



# B

Laboratory Reports



Lansing Board of Water and Light  
Environmental Services Laboratory  
1232 Haco Dr.  
Lansing, Michigan 48901

23 June 2020

BWL - Erickson Station  
Attn: Cheryl Louden  
3725 S. Canal  
Lansing, MI 48917

**Project: Erickson GMP**

Dear Cheryl Louden,

Enclosed is a copy of the laboratory report for the following work order(s) received by Lansing Board of Water and Light Environmental Services Laboratory:

**Work Order**  
L004070

**Received**  
4/29/2020 7:25:00AM

**Account Number**

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

Sincerely,

*Jennifer Caporale*

Jennifer Caporale, Supervisor



### Analytical Report

**Client:** BWL - Erickson Station  
**Address:** 3725 S. Canal  
Lansing MI, 48917

**Client Project Manager:** Cheryl Louden

**Report Date:** 06/23/2020

**Sample Name:** MW-1

**Lab #:** L004070-01 Ground Water

**Collected:** 28-Apr-20 10:56

**By:** Marc Wahrer

Analyte	Reporting			Dilution	Regulatory Limit	Analysis Date/Time	By	Method	Notes
	Result	Limit	Units						
Conductivity	1200	1.0	uS/cm	1		28-Apr-20 10:56	maw	SM 2510B	
Dissolved oxygen	ND	0.100	mg/L	1		28-Apr-20 10:56	maw	FIELD	
Gallons Purged	3.50		Gallons	1		28-Apr-20 10:56	maw	FIELD	
Oxidation Reduction Potential	-43.20	-999.0	mV	1		28-Apr-20 10:56	maw	FIELD	
pH	6.8	7.0	pH Units	1		28-Apr-20 10:56	maw	SM 4500H+B	
Static Head Measurement	13.9		Feet	1		28-Apr-20 10:56	maw	FIELD	
Temperature	11		°C	1		28-Apr-20 10:56	maw	SM 2550B	
Turbidity	28	0.10	NTU	1		28-Apr-20 10:56	maw	SM 2130B	

**Sample Name:** MW-2

**Lab #:** L004070-02 Ground Water

**Collected:** 28-Apr-20 14:01

**By:** Marc Wahrer

Analyte	Reporting			Dilution	Regulatory Limit	Analysis Date/Time	By	Method	Notes
	Result	Limit	Units						
Conductivity	1600	1.0	uS/cm	1		28-Apr-20 14:01	maw	SM 2510B	
Dissolved oxygen	ND	0.100	mg/L	1		28-Apr-20 14:01	maw	FIELD	
Gallons Purged	2.50		Gallons	1		28-Apr-20 14:01	maw	FIELD	
Oxidation Reduction Potential	-42.50	-999.0	mV	1		28-Apr-20 14:01	maw	FIELD	
pH	6.8	7.0	pH Units	1		28-Apr-20 14:01	maw	SM 4500H+B	
Static Head Measurement	18.0		Feet	1		28-Apr-20 14:01	maw	FIELD	
Temperature	12		°C	1		28-Apr-20 14:01	maw	SM 2550B	
Turbidity	72	0.10	NTU	1		28-Apr-20 14:01	maw	SM 2130B	



### Analytical Report

**Client:** BWL - Erickson Station  
**Address:** 3725 S. Canal  
 Lansing MI, 48917

**Client Project Manager:** Cheryl Louden

**Report Date:** 06/23/2020

**Sample Name:** MW-4

**Lab #:** L004070-03 Ground Water

**Collected:** 28-Apr-20 08:31

**By:** Marc Wahrer

Analyte	Reporting			Dilution	Regulatory		Analysis Date/Time	By	Method	Notes
	Result	Limit	Units		Limit	Limit				
Conductivity	900	1.0	uS/cm	1			28-Apr-20 08:31	maw	SM 2510B	
Dissolved oxygen	0.310	0.100	mg/L	1			28-Apr-20 08:31	maw	FIELD	
Gallons Purged	3.00		Gallons	1			28-Apr-20 08:31	maw	FIELD	
Oxidation Reduction Potential	-76.70	-999.0	mV	1			28-Apr-20 08:31	maw	FIELD	
pH	7.2	7.0	pH Units	1			28-Apr-20 08:31	maw	SM 4500H+B	
Static Head Measurement	15.1		Feet	1			28-Apr-20 08:31	maw	FIELD	
Temperature	10		°C	1			28-Apr-20 08:31	maw	SM 2550B	
Turbidity	2.6	0.10	NTU	1			28-Apr-20 08:31	maw	SM 2130B	

**Sample Name:** MW-5

**Lab #:** L004070-05 Ground Water

**Collected:** 28-Apr-20 19:10

**By:** Marc Wahrer

Analyte	Reporting			Dilution	Regulatory		Analysis Date/Time	By	Method	Notes
	Result	Limit	Units		Limit	Limit				
Conductivity	1600	1.0	uS/cm	1			28-Apr-20 19:10	maw	SM 2510B	
Dissolved oxygen	0.550	0.100	mg/L	1			28-Apr-20 19:10	maw	FIELD	
Gallons Purged	4.00		Gallons	1			28-Apr-20 19:10	maw	FIELD	
Oxidation Reduction Potential	-33.00	-999.0	mV	1			28-Apr-20 19:10	maw	FIELD	
pH	7.3	7.0	pH Units	1			28-Apr-20 19:10	maw	SM 4500H+B	
Static Head Measurement	16.0		Feet	1			28-Apr-20 19:10	maw	FIELD	
Temperature	12		°C	1			28-Apr-20 19:10	maw	SM 2550B	
Turbidity	180	0.10	NTU	1			28-Apr-20 19:10	maw	SM 2130B	



