N00109.AR.003070
NWS YORKTOWN
5090.3a

VALIDATED DATA PACKAGE, 50085-8, NWS YORKTOWN VA
2/27/2015
TRIMATRIX LABORATORIES

TRIMATRIX LABORATORIES

5560 Corporate Exchange Court, SE
Grand Rapids, MI 49512 616.975.4500

TRANSMITTAL FORM

Date: March 04, 2015

Attention: Ms. Clairette Campbell
To: CH2M HILL
5701 Cleveland Street
Suite 200
Virginia Beach, VA 23462
(757)-518-9666

Project Name: 8012 CTO-WE74 Yorktown Site 34

SDG: 50085-8

Work Order(s): 1502169

WE ARE SENDING YOU:

By: ☐ US Mail ☒ FedEx ☐ Courier ☐ Other

ENCLOSED WITH THIS TRANSMITTAL: ☒ ***UNDER SEPARATE COVER:*** ☐

☐ Report(s) (Draft) ☐ Proposal ☐ QAPP Information
☒ Report(s) (Summary) ☐ Contract Documents ☐ Data Validation Package

QUANTITY	*DESCRIPTION / DOCUMENT NAME*
1	Summary Report for SDG 50085-8 for 8012 CTO-WE74 Yorktown Site 34. This report consists of 63 pages with this transmittal form page one of the report.

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ Furnished As Requested ☒ For Review and Comment ☐ For Submittal To: _____
☐ For File ☐ As Corrected _____

REMARKS:

cc:

BY: _____
Walt Roudebush
Project Chemist

DATA SUMMARY PACKAGE

Prepared for:

CH2M HILL - VA
5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462

Project:

8012 CTO-WE74 Yorktown Site 34

Sample Delivery Group (SDG):

50085-8

Prepared by:

TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

Report Date:

February 27, 2015

Walter J. Roudebush, Project Chemist
roudebushw@trimatrixlabs.com

3/4/15
Approval Date

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TABLE OF CONTENTS

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

Section	Description	Pages
	Cover Page	**0002**
	Table of Contents	**0003**
	SDG Case Narrative	**0004-0017**
A	**Field COC Records and Receiving Documentation**	**0018-0023**
B	**Internal COC Records**	**0024-0028**
C	**Inorganic - Metals** • USEPA-6020A	**0029-0063** 0030-0063

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

SDG Executive Summary

This case narrative applies to samples received on February 11, 2015. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between CH2M HILL - VA and TriMatrix Laboratories, Inc.

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations, narrations, and reporting conventions are included in Attachment 1 - *Project Technical Narrative(s)*.

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

This report relates only to the sample(s) as received. Estimates of analytical uncertainties for the test results contained within this report are available upon request. Test results are in compliance with the requirements of the DoD Quality Systems Manual for Environmental Laboratories Version 4.2, the National Environmental Laboratory Accreditation Conference (NELAC), and one or more of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#003329); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#103068); Michigan DPH (#0034); Minnesota DPH (#367345); New York ELAP (#46503); North Carolina DNRE (#659); Texas CEQ (#T104704495-14-4); Virginia DCLS (#2592); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-09-00163).

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 1502169

TriMatrix Laboratories received the cooler(s) for this work order on February 11, 2015, at 08:45am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
YS34-SS13-0215	1502169-01	Soil	2/10/2015
YS34-SS13P-0215	1502169-02	Soil	2/10/2015
YS34-SS14-0215	1502169-03	Soil	2/10/2015
YS34-SB14-0215	1502169-04	Soil	2/10/2015
YS34-SB15-0215	1502169-05	Soil	2/10/2015
YS34-SB16-0215	1502169-06	Soil	2/10/2015
YS34-EB-021015-SO	1502169-07	Water	2/10/2015

See the Project Correspondence section of Attachment 1 for any administrative issues that were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative(s)

Sample Result Reporting Convention

Sample results are reported as LOD "U" (e.g. 0.001 U) if the target analyte was not detected at or above the detection limit (DL). The LOD is the Limit of Detection as defined in the DoD QSM and numerically determined by TriMatrix.

If a sample for an organic analyte is reanalyzed and also reported, the second analysis includes the suffix "RE*n*" where *n* = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes but that confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since the confirmation analysis did not occur at the same time and/or date.

Percent Solids and Metals Data Reporting

Unless otherwise noted, all soil samples requiring metals analysis are dried at 50° to 60° C to a constant weight prior to acid digestion. In order to report results on a dry weight basis, correction for percent solids is not applicable.

Data Qualifier Designation

If applicable, sample results are qualified with:

a "U" flag as defined above;
a "J" flag if the analyte was detected, but the concentration is greater than the DL and less than the LOQ (the Limit of Quantitation as defined in the DoD QSM);
a "B" flag if the analyte was detected above one-half the LOQ (above the LOQ for a common laboratory contaminant) in the associated method blank, and the sample concentration was less than or equal to ten times the method blank result;
a "E" flag if the analyte exceeded the instrument calibration range;
a "N" flag for a non-target analyte identified as a tentatively identified compound using mass spectrometry;
a LIMS-generated statement of qualification that will be reported in Attachment 2 to this narrative.

Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven-digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven-digit number that associates all samples analyzed as a set under one analytical run.

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Walt Roudebush

From: Walt Roudebush <roudebushw@trimatrixlabs.com>
Sent: Thursday, February 12, 2015 1:14 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Clairette,

The soils will be in mg/kg units per Attachment 1 in the award document and the EB will be in ug/L per our phone discussion.

I do not have a copy of 'preferred units' – thanks.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Thursday, February 12, 2015 1:07 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Hi Walt,

Thanks for this. Just to confirm that I said the right thing on the phone earlier, the aqueous sample for this SDG, we would like reported in our usual preferred units for metals in waters: ug/L.

Let me know if you don't have a copy of our preferred units for all Navy CLEAN data.

Thanks,
Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Thursday, February 12, 2015 9:47 AM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Clairette,

RE: CTO-WE74 Site 34

For the samples received for Total Cr, a receipt confirmation for work order 1502169 and SDG 50085-8 is attached.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, February 11, 2015 10:28 AM
To: Clairette.Campbell@ch2m.com
Subject: FW: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, VOCs, SDG 50085-7, work order TBD

Clairette,

One cooler of samples was received this morning for VOC and/or Total Cr. The cooler temp blank was 2.9 deg C.

Samples for VOC will be assigned to SDG 50085-7 and a work order TBD.

Samples for Total Cr will be assigned to SDG 50085-8 and a work order TBD.

Except as noted below for VOC, all samples were intact.

Three of three VOC vials for the following samples contained headspace and entrained soil/solid material:

YS34-DP01-4650-0215
YS34-DP02-5155-0215
YS34-DP03-4145-0215
YS34-DP03-5761-0215

Per my voice mail, we will presume that the samples with headspace are also to be logged in and analyzed. Do you concur?

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Wednesday, February 11, 2015 9:46 AM
To: roudebushw@trimatrixlabs.com; Deb.Patton@alsglobal.com
Subject: Yorktown Site 34 Arriving

Hi Walt,

Today Trimatrix and ALS-Rochester will receive samples for Yorktown Site 34. The ALS work is subbed through Trimatrix to ALS.

COCs are attached. Tracking numbers are below.
804376251452 - to TriMatrix, includes 24hr TAT DPT groundwater samples and 28 calendar day TAT soil and aqueous blank sample for Total Chromium
804376251441 - to ALS-Rochester, includes soil and aqueous blank for CrVI by 7199

Please send me logins (both TriMatrix and ALS) as soon as they're available.

Thanks!
Clairette Campbell
CH2M HILL
Chemist

5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Direct: 757-671-6335, internal ext. 46335
clairette.campbell@ch2m.com

Please note my part-time hours: 9am-3pm Monday-Friday

From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Tuesday, February 03, 2015 3:08 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware to ship (from ALS-Rochester)

Thanks Walt!

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Tuesday, February 03, 2015 2:37 PM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware to ship (from ALS-Rochester)

Clairette,

The following is from an email that I received from ALS-Rochester regarding their bottle order for CTO-WE74 Site 34:

Bottles have been shipped and should have already arrived via Fed-Ex 629675964083

1/30/2015 - Friday

5:59 am At local FedEx facility	CHESAPEAKE, VA
6:05 am On FedEx vehicle for delivery	CHESAPEAKE, VA
9:55 am Delivered	Virginia Beach, VA

Deb Patton
Project Manager

ALS Life Sciences Division | Environmental

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Thursday, January 29, 2015 2:16 PM
To: Clairette.Campbell@ch2m.com
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware to ship

Clairette,

RE: CTO-WE74 Site 34

Soil/GW

Two coolers are shipping today to Brian's attention via FedEx Ground; the master tracking # is 037073061177978.

IDW

One cooler is shipping today to Brian's attention via FedEx Ground; the tracking # is 037073061177961.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 21, 2015 5:26 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

PDFs of two bottle orders are attached. Let me know if you have any questions.

(A request has been sent to ALS-Rochester for 7199.)

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Monday, January 19, 2015 12:34 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thank you Walt.
Not invoicing MS/MSD is what I expected, just wanted to check. Thanks.

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Monday, January 19, 2015 12:23 PM
To: Campbell, Clairette/VBO
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Your ALS-Rochester contact is:

Deb Patton
ALS

(585) 672-7473 Work
Deb.Patton@ALSGlobal.com

1565 Jefferson Rd
Building 300 Suite 360
Rochester, NY 14623

TriMatrix has not been invoicing for MS/MSDs. I will pass on your request to ALS-Rochester.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Friday, January 16, 2015 1:09 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thanks Walt!

Two little questions pertaining to this project:

- Who is the ALS-Rochester contact? We will most likely be shipping Hexavalent Chromium samples directly to ALS-Rochester, sending COCs and tracking#s to both you and them.
- Can you confirm that MS/MSDs will not be separately invoiced when we send 6-12 DPT GW VOC samples? I know we've not seen eye to eye on that for some past projects (but typically that's for subcontracted work).

Thanks,
Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 14, 2015 5:36 PM
To: Campbell, Clairette/VBO
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Revised table is attached.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Wednesday, January 14, 2015 12:38 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thanks Walt! In the table for TriMatrix bottleware could you add the preservative info too? (Sorry, when I said bottleware I meant bottles+preservative.)

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 14, 2015 12:14 PM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

See below for ALS-Rochester and attached table for TriMatrix.

Soil for CrVI by 7199: 4oz soil jar, lab aliquot 2.5g for digestion. We need double volume incase re-digestion is required.

Water for CrVI by 7199: 250mls plastic unpreserved, lab aliquot is 20mls.

Sorry this is a bit late but I was unexpectedly out of the office until mid-morning.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Tuesday, January 13, 2015 3:18 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Hope all is well.

I've just finished as series of worksheets for Bianca Kleist so I can move on to your request.

I should be able to provide no later than noon, tomorrow.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

TriMatrix Laboratories, Inc.

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Monday, January 12, 2015 3:25 PM
To: roudebushw@trimatrixlabs.com
Subject: Yorktown Site 34 (CTO-WE74) Bottleware Details

Hi Walt,

We plan to go into the field early/mid-February to collect samples associated with PO 938658. I'll formally order bottleware and hold a brief call to discuss the SOW closer to that date, but for now I'm preparing a table for the fieldteam, which specifies what kind of bottleware to expect (among other things).

Could you tell me what bottleware we should fill, *as well as the aliquot size the lab preps* for each of these analyses?

Soil for Chromium only by 6020A:
Soil for CrVI by 7199 (subbed to ALS-Rochester):
Soil for Full TCLP and RCI:

Water for a select list of VOCs by 8260B:
Water for Chromium only by 602A:
Water for CrVI by 7199 (subbed to ALS-Rochester):
Water for Full TCLP and RCI:

I'd be pleased to receive this information Wednesday or so.
Thank you!

Clairette Campbell
CH2M HILL
Chemist

5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Direct: 757-671-6335, internal ext. 46335
clairette.campbell@ch2m.com

Please note my part-time hours: 9am-2pm Monday-Friday

TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative(s)

No Project Narrative is associated with this report.

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte: 1502169-05 YS34-SB15-0215 Chromium

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TRIMATRIX
LABORATORIES

SECTION - A

FIELD COC RECORDS
AND
RECEIVING DOCUMENTATION

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CTO - WE 74

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Chain of Custody Record

COC No. 150554

Pg. 1 of 1

For Lab Use Only
Cart: 2
VOA Rack/Tray: —
Receipt Log No.: 354
Project Chemist: WR
Work Order No.: 1502169

Client Name: CH2M HILL
Address: 5701 Cleveland Street, Suite 200
City, State Zip: Virginia Beach, VA 23462
Phone/Fax: 757-671-0335
Email: claiette.campbell@ch2m.com

Project Name: Site 34
Client Project No. / P.O. No.: 470624.FI.FS.34
Invoice To: ☑ Client ☐ Other (comments)
Contact/Report To: Claiette Campbell

Analyses Requested: Chromium

⇦ PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

	Schedule	Matrix Code	Sample Number	Field Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Container Type (corresponds to Container Packing List): A	Total	Sample Comments
1	04	WG	01	YS34-SS13-Ø215		02/10/15	0800		X	SO	1	1	
2	04	WG	02	YS34-SS13F-Ø215		02/10/15	0805		X	SO	1	1	
3	04	WG	03	YS34-SS14-Ø215		02/10/15	0815		X	SO	1	1	
4	04	WG	04	YS34-SB14-Ø215		02/10/15	0820		X	SO	1	1	
5	05	WG	05	YS34-SB15-Ø215		02/10/15	0830		X	SO	1	1	
6				YS34-SB15-Ø215-MS		02/10/15	0830		X	SO	1	1	
7				YS34-SB15-Ø215-SD		02/10/15	0830		X	SO	1	1	
8	04	WG	06	YS34-SB16-Ø215		02/10/15	0850		X	SO	1	1	
9	06	WQ	07	YS34-EB-Ø21Ø15-SO		02/10/15	1000		X	W	1	1	
10													

Sampled By (print): Brian Wachter
Sampler's Signature: [signature]
Company: CH2M HILL

How Shipped? Hand ____ Carrier FedEx
Tracking No.

Comments: Standard Turn Around Time

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						[signature]	2/11/15	0845

WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

000019

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8043 7625 1452

Form ID No. 0200 Recipient's Copy

1 From

Date 02/10/15 [redacted]

Sender's Name Brian Walter Phone 804 317-1135

Company CM2M MILL

Address 5701 Cleveland Street Suite 200

Dept./Floor/Suite/Room

City Virginia Beach State VA ZIP 23462

2 Your Internal Billing Reference 470624.FI.FS.34

3 To

Recipient's Name Walt Roudebush Phone 616 975-4561

Company [redacted] Tri Matrix Laboratory

Address 5560 Corporate Exchange Ct. SE

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Grand Rapids State MI ZIP 49512

4 Express Package Service * To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [x] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, UN 1845 ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

[redacted]

Total Packages 1 Total Weight 49 lbs. [redacted] Credit Card Auth.

Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

144

fedex.com 1.800.GoFedEx 1.800.463.3339

fedex.com 1.800.GoFedEx 1.800.463.3339

02000

CUSTODY SEAL

DATE 02/10/15

SIGNATURE [signature]

QEC Quality Environmental Containers 800-255-3950 • 304-255-3900

SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: CH2M Hill
Work Order #: 502169
New / Add To
Receipt Record Page/Line #: 35-
Project Chemist: WR
Sample #s

Recorded by (initials/date): WC 2·11·15

☑ Cooler ☐ Box ☐ Other ____ | Qty Received: 1

Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#____) ☐ See Additional Cooler Information Form

Cooler #	Time	Custody Seals	Coolant Type	Coolant Location	Temp Blank Present	If Present, Temperature Blank Location is
Tm3485	0915	☐ None ☑ Present / Intact ☐ Present / Not Intact	☑ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Dispersed / Top / Middle / Bottom	☑ Yes ☐ No	☑ Representative ☐ Not Representative
		☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Dispersed / Top / Middle / Bottom	☐ Yes ☐ No	☐ Representative ☐ Not Representative
		☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Dispersed / Top / Middle / Bottom	☐ Yes ☐ No	☐ Representative ☐ Not Representative
		☐ None ☐ Present / Intact ☐ Present / Not Intact	☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Dispersed / Top / Middle / Bottom	☐ Yes ☐ No	☐ Representative ☐ Not Representative

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:	2.9	-	2.9
Sample 1:	3.5	-	3.5
Sample 2:	3.1	-	3.1
Sample 3:	3.9	-	3.9
3 Sample Average °C:	3.5		

☐ Cooler ID on COC? ☑ VOC Trip Blank received? (3)

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

☐ Cooler ID on COC? ☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes / No
- ☐ / ☐ Chain of Custody record(s)? If No, Initiated By ____
- ☐ Received for Lab Signed/Date/Time?
- ☐ / ☐ Shipping document?
- ☐ / ☑ Other ____

COC Information

☑ TriMatrix COC ☐ Other ____

COC ID Numbers:

Check COC for Accuracy

Yes / No
- ☐ / ☐ Analysis Requested?
- ☐ / ☐ Sample ID matches COC?
- ☐ / ☐ Sample Date and Time matches COC?
- ☐ Container type completed on COC?
- ☐ / ☐ All container types indicated are received?

Sample Condition Summary

N/A / Yes / No
- ☐ / ☐ / ☑ Broken containers/lids?
- ☐ / ☐ / ☑ Missing or incomplete labels?
- ☐ / ☐ / ☑ Illegible information on labels?
- ☐ / ☐ / ☑ Low volume received?
- ☐ / ☐ / ☑ Inappropriate or non-TriMatrix containers received?
- ☐ / ☐ / ☐ VOC vials / TOX containers have headspace?
- ☐ / ☐ / ☑ Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A / Yes / No
- ☐ / ☐ / ☑ Temperature Blank OR average sample temperature, ≥6° C?
- ☐ / ☐ / ☐ If either is ≥6° C, was thermal preservation required?
- ☐ / ☐ / ☐ If "Yes", Project Chemist Approval Initials: ____
- ☐ / ☐ / ☐ If "Yes" Completed Non Con Cooler - Cont Inventory Form?
- ☐ / ☐ / ☑ Completed Sample Preservation Verification Form?
- ☐ / ☐ / ☐ Samples chemically preserved correctly?
- ☐ / ☐ / ☐ If "No", added orange tag?
- ☐ / ☐ / ☐ Received pre-preserved VOC soils?
  - ☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

- ☐ Bacteriological
- ☐ Air Bags
- ☐ EnCores / Methanol Pre-Preserved
- ☐ Formaldehyde/Aldehyde
- ☐ Green-tagged containers
- ☐ Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Notes

(3)

☑ Trip Blank received ☐ Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
2·11·15 0845	2·11·15 0940	(Yes) / No

TRIMATRIX LABORATORIES

SAMPLE PRESERVATION VERIFICATION FORM

Client: CH2M Hill		Work Order #: 1502169
Receipt Log #: 35.4	Completed By (initials/date): WC 2.11.15	Project Chemist: [illegible]

COC ID # 150554			Adjusted by: ____ Date: ____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13		3	6	15	
Tag Color	Lt. Blue	Blue	Brown		Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4		None	HNO_3	HNO_3	
Expected pH	>12	<2	<2		6-8	<2	<2	
COC Line #1								
COC Line #2								
COC Line #3								
COC Line #4								
COC Line #5								
COC Line #6								
COC Line #7								
COC Line #8								
COC Line #9						✓		
COC Line #10								

Comments

pH Strip Reagent #
☑ 4120838
☐

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form. If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.

COC ID #			Adjusted by: ____ Date: ____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13		3	6	15	
Tag Color	Lt. Blue	Blue	Brown		Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4		None	HNO_3	HNO_3	
Expected pH	>12	<2	<2		6-8	<2	<2	
COC Line #1								
COC Line #2								
COC Line #3								
COC Line #4								
COC Line #5								
COC Line #6								
COC Line #7								
COC Line #8								
COC Line #9								
COC Line #10								

Comments

Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5	NaOH
500	2.5
1000	5.0
Container Type 4	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5

TRIMATRIX LABORATORIES

WORK ORDER **1502169**

Printed: 2/11/2015 3:58:44PM

Client:	**CH2M HILL - VA**	Project Manager:	**Walter J. Roudebush**
Project:	**8012 CTO-WE74 Yorktown Site 34**	Project Number:	**50085**
Work Order:	**Soil**	SDG:	**50085-8**

Report To:
CH2M HILL - VA
Ms. Clairette Campbell
5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Phone: (757) 671-6335
Fax: (757) 497-6885

Invoice To:
CH2M HILL, Inc.
Accounts Payable
P.O. Box 241329
Denver, CO 80224
Phone: (720) 286-2029
Fax: ---

Package Due Date:	**Mar-04-15 23:00**			
W.O. Due Date:	**Feb-25-15 23:00 (10 day TAT)**		Report Level:	**4DOD**
Date Received:	Feb-11-15 08:45	3.5°C	Received By:	William D. Cole
Date Logged In:	Feb-11-15 15:50		Logged In By:	William D. Cole
W.O. Comments:	*4DOD, QSM v4.2, all samples for Total Cr for this week have been received, client MS/MSD, and SDG 50085-8 is CLOSED.*			

Analysis	Lab Due Date	TAT	Expires	Analysis Comments
1502169-01 YS34-SS13-0215 [Soil] *Sampled Feb-10-15 08:00 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:00	
1502169-02 YS34-SS13P-0215 [Soil] *Sampled Feb-10-15 08:05 Eastern by CH2M HILL*				**Field Duplicate**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:05	
1502169-03 YS34-SS14-0215 [Soil] *Sampled Feb-10-15 08:15 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:15	
1502169-04 YS34-SB14-0215 [Soil] *Sampled Feb-10-15 08:20 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:20	
1502169-05 YS34-SB15-0215 [Soil] *Sampled Feb-10-15 08:30 Eastern by CH2M HILL*				**client MS/MSD**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:30	
1502169-06 YS34-SB16-0215 [Soil] *Sampled Feb-10-15 08:50 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:50	
1502169-07 YS34-EB-021015-SO [Water] *Sampled Feb-10-15 10:00 Eastern by CH2M HILL*				**EB**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 10:00	

Reviewed By

Date

TRIMATRIX LABORATORIES

SECTION - B

INTERNAL COC RECORDS

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Individual sample results relate only to the sample tested.

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: 3050B Digestion

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215	A	for Marge Scott	02/13/15 7:00 Am	02/13/15 4:00 pm	NO	A01
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215	AAB	AAB	AAB	AAB	AES	AB
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215	A	for Marge Scott	02/13/15 7:00 Am	02/13/15 4:00 pm	NO	A01
1502169-07 YS34-EB-021015-SO						

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: ICPMS 6020A

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215	A01	[illegible]	2-13-15 4:10 PM	2-23-15 4:10 PM	NO	
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215	A01	[illegible]	2-13-15 4:10 PM	2-23-15 4:10 PM	NO	
1502169-07 YS34-EB-021015-SO						

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: 3020A Digestion

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215						
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215						
1502169-07 YS34-EB-021015-SO	A	for Margie Scott	02/16/14 8:00 AM	02/16/14 4:00 pm	NO	A01

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: ICPMS 6020A

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215						
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215						
1502169-07 YS34-EB-021015-SO	A01	Chris Cozzy	2-16-15 4:00 pm	2-24-15 10:05 am	NO	

TRIMATRIX LABORATORIES

SECTION - C

INORGANIC – METALS

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Individual sample results relate only to the sample tested.
5560 Corporate Exchange Court SE ♦ Grand Rapids, MI 49512 ♦ Phone: 616.975.4500 ♦ Fax: 616.942.7463 ♦ www.trimatrixlabs.com

TriMatrix Laboratories, Inc.

CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

SDG: 50085-8

USEPA-6020A

SAMPLE ID SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Client Sample Id:	Lab Sample Id:
YS34-SS13-0215	1502169-01
YS34-SS13P-0215	1502169-02
YS34-SS14-0215	1502169-03
YS34-SB14-0215	1502169-04
YS34-SB15-0215	1502169-05
YS34-SB16-0215	1502169-06
YS34-EB-021015-SO	1502169-07

TRIMATRIX
LABORATORIES

SECTION - C

SAMPLE DATA
- FORMS ONLY -

USEPA-6020A

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INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS13-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:00
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-01
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.52 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	21	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:42

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS13P-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:05
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-02
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.534 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	21	mg/kg dry wt.	0.065	0.23	0.47		02/23/15 15:44

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS14-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:15
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-03
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5367 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	18	mg/kg dry wt.	0.065	0.23	0.47		02/23/15 15:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB14-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:20
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-04
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5139 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	12	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:49

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:30
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-05
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.52 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	15	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:52

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB16-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:50
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-06
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5164 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	14	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 16:09

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-EB-021015-SO

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Water
Sampled: 02/10/15 10:00
Solids: 0.00
QC Batch: 1501411

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-07
Prepared: 02/13/15 15:17
Preparation: 3020A Digestion
Initial/Final: 25 mL / 25 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	1	0.50	ug/L	0.20	0.50	1.0	U	02/24/15 10:02

TRIMATRIX LABORATORIES

SECTION - C

QUALITY CONTROL (QC) SUMMARY
- FORMS ONLY -

USEPA-6020A

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ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument: 201

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Secondary Cal Check	5B23013-SCV1	5b23013-007	02/23/15 14:27
Cal Standard	5B23013-CAL1	5b23013-023	02/23/15 15:07
Cal Standard	5B23013-CAL2	5b23013-024	02/23/15 15:10
Cal Standard	5B23013-CAL3	5b23013-025	02/23/15 15:12
Cal Standard	5B23013-CAL4	5b23013-026	02/23/15 15:15
Cal Standard	5B23013-CAL5	5b23013-027	02/23/15 15:17
Cal Standard	5B23013-CAL6	5b23013-028	02/23/15 15:20
Calibration Check	5B23013-CCV1	5b23013-029	02/23/15 15:22
Calibration Blank	5B23013-CCB1	5b23013-030	02/23/15 15:25
Interference Check A	5B23013-IFA1	5b23013-031	02/23/15 15:27
Interference Check B	5B23013-IFB1	5b23013-032	02/23/15 15:29
Calibration Check	5B23013-CCV2	5b23013-033	02/23/15 15:32
Calibration Blank	5B23013-CCB2	5b23013-034	02/23/15 15:34
Blank	1501399-BLK1	5b23013-035	02/23/15 15:37
LCS	1501399-BS1	5b23013-036	02/23/15 15:39
YS34-SS13-0215	1502169-01	5b23013-037	02/23/15 15:42
YS34-SS13P-0215	1502169-02	5b23013-038	02/23/15 15:44
YS34-SS14-0215	1502169-03	5b23013-039	02/23/15 15:47
YS34-SB14-0215	1502169-04	5b23013-040	02/23/15 15:49
YS34-SB15-0215	1502169-05	5b23013-041	02/23/15 15:52
YS34-SB15-0215	1501399-MS1	5b23013-042	02/23/15 15:54
YS34-SB15-0215	1501399-MSD1	5b23013-043	02/23/15 15:56
YS34-SB15-0215	5B23013-SRD1	5b23013-044	02/23/15 15:59
Calibration Check	5B23013-CCV3	5b23013-045	02/23/15 16:01
Calibration Blank	5B23013-CCB3	5b23013-046	02/23/15 16:04
YS34-SB15-0215	1501399-PS1	5b23013-047	02/23/15 16:06
YS34-SB16-0215	1502169-06	5b23013-048	02/23/15 16:09
Calibration Check	5B23013-CCV4	5b23013-049	02/23/15 16:11
Calibration Blank	5B23013-CCB4	5b23013-050	02/23/15 16:14

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument: 201

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	5B24010-CAL1	5b24010-001	02/24/15 09:26
Cal Standard	5B24010-CAL2	5b24010-002	02/24/15 09:29
Cal Standard	5B24010-CAL3	5b24010-003	02/24/15 09:31
Cal Standard	5B24010-CAL4	5b24010-004	02/24/15 09:34
Cal Standard	5B24010-CAL5	5b24010-005	02/24/15 09:36
Cal Standard	5B24010-CAL6	5b24010-006	02/24/15 09:39
Secondary Cal Check	5B24010-SCV1	5b24010-007	02/24/15 09:41
Calibration Check	5B24010-CCV1	5b24010-007	02/24/15 09:41
Calibration Blank	5B24010-CCB1	5b24010-008	02/24/15 09:44
Interference Check A	5B24010-IFA1	5b24010-009	02/24/15 09:46
Interference Check B	5B24010-IFB1	5b24010-010	02/24/15 09:49
Calibration Check	5B24010-CCV2	5b24010-011	02/24/15 09:51
Calibration Blank	5B24010-CCB2	5b24010-012	02/24/15 09:54
Blank	1501411-BLK1	5b24010-013	02/24/15 09:56
LCS	1501411-BS1	5b24010-014	02/24/15 09:59
YS34-EB-021015-SO	1502169-07	5b24010-015	02/24/15 10:02
Calibration Check	5B24010-CCV3	5b24010-016	02/24/15 10:04
Calibration Blank	5B24010-CCB3	5b24010-017	02/24/15 10:07

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument ID: 201

Lab Sample ID	Analyte	Found	Unit	DL	LOD	LOQ	C	Analyzed
5B23013-CCB1	Chromium	0.00014	mg/L	0.00014	0.00050	0.0010	U	02/23/15 15:25
5B23013-CCB2	Chromium	0.00012	mg/L	0.00014	0.00050	0.0010	U	02/23/15 15:34
5B23013-CCB3	Chromium	0.000036	mg/L	0.00014	0.00050	0.0010	U	02/23/15 16:04
5B23013-CCB4	Chromium	-0.000050	mg/L	0.00014	0.00050	0.0010	U	02/23/15 16:14

* Values outside of QC limits

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument ID: 201

Lab Sample ID	Analyte	Found	Unit	DL	LOD	LOQ	C	Analyzed
5B24010-CCB1	Chromium	0.10	ug/L	0.20	0.50	1.0	U	02/24/15 09:44
5B24010-CCB2	Chromium	-0.098	ug/L	0.20	0.50	1.0	U	02/24/15 09:54
5B24010-CCB3	Chromium	-0.033	ug/L	0.20	0.50	1.0	U	02/24/15 10:07

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Sequence: 5B23013

Calibration: 5B24004

Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units
5B23013-IFA1	Chromium	0.00	0.000278		mg/L
5B23013-IFB1	Chromium	0.0200	0.0196	98	mg/L

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Sequence: 5B24010

Calibration: 5B24005

Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units
5B24010-IFA1	Chromium	0.00	0.00472		ug/L
5B24010-IFB1	Chromium	20.0	20.4	102	ug/L

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

QC Batch: 1501399 QC Batch Matrix: Soil

Preparation: 3050B Digestion

Sample Name	Lab Sample ID	Date Prepared	Observations
Blank	1501399-BLK1	02/13/15 07:00	
LCS	1501399-BS1	02/13/15 07:00	
YS34-SB15-0215	1501399-MS1	02/13/15 07:00	
YS34-SB15-0215	1501399-MSD1	02/13/15 07:00	
YS34-SB15-0215	1501399-PS1	02/23/15 14:00	[Spk] 0.52grams->50mL; 1mL->1mL; Spiked 1mL
YS34-SS13-0215	1502169-01	02/13/15 07:00	
YS34-SS13P-0215	1502169-02	02/13/15 07:00	
YS34-SS14-0215	1502169-03	02/13/15 07:00	
YS34-SB14-0215	1502169-04	02/13/15 07:00	
YS34-SB15-0215	1502169-05	02/13/15 07:00	
YS34-SB16-0215	1502169-06	02/13/15 07:00	

