Name n.a. Chromate Total:

14.0

12.0

10.0

6.0

4.0

-0.40

-0.25

0.00

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Relative Height 100:00 100.00 12.0 Relative Area % 100:00 100:00 100:00 10.0 Height mAU 5.361 5.361 Area mAU*min 2.257 2.257

6.0

4.0

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-1.00

0.00

1,00-

Retention Time

Integration Results No. Peak Name

Total:

Amount ppb 1.0533

Default/Integration

Chromeleon (c) Dionex Version 7.1.1.1127

Chromeleon (c) Dionex Version 7.1.1.1127

Default/Integration

48

Instrument:Chrome_VI Sequence:CR6-130716

Default/Integration

Chromeleon (c) Dionex Version 7.1.1,1127

Instrument:Chrome_VI Sequence:CR6-130716

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16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000

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Channel:
Wavelength:
Bandwidth:
Dilution Factor:
Sample Weight:

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 03:32

Chromatogram 7 CR6-130716 #22

2.00 ] 1.75 1.50 1.25

ECL029507-002 15 Unknown

Injection Details
Injection Name:
Vial Number:
Injection Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Date/Time:

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Area mAU*min

Retention Time min

Integration Results
No. Peak Name

n.a.: Chromate Total:

Instrument:Chrome_VI Sequence:CR6-130716

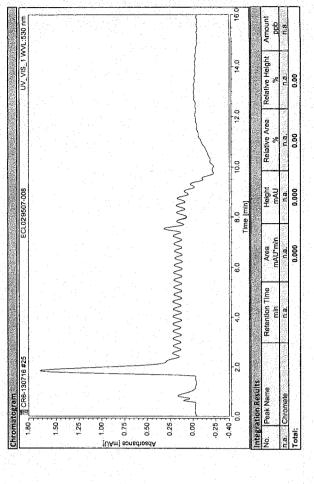
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Chromatogn	jection Details	jection Name: ECL029507-008	al Number:		alibration Level;			-
Chromatogn	njection Details.		Vial Number:	rjection Type; Unknown	Calibration Level;	instrument Method: Chrome VI instrument method	Processing Method: EPA 218.7 as Cr	rjection Date/Time: 17/Jul/13 04:28
Chromatogr	Injection Details		Vial Number:		Calibration Level;			-

16.00 5.00 UV_VIS_1 530.0 n.a. 1.0000

Chrome VI Instrument method EPA 218.7 as Cr 17/Jul/13 04:09

1.50-



0.50

8 [UAm] sonsdroadA 0.00

0.50

Instrument:Chrome_VI Sequence:CR6-130716

Chromeleon (c) Dionex Version 7.1.1.1127

Run Time (min): 16.00
Irjection Volume: 5.00
Channel: 10V VIS_1
Wevelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 04:47

Chromatogram
2.00 ] CR6-130716 #26

1.75 1.50 1.25

ECL029507-010 19 Unknown

Irjection Name:
Viel Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

Injection Details

6	☑ CR6-130716 #27	716 #27		ECL02	ECL029507-012		UV_VIS_1 WVL:530 nm	VL:530 nm
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1.50								
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5		· =						
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schoedA Sc.								
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Negeral.	ntegration Results							
o. O.	Реак Мате		Retention Time	Area mAU*min	Height mAU	Relative Area %	Relative Height	Amount
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Amount ppb

14.0

12.0

10.0

8.0 Time [min]

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4.0

2.0

-0.40

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Relative Height % 100 0.00

Height mAU n.a.

Area mAU*min n.a.

Retention Time min

Integration Results No. Peak Name

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n.a. Chromate Total:

Page 22 of 28

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130715

UV_VIS_1 WVL.:530 nm

Run Time (min): 16:00
Ir jection Volume: 5.00
Channel: UN_VIS_1
Wavelength: 530.0
Bandwidth: n.a.
Dilution Factor: 1,0000
Sample Weight: 1,0000

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 05:25

Chromatogram, 2.00 J CR8-130716#28

1.50

1.25

1.75

[UAm] sonsdroedA 1 0 0 2 0 2 0 2 0 2 0

0.50 0.25

ECL029507-014 21 Unknown

Irjection Name:
Viel Number:
Irjection Type:
Calibration Level:
Instrument Method:
Processing Method:
Irjection Date/Time:

.:530 nm			Amount ppb	n.a.
UV_VIS_1 WVL:530 nm	7		Relative Height //	n.a.
			Relative Area Rei %	
,	6			\$100 EXP
ECLUZ8507-016		Time [min]	Height mAU	n.a.
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	WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW		Retention Time min	n.a.
04.10 #20				
2 00 - 3 000-1307 18 #28	1.75 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.2	ntegration Results	Peak Name	Chromate
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14.0

12.0

10.0

8.0 Time [min]

6.0

0.4

2.0

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-0.40

0.00 -0.25 n.a. 0.00

Relative Area % n.a. 0.00

Helght mAU 0.000

Area mAU*min n.a.