### Analytical Report

**Client:** BWL - Erickson Station  
**Address:** 3725 S. Canal  
Lansing MI, 48917

**Client Project Manager:** Cheryl Louden

**Report Date:** 06/23/2020

**Sample Name:** MW-6

**Lab #:** L004070-06 Ground Water

**Collected:** 28-Apr-20 12:30

**By:** Marc Wahrer

Analyte	Reporting			Dilution	Regulatory Limit	Analysis Date/Time	By	Method	Notes
	Result	Limit	Units						
Conductivity	950	1.0	uS/cm	1		28-Apr-20 12:30	maw	SM 2510B	
Dissolved oxygen	ND	0.100	mg/L	1		28-Apr-20 12:30	maw	FIELD	
Gallons Purged	2.50		Gallons	1		28-Apr-20 12:30	maw	FIELD	
Oxidation Reduction Potential	-21.90	-999.0	mV	1		28-Apr-20 12:30	maw	FIELD	
pH	6.6	7.0	pH Units	1		28-Apr-20 12:30	maw	SM 4500H+B	
Static Head Measurement	17.4		Feet	1		28-Apr-20 12:30	maw	FIELD	
Temperature	10		°C	1		28-Apr-20 12:30	maw	SM 2550B	
Turbidity	17	0.10	NTU	1		28-Apr-20 12:30	maw	SM 2130B	



## Analytical Report

**Client:** BWL - Erickson Station  
**Address:** 3725 S. Canal  
Lansing MI, 48917

**Client Project Manager:** Cheryl Louden

**Report Date:** 06/23/2020

**Approved By:** \_\_\_\_\_

*Jennifer Caporale*

### Notes and Definitions

AL Action Level (Action Level = Regulatory Limit)  
MCL Maximum Contaminant Level  
PEL Permissible Exposure Limit (Permissible Exposure Limit = Regulatory Limit)  
RPD Relative Percent Difference  
OT Odor Threshold  
ND Non Detect

All drinking water regulatory limits are MCL's with the exception of Lead and Copper unless otherwise noted.



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**BOARD OF WATER & LIGHT**

**ERICKSON GMP**

**SDG Batch:**

**13569**

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# BOARD OF WATER & LIGHT

## PROJECT: ERICKSON GMP

SDG Batch:  
13569.01

Prepared by:  
Merit Laboratories, Inc.

June 15, 2020



*Inorganics Inventory Sheet - SDG: S13569*

**Laboratory Name:** Merit Laboratories, Inc.  
**City / State:** East Lansing, MI  
**Sample Delivery Group:** S13569.01 - .07

Deliverable	References		Pages		Checklist	
	Form	CLP	From	To	Lab	Audit
1. <b>Inventory Sheet</b> (not numbered)	This	DC-2			<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. <b>SDG Case Narrative</b>			1	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. <b>Analytical Summary Report</b>			3	34	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. <b>ICP/MS Metals Data</b>			35	161		
Sequence / Injection Log		F.0			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Data Sheet		F. I			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Initial Calibration and Calibration Verification		F. IIA			<input checked="" type="checkbox"/>	<input type="checkbox"/>
CRDL Standards		F. IIB			<input type="checkbox"/>	<input type="checkbox"/>
Blanks		F. III			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interference Check Sample		F. IVB			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spike Sample Recovery		F. VA			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Post-Digest Spike Sample Recovery		F. VB			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Duplicates		F. VI			<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Control Sample		F. VII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Serial Dilutions		F. VIII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analysis Run Log		F. XIII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
ICP/MS Tune		F. XIV			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Internal Standard Relative Intensity Summary		F. XV			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Instrument Detection Limits (IDL) & MDLs		F. IX			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Linear Ranges		F. XI			<input checked="" type="checkbox"/>	<input type="checkbox"/>
ICP/MS Raw Data					<input checked="" type="checkbox"/>	<input type="checkbox"/>
Preparation / Digestion Log		F. XII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. <b>Mercury Data</b>			162	178		
Sequence / Injection Log		F.0			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Data Sheet		F. I			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Initial Calibration and Calibration Verification		F. IIA			<input checked="" type="checkbox"/>	<input type="checkbox"/>
CRDL Standards		F. IIB			<input type="checkbox"/>	<input type="checkbox"/>
Blanks		F. III			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spike Sample Recovery		F. VA			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Post-Digest Spike Sample Recovery		F. VB			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Duplicates		F. VI			<input type="checkbox"/>	<input type="checkbox"/>
Laboratory Control Sample		F. VII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Analysis Run Log		F. XIII			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Mercury Cold Vapor Raw Data					<input checked="" type="checkbox"/>	<input type="checkbox"/>
Preparation / Digestion Log					<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. <b>Ion Chromatography Data</b>			179	261		
Bench Sheet - sample and QC sample evaluation					<input checked="" type="checkbox"/>	<input type="checkbox"/>
Calibration Curve - data and evaluation					<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. <b>Total Suspended Solids Data</b>			262	263		
Bench Sheet - sample and QC sample evaluation					<input checked="" type="checkbox"/>	<input type="checkbox"/>