QC BATCH SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: 50085-8
Client: CH2M HILL - VA
Project: 8012 CTO-WE74 Yorktown Site 34
QC Batch: 1501411
QC Batch Matrix: Water
Preparation: 3020A Digestion

Sample Name	Lab Sample ID	Date Prepared	Observations
Blank	1501411-BLK1	02/16/15 08:00	
LCS	1501411-BS1	02/16/15 08:00	
YS34-EB-021015-SO	1502169-07	02/13/15 15:17	

METHOD BLANK DATA SHEET
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: 50085-8
Client: CH2M HILL - VA
Project: 8012 CTO-WE74 Yorktown Site 34
Matrix: Soil
Laboratory ID: 1501399-BLK1
File ID: 5b23013-035
Prepared: 02/13/15 07:00
Analyzed: 02/23/15 15:37
Preparation: 3050B Digestion
Initial/Final: 0.5 grams / 50 mL
QC Batch: 1501399
Sequence: 5B23013
Calibration: 5B24004
Instrument: 201

CAS No.	Analyte	Concentration	Unit	DL	LOD	LOQ	Q
7440-47-3	Chromium, Total	0.041	mg/kg dry wt.	0.014	0.050	0.10	J

METHOD BLANK DATA SHEET
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: 50085-8
Client: CH2M HILL - VA
Project: 8012 CTO-WE74 Yorktown Site 34
Matrix: Water
Laboratory ID: 1501411-BLK1
File ID: 5b24010-013
Prepared: 02/16/15 08:00
Analyzed: 02/24/15 09:56
Preparation: 3020A Digestion
Initial/Final: 25 mL / 25 mL
QC Batch: 1501411
Sequence: 5B24010
Calibration: 5B24005
Instrument: 201

CAS No.	Analyte	Concentration	Unit	DL	LOD	LOQ	Q
7440-47-3	Chromium, Total	0.50	ug/L	0.20	0.50	1.0	U

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

QC Batch: 1501399

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-MS1

Preparation: 3050B Digestion

Initial/Final: 0.512 grams / 50 mL

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Chromium, Total	3.91	14.7	18.6	100	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

QC Batch: 1501399

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-MSD1

Preparation: 3050B Digestion

Initial/Final: 0.5218 grams / 50 mL

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Chromium, Total	3.83	21.7	181 *	15	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
% Solids:
Preparation: 3050B Digestion
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1501399-PS1
Lab Source ID: 1502169-05
Initial/Final: 0.0104 grams / 1 mL
Sequence: 5B23013

Analyte	Spike Sample Result (SSR)	Sample Result (SR)	Units	Spike Added (SA)	%R	Control Limit %R
Chromium, Total	0.251	0.153	mg/L	0.100	98	75 - 125

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

QC Batch: 1501399

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-BS1

Preparation: 3050B Digestion

Initial/Final: 0.5 grams / 50 mL

Sequence: 5B23013

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Chromium, Total	4.00	4.30	108	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Water

QC Batch: 1501411

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501411-BS1

Preparation: 3020A Digestion

Initial/Final: 25 mL / 25 mL

Sequence: 5B24010

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Chromium, Total	50.0	52.9	106	80 - 120	ug/L

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SERIAL DILUTION
USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
% Solids:
QC Batch: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 5B23013-SRD1
Lab Source ID: 1502169-05
Sequence: 5B23013

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Chromium, Total	0.0306		0.0304		1.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

HOLDING TIME SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Total Metals

Sample Name	Date Collected	Date Received	Date Leached	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
YS34-SS13-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SS13P-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SS14-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB14-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB15-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB16-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-EB-021015-SO	02/10/15	02/11/15		02/13/15	3	NA	02/24/15	14	180	

TRIMATRIX
LABORATORIES

SECTION - C

STANDARDS DATA
- FORMS ONLY -

USEPA-6020A

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INITIAL AND CONTINUING CALIBRATION CHECK

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013
Control Limt: +/- 10.00%

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units	Analyzed
5B23013-CCV1	Chromium	0.0400	0.0397	99	mg/L	02/23/15 15:22
5B23013-CCV2	Chromium	0.0400	0.0399	100	mg/L	02/23/15 15:32
5B23013-CCV3	Chromium	0.0400	0.0400	100	mg/L	02/23/15 16:01
5B23013-CCV4	Chromium	0.0400	0.0392	98	mg/L	02/23/15 16:11

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010
Control Limt: +/- 10.00%

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units	Analyzed
5B24010-CCV1	Chromium	40.0	41.7	104	ug/L	02/24/15 09:41
5B24010-CCV2	Chromium	40.0	41.6	104	ug/L	02/24/15 09:51
5B24010-CCV3	Chromium	40.0	41.6	104	ug/L	02/24/15 10:04

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Laboratory ID: 5B23013-SCV1
Sequence: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Instrument: 201
Calibration: 5B24004

Analyte	Expected	Found	% R	QC Limit	Units
Chromium	0.0400	0.0396	99	90-110	mg/L

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Laboratory ID: 5B24010-SCV1
Sequence: 5B24010

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Instrument: 201
Calibration: 5B24005

Analyte	Expected	Found	% R	QC Limit	Units
Chromium	40.0	41.7	104	90-110	ug/L

* Values outside of QC limits

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

END OF REPORT

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TRIMATRIX LABORATORIES

5560 Corporate Exchange Court, SE
Grand Rapids, MI 49512 616.975.4500

TRANSMITTAL FORM

Date: March 04, 2015

Attention: Ms. Clairette Campbell
To: CH2M HILL
5701 Cleveland Street
Suite 200
Virginia Beach, VA 23462
(757)-518-9666

Project Name: 8012 CTO-WE74 Yorktown Site 34

SDG: 50085-8

Work Order(s): 1502169

WE ARE SENDING YOU:

By: ☐ US Mail ☒ FedEx ☐ Courier ☐ Other

ENCLOSED WITH THIS TRANSMITTAL: ☒ ***UNDER SEPARATE COVER:*** ☐

☐ Report(s) (Draft) ☐ Proposal ☐ QAPP Information
☒ Report(s) (Final & Summary) ☐ Contract Documents ☒ Data Validation Package

QUANTITY	*DESCRIPTION / DOCUMENT NAME*
1	Final Report (aka Data Validation Package or DVP) for SDG 50085-8 for 8012 CTO-WE74 Yorktown Site 34. This report consists of 122 pages with this transmittal form page one of the report.
1	CD containing PDF files of the Summary and Final Reports plus EDD
1	copy of invoice 1500628

THESE ARE TRANSMITTED AS CHECKED BELOW:

☒ Furnished As Requested ☒ For Review and Comment ☐ For Submittal To: _____
☐ For File ☐ As Corrected _____

REMARKS:

cc:

BY: _____
Walt Roudebush
Project Chemist

TRIMATRIX LABORATORIES

DATA VALIDATION PACKAGE

Prepared for:

CH2M HILL - VA
5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462

Project:

8012 CTO-WE74 Yorktown Site 34

Sample Delivery Group (SDG):

50085-8

Prepared by:

TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

Report Date:

February 27, 2015

Walter J. Roudebush, Project Chemist
roudebushw@trimatrixlabs.com

3/4/15
Approval Date

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TRIMATRIX LABORATORIES

TABLE OF CONTENTS

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

Section	Description	Pages
	Cover Page	**0002**
	Table of Contents	**0003**
	SDG Case Narrative	**0004-0017**
A	**Field COC Records and Receiving Documentation**	**0018-0023**
B	**Internal COC Records**	**0024-0029**
C	**Inorganic - Metals** • USEPA-6020A	**0030-0122** 0031-0122

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

SDG Executive Summary

This case narrative applies to samples received on February 11, 2015. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between CH2M HILL - VA and TriMatrix Laboratories, Inc.

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations, narrations, and reporting conventions are included in Attachment 1 - *Project Technical Narrative(s).*

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

This report relates only to the sample(s) as received. Estimates of analytical uncertainties for the test results contained within this report are available upon request. Test results are in compliance with the requirements of the DoD Quality Systems Manual for Environmental Laboratories Version 4.2, the National Environmental Laboratory Accreditation Conference (NELAC), and one or more of the following certification programs:

ACLASS DoD-ELAP/ISO17025 (#ADE-1542); Arkansas DEP (#13-049-0); Florida DEP (#E87622-24); Georgia EPD (#E87622-24); Illinois DEP (#003329); Kansas DPH (#E-10302); Kentucky DEP (#0021); Louisiana DEP (#103068); Michigan DPH (#0034); Minnesota DPH (#367345); New York ELAP (#46503); North Carolina DNRE (#659); Texas CEQ (#T104704495-14-4); Virginia DCLS (#2592); Wisconsin DNR (#999472650); USDA Soil Import Permit (#P330-09-00163).

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 1502169

TriMatrix Laboratories received the cooler(s) for this work order on February 11, 2015, at 08:45am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
YS34-SS13-0215	1502169-01	Soil	2/10/2015
YS34-SS13P-0215	1502169-02	Soil	2/10/2015
YS34-SS14-0215	1502169-03	Soil	2/10/2015
YS34-SB14-0215	1502169-04	Soil	2/10/2015
YS34-SB15-0215	1502169-05	Soil	2/10/2015
YS34-SB16-0215	1502169-06	Soil	2/10/2015
YS34-EB-021015-SO	1502169-07	Water	2/10/2015

See the Project Correspondence section of Attachment 1 for any administrative issues that were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative(s)

Sample Result Reporting Convention

Sample results are reported as LOD "U" (e.g. 0.001 U) if the target analyte was not detected at or above the detection limit (DL). The LOD is the Limit of Detection as defined in the DoD QSM and numerically determined by TriMatrix.

If a sample for an organic analyte is reanalyzed and also reported, the second analysis includes the suffix "RE*n*" where *n* = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes but that confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since the confirmation analysis did not occur at the same time and/or date.

Percent Solids and Metals Data Reporting

Unless otherwise noted, all soil samples requiring metals analysis are dried at 50° to 60° C to a constant weight prior to acid digestion. In order to report results on a dry weight basis, correction for percent solids is not applicable.

Data Qualifier Designation

If applicable, sample results are qualified with:

a "U" flag as defined above;
a "J" flag if the analyte was detected, but the concentration is greater than the DL and less than the LOQ (the Limit of Quantitation as defined in the DoD QSM);
a "B" flag if the analyte was detected above one-half the LOQ (above the LOQ for a common laboratory contaminant) in the associated method blank, and the sample concentration was less than or equal to ten times the method blank result;
a "E" flag if the analyte exceeded the instrument calibration range;
a "N" flag for a non-target analyte identified as a tentatively identified compound using mass spectrometry;
a LIMS-generated statement of qualification that will be reported in Attachment 2 to this narrative.

Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven-digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven-digit number that associates all samples analyzed as a set under one analytical run.

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Walt Roudebush

From: Walt Roudebush <roudebushw@trimatrixlabs.com>
Sent: Thursday, February 12, 2015 1:14 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Clairette,

The soils will be in mg/kg units per Attachment 1 in the award document and the EB will be in ug/L per our phone discussion.

I do not have a copy of 'preferred units' – thanks.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Thursday, February 12, 2015 1:07 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Hi Walt,

Thanks for this. Just to confirm that I said the right thing on the phone earlier, the aqueous sample for this SDG, we would like reported in our usual preferred units for metals in waters: ug/L.

Let me know if you don't have a copy of our preferred units for all Navy CLEAN data.

Thanks,
Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Thursday, February 12, 2015 9:47 AM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, Total Cr, SDG 50085-8, work order 1502169

Clairette,

RE: CTO-WE74 Site 34

For the samples received for Total Cr, a receipt confirmation for work order 1502169 and SDG 50085-8 is attached.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, February 11, 2015 10:28 AM
To: Clairette.Campbell@ch2m.com
Subject: FW: Yorktown Site 34 (CTO-WE74), 2/11/15 Sample Receipt, VOCs, SDG 50085-7, work order TBD

Clairette,

One cooler of samples was received this morning for VOC and/or Total Cr. The cooler temp blank was 2.9 deg C.

Samples for VOC will be assigned to SDG 50085-7 and a work order TBD.

Samples for Total Cr will be assigned to SDG 50085-8 and a work order TBD.

Except as noted below for VOC, all samples were intact.

Three of three VOC vials for the following samples contained headspace and entrained soil/solid material:

YS34-DP01-4650-0215
YS34-DP02-5155-0215
YS34-DP03-4145-0215
YS34-DP03-5761-0215

Per my voice mail, we will presume that the samples with headspace are also to be logged in and analyzed. Do you concur?

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Wednesday, February 11, 2015 9:46 AM
To: roudebushw@trimatrixlabs.com; Deb.Patton@alsglobal.com
Subject: Yorktown Site 34 Arriving

Hi Walt,

Today Trimatrix and ALS-Rochester will receive samples for Yorktown Site 34. The ALS work is subbed through Trimatrix to ALS.

COCs are attached. Tracking numbers are below.
804376251452 - to TriMatrix, includes 24hr TAT DPT groundwater samples and 28 calendar day TAT soil and aqueous blank sample for Total Chromium
804376251441 - to ALS-Rochester, includes soil and aqueous blank for CrVI by 7199

Please send me logins (both TriMatrix and ALS) as soon as they're available.

Thanks!
Clairette Campbell
CH2M HILL
Chemist

5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Direct: 757-671-6335, internal ext. 46335
clairette.campbell@ch2m.com

Please note my part-time hours: 9am-3pm Monday-Friday

From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Tuesday, February 03, 2015 3:08 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware to ship (from ALS-Rochester)

Thanks Walt!

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Tuesday, February 03, 2015 2:37 PM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware to ship (from ALS-Rochester)

Clairette,

The following is from an email that I received from ALS-Rochester regarding their bottle order for CTO-WE74 Site 34:

Bottles have been shipped and should have already arrived via Fed-Ex 629675964083

1/30/2015 - Friday

5:59 am At local FedEx facility	CHESAPEAKE, VA
6:05 am On FedEx vehicle for delivery	CHESAPEAKE, VA
9:55 am Delivered	Virginia Beach, VA

Deb Patton
Project Manager

ALS Life Sciences Division | Environmental

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Thursday, January 29, 2015 2:16 PM
To: Clairette.Campbell@ch2m.com
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware to ship

Clairette,

RE: CTO-WE74 Site 34

Soil/GW

Two coolers are shipping today to Brian's attention via FedEx Ground; the master tracking # is 037073061177978.

IDW

One cooler is shipping today to Brian's attention via FedEx Ground; the tracking # is 037073061177961.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 21, 2015 5:26 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

PDFs of two bottle orders are attached. Let me know if you have any questions.

(A request has been sent to ALS-Rochester for 7199.)

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Monday, January 19, 2015 12:34 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thank you Walt.
Not invoicing MS/MSD is what I expected, just wanted to check. Thanks.

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Monday, January 19, 2015 12:23 PM
To: Campbell, Clairette/VBO
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Your ALS-Rochester contact is:

Deb Patton
ALS

(585) 672-7473 Work
Deb.Patton@ALSGlobal.com

1565 Jefferson Rd
Building 300 Suite 360
Rochester, NY 14623

TriMatrix has not been invoicing for MS/MSDs. I will pass on your request to ALS-Rochester.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Friday, January 16, 2015 1:09 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thanks Walt!