Retention Time min

Integration Results No. Peak Name

Default/Integration

Chrometeon (c) Dionex Version 7,1,1,1127

16.00 5.00 UV_VIS_1 530.0

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130718

Run Time (min): 1
Irjection Volume: 5
Channel: u
Wavelength: 5
Bandwidth: n
Dilution Factor: 1
Sample Weight: 1

Chrome VI instrument method EPA 218.7 as Cr 17/Jul/13 06:03

Chromatogram
2.00 1 CR6-130716 #30

1,75

1.50 1.25

ECL029507-018 23 Unknown

Injection Details
Injection Name.
Vial Number:
Injection Type:
Calibration Levie:
Processing Method:
Processing Method:
Injection Date/Time:

ECLC	6.0 Tin	Retention Time Area mAU*min	n.a. h.a.
ECL029507-020	8.0 Time [min]	Height mAU	T.8
	10.0 12.0	Relative Area %	n.a.
UV_VIS_I VVVI:330 IIII	14.0	Relative Height %	1.8.2.2.2.2.2.0.0.0.0.0.0.0.0.0.0.0.0.0.0

14.0

12.0

10.0

8.0 Time [min]

6.0

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2.0

0.0 -0.25

0.40

0.00

0.25

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NAmi sonsdroedA

0.00

Height mAU n.a.

Area mAU*min n.a.

Retention Time min

Integration Results
No. Peak Name

n.a. Chromate Total:

**Default/Integration** 

Chromeleon (c) Dionex Version 7.1.1.1127

53

**Default/Integration** 

Page 26 of 28

Chromatogram and Results

Instrument:Chrome_VI Sequence:CR6-130716

UV_VIS_1 WVL:530 nm

Chromatogram 3 CR6-130716#32

25.0

20.0

15.0

[UAm] sonsdroadA

Injection Details
Injection Name:
Val Number:
Viellon Type:
Calibration Level:
Instrument Method:
Processing Method:
Injection Detection:

Run Time (min): 16.00
Il jection Volume: 5.00
Channel: 0V VIS_1
Vävelength: 530_
Bandwidh: n.a.
Dilution Fector: 1.0000
Sample Weight: 1.0000

Chromate - 12:243

Chrometeon (c) Dionax Version 7.1.1.1127

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10.0

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Relative Height % 100:00 100:00 100:00

Relative Area % 100:00

14.0

12.0

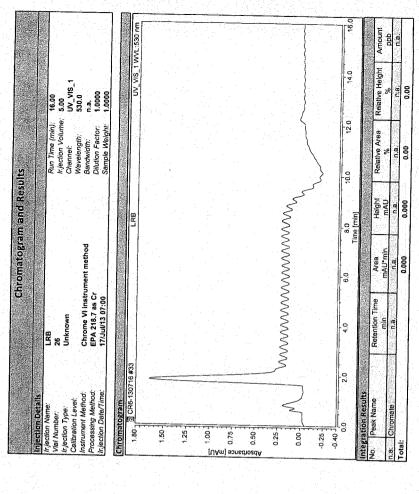
10.0

2.0

5.0 ]

Integration Results
No. Peak Name

Total:



Default/Integration

# **Dilution Corrected Concentrations**

**RINSE** 7/22/2013 12:26:51 PM

User Pre-dilution: 1 000

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	8 Table 2015	dqq	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%
		100.000%	0.224	100.000%	100.000%	0.090	100.000%
		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
	Run  1 2 3 x G %RSD	Run         Time           1         12:25:56           2         12:26:01           3         12:26:07           x         6	ppb           1         12:25:56         102.549%           2         12:26:01         99.534%           3         12:26:07         97.917%           x         100.000%           G         2.351%	Run         Time         45Sc         52Cr           ppb         ppb         ppb           1         12:25:56         102.549%         0.184           2         12:26:01         99.534%         0.241           3         12:26:07         97.917%         0.247           x         100.000%         0.224           c         2.351%         0.035	Run         Time         45Sc         52Cr         89Y           ppb         ppb         ppb         ppb           1         12:25:56         102.549%         0.184         101.002%           2         12:26:01         99.534%         0.241         96.574%           3         12:26:07         97.917%         0.247         102.424%           x         100.000%         0.224         100.000%           2         2.351%         0.035         3.051%	Run         Time         45Sc         52Cr         89Y         175Lu           ppb         ppb         ppb         ppb         ppb           1         12:25:56         102.549%         0.184         101.002%         103.590%           2         12:26:01         99.534%         0.241         96.574%         99.315%           3         12:26:07         97.917%         0.247         102.424%         97.095%           x         100.000%         0.224         100.000%         100.000%           5         2.3510         0.035         3.051%         3.302%	Run         Time         45Sc         52Cr         89Y         175Lu         208Pb           1         12:25:56         102.549%         0.184         101.002%         103.590%         0.092           2         12:26:01         99.534%         0.241         96.574%         99.315%         0.090           3         12:26:07         97.917%         0.247         102.424%         97.095%         0.088           x         100.000%         0.224         100.000%         100.000%         0.090           c         2.351%         0.035         3.051%         3.302%         0.002

7/22/2013 12:29:39 PM

User Pre-dilution: 1,000

Ė	Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
Т.			ppb	ppb	ppb	ppb	ppb	ppb
Г	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%
十	3	12:28:56	104.493%	0.179	101.712%	95.552%	0.076	92.256%
十	x		105.483%	0.189	101.324%	98.984%	0.076	94.897%
F			1.066%	0.011	0.352%	3.569%	0.003	2.817%
H	%RSD		1.011	5.753	0.347	3.605	3.419	2.968

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User Pre-dilution: 1.000

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
1			ppb	ppb	ppb	ppb	ppb	ppb
	1	12:31:32	99.695%	0.004	99.372%	103.262%	0.000	102.961%
T	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%
F	х		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%
F	%RSD		0.681	0.000	0.557	3.077	0.000	2.732

200 PPB

7/22/2013 12:35:11 PM

M03479

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%	<u>т 199.500</u>	95.949%
	2	12:34:22	102.292%	м 200.900	99.667%	94.247%	тм 200.100	92.561%
	3	12:34:27	101.973%	м 201.100	99.619%	91.773%	тм 200.400	<u> + 90.156%</u>
	х		102.782%	м 200.000	99.274%	94.836%	тм 200.000	<u>+92.889%</u>
4	σ		1.136%	м 1.677	0.640%	3.397%	<u>тм 0.473</u>	<u> ⊤2.911%</u>
	%RSD		1.105	м 0.839	0.645	3.582	<u>тм 0.237</u>	<u>т 3.133</u>

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User Pre-dilution: 1.000

000.110	G.100.0111 2.01			4.44.70	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	The later of the same	
Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
100		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%
х		99.411%	0.030	99.133%	100.058%	0.032	100.338%
σ	1	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

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User Pre-dilution: 1.000

	User Pre-	GIIUUUII. 1.00	,,,			4.55	208Pb	209Bi	í
- 1	Run	Time	45Sc	52Cr	89Y	175Lu	200PD		
ı	Kuii	1,1110	ppb	ppb	ppb	ppb	ppb	ppb	
. 1		12,20,46	103.463%	197.800	100.517%	99.073%	±200.000	97.081%	
	1	12:39:46			100.820%	94,308%	тм 201.100	93.296%	
	2	12:39:51	10,1000.0		100.708%	92.120%	тм 200.900	91.384%	
- 1	3	12:39:56	104.506%	м 200.400		95.167%		93.921%	
	Х		104.016%	м 199.700	100.682%	475,51		2.899%	
- 1	σ	]	0.524%	<u>м 1.675</u>	0.154%	3.555%	<u>тм 0.603</u>		
	%RSD		0.504	м 0.839	0.153	3.736	<u>тм 0.300</u>	3.087	
		1							