*Inorganics Inventory Sheet - SDG: S13569*

<b>Deliverable</b>	<b>References</b>		<b>Pages</b>		<b>Checklist</b>	
	<b>Form</b>	<b>CLP</b>	<b>From</b>	<b>To</b>	<b>Lab</b>	<b>Audit</b>
<b>8. Total Dissolved Solids Data</b>			264	265		
Bench Sheet - sample and QC sample evaluation					<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>9. Shipping / Receiving Documents</b>			266	270		
Chain-of-Custody					<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample log-in sheet					<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample Receipt					<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>10. Subcontracted Analysis Report</b>						
GEL Laboratories – Radiological Analysis (Total Pages 48)					<input checked="" type="checkbox"/>	<input type="checkbox"/>



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**CASE NARRATIVE**  
**CLIENT: BOARD OF WATER & LIGHT**  
**PROJECT: ERICKSON GMP**  
**Merit IDs: S13569.01-S13569.07**

- Field Sampling:** Marc Wahrer performed the fieldwork.
- Analytical Bottles:** All bottles were sent with the appropriate preservation in it. Please see the bottle list attached.
- Sample Receiving:** All samples were received by the laboratory (04/29/2020). Dates and signatures can be found on the Chain of Custody Records. The sample receipts specify the actual tags and bottles received and logged into the laboratory “vlims” system.

### ANALYSES

**Metals:** All metal analyses were performed according to Method 200.8. The metal digestion was performed according to Method 3015A. The QC requirements were followed for this specific project and method-specified criteria were met. *Outliers:* None

*Notes:* Dilution test not applicable if measured concentration is less than 100 times MDL.

**Mercury:** All mercury QC requirements were met according to the specifications in Method 245.1. *Outliers:* None

**Fluoride:** All fluoride QC requirements were met according to the specifications in Method 300.0. *Outliers:* None

**Chloride:** All chloride QC requirements were met according to the specifications in Method 300.0. *Outliers:* None

**Sulfate:** All Sulfate QC requirements were met according to the specifications in Method 300.0. *Outliers:* None

**Total Suspended Solids:** All total suspended solids QC requirements were met according to the specifications in Method 2540 D. *Outliers:* None

**Total Dissolved Solids:** All total suspended solids QC requirements were met according to the specifications in Method 2540 C. *Outliers:* None



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**Radium 226 & 228:** All radiological analysis were subcontracted out to GEL Laboratories. GEL Laboratories analytical report is included.

**Data Reporting:** The analytical reports are reflective of what is on a given Chain-of-Custody record (COC). Merit's IDs were assigned to the samples as they were delivered and accepted by our log-in staff.

*"I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness, for other than the condition detailed above. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature."*

\_\_\_\_\_  
Barb Ball  
QA Officer

06/15/2020  
Date



# Analytical Laboratory Report

Report ID: S13569.01(03)  
Generated on 05/22/2020

Report to

Attention: Jennifer Caporale  
Board of Water & Light  
P.O. Box 13007  
Lansing, MI 48901

Phone: 517-702-6372 FAX: 517-702-6373  
Email: Environmental\_Laboratory@LBWL.com

Report produced by

Merit Laboratories, Inc.  
2680 East Lansing Drive  
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)  
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S13569.01-S13569.07  
Project: Erickson GMP  
Collected Date(s): 04/28/2020  
Submitted Date/Time: 04/29/2020 11:53  
Sampled by: Marc Wahrer  
P.O. #:

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.

QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.

Full accreditation certificates are available upon request. Starred (\*) analytes are not NELAP accredited.

Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

## Report Narrative

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All metals results are reported as total.



# Analytical Laboratory Report

## Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

## Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

## Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched



# Analytical Laboratory Report

## Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
E300.0	EPA Method 300.0 Revision 2.1
SM2540C	Standard Method 2540 C 2011
SM2540D	Standard Method 2540 D 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007





# Analytical Laboratory Report

## Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S13569.01	L004070-01 MW-1	Wastewater	04/28/20 10:56
S13569.02	L004070-02 MW-2	Wastewater	04/28/20 14:01
S13569.03	L004070-03 MW-4	Wastewater	04/28/20 08:31
S13569.04	L004070-04 MW-4 Duplicate	Wastewater	04/28/20 08:31
S13569.05	L004070-05 MW-5	Wastewater	04/28/20 19:10
S13569.06	L004070-06 MW-6	Wastewater	04/28/20 12:30
S13569.07	L004070-07 Field Blank	Water	04/28/20 07:25



# Analytical Laboratory Report

Lab Sample ID: S13569.01

Sample Tag: L004070-01 MW-1

Collected Date/Time: 04/28/2020 10:56

Matrix: Wastewater

COC Reference: 134281

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

### Inorganics

Method: E300.0, Run Date: 04/30/20 10:28, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	74	10	0.13	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 04/30/20 09:28, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	
Sulfate	38	5	0.30	mg/L	5	14808-79-8	

Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	728	20	2	mg/L	2		

Method: SM2540D, Run Date: 04/30/20 19:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	31	3	1	mg/L	2.00		

### Metals

Method: E200.8, Run Date: 05/06/20 12:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.48	0.04	0.00175	mg/L	5	7440-42-8	

Method: E200.8, Run Date: 05/05/20 18:04, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	162	0.50	0.0433	mg/L	5	7440-70-2	

Method: E200.8, Run Date: 05/06/20 11:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	0.004	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.149	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000110	mg/L	5	7440-48-4	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	