Two little questions pertaining to this project:

- Who is the ALS-Rochester contact? We will most likely be shipping Hexavalent Chromium samples directly to ALS-Rochester, sending COCs and tracking#s to both you and them.
- Can you confirm that MS/MSDs will not be separately invoiced when we send 6-12 DPT GW VOC samples? I know we've not seen eye to eye on that for some past projects (but typically that's for subcontracted work).

Thanks,
Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 14, 2015 5:36 PM
To: Campbell, Clairette/VBO
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Revised table is attached.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Wednesday, January 14, 2015 12:38 PM
To: roudebushw@trimatrixlabs.com
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Thanks Walt! In the table for TriMatrix bottleware could you add the preservative info too? (Sorry, when I said bottleware I meant bottles+preservative.)

Clairette Campbell
CH2M HILL
Direct: 757-671-6335, internal ext. 46335

From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Wednesday, January 14, 2015 12:14 PM
To: Campbell, Clairette/VBO
Subject: FW: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

See below for ALS-Rochester and attached table for TriMatrix.

Soil for CrVI by 7199: 4oz soil jar, lab aliquot 2.5g for digestion. We need double volume incase re-digestion is required.

Water for CrVI by 7199: 250mls plastic unpreserved, lab aliquot is 20mls.

Sorry this is a bit late but I was unexpectedly out of the office until mid-morning.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

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From: Walt Roudebush [mailto:roudebushw@trimatrixlabs.com]
Sent: Tuesday, January 13, 2015 3:18 PM
To: 'Clairette.Campbell@ch2m.com'
Subject: RE: Yorktown Site 34 (CTO-WE74) Bottleware Details

Clairette,

Hope all is well.

I've just finished as series of worksheets for Bianca Kleist so I can move on to your request.

I should be able to provide no later than noon, tomorrow.

Walt Roudebush
Project Chemist
Direct: 616.975.4561

TriMatrix Laboratories, Inc.

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From: Clairette.Campbell@ch2m.com [mailto:Clairette.Campbell@ch2m.com]
Sent: Monday, January 12, 2015 3:25 PM
To: roudebushw@trimatrixlabs.com
Subject: Yorktown Site 34 (CTO-WE74) Bottleware Details

Hi Walt,

We plan to go into the field early/mid-February to collect samples associated with PO 938658. I'll formally order bottleware and hold a brief call to discuss the SOW closer to that date, but for now I'm preparing a table for the fieldteam, which specifies what kind of bottleware to expect (among other things).

Could you tell me what bottleware we should fill, *as well as the aliquot size the lab preps* for each of these analyses?

Soil for Chromium only by 6020A:
Soil for CrVI by 7199 (subbed to ALS-Rochester):
Soil for Full TCLP and RCI:

Water for a select list of VOCs by 8260B:
Water for Chromium only by 602A:
Water for CrVI by 7199 (subbed to ALS-Rochester):
Water for Full TCLP and RCI:

I'd be pleased to receive this information Wednesday or so.
Thank you!

Clairette Campbell
CH2M HILL
Chemist

5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Direct: 757-671-6335, internal ext. 46335
clairette.campbell@ch2m.com

Please note my part-time hours: 9am-2pm Monday-Friday

TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative(s)

No Project Narrative is associated with this report.

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TRIMATRIX LABORATORIES

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte: 1502169-05 YS34-SB15-0215 Chromium

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TRIMATRIX
LABORATORIES

SECTION - A

FIELD COC RECORDS
AND
RECEIVING DOCUMENTATION

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CIO - WE 17

TRIMATRIX LABORATORIES

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Chain of Custody Record

COC No. 150554

Pg. 1 of 1

For Lab Use Only
Cart: 2
VOA Rack/Tray: —
Receipt Log No.: 354
Project Chemist: WR
Work Order No.: 1502169

Client Name: CH2M HILL
Address: 5701 Cleveland Street, Suite 200
City, State Zip: Virginia Beach, VA 23462
Phone/Fax: 757-671-6335
Email: claiette.campbell@ch2m.com

Project Name: Site 34
Client Project No. / P.O. No.: 470624.FI.FS.34
Invoice To: ☑ Client ☐ Other (comments)
Contact/Report To: Claiette Campbell

Analyses Requested: Chromium

Container Type (corresponds to Container Packing List): 16/6

PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

	Schedule	Matrix Code	Sample Number	Field Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted	Total	Sample Comments
1	04	WG	01	YS34-SS13-Ø215		02/10/15	0800		Y	SO	1	1	
2	04	WG	02	YS34-SS13P-Ø215		02/10/15	0805		X	SO	1	1	
3	04	WG	03	YS34-SS14-Ø215		02/10/15	0815		X	SO	1	1	
4	04	WG	04	YS34-SB14-Ø215		02/10/15	0820		X	SO	1	1	
5	05	WG	05	YS34-SB15-Ø215		02/10/15	0830		X	SO	1	1	
6				YS34-SB15-Ø215-MS		02/10/15	0830		Y	SO	1	1	
7				YS34-SB15-Ø215-SD		02/10/15	0830		X	SO	1	1	
8	04	WG	06	YS34-SB16-Ø215		02/10/15	0850		X	SO	1	1	
9	06	WQ	07	YS34-EB-Ø21Ø15-SO		02/10/15	1000		X	W	1	1	
10													

Sampled By (print): Brian Wachter
Sampler's Signature: [signature]
Company: CH2M HILL

How Shipped? Hand ___ Carrier: FedEx
Tracking No.

Comments: Standard Turn Around Time

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
1. Received By	**Date**	**Time**	**2. Received By**	**Date**	**Time**	**3. Received For Lab By**	**Date**	**Time**
						[signature]	2.11.15	0845

WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

FedEx Express **NEW** Package US Airbill

FedEx Tracking Number 8043 7625 1452

Form No. 0200 — Recipient's Copy

1 From

Date 02/10/15 [redacted]

Sender's Name Brian Walker Phone 804 317-1935

Company CM2M MILL

Address 5701 Cleveland Street Suite 200

Dept./Floor/Suite/Room

City Virginia Beach State VA ZIP 23462

2 Your Internal Billing Reference 470624.FI.FS.34

3 To

Recipient's Name Walt Roudebush Phone 616 975-4561

Company ~~[redacted]~~ Tri Matrix Laboratory

Address 5560 Corporate Exchange Ct. SE

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

HOLD Weekday — FedEx location address REQUIRED. NOT available for FedEx First Overnight.

HOLD Saturday — FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address

Use this line for the HOLD location address or for continuation of your shipping address.

City Grand Rapids State MI ZIP 49512

4 Express Package Service • To most locations.

NOTE: Service order has changed. Please select carefully.

Packages up to 150 lbs. For packages over 150 lbs., use the new FedEx Express Freight US Airbill.

Next Business Day

- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- [ ] FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging • Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak*
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx 2Day A.M., or FedEx Express Saver.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [x] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, UN 1845 ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

- [ ] Cargo Aircraft Only

7 Payment Bill to:

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Enter FedEx Acct. No. or Credit Card No. below. Obtain recip. Acct. No. [ ]

[redacted]

Credit Card Auth.

Total Packages 1 Total Weight 49 lb.

144

fedex.com 1.800.GoFedEx 1.800.463.3339

CUSTODY SEAL

DATE 02/10/15

SIGNATURE

QEC Quality Environmental Containers 800-255-3950 • 304-255-3900

SAMPLE RECEIVING / LOG-IN CHECKLIST

TRIMATRIX LABORATORIES

Client: CH2M Hill	Work Order #: 1502169 (New / Add To)
Receipt Record Page/Line #: 35-	Project Chemist: WR; Sample #s

Recorded by (initials/date): WC 2·11·15	☑ Cooler ☐ Box ☐ Other	Qty Received: 1	Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#_____) ☐ See Additional Cooler Information Form

Cooler # / Time	Cooler # / Time	Cooler # / Time	Cooler # / Time
Cooler #: Tm 3485; Time: 0915	Cooler #: ; Time:	Cooler #: ; Time:	Cooler #: ; Time:
Custody Seals: ☐ None ☑ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact	Custody Seals: ☐ None ☐ Present / Intact ☐ Present / Not Intact
Coolant Type: ☑ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None	Coolant Type: ☐ Loose Ice ☐ Bagged Ice ☐ Blue Ice ☐ None
Coolant Location: (Dispersed) / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom	Coolant Location: Dispersed / Top / Middle / Bottom
Temp Blank Present: ☑ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No	Temp Blank Present: ☐ Yes ☐ No
If Present, Temperature Blank Location is: ☑ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative	If Present, Temperature Blank Location is: ☐ Representative ☐ Not Representative

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:	2.9	-	2.9
Sample 1:	3.5	-	3.5
Sample 2:	3.1	-	3.1
Sample 3:	3.9	-	3.9
3 Sample Average °C:	3.5		

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

	Observed °C	Correction Factor °C	Actual °C
Temp Blank:			
Sample 1:			
Sample 2:			
Sample 3:			
3 Sample Average °C:			

☐ Cooler ID on COC?	☐ Cooler ID on COC?	☐ Cooler ID on COC?	☐ Cooler ID on COC?
☑ VOC Trip Blank received? (3)	☐ VOC Trip Blank received?	☐ VOC Trip Blank received?	☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance and/or Inventory Form

Paperwork Received

Yes	No	
☐	☐	Chain of Custody record(s)? If No, Initiated By _____
☐		Received for Lab Signed/Date/Time?
☐	☐	Shipping document?
☐	☑	Other _____

COC Information

☑ TriMatrix COC ☐ Other_____

COC ID Numbers:

Check COC for Accuracy

Yes	No	
☐	☐	Analysis Requested?
☐	☐	Sample ID matches COC?
☐	☐	Sample Date and Time matches COC?
☐		Container type completed on COC?
☐	☐	All container types indicated are received?

Check Sample Preservation

N/A	Yes	No	
	☐	☑	Temperature Blank OR average sample temperature, ≥6° C?
☐	☐	☐	If either is ≥6° C, was thermal preservation required?
☐	☐		If "Yes", Project Chemist Approval Initials:_____
☐	☐		If "Yes" Completed Non Con Cooler - Cont Inventory Form?
☐	☑		Completed Sample Preservation Verification Form?
☐	☐	☐	Samples chemically preserved correctly?
☐	☐		If "No", added orange tag?
	☐	☐	Received pre-preserved VOC soils? ☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☐ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged containers
☐ Yellow/White-tagged 1 L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Sample Condition Summary

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate or non-TriMatrix containers received?
☐	☐	☐	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Notes

(3)

☑ Trip Blank received ☐ Trip Blank not listed on COC

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
2·11·15 0845	2·11·15 0920	(Yes) / No

TRIMATRIX LABORATORIES

SAMPLE PRESERVATION VERIFICATION FORM

Client: CH2M Hill		Work Order #: 1502169
Receipt Log #: 35.4	Completed By (initials/date): WC 2.11.15	Project Chemist: [illegible]

COC ID # 150554			Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13		3	6	15	
Tag Color	Lt. Blue	Blue	Brown		Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4		None	HNO_3	HNO_3	
Expected pH	>12	<2	<2		6-8	<2	<2	
COC Line #1								
COC Line #2								
COC Line #3								
COC Line #4								
COC Line #5								
COC Line #6								
COC Line #7								
COC Line #8								
COC Line #9						✓		
COC Line #10								

Comments

pH Strip Reagent #

☐ 4120838

☐ _____

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form. If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.

COC ID #			Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5 / 23	4	13		3	6	15	
Tag Color	Lt. Blue	Blue	Brown		Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4		None	HNO_3	HNO_3	
Expected pH	>12	<2	<2		6-8	<2	<2	
COC Line #1								
COC Line #2								
COC Line #3								
COC Line #4								
COC Line #5								
COC Line #6								
COC Line #7								
COC Line #8								
COC Line #9								
COC Line #10								

Comments

Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5	NaOH
500	2.5
1000	5.0
Container Type 4	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5

TRIMATRIX LABORATORIES

WORK ORDER 1502169

Printed: 2/11/2015 3:58:44PM

Client:	**CH2M HILL - VA**	Project Manager:	**Walter J. Roudebush**
Project:	**8012 CTO-WE74 Yorktown Site 34**	Project Number:	**50085**
Work Order:	**Soil**	SDG:	**50085-8**

Report To:
CH2M HILL - VA
Ms. Clairette Campbell
5701 Cleveland Street, Suite 200
Virginia Beach, VA 23462
Phone: (757) 671-6335
Fax: (757) 497-6885

Invoice To:
CH2M HILL, Inc.
Accounts Payable
P.O. Box 241329
Denver, CO 80224
Phone: (720) 286-2029
Fax: ---

Package Due Date:	**Mar-04-15 23:00**			
W.O. Due Date:	**Feb-25-15 23:00 (10 day TAT)**		Report Level:	**4DOD**
Date Received:	Feb-11-15 08:45	3.5°C	Received By:	William D. Cole
Date Logged In:	Feb-11-15 15:50		Logged In By:	William D. Cole
W.O. Comments:	*4DOD, QSM v4.2, all samples for Total Cr for this week have been received, client MS/MSD, and SDG 50085-8 is CLOSED.*			

Analysis	Lab Due Date	TAT	Expires	Analysis Comments
1502169-01 YS34-SS13-0215 [Soil] *Sampled Feb-10-15 08:00 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:00	
1502169-02 YS34-SS13P-0215 [Soil] *Sampled Feb-10-15 08:05 Eastern by CH2M HILL*				**Field Duplicate**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:05	
1502169-03 YS34-SS14-0215 [Soil] *Sampled Feb-10-15 08:15 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:15	
1502169-04 YS34-SB14-0215 [Soil] *Sampled Feb-10-15 08:20 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:20	
1502169-05 YS34-SB15-0215 [Soil] *Sampled Feb-10-15 08:30 Eastern by CH2M HILL*				**client MS/MSD**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:30	
1502169-06 YS34-SB16-0215 [Soil] *Sampled Feb-10-15 08:50 Eastern by CH2M HILL*				
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 08:50	
1502169-07 YS34-EB-021015-SO [Water] *Sampled Feb-10-15 10:00 Eastern by CH2M HILL*				**EB**
Cr Total 6020A (DoD)	Feb-24-15 17:00	10	Aug-09-15 10:00	

Reviewed By _____ Date _____

TRIMATRIX LABORATORIES

SECTION - B

INTERNAL COC RECORDS

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TRIMATRIX LABORATORIES

SECTION - C

INORGANIC – METALS

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TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: 3050B Digestion

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215	A	for Marge Scott	02/13/15 7:00 Am	02/13/15 4:00 pm	NO	A01
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215	A/B	A/B	A/B	A/B	A/B	A/B
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215	A	for Marge Scott	02/13/15 7:00 Am	02/13/15 4:00 pm	NO	A01
1502169-07 YS34-EB-021015-SO						

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: ICPMS 6020A

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215	A01	[illegible]	2-13-15 4:10 PM	2-23-15 4:10 PM	No	
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215	A01	[illegible]	2-13-15 4:10 PM	2-23-15 4:10 PM	No	
1502169-07 YS34-EB-021015-SO						

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: 3020A Digestion

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215						
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215						
1502169-07 YS34-EB-021015-SO	A	for Nancy Scott	02/16/14 8:00 AM	02/16/14 4:00 pm	NO	A01

TriMatrix Laboratories, Inc.