7/22/2013 12:43:25 PM MO3481

User Pre-dilution: 1.000

B 1	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Kun	111116			ppb	ppb	ppb	ppb
1	12:42:30			100.665%	100.380%	100.400	98.210%
2					95.788%	100.600	94.126%
3		4.7	99.510	101.432%	93.108%	101.200	92.846%
, ,	12.12.11	,	98.990	100.934%	96.425%	100.700	95.061%
			0.914	0.432%	3.678%	0.407	2.801%
%RSD			0.924	0.428	3.814	0.404	2.947
	Run  1 2 3 x σ %RSD	1 12:42:30 2 12:42:36 3 12:42:41 x	ppb           1         12:42:30         102.569%           2         12:42:36         103.122%           3         12:42:41         101.824%           x         102.505%           g         0.652%	Run         rune         ppb         ppb           1         12:42:30         102.569%         97.940           2         12:42:36         103.122%         99.530           3         12:42:41         101.824%         99.510           x         102.505%         98.990           0         0.652%         0.914	Run         filme         435c         52ct           ppb         ppb         ppb         ppb           1         12:42:30         102.569%         97.940         100.665%           2         12:42:36         103.122%         99.530         100.705%           3         12:42:41         101.824%         99.510         101.432%           χ         102.505%         98.990         100.934%           0.652%         0.914         0.432%	Run         Time         435C         32.0         ppb                Time         45SC         52Cl         65Tl         25Tl         2013 12:46:10 PM	

User Pre-dilution: 1.000

	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
Run	I mile	ppb	ppb	ppb	ppb	ppb	ppb
1	12:45:16	100.099%	0.034	98.395%	104.018%	0.022	102.878%
7	12:45:21	98.588%	0.014	99.030%	99.138%	0.024	98.778%
<del>- 3</del>	12:45:26	98.205%	0.013	99.972%	97.422%	0.025	97.449%
	1	98.964%	0.020	99.132%	100.193%	0.023	99.702%
	1	1.002%	0.012	0.793%	3.422%	0.002	2.830%
%RSD	1	1.012	57.590	0.800	3.415	7.562	2.838

ELQC-1 7/22/2013 12:48:57 PM SONE MO3479 -> 10 m C

Pre-dilution: 1.000

User Pre-dilution: 1.000

Run	Time		52Cr	89Y	175Lu	208Pb	209Bi
Kun j	inne i	ppb	ppb	ppb	ppb	ppb	ppb
11	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%
- <del></del>		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			4.377	0.716	3.024	0.762	2.533

7/22/2013 12:51:44 PM LPB5106

- 4	0001110							2000:
	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%
1	2	12:50:55	100.717%	0.005	101.994%	96.821%	0.043	96.011%
Ì	3	12:51:00	102.015%	0.004	101.346%	94.710%	0.042	93.647%
Ì			101.405%	0.006	101.444%	97.643%	0.043	96.356%
			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
	70,700	3 .						

TV=50/13

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%
Ĩ	σ		3.131%	0.754	0.508%	3.427%	0.166	3.163%
Ĭ	%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%
х		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

User Pre-dilution: 1.000

+ 50ppb

Rur	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
		ppb	ppb	ppb	ppb	ppb	ppb
	13:01:50	101.355%	48.310	100.274%	98.898%	49.150	89.229%
	13:01:56	103.292%	48.870	100.487%	93.762%	49.360	85.313%
2	13:02:01	102.675%	48.800	101.087%	91.549%	49.390	83.231%
>		102.441%	48.660	100.616%	94.736%	49.300	85.924%
ď		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

Ru	ın	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	3 4		ppb	ppb	ppb	ppb	ppb	ppb
	1	13:04:35	102.675%	0.386	100.197%	99.712%	0.404	88.700%
100	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%
%RS	D.		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%
х		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%
х		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%
х		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

L	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%
	Х		100.816%	0.333	102.250%	95.926%	16.560	89.000%
L	σ		3.098%	0.039	2.095%	3.628%	0.010	1.896%
L	%RSD		3.073	11.860	2.049	3.783	0.060	2.130

**CCB** 7/22/2013 1:19:16 PM

	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%
ı	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%
I	%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

Г	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
L	1,411		ppb	ppb	ppb	ppb	ppb	ppb
Γ	1	13:21:06	103.527%	196.800	102.006%	98.940%	T 193.900	91.279%
Ī	2	13:21:12	104.953%	м 201.200	101.557%	93.739%	<u> 195.000</u>	<u> 185.340%</u>
Ī	3	13:21:17	103.825%	198.800	102.718%	91.523%	т 195.100	<u> +84.447%</u>
ř	×		104.101%	м 198.900	102.094%	94.734%	т 194.700	<u> ⊤87.022%</u>
Ť	σ		0.752%	м 2.221	0.586%	3.807%	± 0.647	<u>⊤3.714%</u>
F	%RSD		0.723	м 1.116	0.574	4.019	<u> + 0.332</u>	<u> 74.268</u>