# Analytical Laboratory Report

Lab Sample ID: S13569.01 (continued)

Sample Tag: L004070-01 MW-1

Method: E200.8, Run Date: 05/06/20 11:42, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	0.036	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.02

Sample Tag: L004070-02 MW-2

Collected Date/Time: 04/28/2020 14:01

Matrix: Wastewater

COC Reference: 134281

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

### Inorganics

Method: E300.0, Run Date: 04/30/20 09:41, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	

Method: E300.0, Run Date: 04/30/20 11:20, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	67	25	0.32	mg/L	25	16887-00-6	
Sulfate	386	25	2.6	mg/L	25	14808-79-8	

Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,170	20	2	mg/L	2		

Method: SM2540D, Run Date: 04/30/20 19:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1.05		

### Metals

Method: E200.8, Run Date: 05/06/20 12:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	3.56	0.04	0.00175	mg/L	5	7440-42-8	

Method: E200.8, Run Date: 05/05/20 18:05, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	251	0.50	0.0433	mg/L	5	7440-70-2	

Method: E200.8, Run Date: 05/06/20 11:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.039	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000110	mg/L	5	7440-48-4	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	



# Analytical Laboratory Report

Lab Sample ID: S13569.02 (continued)

Sample Tag: L004070-02 MW-2

Method: E200.8, Run Date: 05/06/20 11:53, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	0.055	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	0.010	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:37, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

**Other / Misc.**

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.03

Sample Tag: L004070-03 MW-4

Collected Date/Time: 04/28/2020 08:31

Matrix: Wastewater

COC Reference: 134281

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

**Inorganics**

**Method: E300.0, Run Date: 04/30/20 11:32, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	70	10	0.13	mg/L	10	16887-00-6	

**Method: E300.0, Run Date: 04/30/20 09:54, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	
Sulfate	59	5	0.30	mg/L	5	14808-79-8	

**Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	548	20	2	mg/L	2		

**Method: SM2540D, Run Date: 04/30/20 19:40, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1.05		

**Metals**

**Method: E200.8, Run Date: 05/06/20 12:47, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.05	0.04	0.00175	mg/L	5	7440-42-8	

**Method: E200.8, Run Date: 05/05/20 18:07, Analyst: JRH**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	113	0.50	0.0433	mg/L	5	7440-70-2	

**Method: E200.8, Run Date: 05/06/20 11:57, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.157	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000110	mg/L	5	7440-48-4	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	



# Analytical Laboratory Report

Lab Sample ID: S13569.03 (continued)

Sample Tag: L004070-03 MW-4

Method: E200.8, Run Date: 05/06/20 11:57, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	Not detected	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:38, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.04

Sample Tag: L004070-04 MW-4 Duplicate

Collected Date/Time: 04/28/2020 08:31

Matrix: Wastewater

COC Reference: 134281

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

### Inorganics

Method: E300.0, Run Date: 04/30/20 11:45, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	70	10	0.13	mg/L	10	16887-00-6	

Method: E300.0, Run Date: 04/30/20 10:07, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	
Sulfate	60	5	0.30	mg/L	5	14808-79-8	

Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	546	20	2	mg/L	2		

Method: SM2540D, Run Date: 05/05/20 17:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1.00		

### Metals

Method: E200.8, Run Date: 05/06/20 12:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.05	0.04	0.00175	mg/L	5	7440-42-8	

Method: E200.8, Run Date: 05/05/20 18:08, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	111	0.50	0.0433	mg/L	5	7440-70-2	

Method: E200.8, Run Date: 05/06/20 12:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	0.006	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.155	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000110	mg/L	5	7440-48-4	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	





# Analytical Laboratory Report

Lab Sample ID: S13569.04 (continued)

Sample Tag: L004070-04 MW-4 Duplicate

Method: E200.8, Run Date: 05/06/20 12:00, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	Not detected	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	Not detected	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:40, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.05

Sample Tag: L004070-05 MW-5

Collected Date/Time: 04/28/2020 19:10

Matrix: Wastewater

COC Reference: 134281

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

**Inorganics**

**Method: E300.0, Run Date: 04/30/20 10:20, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	

**Method: E300.0, Run Date: 04/30/20 11:58, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	68	25	0.32	mg/L	25	16887-00-6	
Sulfate	591	25	2.6	mg/L	25	14808-79-8	

**Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	1,280	20	2	mg/L	2		

**Method: SM2540D, Run Date: 05/05/20 17:55, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	161	3	1	mg/L	4.00		

**Metals**

**Method: E200.8, Run Date: 05/06/20 13:01, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	4.99	0.04	0.00175	mg/L	5	7440-42-8	

**Method: E200.8, Run Date: 05/05/20 18:10, Analyst: JRH**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	245	0.50	0.0433	mg/L	5	7440-70-2	

**Method: E200.8, Run Date: 05/06/20 12:03, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	0.005	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.064	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	0.010	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	0.006	0.005	0.000110	mg/L	5	7440-48-4	
Lead	0.005	0.003	0.000190	mg/L	5	7439-92-1	



# Analytical Laboratory Report

Lab Sample ID: S13569.05 (continued)

Sample Tag: L004070-05 MW-5

Method: E200.8, Run Date: 05/06/20 12:03, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	0.091	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	0.096	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:42, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.06