Internal Chain of Custody

SDGID: 50085-8 **Work Order #: 1502169**

Client: **CH2M HILL - VA**
Project: **8012 CTO-WE74 Yorktown Site 34**

Project Manager: **Walter J. Roudebush**
Date Received: **Feb-11-15 08:45**

Department: **Metals** Analysis: ICPMS 6020A

Lab Number / Sample Name	*Container*	*Removed by (Signature)*	*Date & Time Removed*	*Date & Time Returned*	*Consumed?*	*Extract Container*
1502169-01 YS34-SS13-0215						
1502169-02 YS34-SS13P-0215						
1502169-03 YS34-SS14-0215						
1502169-04 YS34-SB14-0215						
1502169-05 YS34-SB15-0215						
1502169-06 YS34-SB16-0215						
1502169-07 YS34-EB-021015-SO	A01	Olivia Cozzy	2-16-15 4:00 pm	2-24-15 10:05 am	NO	

TRIMATRIX LABORATORIES

SECTION - C

INORGANIC – METALS

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TriMatrix Laboratories, Inc.

CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

SDG: 50085-8

USEPA-6020A

SAMPLE ID SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Client Sample Id:	Lab Sample Id:
YS34-SS13-0215	1502169-01
YS34-SS13P-0215	1502169-02
YS34-SS14-0215	1502169-03
YS34-SB14-0215	1502169-04
YS34-SB15-0215	1502169-05
YS34-SB16-0215	1502169-06
YS34-EB-021015-SO	1502169-07

TRIMATRIX LABORATORIES

SECTION - C

SAMPLE RESULT SUMMARIES

USEPA-6020A

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INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS13-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:00
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-01
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.52 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	21	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:42

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS13P-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:05
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-02
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.534 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	21	mg/kg dry wt.	0.065	0.23	0.47		02/23/15 15:44

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SS14-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:15
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-03
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5367 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	18	mg/kg dry wt.	0.065	0.23	0.47		02/23/15 15:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB14-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:20
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-04
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5139 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	12	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:49

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:30
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-05
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.52 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	15	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 15:52

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-SB16-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
Sampled: 02/10/15 08:50
Solids: 0.00
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-06
Prepared: 02/13/15 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5164 grams / 50 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	5	14	mg/kg dry wt.	0.070	0.25	0.50		02/23/15 16:09

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

YS34-EB-021015-SO

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Water
Sampled: 02/10/15 10:00
Solids: 0.00
QC Batch: 1501411

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1502169-07
Prepared: 02/13/15 15:17
Preparation: 3020A Digestion
Initial/Final: 25 mL / 25 mL

CAS No.	Analyte	Dil. Factor	Conc.	Units	DL	LOD	LOQ	Q	Analyzed
7440-47-3	Chromium, Total	1	0.50	ug/L	0.20	0.50	1.0	U	02/24/15 10:02

TRIMATRIX LABORATORIES

SECTION - C

QUALITY CONTROL (QC) SUMMARY

USEPA-6020A

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ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument: 201

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	5B23013-CAL1	5b23013-023	02/23/15 15:07
Cal Standard	5B23013-CAL2	5b23013-024	02/23/15 15:10
Cal Standard	5B23013-CAL3	5b23013-025	02/23/15 15:12
Cal Standard	5B23013-CAL4	5b23013-026	02/23/15 15:15
Cal Standard	5B23013-CAL5	5b23013-027	02/23/15 15:17
Cal Standard	5B23013-CAL6	5b23013-028	02/23/15 15:20
Secondary Cal Check	5B23013-SCV1	5b23013-029	02/23/15 15:22
Calibration Check	5B23013-CCV1	5b23013-029	02/23/15 15:22
Calibration Blank	5B23013-CCB1	5b23013-030	02/23/15 15:25
Interference Check A	5B23013-IFA1	5b23013-031	02/23/15 15:27
Interference Check B	5B23013-IFB1	5b23013-032	02/23/15 15:29
Calibration Check	5B23013-CCV2	5b23013-033	02/23/15 15:32
Calibration Blank	5B23013-CCB2	5b23013-034	02/23/15 15:34
Blank	1501399-BLK1	5b23013-035	02/23/15 15:37
LCS	1501399-BS1	5b23013-036	02/23/15 15:39
YS34-SS13-0215	1502169-01	5b23013-037	02/23/15 15:42
YS34-SS13P-0215	1502169-02	5b23013-038	02/23/15 15:44
YS34-SS14-0215	1502169-03	5b23013-039	02/23/15 15:47
YS34-SB14-0215	1502169-04	5b23013-040	02/23/15 15:49
YS34-SB15-0215	1502169-05	5b23013-041	02/23/15 15:52
YS34-SB15-0215	1501399-MS1	5b23013-042	02/23/15 15:54
YS34-SB15-0215	1501399-MSD1	5b23013-043	02/23/15 15:56
YS34-SB15-0215	5B23013-SRD1	5b23013-044	02/23/15 15:59
Calibration Check	5B23013-CCV3	5b23013-045	02/23/15 16:01
Calibration Blank	5B23013-CCB3	5b23013-046	02/23/15 16:04
YS34-SB15-0215	1501399-PS1	5b23013-047	02/23/15 16:06
YS34-SB16-0215	1502169-06	5b23013-048	02/23/15 16:09
Calibration Check	5B23013-CCV4	5b23013-049	02/23/15 16:11
Calibration Blank	5B23013-CCB4	5b23013-050	02/23/15 16:14

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument: 201

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	5B24010-CAL1	5b24010-001	02/24/15 09:26
Cal Standard	5B24010-CAL2	5b24010-002	02/24/15 09:29
Cal Standard	5B24010-CAL3	5b24010-003	02/24/15 09:31
Cal Standard	5B24010-CAL4	5b24010-004	02/24/15 09:34
Cal Standard	5B24010-CAL5	5b24010-005	02/24/15 09:36
Cal Standard	5B24010-CAL6	5b24010-006	02/24/15 09:39
Secondary Cal Check	5B24010-SCV1	5b24010-007	02/24/15 09:41
Calibration Check	5B24010-CCV1	5b24010-007	02/24/15 09:41
Calibration Blank	5B24010-CCB1	5b24010-008	02/24/15 09:44
Interference Check A	5B24010-IFA1	5b24010-009	02/24/15 09:46
Interference Check B	5B24010-IFB1	5b24010-010	02/24/15 09:49
Calibration Check	5B24010-CCV2	5b24010-011	02/24/15 09:51
Calibration Blank	5B24010-CCB2	5b24010-012	02/24/15 09:54
Blank	1501411-BLK1	5b24010-013	02/24/15 09:56
LCS	1501411-BS1	5b24010-014	02/24/15 09:59
YS34-EB-021015-SO	1502169-07	5b24010-015	02/24/15 10:02
Calibration Check	5B24010-CCV3	5b24010-016	02/24/15 10:04
Calibration Blank	5B24010-CCB3	5b24010-017	02/24/15 10:07

INITIAL AND CONTINUING CALIBRATION CHECK

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013
Control Limt: +/- 10.00%

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units	Analyzed
5B23013-CCV1	Chromium	0.0400	0.0397	99	mg/L	02/23/15 15:22
5B23013-CCV2	Chromium	0.0400	0.0399	100	mg/L	02/23/15 15:32
5B23013-CCV3	Chromium	0.0400	0.0400	100	mg/L	02/23/15 16:01
5B23013-CCV4	Chromium	0.0400	0.0392	98	mg/L	02/23/15 16:11

* Values outside of QC limits

INITIAL AND CONTINUING CALIBRATION CHECK

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010
Control Limt: +/- 10.00%

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units	Analyzed
5B24010-CCV1	Chromium	40.0	41.7	104	ug/L	02/24/15 09:41
5B24010-CCV2	Chromium	40.0	41.6	104	ug/L	02/24/15 09:51
5B24010-CCV3	Chromium	40.0	41.6	104	ug/L	02/24/15 10:04

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Laboratory ID: 5B23013-SCV1

Sequence: 5B23013

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Instrument: 201

Calibration: 5B24004

Analyte	Expected	Found	% R	QC Limit	Units
Chromium	0.0400	0.0397	99	90-110	mg/L

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Laboratory ID: 5B24010-SCV1

Sequence: 5B24010

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Instrument: 201

Calibration: 5B24005

Analyte	Expected	Found	% R	QC Limit	Units
Chromium	40.0	41.7	104	90-110	ug/L

* Values outside of QC limits

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B23013

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24004
Instrument ID: 201

Lab Sample ID	Analyte	Found	Unit	DL	LOD	LOQ	C	Analyzed
5B23013-CCB1	Chromium	0.00014	mg/L	0.00014	0.00050	0.0010	U	02/23/15 15:25
5B23013-CCB2	Chromium	0.00012	mg/L	0.00014	0.00050	0.0010	U	02/23/15 15:34
5B23013-CCB3	Chromium	0.000036	mg/L	0.00014	0.00050	0.0010	U	02/23/15 16:04
5B23013-CCB4	Chromium	-0.000050	mg/L	0.00014	0.00050	0.0010	U	02/23/15 16:14

* Values outside of QC limits

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Sequence: 5B24010

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Calibration: 5B24005
Instrument ID: 201

Lab Sample ID	Analyte	Found	Unit	DL	LOD	LOQ	C	Analyzed
5B24010-CCB1	Chromium	0.10	ug/L	0.20	0.50	1.0	U	02/24/15 09:44
5B24010-CCB2	Chromium	-0.098	ug/L	0.20	0.50	1.0	U	02/24/15 09:54
5B24010-CCB3	Chromium	-0.033	ug/L	0.20	0.50	1.0	U	02/24/15 10:07

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Sequence: 5B23013

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Calibration: 5B24004

Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units
5B23013-IFA1	Chromium	0.00	0.000278		mg/L
5B23013-IFB1	Chromium	0.0200	0.0196	98	mg/L

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Sequence: 5B24010

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Calibration: 5B24005

Instrument ID: 201

Lab Sample ID	Analyte	True	Found	%R	Units
5B24010-IFA1	Chromium	0.00	0.00472		ug/L
5B24010-IFB1	Chromium	20.0	20.4	102	ug/L

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

QC Batch: 1501399 QC Batch Matrix: Soil

Preparation: 3050B Digestion

Sample Name	Lab Sample ID	Date Prepared	Observations
Blank	1501399-BLK1	02/13/15 07:00	
LCS	1501399-BS1	02/13/15 07:00	
YS34-SB15-0215	1501399-MS1	02/13/15 07:00	
YS34-SB15-0215	1501399-MSD1	02/13/15 07:00	
YS34-SB15-0215	1501399-PS1	02/23/15 14:00	[Spk] 0.52grams->50mL; 1mL->1mL; Spiked 1mL
YS34-SS13-0215	1502169-01	02/13/15 07:00	
YS34-SS13P-0215	1502169-02	02/13/15 07:00	
YS34-SS14-0215	1502169-03	02/13/15 07:00	
YS34-SB14-0215	1502169-04	02/13/15 07:00	
YS34-SB15-0215	1502169-05	02/13/15 07:00	
YS34-SB16-0215	1502169-06	02/13/15 07:00	

QC BATCH SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

QC Batch: 1501411 QC Batch Matrix: Water

Preparation: 3020A Digestion

Sample Name	Lab Sample ID	Date Prepared	Observations
Blank	1501411-BLK1	02/16/15 08:00	
LCS	1501411-BS1	02/16/15 08:00	
YS34-EB-021015-SO	1502169-07	02/13/15 15:17	

METHOD BLANK DATA SHEET
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: 50085-8
Client: CH2M HILL - VA
Project: 8012 CTO-WE74 Yorktown Site 34
Matrix: Soil
Laboratory ID: 1501399-BLK1
File ID: 5b23013-035
Prepared: 02/13/15 07:00
Analyzed: 02/23/15 15:37
Preparation: 3050B Digestion
Initial/Final: 0.5 grams / 50 mL
QC Batch: 1501399
Sequence: 5B23013
Calibration: 5B24004
Instrument: 201

CAS No.	Analyte	Concentration	Unit	DL	LOD	LOQ	Q
7440-47-3	Chromium, Total	0.041	mg/kg dry wt.	0.014	0.050	0.10	J

METHOD BLANK DATA SHEET
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: 50085-8
Client: CH2M HILL - VA
Project: 8012 CTO-WE74 Yorktown Site 34
Matrix: Water
Laboratory ID: 1501411-BLK1
File ID: 5b24010-013
Prepared: 02/16/15 08:00
Analyzed: 02/24/15 09:56
Preparation: 3020A Digestion
Initial/Final: 25 mL / 25 mL
QC Batch: 1501411
Sequence: 5B24010
Calibration: 5B24005
Instrument: 201

CAS No.	Analyte	Concentration	Unit	DL	LOD	LOQ	Q
7440-47-3	Chromium, Total	0.50	ug/L	0.20	0.50	1.0	U

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

QC Batch: 1501399

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-MS1

Preparation: 3050B Digestion

Initial/Final: 0.512 grams / 50 mL

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Chromium, Total	3.91	14.7	18.6	100	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

QC Batch: 1501399

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-MSD1

Preparation: 3050B Digestion

Initial/Final: 0.5218 grams / 50 mL

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Chromium, Total	3.83	21.7	181 *	15	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.
Client: CH2M HILL - VA
Matrix: Soil
% Solids:
Preparation: 3050B Digestion
QC Batch: 1501399

SDG: 50085-8
Project: 8012 CTO-WE74 Yorktown Site 34
Laboratory ID: 1501399-PS1
Lab Source ID: 1502169-05
Initial/Final: 0.0104 grams / 1 mL
Sequence: 5B23013

Analyte	Spike Sample Result (SSR)	Sample Result (SR)	Units	Spike Added (SA)	%R	Control Limit %R
Chromium, Total	0.251	0.153	mg/L	0.100	98	75 - 125

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501399-BS1

Preparation: 3050B Digestion

Initial/Final: 0.5 grams / 50 mL

QC Batch: 1501399

Sequence: 5B23013

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Chromium, Total	4.00	4.30	108	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Water

QC Batch: 1501411

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 1501411-BS1

Preparation: 3020A Digestion

Initial/Final: 25 mL / 25 mL

Sequence: 5B24010

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Chromium, Total	50.0	52.9	106	80 - 120	ug/L

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SERIAL DILUTION

USEPA-6020A

YS34-SB15-0215

Laboratory: TriMatrix Laboratories, Inc.