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
è	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%
	х		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%
Š	%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
į			ppb	ppb	ppb	ppb	ppb	ppb
	1	13:26:38	105.890%	0.326	104.384%	100.206%	8.547	89.290%
ĺ	2	13:26:43	101.313%	0.294	105.952%	94.998%	8.588	85.372%
Ì	3	13:26:48	102.611%	0.326	104.472%	92.541%	8.599	83.747%
I	х		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

ſ	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%
Ī	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%
	х		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%
Ī	%RSD		1.442	5.336	0.037	4.090	0.112	3.306

ECL029507-010

7/22/2013 1:33:03 PM

	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%
i.	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%
	х		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
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%
х		102.313%	0.279	104.887%	94.891%	24.930	89.453%
		2.048%	0.024	0.417%	3.821%	0.136	3.008%
%RSD			8.551		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
-	1.0		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%
	х		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
Г	1	13:40:22	101.973%	48.500	103.883%	98.056%	73.930	91.050%
Г	2	13:40:28	105.528%	47.950	104.982%	92.677%	74.240	86.788%
Г	3	13:40:33	103.229%	48.590	105.096%	90.079%	74.010	85.316%
	Х		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%
х		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

	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
	74.42.T		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%
	Х		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%
х		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

Γ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	13:51:23	101.887%	198.400	100.857%	97.222%	<u> 193.500</u>	92.931%
Ī	2	13:51:28	102.547%	м 200.700	101.567%	92.773%	<u> + 193.400</u>	±86.266%
Ī	3	13:51:33	101.824%	м 200.500	102.004%	89.508%	<u> 194.300</u>	<u> 783.355%</u>
Ī	х		102.086%	м 199.900	101.476%	93.168%	т 193.700	<u> 787.517%</u>
Ī	σ		0.401%	м 1.267	0.579%	3.872%	<u> ⊤0.447</u>	<u>+4.909%</u>
Ē	%RSD	ļ	0.393	м 0.634	0.571	4.156	<u>т 0.231</u>	<u> </u>

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%
Г	3	13:54:18	100.930%	0.306	103.767%	90.954%	0.450	81.668%
	х		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%
	х		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

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%
х		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

	Pun Time 45Sc			89Y	175Lu	208Pb	209Bi
Run	Time	ppb	52Cr ppb	ppb	ppb	ppb	ppb
T 1	14:02:25	101.951%		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	
×	1	103.051%	0.038	104.278%	94.459%	0.278	85.952%
-		1.177%	0.005	0.537%	4.130%	0.005	2.835%
%RSD	1	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

<b>ppb</b> 703%
703%
10570
570%
733%
669%
068%
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	İ	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%
х		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

ſ	Run	Time	45Sc	52Cr	89Y	175Lu	208Pb	209Bi
			ppb	ppb	ppb	ppb	ppb	ppb
ſ	1	14:13:28	104.676%	-0.002	103.534%	104.508%	-0.000	103.339%
Ì	2	14:13:33	103.931%	-0.012	103.333%	99.737%	0.002	98.982%
Ī	3	14:13:39	105.762%	-0.011	103.671%	97.252%	0.003	97.421%
Ĭ	x		104.790%	-0.009	103.513%	100.499%	0.002	99.914%
Ĭ	σ		0.921%	0.005	0.170%	3.688%	0.002	3.067%
Ì	%RSD		0.879	62.630	0.164	3.670	100.000	3.070