Sample Tag: L004070-06 MW-6

Collected Date/Time: 04/28/2020 12:30

Matrix: Wastewater

COC Reference: 134281

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

**Inorganics**

**Method: E300.0, Run Date: 04/30/20 10:33, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	1.0	0.13	mg/L	5	16984-48-8	

**Method: E300.0, Run Date: 04/30/20 12:11, Analyst: JDP**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	26	10	0.13	mg/L	10	16887-00-6	
Sulfate	135	10	1.0	mg/L	10	14808-79-8	

**Method: SM2540C, Run Date: 04/29/20 16:10, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	642	20	2	mg/L	2		

**Method: SM2540D, Run Date: 05/05/20 17:55, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1.00		

**Metals**

**Method: E200.8, Run Date: 05/06/20 12:52, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	0.56	0.04	0.00175	mg/L	5	7440-42-8	

**Method: E200.8, Run Date: 05/05/20 18:11, Analyst: JRH**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	142	0.50	0.0433	mg/L	5	7440-70-2	

**Method: E200.8, Run Date: 05/06/20 12:10, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00255	mg/L	5	7440-36-0	
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Barium	0.042	0.005	0.000160	mg/L	5	7440-39-3	
Beryllium	Not detected	0.001	0.000215	mg/L	5	7440-41-7	
Cadmium	Not detected	0.0005	0.000190	mg/L	5	7440-43-9	
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Cobalt	Not detected	0.005	0.000110	mg/L	5	7440-48-4	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	



# Analytical Laboratory Report

Lab Sample ID: S13569.06 (continued)

Sample Tag: L004070-06 MW-6

Method: E200.8, Run Date: 05/06/20 12:10, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lithium*	0.037	0.010	0.00163	mg/L	5	7439-93-2	
Molybdenum	0.021	0.005	0.000215	mg/L	5	7439-98-7	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Thallium	Not detected	0.002	0.0000850	mg/L	5	7440-28-0	

Method: E245.1, Run Date: 05/01/20 17:44, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

Other / Misc.

Method: , Run Date: 05/22/20 16:30, Analyst: GEL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Analytical Laboratory Report

Lab Sample ID: S13569.07

Sample Tag: L004070-07 Field Blank

Collected Date/Time: 04/28/2020 07:25

Matrix: Water

COC Reference: 134281

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	1L Plastic	HNO3	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	05/01/20 14:30	JRH	
Metal Digestion	Completed	SW3015A	05/05/20 14:30	JRH	

### Inorganics

Method: E300.0, Run Date: 04/30/20 12:24, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chloride	Not detected	2.5	0.03	mg/L	2.5	16887-00-6	

Method: E300.0, Run Date: 04/30/20 10:46, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Fluoride (Undistilled)	Not detected	0.5	0.06	mg/L	2.5	16984-48-8	
Sulfate	Not detected	2.5	0.15	mg/L	2.5	14808-79-8	

Method: SM2540C, Run Date: 05/01/20 19:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Dissolved Solids	Not detected	20	2	mg/L	2		

Method: SM2540D, Run Date: 05/05/20 17:55, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	Not detected	3	1	mg/L	1.00		

### Metals

Method: E200.8, Run Date: 05/06/20 12:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Boron	Not detected	0.04	0.000702	mg/L	2	7440-42-8	

Method: E200.8, Run Date: 05/05/20 18:02, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Calcium*	0.079	0.50	0.0173	mg/L	2	7440-70-2	b

Method: E200.8, Run Date: 05/06/20 11:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Antimony	Not detected	0.005	0.00102	mg/L	2	7440-36-0	
Arsenic	Not detected	0.002	0.000102	mg/L	2	7440-38-2	
Barium	Not detected	0.005	0.0000640	mg/L	2	7440-39-3	
Beryllium	Not detected	0.001	0.0000860	mg/L	2	7440-41-7	
Cadmium	Not detected	0.0005	0.0000760	mg/L	2	7440-43-9	
Chromium	Not detected	0.005	0.0000380	mg/L	2	7440-47-3	
Cobalt	Not detected	0.005	0.0000440	mg/L	2	7440-48-4	

b-Value detected less than reporting limit, but greater than MDL



# Analytical Laboratory Report

Lab Sample ID: S13569.07 (continued)

Sample Tag: L004070-07 Field Blank

**Method: E200.8, Run Date: 05/06/20 11:28, Analyst: CCM (continued)**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	
Lithium*	Not detected	0.010	0.000654	mg/L	2	7439-93-2	
Molybdenum	Not detected	0.005	0.0000860	mg/L	2	7439-98-7	
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Thallium	Not detected	0.002	0.0000340	mg/L	2	7440-28-0	

**Method: E245.1, Run Date: 05/01/20 17:46, Analyst: JRH**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002	0.000016	mg/L	1	7439-97-6	

**Other / Misc.**

**Method: , Run Date: 05/22/20 16:30, Analyst: GEL**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Misc. Special Project*	Completed				1		O

O-Analysis performed by outside laboratory. See attached report.