Client: CH2M HILL - VA

Matrix: Soil

% Solids:

QC Batch: 5B23013

SDG: 50085-8

Project: 8012 CTO-WE74 Yorktown Site 34

Laboratory ID: 5B23013-SRD1

Lab Source ID: 1502169-05

Sequence: 5B23013

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Chromium, Total	0.0306		0.0304		1.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

HOLDING TIME SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: 50085-8

Client: CH2M HILL - VA

Project: 8012 CTO-WE74 Yorktown Site 34

Total Metals

Sample Name	Date Collected	Date Received	Date Leached	Date Prepared	Days to Prep	Max Days to Prep	Date Analyzed	Days to Analysis	Max Days to Analysis	Q
YS34-SS13-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SS13P-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SS14-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB14-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB15-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-SB16-0215	02/10/15	02/11/15		02/13/15	3	NA	02/23/15	13	180	
YS34-EB-021015-SO	02/10/15	02/11/15		02/13/15	3	NA	02/24/15	14	180	

TRIMATRIX LABORATORIES

SECTION - C

RAW DATA

USEPA-6020A

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Individual sample results relate only to the sample tested.
5560 Corporate Exchange Court SE ♦ Grand Rapids, MI 49512 ♦ Phone: 616.975.4500 ♦ Fax: 616.942.7463 ♦ www.trimatrixlabs.com

app KW 2-24-15

due 2-24

Calib: dod 4.2 5B24004

TRIMATRIX LABORATORIES

Metals Laboratory Instrument Run Sequence

Cr

Instrument #: 201

Date: 2-23-15

Analyst: DSL

Data File: 5B23013

Calibration BLK/ICB/CCB: 5%HNO3# 53358

Internal Standard #: #4121150

Tuning Standard #: #5010070

Autosampler Position:

1. CAL1BLK/ICB/CCB/4031289
2. ICV/SCV/CCV 40ug/L 4121399
3. CAL2 0.2 ug/L 4031288
4. CAL3 1.0 ug/L 4031287
5. CAL4 10 ug/L 4031286
6. CAL5 20 ug/L 4031285
7. CAL6 50 ug/L 4031284
8. CAL7 100 ug/L 4031283
9.
10. IFA1 4121406
11. IFB1 4121407

Analysis #/ Position #	ID	Dilution Initial Volume (mL)	Dilution Final Volume (mL)	Dilution Factor	Analysis #/ Position #	ID	Dilution Initial Volume (mL)	Dilution Final Volume (mL)	Dilution Factor
1/17	1501399-blk1				35/51				
2/18	BS1				36/52				
3/19	1502169-01				37/53				
4/20	02				38/54				
5/21	03	Straight run on previous run			39/55				
6/22	04				40/56				
7/23	05				41/57				
8/24	MS1				42/58				
9/25	MSD1				43/59				
10/26	SRD1				44/60				
11/27	PS1				45/61				
12/28	06				46/62				
13/29	1502169-01			5X	47/63				
14/30	02			5X	48/64				
15/31	03			5X	49/65				
16/32	04			5X	50/66				
17/33	05			5X	51/67				
18/34	MS1			5X	52/68				
19/35	MSD1			5X	53/69				
20/36	SRD1			25X	54/70				
21/37	PS1			5X	55/71				
22/38	06			5X	56/72				
23/39					57/73				
24/40					58/74				
25/41					59/75				
26/42					60/76				
27/43					61/77				
28/44					62/78				
29/45					63/79				
30/46					64/80				
31/47					65/81				
32/48					66/82				
33/49					67/83				
34/50					68/84				

Instrument Tuning Report

File Name: 23FEB2015_6020A_C_201.tun
File Path: C:\Elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Li	7.016	6.977	1521	1960	0.809	
Co	58.933	58.927	14152	2025	0.845	
In	114.904	114.878	27746	2045	0.836	
Ba	137.905	137.879	33334	2050	0.839	
Ce	139.905	139.878	33828	2050	0.847	
Tl	204.975	204.975	49627	2080	0.840	

Daily Performance Report

Sample ID: 5010070
Sample Date/Time: Monday, February 23, 2015 14:04:24
Sample Description:
Method File: c:\elandata\Method\6020A_Daily.mth
Dataset File: c:\elandata\Dataset\default\5010070.4933
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac
Dual Detector Mode: Dual

Acq. Dead Time(ns): 35
Current Dead Time (ns): 35

Number of Replicates: 6

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD
	Li	7.0	238.7	238.669	10.133	4.2
	Co	58.9	46515.5	46515.451	638.091	1.4
	In	114.9	167968.8	167968.836	2336.323	1.4
	Tl	205.0	124713.2	124713.227	1409.200	1.1
⌈>	Ba	137.9	141469.0	141469.047	1335.052	0.9
⌊	Ba++	69.0	1069.4	0.008	0.000	1.8
⌈>	Ce	139.9	171404.8	171404.846	936.549	0.5
⌊	CeO	155.9	4982.0	0.029	0.001	3.3
	Bkgd	220.0	6.0	6.000	3.950	65.8

Replicates

Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	239.002	239.002
Co	59	45746.128	45746.128
In	115	170704.809	170704.809
Tl	205	125596.692	125596.692
Ba	138	139056.972	139056.972
Ba++	69	1062.039	0.008
Ce	140	172034.658	172034.658
CeO	156	5153.930	0.030
Bkgd	220	2.000	2.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	256.002	256.002
Co	59	47219.911	47219.911
In	115	164468.342	164468.342
Tl	205	122922.583	122922.583
Ba	138	140900.372	140900.372
Ba++	69	1075.040	0.008
Ce	140	171886.895	171886.895
CeO	156	4697.772	0.027
Bkgd	220	10.000	10.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	227.002	227.002
Co	59	46988.149	46988.149
In	115	168839.251	168839.251
Tl	205	125655.203	125655.203
Ba	138	142717.579	142717.579
Ba++	69	1084.041	0.008
Ce	140	169667.600	169667.600
CeO	156	5075.902	0.030
Bkgd	220	1.000	1.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	243.002	243.002
Co	59	46440.362	46440.362
In	115	168033.683	168033.683

Q

Tl	205	123635.697	123635.697
Ba	138	142368.719	142368.719
Ba++	69	1076.041	0.008
Ce	140	171589.350	171589.350
CeO	156	4959.861	0.029
Bkgd	220	8.000	8.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	235.002	235.002
Co	59	45773.214	45773.214
In	115	166042.731	166042.731
Tl	205	123940.320	123940.320
Ba	138	141718.724	141718.724
Ba++	69	1033.037	0.007
Ce	140	171074.227	171074.227
CeO	156	5011.879	0.029
Bkgd	220	5.000	5.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	232.002	232.002
Co	59	46924.942	46924.942
In	115	169724.201	169724.201
Tl	205	126528.864	126528.864
Ba	138	142051.918	142051.918
Ba++	69	1086.041	0.008
Ce	140	172176.349	172176.349
CeO	156	4992.872	0.029
Bkgd	220	10.000	10.000

8

Sample Information

Sample ID: 5B23013-CAL1
Autosampler Position: 1
Sample Date/Time: Monday, February 23, 2015 15:07:40
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL1.023
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	2758.627					mg/L
Ge	72	154002.167					mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	2616.306			mg/L
Ge	72	153736.322			mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	2769.296			mg/L
Ge	72	153947.581			mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	2690.260			mg/L
Ge	72	154322.598			mg/L

2

Sample Information

Sample ID: 5B23013-CAL2
Autosampler Position: 4
Sample Date/Time: Monday, February 23, 2015 15:10:07
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL2.024
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3839.888	0.007	0.001000	0.000	7.696	mg/L
⌊>	Ge	72	153005.583	153005.583				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3872.564	0.007	0.001024	mg/L
⌊>	Ge	72	153263.275	153263.275		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3941.583	0.008	0.001062	mg/L
⌊>	Ge	72	154347.869	154347.869		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3705.518	0.007	0.000914	mg/L
⌊>	Ge	72	151405.605	151405.605		mg/L

Sample Information

Sample ID: 5B23013-CAL3
Autosampler Position: 5
Sample Date/Time: Monday, February 23, 2015 15:12:36
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL3.025
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	13651.323	0.072	0.010000	0.000	2.035	mg/L
>	Ge	72	152666.665	152666.665				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	13564.572	0.070	0.008770	mg/L
>	Ge	72	154521.735	154521.735		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	13588.692	0.073	0.010156	mg/L
>	Ge	72	151179.224	151179.224		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	13700.704	0.072	0.010074	mg/L
>	Ge	72	152299.035	152299.035		mg/L

Sample Information

Sample ID: 5B23013-CAL4
Autosampler Position: 6
Sample Date/Time: Monday, February 23, 2015 15:15:05
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL4.026
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	25606.521	0.147	0.020122	0.000	0.566	mg/L
>	Ge	72	154818.298	154818.298				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	25570.119	0.147	0.020113	mg/L
>	Ge	72	154667.299	154667.299		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	25275.593	0.147	0.020013	mg/L
>	Ge	72	153563.476	153563.476		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	25973.850	0.148	0.020241	mg/L
>	Ge	72	156224.118	156224.118		mg/L

Sample Information

Sample ID: 5B23013-CAL5
Autosampler Position: 7
Sample Date/Time: Monday, February 23, 2015 15:17:36
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL5.027
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	56991.700	0.351	0.049646	0.001	1.908	mg/L
⌊>	Ge	72	154319.339	154319.339				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	57659.704	0.358	0.050608	mg/L
⌊>	Ge	72	153280.458	153280.458		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	56422.767	0.351	0.049615	mg/L
⌊>	Ge	72	152847.856	152847.856		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	56892.630	0.345	0.048715	mg/L
⌊>	Ge	72	156829.705	156829.705		mg/L

Sample Information

Sample ID: 5B23013-CAL6
Autosampler Position: 8
Sample Date/Time: Monday, February 23, 2015 15:20:08
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CAL6.028
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	110682.218	0.689	0.099376	0.002	1.628	mg/L
⌊>	Ge	72	156556.857	156556.857				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	110826.330	0.702	0.101161	mg/L
⌊>	Ge	72	154040.576	154040.576		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	110642.914	0.680	0.098006	mg/L
⌊>	Ge	72	158609.207	158609.207		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	110577.409	0.686	0.098963	mg/L
⌊>	Ge	72	157020.789	157020.789		mg/L

Quantitative Analysis Calibration Report

File Name:
File Path:
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Cr	51.941	Linear Thru Zero	6.93	0.00	0.999902
Ge	71.922	Linear Thru Zero	0.00	0.00	0.000000

Method Equation

Analyte	Mass	Corrections

Sample Information

Sample ID: 5B23013-SCV1
Autosampler Position: 2
Sample Date/Time: Monday, February 23, 2015 15:22:37
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-SCV1.029
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	45268.733	0.275	0.039697	0.001	1.716	mg/L
>	Ge	72	154405.924	154405.924				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	100.262

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	45302.169	0.271	0.039080	mg/L
>	Ge	72	156792.297	156792.297		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	45674.355	0.280	0.040428	mg/L
>	Ge	72	153124.801	153124.801		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	44829.677	0.275	0.039584	mg/L
>	Ge	72	153300.673	153300.673		mg/L

Sample Information

Sample ID: 5B23013-CCB
Autosampler Position: 1
Sample Date/Time: Monday, February 23, 2015 15:25:02
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCB.030
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	2917.994	0.001	0.000135	0.000	32.865	mg/L
⌊>	Ge	72	154829.378	154829.378				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	100.537

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2970.338	0.001	0.000180	mg/L
⌊>	Ge	72	155013.020	155013.020		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2908.325	0.001	0.000132	mg/L
⌊>	Ge	72	154463.106	154463.106		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2875.318	0.001	0.000092	mg/L
⌊>	Ge	72	155012.009	155012.009		mg/L

Sample Information

Sample ID: 5B23013-IFA1
Autosampler Position: 10
Sample Date/Time: Monday, February 23, 2015 15:27:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-IFA1.031
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3107.703	0.002	0.000278	0.000	26.643	mg/L
⌊>	Ge	72	156618.430	156618.430				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	101.699

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3198.390	0.002	0.000360	mg/L
⌊>	Ge	72	156707.372	156707.372		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3059.358	0.001	0.000215	mg/L
⌊>	Ge	72	157645.620	157645.620		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3065.359	0.002	0.000260	mg/L
⌊>	Ge	72	155502.299	155502.299		mg/L

Sample Information

Sample ID: 5B23013-IFB1
Autosampler Position: 11
Sample Date/Time: Monday, February 23, 2015 15:29:53
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-IFB1.032
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	23874.506	0.136	0.019555	0.000	1.165	mg/L
⌊>	Ge	72	155507.731	155507.731				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	100.978

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	23603.719	0.134	0.019336	mg/L
⌊>	Ge	72	155277.876	155277.876		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	23944.289	0.137	0.019791	mg/L
⌊>	Ge	72	154315.522	154315.522		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	24075.511	0.136	0.019539	mg/L
⌊>	Ge	72	156929.796	156929.796		mg/L

2

Sample Information

Sample ID: 5B23013-CCV
Autosampler Position: 2
Sample Date/Time: Monday, February 23, 2015 15:32:20
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCV.033
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	45228.277	0.276	0.039867	0.001	1.440	mg/L
⌊>	Ge	72	153635.268	153635.268				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	99.762

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	45625.197	0.277	0.039916	mg/L
⌊>	Ge	72	154801.745	154801.745		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44509.675	0.272	0.039270	mg/L
⌊>	Ge	72	153349.190	153349.190		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	45549.957	0.280	0.040415	mg/L
⌊>	Ge	72	152754.868	152754.868		mg/L

Sample Information

Sample ID: 5B23013-CCB
Autosampler Position: 1
Sample Date/Time: Monday, February 23, 2015 15:34:46
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCB.034
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	2872.985	0.001	0.000119	0.000	81.367	mg/L
>	Ge	72	153304.043	153304.043				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	99.547

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	2980.343	0.002	0.000230	mg/L
>	Ge	72	153285.512	153285.512		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	2829.308	0.001	0.000078	mg/L
>	Ge	72	153242.049	153242.049		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	2799.302	0.000	0.000049	mg/L
>	Ge	72	153384.568	153384.568		mg/L

Sample Information

Sample ID: 1501399-BLK1
Autosampler Position: 17
Sample Date/Time: Monday, February 23, 2015 15:37:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1501399-BLK1.035
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3276.075	0.003	0.000411	0.000	4.492	mg/L
⌊>	Ge	72	157775.742	157775.742				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	102.450

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3287.411	0.003	0.000425	mg/L
⌊>	Ge	72	157613.265	157613.265		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3309.416	0.003	0.000419	mg/L
⌊>	Ge	72	158985.358	158985.358		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3231.398	0.003	0.000390	mg/L
⌊>	Ge	72	156728.603	156728.603		mg/L

Sample Information

Sample ID: 1501399-BS1
Autosampler Position: 18
Sample Date/Time: Monday, February 23, 2015 15:39:42
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1501399-BS1.036
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	50084.476	0.298	0.043024	0.000	0.750	mg/L
>	Ge	72	158357.798	158357.798				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	102.828

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	50103.206	0.301	0.043395	mg/L
>	Ge	72	157135.036	157135.036		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	50078.120	0.297	0.042806	mg/L
>	Ge	72	159094.564	159094.564		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	50072.099	0.297	0.042872	mg/L
>	Ge	72	158843.794	158843.794		mg/L

Sample Information

Sample ID: 1502169-01
Autosampler Position: 29
Sample Date/Time: Monday, February 23, 2015 15:42:10
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-01.037
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	51599.201	0.309	0.044576	0.000	1.087	mg/L
⌊>	Ge	72	157780.457	157780.457				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	102.453

LS

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	51362.681	0.306	0.044109	mg/L
⌊>	Ge	72	158620.330	158620.330		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	51682.836	0.309	0.044542	mg/L
⌊>	Ge	72	158141.055	158141.055		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	51752.087	0.313	0.045076	mg/L
⌊>	Ge	72	156579.985	156579.985		mg/L

P

Sample Information

Sample ID: 1502169-02
Autosampler Position: 30
Sample Date/Time: Monday, February 23, 2015 15:44:37
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-02.038
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	Cr	52	53012.044	0.315	0.045400	0.000	0.485	mg/L
↳	Ge	72	159307.596	159307.596				mg/L

+5

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	Cr	51.941	
↳	Ge	71.922	103.445

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
[	Cr	52	53158.250	0.315	0.045430	mg/L
↳	Ge	72	159648.700	159648.700		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
[	Cr	52	52523.904	0.313	0.045167	mg/L
↳	Ge	72	158614.263	158614.263		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
[	Cr	52	53353.979	0.316	0.045603	mg/L
↳	Ge	72	159659.824	159659.824		mg/L

e

Sample Information

Sample ID: 1502169-03
Autosampler Position: 31
Sample Date/Time: Monday, February 23, 2015 15:47:04
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-03.039
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	44988.177	0.265	0.038274	0.001	1.325	mg/L
⌊>	Ge	72	158786.535	158786.535				mg/L