CKS 7/22/2013 2:17:06 PM

user Pre	-anation: 1.00	JU		A Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Company of the Comp	and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t			
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%	т 194.900	<u>+92.065%</u>	
2	14:16:18	102.803%	199.100	103.208%	93.114%	<u> 194.400</u>	<u>т87.982%</u>	
3	14:16:23	107.997%	м 200.400	102.944%	90.616%	<u> 194.700</u>	T85.824%	
х		105.194%	м 198.700	102.772%	93.802%	т 194.700	т88.624%	
σ		2.621%	м 2.032	0.543%	3.581%	±0.246	<u> ⊤3.170%</u>	
%RSD		2.492	м 1.023	0.528	3.818	<u> + 0.126</u>	<u> + 3.577</u>	
	Run  1 2 3 x σ	Run         Time           1         14:16:12           2         14:16:18           3         14:16:23           χ         σ	ppb           1         14:16:12         104.783%           2         14:16:18         102.803%           3         14:16:23         107.997%           x         105.194%           G         2.621%	Run         Time         45Sc         52Cr           ppb         ppb         ppb           1         14:16:12         104.783%         196.500           2         14:16:18         102.803%         199.100           3         14:16:23         107.997%         μ200.400           X         105.194%         μ198.700           σ         2.621%         μ2.032	Run         Time         45Sc         52Cr         89Y           ppb         ppb         ppb         ppb           1         14:16:12         104.783%         196.500         102.165%           2         14:16:18         102.803%         199.100         103.208%           3         14:16:23         107.997%         №200.400         102.944%           x         105.194%         №198.700         102.772%           c         2.621%         №2.032         0.543%	Run         Time         45Sc         52Cr         89Y         175Lu           ppb         ppb         ppb         ppb         ppb           1         14:16:12         104.783%         196.500         102.165%         97.678%           2         14:16:18         102.803%         199.100         103.208%         93.114%           3         14:16:23         107.997%         μ20.400         102.944%         90.616%           X         105.194%         μ198.700         102.772%         93.802%           σ         2.621%         μ2.032         0.543%         3.581%	Run         Time         455c         52Cr         89Y         175Lu         208Pb           ppb         ppb         ppb         ppb         ppb         ppb         ppb           1         14:16:12         104.783%         196.500         102.165%         97.678%         ±194.900           2         14:16:18         102.803%         199.100         103.208%         93.114%         ±194.400           3         14:16:23         107.997%         ±200.400         102.944%         90.616%         ±194.700           X         105.194%         ±198.700         102.772%         93.802%         ±194.700           G         2.621%         ±2.621%         0.543%         3.581%         ±0.246	

# ENVIRO-CHEM LABORATORIES, INC.



### 47 Loveton Circle, Suite K . Sparks, Maryland 21152

410-472-1112

REPORTING

DATA

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

SAMPLER- Bennett, Glancey

REPORT NUMBER: 6757

LOCATION-

LAB#- ECL029478-001 SAMPLE ID- 3998 Farm-Sed1

DATE SAMPLED- 7/9/2013

DATE RECEIVED- 7/10/2013

TIME SAMPLED- 10:00

TIME RECEIVED- 9:18

DELIVERED BY- L Bennett

RECEIVED BY- CHK

COMMENTS- Insufficient sample for % Solids determination. Sample was air dried before analysis.

ANALYSIS

Page 1 of 1

		1111111111111				TIEL OIGITIO	DITTI
ANALYSIS	METHOD	DATE/TIME	BY	RESULT		LIMIT	FLAG
METALS BY ENVIRO-CHEM	LABORATORI	ES, 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	

LABORATORY DIRECTOR

[#] State of Maryland Certified Parameter

^{*} NELAC Certified Parameter

# Sample Chain of Custody

Bottles intact/appropriate Relinquished By P.O. Number: (G120788,065D Project Name: Green Valley Citgo sampler Lava Bennett & Devin Glanceymail: Sdantel@cgs, us. com Project Manager: Sean Danie Client: Chesapeake GeoSciences, Inc. (CGS) Phone No.: (410) 740-1911 x102 ECL Log in Batch Number COC/Labels match Enviro-Chem Laboratories, Inc. Relinquished By Relinquished By collected / Relinquished B 100-8throng Enviro-Chem Lab No. ~ z z 3998 Farm-sed 1/7/9/13/10:00 Sample Identification (As it is to appear on report) Preserved correctly # of Samples Project Number: CG-12-0788,06 ≺ # of Bottles 7/10/13 z Fax No.: (40) 740-3299 Date Date Date Sampled ₹ 9:18 Explain any "NO" answers Time Time Time Time Sampled 47 Loveton Circle, Suite K Received By Received By Received By Received By Matrix 50 Clar 1 H Crusal Containers G = Grab S O 잋 C = Comp Preservative Sample Type 4 TAL Metals Method 6020 Special instructions, Comments: Due Date Turnaround Requested Deliverables Required * Love III Data Package STD 1-Day Other Rush? # Coolers Ice Present 00 of 22 Sparks, MD 21152 Hold for more into cratio 2 Preservative Key:

NA = Nitric Acid, pH <2

SA = Sulfuric Acid, pH <2 OH = NaOH, pH >12 N = None, Chilled X = Other Zn = Zinc Acetate TI = Thiosulfate Remarks Seal Temp