# Quality Control Cover Page

Report ID: S13569.01(03)  
Report Date: 05/22/2020  
Project: Erickson GMP  
Lab Sample ID(s): S13569.01-S13569.07

Report to:  
\_\_\_\_\_  
Attention: Jennifer Caporale  
Board of Water & Light  
P.O. Box 13007  
Lansing, MI 48901

Sample ID	Sample Tag	Collected	Matrix	Analysis Departments
S13569.01	L004070-01 MW-1	04/28/2020 10:56	Wastewater	Inorganics, Metals
S13569.02	L004070-02 MW-2	04/28/2020 14:01	Wastewater	Inorganics, Metals
S13569.03	L004070-03 MW-4	04/28/2020 08:31	Wastewater	Inorganics, Metals
S13569.04	L004070-04 MW-4 Duplicate	04/28/2020 08:31	Wastewater	Inorganics, Metals
S13569.05	L004070-05 MW-5	04/28/2020 19:10	Wastewater	Inorganics, Metals
S13569.06	L004070-06 MW-6	04/28/2020 12:30	Wastewater	Inorganics, Metals
S13569.07	L004070-07 Field Blank	04/28/2020 07:25	Water	Inorganics, Metals

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager





# Quality Control Report

Report ID: QC-S13569-01  
Generated on 06/08/2020

Report to  
Attention: Jennifer Caporale  
Board of Water & Light  
P.O. Box 13007  
Lansing, MI 48901

Report Produced by  
Merit Laboratories  
2680 East Lansing Drive  
East Lansing, MI 48823

Phone: 517-702-6372 FAX: 517-702-6373

Phone: (517) 332-0167 FAX: (517) 332-6333

## Report Summary

Lab Sample ID(s): S13569.01-S13569.07  
Project: Erickson GMP  
Submitted Date/Time: 04/29/2020 11:53  
Sampled by: Marc Wahrer  
P.O. #:

## QC Report Sections

Cover Page (Page 1)  
Analysis Summary (Pages 2-8)  
Prep Batch Summary (Pages 9-12)

## Report Flag Descriptions

\*: QC result is outside of indicated control limits  
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball  
Quality Assurance Manager

# QC Report - Analysis Summary

**Lab Sample ID: S13569.01**

Sample Tag: L004070-01 MW-1

Collected Date/Time: 04/28/2020 10:56

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Chloride	E300.0	04/30/20 10:28	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 09:28	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 09:28	SFT200430-W1-B	SFT200430-W1-B	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430	TSS200430	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Antimony	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:49	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:04	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:27	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 11:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

## QC Report - Analysis Summary

**Lab Sample ID: S13569.02**

Sample Tag: L004070-02 MW-2

Collected Date/Time: 04/28/2020 14:01

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Inorganics</b>						
Chloride	E300.0	04/30/20 11:20	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 09:41	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 11:20	SFT200430-W1-A	SFT200430-W1-A	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430	TSS200430	No	BLK/LCS/DUP
<b>Metals</b>						
Antimony	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:55	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:05	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:37	HG2-HG3-20-0501AHGD-050120-1	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 11:53	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

# QC Report - Analysis Summary

**Lab Sample ID: S13569.03**

Sample Tag: L004070-03 MW-4

Collected Date/Time: 04/28/2020 08:31

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Inorganics</b>						
Chloride	E300.0	04/30/20 11:32	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 09:54	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 09:54	SFT200430-W1-B	SFT200430-W1-B	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430	TSS200430	No	BLK/LCS/DUP
<b>Metals</b>						
Antimony	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:47	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:07	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:38	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 11:57	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

# QC Report - Analysis Summary

**Lab Sample ID: S13569.04**

Sample Tag: L004070-04 MW-4 Duplicate

Collected Date/Time: 04/28/2020 08:31

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Chloride	E300.0	04/30/20 11:45	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 10:07	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 10:07	SFT200430-W1-B	SFT200430-W1-B	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505	TSS200505	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Antimony	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:44	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:08	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:40	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 12:00	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

# QC Report - Analysis Summary

**Lab Sample ID: S13569.05**

Sample Tag: L004070-05 MW-5

Collected Date/Time: 04/28/2020 19:10

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Chloride	E300.0	04/30/20 11:58	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 10:20	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 11:58	SFT200430-W1-A	SFT200430-W1-A	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505	TSS200505	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Antimony	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 13:01	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:10	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:42	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 12:03	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

# QC Report - Analysis Summary

**Lab Sample ID: S13569.06**

Sample Tag: L004070-06 MW-6

Collected Date/Time: 04/28/2020 12:30

Matrix: Wastewater

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Chloride	E300.0	04/30/20 12:11	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 10:33	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 12:11	SFT200430-W1-A	SFT200430-W1-A	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429	TDS200429	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505	TSS200505	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Antimony	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:52	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:11	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:44	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 12:10	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD

# QC Report - Analysis Summary

**Lab Sample ID: S13569.07**

Sample Tag: L004070-07 Field Blank

Collected Date/Time: 04/28/2020 07:25

Matrix: Water

COC Reference: 134281

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Chloride	E300.0	04/30/20 12:24	CL200430-W1-A	CL200430-W1-A	No	BLK/LCS/MS/MSD/DU
Fluoride (Undistilled)	E300.0	04/30/20 10:46	FL200430-W1-B	FL200430-W1-B	No	BLK/LCS/MS/MSD/DU
Sulfate	E300.0	04/30/20 10:46	SFT200430-W1-B	SFT200430-W1-B	No	BLK/LCS/MS/MSD/DU
Total Dissolved Solids	SM2540C	05/01/20 19:45	TDS200501	TDS200501	No	BLK/LCS/DUP
Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505	TSS200505	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Antimony	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Arsenic	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Barium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Beryllium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Boron	E200.8	05/06/20 12:42	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cadmium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Calcium	E200.8	05/05/20 18:02	MT4-20-0505A	MTD-050520-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Cobalt	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lead	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Lithium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	05/01/20 17:46	HG2-HG3-20-0501	AHGD-050120-1	No	BLK/LCS/MS/MSD
Molybdenum	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Selenium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD
Thallium	E200.8	05/06/20 11:28	MT4-20-0506A	MTD-050620-1	No	BLK/LCS/MS/MSD



## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: CL200430-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Chloride	E300.0	04/30/20 10:28	CL200430-W1-A
S13569.02	Chloride	E300.0	04/30/20 11:20	CL200430-W1-A
S13569.03	Chloride	E300.0	04/30/20 11:32	CL200430-W1-A
S13569.04	Chloride	E300.0	04/30/20 11:45	CL200430-W1-A
S13569.05	Chloride	E300.0	04/30/20 11:58	CL200430-W1-A
S13569.06	Chloride	E300.0	04/30/20 12:11	CL200430-W1-A
S13569.07	Chloride	E300.0	04/30/20 12:24	CL200430-W1-A

### Inorganics, Prep Batch ID: FL200430-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Fluoride (Undistilled)	E300.0	04/30/20 09:28	FL200430-W1-B
S13569.02	Fluoride (Undistilled)	E300.0	04/30/20 09:41	FL200430-W1-B
S13569.03	Fluoride (Undistilled)	E300.0	04/30/20 09:54	FL200430-W1-B
S13569.04	Fluoride (Undistilled)	E300.0	04/30/20 10:07	FL200430-W1-B
S13569.05	Fluoride (Undistilled)	E300.0	04/30/20 10:20	FL200430-W1-B
S13569.06	Fluoride (Undistilled)	E300.0	04/30/20 10:33	FL200430-W1-B
S13569.07	Fluoride (Undistilled)	E300.0	04/30/20 10:46	FL200430-W1-B

### Inorganics, Prep Batch ID: SFT200430-W1-A

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.02	Sulfate	E300.0	04/30/20 11:20	SFT200430-W1-A
S13569.05	Sulfate	E300.0	04/30/20 11:58	SFT200430-W1-A
S13569.06	Sulfate	E300.0	04/30/20 12:11	SFT200430-W1-A

### Inorganics, Prep Batch ID: SFT200430-W1-B

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Sulfate	E300.0	04/30/20 09:28	SFT200430-W1-B
S13569.03	Sulfate	E300.0	04/30/20 09:54	SFT200430-W1-B
S13569.04	Sulfate	E300.0	04/30/20 10:07	SFT200430-W1-B
S13569.07	Sulfate	E300.0	04/30/20 10:46	SFT200430-W1-B

### Inorganics, Prep Batch ID: TDS200429

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429
S13569.02	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429
S13569.03	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429
S13569.04	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429
S13569.05	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429
S13569.06	Total Dissolved Solids	SM2540C	04/29/20 16:10	TDS200429

### Inorganics, Prep Batch ID: TDS200501

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.07	Total Dissolved Solids	SM2540C	05/01/20 19:45	TDS200501

## QC Report - Prep Batch Summary

**Inorganics, Prep Batch ID: TSS200430**

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430
S13569.02	Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430
S13569.03	Total Suspended Solids	SM2540D	04/30/20 19:40	TSS200430

**Inorganics, Prep Batch ID: TSS200505**

Surrogates: No, QC Types: BLK/LCS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.04	Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505
S13569.05	Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505
S13569.06	Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505
S13569.07	Total Suspended Solids	SM2540D	05/05/20 17:55	TSS200505

**Metals, Prep Batch ID: HGD-050120-1**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Mercury	E245.1	05/01/20 17:27	HG2-HG3-20-0501A
S13569.02	Mercury	E245.1	05/01/20 17:37	HG2-HG3-20-0501A
S13569.03	Mercury	E245.1	05/01/20 17:38	HG2-HG3-20-0501A
S13569.04	Mercury	E245.1	05/01/20 17:40	HG2-HG3-20-0501A
S13569.05	Mercury	E245.1	05/01/20 17:42	HG2-HG3-20-0501A
S13569.06	Mercury	E245.1	05/01/20 17:44	HG2-HG3-20-0501A
S13569.07	Mercury	E245.1	05/01/20 17:46	HG2-HG3-20-0501A

**Metals, Prep Batch ID: MTD-050520-1**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Calcium	E200.8	05/05/20 18:04	MT4-20-0505A
S13569.02	Calcium	E200.8	05/05/20 18:05	MT4-20-0505A
S13569.03	Calcium	E200.8	05/05/20 18:07	MT4-20-0505A
S13569.04	Calcium	E200.8	05/05/20 18:08	MT4-20-0505A
S13569.05	Calcium	E200.8	05/05/20 18:10	MT4-20-0505A
S13569.06	Calcium	E200.8	05/05/20 18:11	MT4-20-0505A
S13569.07	Calcium	E200.8	05/05/20 18:02	MT4-20-0505A

**Metals, Prep Batch ID: MTD-050620-1**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Antimony	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Arsenic	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Barium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Beryllium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Boron	E200.8	05/06/20 12:49	MT4-20-0506A
S13569.01	Cadmium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Chromium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Cobalt	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Lead	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Lithium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Molybdenum	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.01	Selenium	E200.8	05/06/20 11:42	MT4-20-0506A