QC Calculated Values

LS

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	103.107

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	45189.812	0.268	0.038663	mg/L
⌊>	Ge	72	157985.345	157985.345		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44995.198	0.267	0.038460	mg/L
⌊>	Ge	72	158083.422	158083.422		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44779.519	0.261	0.037700	mg/L
⌊>	Ge	72	160290.837	160290.837		mg/L

e

Sample Information

Sample ID: 1502169-04
Autosampler Position: 32
Sample Date/Time: Monday, February 23, 2015 15:49:32
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-04.040
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	Cr	52	29154.010	0.167	0.024082	0.000	1.681	mg/L
>	Ge	72	157682.174	157682.174				mg/L

XS

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	Cr	51.941	
>	Ge	71.922	102.390

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	29105.911	0.170	0.024546	mg/L
>	Ge	72	154703.691	154703.691		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	29077.854	0.165	0.023802	mg/L
>	Ge	72	158914.576	158914.576		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
	Cr	52	29278.264	0.166	0.023898	mg/L
>	Ge	72	159428.257	159428.257		mg/L

a

Sample Information

Sample ID: 1502169-05
Autosampler Position: 33
Sample Date/Time: Monday, February 23, 2015 15:52:01
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-05.041
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	36086.222	0.212	0.030636	0.001	2.034	mg/L
⌊>	Ge	72	156649.075	156649.075				mg/L

QC Calculated Values

XS

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	101.719

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	36605.204	0.216	0.031143	mg/L
⌊>	Ge	72	156504.161	156504.161		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	36209.192	0.214	0.030823	mg/L
⌊>	Ge	72	156295.897	156295.897		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	35444.270	0.208	0.029940	mg/L
⌊>	Ge	72	157147.168	157147.168		mg/L

R

Sample Information

Sample ID: 1501399-MS1
Autosampler Position: 34
Sample Date/Time: Monday, February 23, 2015 15:54:29
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1501399-MS1.042
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	44802.259	0.265	0.038195	0.000	0.466	mg/L
⌊>	Ge	72	158427.219	158427.219				mg/L

XS

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	102.873

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44640.083	0.266	0.038298	mg/L
⌊>	Ge	72	157454.528	157454.528		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44682.215	0.263	0.037990	mg/L
⌊>	Ge	72	158801.326	158801.326		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	45084.479	0.266	0.038297	mg/L
⌊>	Ge	72	159025.804	159025.804		mg/L

Sample Information

Sample ID: 1501399-MSD1
Autosampler Position: 35
Sample Date/Time: Monday, February 23, 2015 15:56:59
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1501399-MSD1.043
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	51655.077	0.314	0.045225	0.001	1.447	mg/L
⌊>	Ge	72	155804.916	155804.916				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	101.171

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	52301.086	0.318	0.045872	mg/L
⌊>	Ge	72	155642.818	155642.818		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	51184.040	0.309	0.044563	mg/L
⌊>	Ge	72	156545.611	156545.611		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	51480.104	0.314	0.045239	mg/L
⌊>	Ge	72	155226.319	155226.319		mg/L

Sample Information

Sample ID: 5B23013-SRD1
Autosampler Position: 36
Sample Date/Time: Monday, February 23, 2015 15:59:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-SRD1.044
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	9323.135	0.042	0.006087	0.000	1.755	mg/L
⌊>	Ge	72	155054.475	155054.475				mg/L

QC Calculated Values

+25

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	100.683

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	9387.177	0.043	0.006140	mg/L
⌊>	Ge	72	155182.850	155182.850		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	9151.021	0.041	0.005964	mg/L
⌊>	Ge	72	154386.281	154386.281		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	9431.206	0.043	0.006157	mg/L
⌊>	Ge	72	155594.294	155594.294		mg/L

R

Sample Information

Sample ID: 5B23013-CCV
Autosampler Position: 2
Sample Date/Time: Monday, February 23, 2015 16:01:56
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCV.045
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	44636.075	0.278	0.040041	0.000	0.842	mg/L
Ge	72	151002.706	151002.706				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Ge	71.922	98.052

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	44810.617	0.278	0.040157	mg/L
Ge	72	151181.245	151181.245		mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	44967.109	0.280	0.040304	mg/L
Ge	72	151189.330	151189.330		mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	44130.498	0.275	0.039660	mg/L
Ge	72	150637.542	150637.542		mg/L

Sample Information

Sample ID: 5B23013-CCB
Autosampler Position: 1
Sample Date/Time: Monday, February 23, 2015 16:04:22
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCB.046
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	2817.973	0.000	0.000036	0.000	133.037	mg/L
⌊>	Ge	72	155154.222	155154.222				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	100.748

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2843.311	0.000	0.000045	mg/L
⌊>	Ge	72	156030.012	156030.012		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2857.314	0.001	0.000079	mg/L
⌊>	Ge	72	154791.636	154791.636		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2753.293	-0.000	-0.000016	mg/L
⌊>	Ge	72	154641.017	154641.017		mg/L

2

Sample Information

Sample ID: 1501399-PS1
Autosampler Position: 37
Sample Date/Time: Monday, February 23, 2015 16:06:50
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1501399-PS1.047
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	57129.918	0.348	0.050167	0.001	2.099	mg/L
⌊>	Ge	72	156193.900	156193.900				mg/L

QC Calculated Values

XS

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	101.423

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	56426.783	0.341	0.049165	mg/L
⌊>	Ge	72	157235.129	157235.129		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	57575.364	0.347	0.050073	mg/L
⌊>	Ge	72	157668.875	157668.875		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	57387.608	0.356	0.051264	mg/L
⌊>	Ge	72	153677.696	153677.696		mg/L

Sample Information

Sample ID: 1502169-06
Autosampler Position: 38
Sample Date/Time: Monday, February 23, 2015 16:09:21
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\1502169-06.048
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	34128.059	0.199	0.028714	0.000	0.197	mg/L
⌊>	Ge	72	157241.899	157241.899				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	102.104

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	34041.851	0.199	0.028656	mg/L
⌊>	Ge	72	157132.002	157132.002		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	34387.682	0.199	0.028716	mg/L
⌊>	Ge	72	158428.214	158428.214		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	33954.643	0.200	0.028769	mg/L
⌊>	Ge	72	156165.481	156165.481		mg/L

Sample Information

Sample ID: 5B23013-CCV
Autosampler Position: 2
Sample Date/Time: Monday, February 23, 2015 16:11:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCV.049
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	44514.697	0.272	0.039178	0.001	1.770	mg/L
⌊>	Ge	72	153715.820	153715.820				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	99.814

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44054.263	0.270	0.038916	mg/L
⌊>	Ge	72	153073.252	153073.252		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	45043.350	0.277	0.039965	mg/L
⌊>	Ge	72	152654.806	152654.806		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	44446.479	0.268	0.038654	mg/L
⌊>	Ge	72	155419.403	155419.403		mg/L

Sample Information

Sample ID: 5B23013-CCB
Autosampler Position: 1
Sample Date/Time: Monday, February 23, 2015 16:14:15
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B23013.sam
Method File: c:\elandata\Method\Dod_solids_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B23013\5B23013-CCB.050
Tuning File: C:\Elandata\Tuning\23FEB2015_6020A_C_201.tun
Optimization File: C:\Elandata\Optimize\23FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	2731.622	-0.000	-0.000050	0.000	120.638	mg/L
⌊>	Ge	72	155506.686	155506.686				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
⌊>	Ge	71.922	100.977

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2809.304	0.000	0.000015	mg/L
⌊>	Ge	72	155952.168	155952.168		mg/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2674.277	-0.001	-0.000105	mg/L
⌊>	Ge	72	155628.665	155628.665		mg/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	2711.284	-0.000	-0.000060	mg/L
⌊>	Ge	72	154939.225	154939.225		mg/L

TRIMATRIX LABORATORIES

app KW 2-24-15 due 2-24

Cal ID: 5B24005 dod 4.2

Metals Laboratory Instrument Run Sequence

Instrument #: 201

Date: 2-24-15

Analyst: DSL

Data File: 5B24010

Calibration BLK/ICB/CCB: 3%HNO3# 53358

Internal Standard #: #4121150

Tuning Standard #: #5010070

Autosampler Position:

1. CAL1BLK/ICB/CCB/4031296
2. ICV/SCV/CCV 40ug/L 4121398
3. CAL2 0.2 ug/L 4031295
4. CAL3 1.0 ug/L 4031294
5. CAL4 10 ug/L 4031293
6. CAL5 20 ug/L 4031292
7. CAL6 50 ug/L 4031291
8. CAL7 100 ug/L 4031290
9.
10. IFA1 4121404
11. IFB1 4121405

Analysis #/ Position #	ID	Dilution Initial Volume (mL)	Dilution Final Volume (mL)	Dilution Factor	Analysis #/ Position #	ID	Dilution Initial Volume (mL)	Dilution Final Volume (mL)	Dilution Factor
1/17	1S01411-blk1				35/51				
2/18	bs1				36/52				
3/19	1S02169-07	E.B.			37/53				
4/20					38/54				
5/21					39/55				
6/22					40/56				
7/23					41/57				
8/24					42/58				
9/25					43/59				
10/26					44/60				
11/27					45/61				
12/28					46/62				
13/29					47/63				
14/30					48/64				
15/31					49/65				
16/32					50/66				
17/33					51/67				
18/34					52/68				
19/35					53/69				
20/36					54/70				
21/37					55/71				
22/38					56/72				
23/39					57/73				
24/40					58/74				
25/41					59/75				
26/42					60/76				
27/43					61/77				
28/44					62/78				
29/45					63/79				
30/46					64/80				
31/47					65/81				
32/48					66/82				
33/49					67/83				
34/50					68/84				

Instrument Tuning Report

File Name: 24FEB2015_6020A_A_201.tun
File Path: C:\Elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
Li	7.016	7.025	1539	1955	0.810	
Co	58.933	58.977	14156	2025	0.854	
In	114.904	114.978	27760	2045	0.845	
Ba	137.905	137.879	33336	2050	0.856	
Ce	139.905	139.928	33830	2050	0.848	
Tl	204.975	204.925	49614	2080	0.843	

Daily Performance Report

Sample ID: 5010070
Sample Date/Time: Tuesday, February 24, 2015 09:19:22
Sample Description:
Method File: c:\elandata\Method\6020A_Daily.mth
Dataset File: c:\elandata\Dataset\default\5010070.4957
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac
Dual Detector Mode: Dual

Acq. Dead Time(ns): 35
Current Dead Time (ns): 35

Number of Replicates: 6

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Net Intens. SD	Net Intens. RSD
	Li	7.0	418.8	418.839	16.822	4.0
	Co	58.9	45622.7	45622.735	215.860	0.5
	In	114.9	182191.3	182191.304	1187.916	0.7
	Tl	205.0	118123.5	118123.538	853.600	0.7
⌈>	Ba	137.9	147874.5	147874.534	2901.986	2.0
⌊	Ba++	69.0	1187.0	0.008	0.000	2.5
⌈>	Ce	139.9	181583.3	181583.294	1248.841	0.7
⌊	CeO	155.9	5075.4	0.028	0.000	1.7
	Bkgd	220.0	7.7	7.667	2.066	26.9

Replicates

Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	419.006	419.006
Co	59	45406.045	45406.045
In	115	180064.886	180064.886
Tl	205	117464.953	117464.953
Ba	138	143455.346	143455.346
Ba++	69	1147.046	0.008
Ce	140	179472.324	179472.324
CeO	156	5038.889	0.028
Bkgd	220	8.000	8.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	429.006	429.006
Co	59	45803.310	45803.310
In	115	181782.041	181782.041
Tl	205	118754.549	118754.549
Ba	138	147334.946	147334.946
Ba++	69	1152.046	0.008
Ce	140	182221.802	182221.802
CeO	156	4961.862	0.027
Bkgd	220	11.000	11.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	407.006	407.006
Co	59	45443.163	45443.163
In	115	183127.267	183127.267
Tl	205	117833.974	117833.974
Ba	138	147745.901	147745.901
Ba++	69	1217.052	0.008
Ce	140	183036.114	183036.114
CeO	156	5045.891	0.028
Bkgd	220	5.000	5.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	428.006	428.006
Co	59	45552.510	45552.510
In	115	183304.056	183304.056

Tl	205	117570.819	117570.819
Ba	138	146720.489	146720.489
Ba++	69	1210.051	0.008
Ce	140	180853.580	180853.580
CeO	156	5168.935	0.029
Bkgd	220	8.000	8.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	438.007	438.007
Co	59	45959.812	45959.812
In	115	182176.167	182176.167
Tl	205	117547.629	117547.629
Ba	138	151849.954	151849.954
Ba++	69	1228.053	0.008
Ce	140	181886.571	181886.571
CeO	156	5096.909	0.028
Bkgd	220	8.000	8.000
Analyte	Mass	Meas. Intensity	Net Intensity
Li	7	392.005	392.005
Co	59	45571.571	45571.571
In	115	182693.405	182693.405
Tl	205	119569.303	119569.303
Ba	138	150140.567	150140.567
Ba++	69	1168.048	0.008
Ce	140	182029.372	182029.372
CeO	156	5139.924	0.028
Bkgd	220	6.000	6.000

Sample Information

Sample ID: 5B24010-CAL1
Autosampler Position: 1
Sample Date/Time: Tuesday, February 24, 2015 09:26:35
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL1.001
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	3193.056					ug/L
Cr	53	702.358					ug/L
Ge	72	159629.955					ug/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Cr	52.941	
Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3238.399			ug/L
Cr	53	675.023			ug/L
Ge	72	162211.352			ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3110.370			ug/L
Cr	53	701.024			ug/L
Ge	72	157555.634			ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3230.398			ug/L
Cr	53	731.026			ug/L
Ge	72	159122.877			ug/L

Sample Information

Sample ID: 5B24010-CAL2
Autosampler Position: 4
Sample Date/Time: Tuesday, February 24, 2015 09:29:05
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL2.002
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	4269.681	0.007	1.000000	0.050	5.033	ug/L
|	Cr	53	845.034	0.001	1.000000	0.326	32.598	ug/L
⌊>	Ge	72	160073.468	160073.468				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	4260.678	0.007	1.029443	ug/L
|	Cr	53	791.030	0.001	0.670957	ug/L
⌊>	Ge	72	158567.750	158567.750		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	4338.702	0.007	1.028674	ug/L
|	Cr	53	898.037	0.001	1.322818	ug/L
⌊>	Ge	72	161502.360	161502.360		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	4209.662	0.006	0.941884	ug/L
|	Cr	53	846.034	0.001	1.006225	ug/L
⌊>	Ge	72	160150.273	160150.273		ug/L

Sample Information

Sample ID: 5B24010-CAL3
Autosampler Position: 5
Sample Date/Time: Tuesday, February 24, 2015 09:31:37
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL3.003
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	14273.939	0.068	10.001702	0.174	1.738	ug/L
|	Cr	53	2062.170	0.008	9.994294	0.336	3.365	ug/L
⌊>	Ge	72	162426.471	162426.471				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	14086.082	0.067	9.866106	ug/L
|	Cr	53	2087.173	0.008	10.221926	ug/L
⌊>	Ge	72	161993.903	161993.903		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	14137.133	0.067	9.941273	ug/L
|	Cr	53	2000.160	0.008	9.608012	ug/L
⌊>	Ge	72	161632.845	161632.845		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	14598.601	0.069	10.197728	ug/L
|	Cr	53	2099.175	0.008	10.152944	ug/L
⌊>	Ge	72	163652.685	163652.685		ug/L

Sample Information

Sample ID: 5B24010-CAL4
Autosampler Position: 6
Sample Date/Time: Tuesday, February 24, 2015 09:34:10
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL4.004
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	25324.348	0.134	19.951337	0.565	2.831	ug/L
|	Cr	53	3378.434	0.016	19.887759	0.720	3.622	ug/L
⌊>	Ge	72	164376.401	164376.401				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	25624.216	0.138	20.598461	ug/L
|	Cr	53	3279.409	0.016	19.555772	ug/L
⌊>	Ge	72	161717.799	161717.799		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	25064.219	0.132	19.698088	ug/L
|	Cr	53	3313.417	0.016	19.393277	ug/L
⌊>	Ge	72	164464.922	164464.922		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	25284.609	0.131	19.557461	ug/L
|	Cr	53	3542.475	0.017	20.714229	ug/L
⌊>	Ge	72	166946.482	166946.482		ug/L

Sample Information

Sample ID: 5B24010-CAL5
Autosampler Position: 7
Sample Date/Time: Tuesday, February 24, 2015 09:36:44
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL5.005
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	58811.762	0.338	50.053023	1.483	2.964	ug/L
|	Cr	53	7413.665	0.041	50.029928	0.734	1.467	ug/L
⌊>	Ge	72	164211.452	164211.452				ug/L
								ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	57625.566	0.327	48.352735	ug/L
|	Cr	53	7512.050	0.041	50.096559	ug/L
⌊>	Ge	72	166200.856	166200.856		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	58849.553	0.343	50.723767	ug/L
|	Cr	53	7222.898	0.040	49.264892	ug/L
⌊>	Ge	72	162234.614	162234.614		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	59960.188	0.345	51.082569	ug/L
|	Cr	53	7506.046	0.041	50.726332	ug/L
⌊>	Ge	72	164198.885	164198.885		ug/L

Sample Information

Sample ID: 5B24010-CAL6
Autosampler Position: 8
Sample Date/Time: Tuesday, February 24, 2015 09:39:18
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CAL6.006
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	116179.405	0.685	100.320297	2.892	2.883	ug/L
|	Cr	53	14211.875	0.082	100.118279	2.405	2.402	ug/L
⌊>	Ge	72	164790.754	164790.754				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	114101.996	0.662	96.962746	ug/L
|	Cr	53	14048.044	0.080	97.372625	ug/L
⌊>	Ge	72	167210.547	167210.547		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	116965.041	0.697	102.081748	ug/L
|	Cr	53	14298.285	0.083	101.849919	ug/L
⌊>	Ge	72	163083.203	163083.203		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	117471.174	0.696	101.896395	ug/L
|	Cr	53	14289.286	0.083	101.132293	ug/L
⌊>	Ge	72	164078.513	164078.513		ug/L

R

Quantitative Analysis Calibration Report

File Name:
File Path:
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
Cr	51.941	Linear Thru Zero	0.01	0.00	0.999982
Cr	52.941	Linear Thru Zero	0.00	0.00	0.999995
Ge	71.922	Linear Thru Zero	0.00	0.00	0.000000

Method Equation

Analyte	Mass	Corrections

Sample Information

Sample ID: 5B24010-SCV1
Autosampler Position: 2
Sample Date/Time: Tuesday, February 24, 2015 09:41:51
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-SCV1.007
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	50218.614	0.285	41.744815	0.698	1.672	ug/L
Cr	53	6238.424	0.034	40.975033	0.611	1.491	ug/L
Ge	72	164607.969	164607.969				ug/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Cr	52.941	
Ge	71.922	103.118

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	50070.092	0.283	41.456940	ug/L
Cr	53	6276.441	0.034	41.097788	ug/L
Ge	72	165158.866	165158.866		ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	50476.522	0.291	42.540213	ug/L
Cr	53	6232.422	0.034	41.515416	ug/L
Ge	72	162540.060	162540.060		ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	50109.229	0.282	41.235293	ug/L
Cr	53	6206.410	0.033	40.311896	ug/L
Ge	72	166124.981	166124.981		ug/L

Sample Information

Sample ID: 5B24010-CCB
Autosampler Position: 1
Sample Date/Time: Tuesday, February 24, 2015 09:44:20
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CCB.008
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3368.097	0.001	0.103149	0.029	28.528	ug/L
|	Cr	53	708.025	-0.000	-0.057008	0.084	147.356	ug/L
⌊>	Ge	72	162666.969	162666.969				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	101.903

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3339.424	0.001	0.117759	ug/L
|	Cr	53	709.025	0.000	0.021832	ug/L
⌊>	Ge	72	160494.103	160494.103		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3378.433	0.001	0.122412	ug/L
|	Cr	53	707.025	-0.000	-0.047490	ug/L
⌊>	Ge	72	162121.338	162121.338		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3366.435	0.000	0.069277	ug/L
|	Cr	53	708.025	-0.000	-0.145365	ug/L
⌊>	Ge	72	165365.467	165365.467		ug/L

Sample Information

Sample ID: 5B24010-IFA1
Autosampler Position: 10
Sample Date/Time: Tuesday, February 24, 2015 09:46:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-IFA1.009
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3239.733	0.000	0.004718	0.071	1510.613	ug/L
|	Cr	53	1010.713	0.002	2.261501	0.124	5.467	ug/L
⌊>	Ge	72	161742.548	161742.548				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	101.323

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
5B24010-IFA1	Cr	53	

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3204.391	-0.001	-0.077496	ug/L
|	Cr	53	1029.047	0.002	2.267253	ug/L
⌊>	Ge	72	164550.904	164550.904		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3259.404	0.000	0.042625	ug/L
|	Cr	53	987.044	0.002	2.135097	ug/L
⌊>	Ge	72	160609.388	160609.388		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3255.403	0.000	0.049027	ug/L
|	Cr	53	1016.046	0.002	2.382154	ug/L
⌊>	Ge	72	160067.350	160067.350		ug/L

Sample Information

Sample ID: 5B24010-IFB1
Autosampler Position: 11
Sample Date/Time: Tuesday, February 24, 2015 09:49:18
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-IFB1.010
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	25450.581	0.139	20.373982	0.372	1.827	ug/L
Cr	53	3749.530	0.019	23.304533	0.688	2.951	ug/L
Ge	72	159898.235	159898.235				ug/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Cr	52.941	
Ge	71.922	100.168

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	24889.913	0.136	19.962969	ug/L
Cr	53	3747.529	0.019	23.409883	ug/L
Ge	72	159195.682	159195.682		ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	25294.627	0.140	20.470887	ug/L
Cr	53	3793.542	0.020	23.933383	ug/L
Ge	72	158272.500	158272.500		ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	26167.206	0.141	20.688088	ug/L
Cr	53	3707.518	0.018	22.570334	ug/L
Ge	72	162226.523	162226.523		ug/L

Sample Information

Sample ID: 5B24010-CCV
Autosampler Position: 2
Sample Date/Time: Tuesday, February 24, 2015 09:51:52
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CCV.011
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	48202.678	0.284	41.570830	0.700	1.684	ug/L
|	Cr	53	6195.405	0.035	42.396239	0.929	2.192	ug/L
⌊>	Ge	72	158601.461	158601.461				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	99.356

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	47385.933	0.279	40.799884	ug/L
|	Cr	53	6107.366	0.034	41.996046	ug/L
⌊>	Ge	72	158660.776	158660.776		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	48679.263	0.288	42.166418	ug/L
|	Cr	53	6310.457	0.036	43.450936	ug/L
⌊>	Ge	72	158052.078	158052.078		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	48542.819	0.285	41.746190	ug/L
|	Cr	53	6168.393	0.034	42.039733	ug/L
⌊>	Ge	72	159091.531	159091.531		ug/L

Sample Information

Sample ID: 5B24010-CCB
Autosampler Position: 1
Sample Date/Time: Tuesday, February 24, 2015 09:54:23
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CCB.012
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3023.350	-0.001	-0.098271	0.015	15.570	ug/L
|	Cr	53	742.693	0.000	0.425882	0.153	35.892	ug/L
⌊>	Ge	72	156399.767	156399.767				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	97.976

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3000.345	-0.001	-0.084069	ug/L
|	Cr	53	715.025	0.000	0.281533	ug/L
⌊>	Ge	72	154429.748	154429.748		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3033.352	-0.001	-0.096238	ug/L
|	Cr	53	765.028	0.000	0.586022	ug/L
⌊>	Ge	72	156798.363	156798.363		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3036.353	-0.001	-0.114486	ug/L
|	Cr	53	748.027	0.000	0.410092	ug/L
⌊>	Ge	72	157971.190	157971.190		ug/L

Sample Information

Sample ID: 1501411-BLK1
Autosampler Position: 17
Sample Date/Time: Tuesday, February 24, 2015 09:56:59
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\1501411-BLK1.013
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3190.055	-0.000	-0.068414	0.051	74.696	ug/L
|	Cr	53	719.692	0.000	0.010952	0.321	2929.042	ug/L
⌊>	Ge	72	163288.576	163288.576				ug/L
								ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	102.292

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3223.396	-0.000	-0.065464	ug/L
|	Cr	53	677.023	-0.000	-0.357791	ug/L
⌊>	Ge	72	164831.110	164831.110		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3238.399	-0.000	-0.018851	ug/L
|	Cr	53	747.027	0.000	0.225783	ug/L
⌊>	Ge	72	162945.645	162945.645		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3108.369	-0.001	-0.120928	ug/L
|	Cr	53	735.026	0.000	0.164865	ug/L
⌊>	Ge	72	162088.974	162088.974		ug/L

Sample Information

Sample ID: 1501411-BS1
Autosampler Position: 18
Sample Date/Time: Tuesday, February 24, 2015 09:59:37
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\1501411-BS1.014
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	62340.014	0.362	52.935282	0.223	0.422	ug/L
|	Cr	53	7825.221	0.043	53.193542	0.505	0.950	ug/L
⌊>	Ge	72	163388.676	163388.676				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	102.355

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	62285.106	0.360	52.707836	ug/L
|	Cr	53	7901.263	0.044	53.575367	ug/L
⌊>	Ge	72	163911.611	163911.611		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	62653.717	0.363	53.154425	ug/L
|	Cr	53	7859.240	0.044	53.384738	ug/L
⌊>	Ge	72	163568.711	163568.711		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	62081.220	0.362	52.943586	ug/L
|	Cr	53	7715.160	0.043	52.620522	ug/L
⌊>	Ge	72	162685.705	162685.705		ug/L

Sample Information

Sample ID: 1502169-07
Autosampler Position: 19
Sample Date/Time: Tuesday, February 24, 2015 10:02:12
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\1502169-07.015
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	3354.094	0.001	0.090519	0.041	44.753	ug/L
|	Cr	53	729.693	0.000	0.105320	0.195	185.569	ug/L
⌊>	Ge	72	162647.290	162647.290				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	101.890

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3412.442	0.001	0.123458	ug/L
|	Cr	53	753.027	0.000	0.244872	ug/L
⌊>	Ge	72	163697.171	163697.171		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3358.428	0.001	0.102813	ug/L
|	Cr	53	698.024	-0.000	-0.118050	ug/L
⌊>	Ge	72	162203.261	162203.261		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	3291.412	0.000	0.045287	ug/L
|	Cr	53	738.026	0.000	0.189136	ug/L
⌊>	Ge	72	162041.439	162041.439		ug/L

Sample Information

Sample ID: 5B24010-CCV
Autosampler Position: 2
Sample Date/Time: Tuesday, February 24, 2015 10:04:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CCV.016
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	Cr	52	49507.465	0.284	41.611231	0.278	0.667	ug/L
|	Cr	53	6253.431	0.034	41.614392	0.319	0.766	ug/L
⌊>	Ge	72	162751.512	162751.512				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	Cr	51.941	
|	Cr	52.941	
⌊>	Ge	71.922	101.955

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	49380.692	0.286	41.810042	ug/L
|	Cr	53	6223.418	0.034	41.718169	ug/L
⌊>	Ge	72	161606.549	161606.549		ug/L

Repeat 2

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	49411.799	0.285	41.729507	ug/L
|	Cr	53	6258.433	0.034	41.868145	ug/L
⌊>	Ge	72	161999.972	161999.972		ug/L

Repeat 3

	Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
⌈	Cr	52	49729.903	0.282	41.294144	ug/L
|	Cr	53	6278.442	0.034	41.256862	ug/L
⌊>	Ge	72	164648.015	164648.015		ug/L

Sample Information

Sample ID: 5B24010-CCB
Autosampler Position: 1
Sample Date/Time: Tuesday, February 24, 2015 10:07:23
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\5B24010.sam
Method File: c:\elandata\Method\DOD_AQUEOUS_6020A_201_4.2.mth
Dataset File: C:\Elandata\DataSet\5B24010\5B24010-CCB.017
Tuning File: C:\Elandata\Tuning\24FEB2015_6020A_A_201.tun
Optimization File: C:\Elandata\Optimize\24FEB2015_6020A_201.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
Cr	52	3223.396	-0.000	-0.033447	0.074	222.346	ug/L
Cr	53	665.689	-0.000	-0.386024	0.232	60.103	ug/L
Ge	72	163032.005	163032.005				ug/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Cr	51.941	
Cr	52.941	
Ge	71.922	102.131

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3158.381	-0.001	-0.119197	ug/L
Cr	53	642.021	-0.000	-0.610686	ug/L
Ge	72	164595.413	164595.413		ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3249.402	0.000	0.013388	ug/L
Cr	53	692.024	-0.000	-0.147303	ug/L
Ge	72	161707.685	161707.685		ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Cr	52	3262.405	0.000	0.005489	ug/L
Cr	53	663.022	-0.000	-0.400083	ug/L
Ge	72	162792.917	162792.917		ug/L

TRIMATRIX LABORATORIES

SECTION - C

PREPARATION LOGS / MISCELLANEOUS

USEPA-6020A

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TriMatrix Laboratories, Inc.

PREPARATION BATCH 1501399

Printed: 3/2/2015 2:13:16PM

Metals, Soil, 3050B Digestion

Batch comments:

MAS 02/13/15 7:00am-4:00pm
inst#218@90.9-94.1C #295
hotblock vessel lot#1408268

Lab Number	Container	Prepared	By	Initial (grams)	Final (mL)	Client Source ID	Client Spike ID	Client uL Spike	Comments
1501399-BLK1		Feb-13-15 07:00	MAS	0.5	50				
1501399-BS1		Feb-13-15 07:00	MAS	0.5	50		4031222	20	
1501399-MS1		Feb-13-15 07:00	MAS	0.512	50	1502169-05	4031222	20	
1501399-MSD1		Feb-13-15 07:00	MAS	0.5218	50	1502169-05	4031222	20	
1501399-PS1		Feb-23-15 14:00	DSC	0.0104	1	1502169-05	4091007	25	[Spk] 0.52grams->50mL; 1mL->1mL; Spik
1502169-01 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.52	50	CH2M HILL - VA			
1502169-02 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.534	50	CH2M HILL - VA			
1502169-03 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.5367	50	CH2M HILL - VA			
1502169-04 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.5139	50	CH2M HILL - VA			
1502169-05 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.52	50	CH2M HILL - VA			
1502169-06 Cr Total 6020A (DoD)	A	Feb-13-15 07:00	MAS	0.5164	50	CH2M HILL - VA			

Comments:	Analyst Initials:

TriMatrix Laboratories, Inc.

PREPARATION BATCH 1501411

Printed: 3/2/2015 2:13:11PM

Metals, Water, 3020A Digestion

Batch comments:

JBA 02/16/14 8:00AM-4:00PM
ins# 217 @ 94.4-92.2 #293
HOTBLOCK VESSEL LOT#1408268

Lab Number	Container	Prepared	By	Initial (mL)	Final (mL)	Client: Source ID	Client: Spike ID	Client: uL Spike	Comments
1501411-BLK1		Feb-16-15 08:00	JBA	25	25				
1501411-BS1		Feb-16-15 08:00	JBA	25	25		4120938	25	
1502169-07 Cr Total 6020A (DoD)	A	Feb-16-15 08:00	JBA	25	25	CH2M HILL - VA			

Comments:

Analyst Initials:

CH2M HILL - VA
8012 CTO-WE74 Yorktown Site 34

END OF REPORT

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