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-050620-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.01	Thallium	E200.8	05/06/20 11:42	MT4-20-0506A
S13569.02	Antimony	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Arsenic	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Barium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Beryllium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Boron	E200.8	05/06/20 12:55	MT4-20-0506A
S13569.02	Cadmium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Chromium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Cobalt	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Lead	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Lithium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Molybdenum	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Selenium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.02	Thallium	E200.8	05/06/20 11:53	MT4-20-0506A
S13569.03	Antimony	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Arsenic	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Barium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Beryllium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Boron	E200.8	05/06/20 12:47	MT4-20-0506A
S13569.03	Cadmium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Chromium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Cobalt	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Lead	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Lithium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Molybdenum	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Selenium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.03	Thallium	E200.8	05/06/20 11:57	MT4-20-0506A
S13569.04	Antimony	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Arsenic	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Barium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Beryllium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Boron	E200.8	05/06/20 12:44	MT4-20-0506A
S13569.04	Cadmium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Chromium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Cobalt	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Lead	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Lithium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Molybdenum	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Selenium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.04	Thallium	E200.8	05/06/20 12:00	MT4-20-0506A
S13569.05	Antimony	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Arsenic	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Barium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Beryllium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Boron	E200.8	05/06/20 13:01	MT4-20-0506A
S13569.05	Cadmium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Chromium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Cobalt	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Lead	E200.8	05/06/20 12:03	MT4-20-0506A

## QC Report - Prep Batch Summary

**Metals, Prep Batch ID: MTD-050620-1 (continued)**

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13569.05	Lithium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Molybdenum	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Selenium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.05	Thallium	E200.8	05/06/20 12:03	MT4-20-0506A
S13569.06	Antimony	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Arsenic	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Barium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Beryllium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Boron	E200.8	05/06/20 12:52	MT4-20-0506A
S13569.06	Cadmium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Chromium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Cobalt	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Lead	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Lithium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Molybdenum	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Selenium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.06	Thallium	E200.8	05/06/20 12:10	MT4-20-0506A
S13569.07	Antimony	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Arsenic	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Barium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Beryllium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Boron	E200.8	05/06/20 12:42	MT4-20-0506A
S13569.07	Cadmium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Chromium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Cobalt	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Lead	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Lithium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Molybdenum	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Selenium	E200.8	05/06/20 11:28	MT4-20-0506A
S13569.07	Thallium	E200.8	05/06/20 11:28	MT4-20-0506A

# Form 0: Sequence Log

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Filename</i>	<i>Run Time</i>	<i>Sample ID</i>	<i>Matrix</i>	<i>QC Type</i>
001	16:48:34 Tue 05-May-20	Blank	Liquid	
002	16:49:17 Tue 05-May-20	Std-0.0	Liquid	
003	16:50:00 Tue 05-May-20	Std-0.20	Liquid	
004	16:50:43 Tue 05-May-20	Std-0.50	Liquid	
005	16:51:26 Tue 05-May-20	Std-1.0	Liquid	
006	16:52:09 Tue 05-May-20	Std-2.0	Liquid	
007	16:52:52 Tue 05-May-20	Std-5.0	Liquid	
008	16:53:35 Tue 05-May-20	ICV-2.0	Liquid	ICV
009	16:54:22 Tue 05-May-20	CCV-2.0	Liquid	CCV
010	16:55:06 Tue 05-May-20	ICB	Liquid	ICB
011	16:55:50 Tue 05-May-20	CCB	Liquid	CCB
012	16:56:34 Tue 05-May-20	BS-0.05	Liquid	BS
013	17:08:48 Tue 05-May-20	050520_1 LCS-1.0	Liquid	LCS
014	17:21:07 Tue 05-May-20	050520_1 LRB	Liquid	LRB
015	17:21:53 Tue 05-May-20	13482.01s	Liquid	S
016	17:22:36 Tue 05-May-20	13537.01s	Liquid	S
017	17:23:19 Tue 05-May-20	13538.01s	Liquid	S
018	17:24:01 Tue 05-May-20	13556.01s	Liquid	S
019	17:24:44 Tue 05-May-20	13604.01s	Liquid	S
020	17:27:12 Tue 05-May-20	rinse	Liquid	
021	17:27:59 Tue 05-May-20	13618.01s	Liquid	S
022	17:28:45 Tue 05-May-20	rinse	Liquid	
023	17:32:00 Tue 05-May-20	rinse	Liquid	
024	17:35:21 Tue 05-May-20	13618.01s -d	Liquid	S
025	17:36:08 Tue 05-May-20	rinse	Liquid	
026	17:36:52 Tue 05-May-20	rinse	Liquid	
027	17:42:09 Tue 05-May-20	rinse	Liquid	
028	17:42:56 Tue 05-May-20	13625.01 dil	Liquid	DIL
029	17:43:39 Tue 05-May-20	13625.01s	Liquid	S
030	17:44:25 Tue 05-May-20	rinse	Liquid	
031	17:45:12 Tue 05-May-20	13625.02s	Liquid	S
032	17:52:44 Tue 05-May-20	13625.02 dil	Liquid	S
033	17:56:34 Tue 05-May-20	rinse	Liquid	
034	17:57:21 Tue 05-May-20	13604.01 MS-2.0	Liquid	MS
035	17:58:06 Tue 05-May-20	13604.01 MSD	Liquid	MSD
036	17:59:29 Tue 05-May-20	CCV2-2.0	Liquid	CCV
037	18:00:14 Tue 05-May-20	CCB2	Liquid	CCB
038	18:02:11 Tue 05-May-20	13569.07s	Liquid	S
039	18:04:14 Tue 05-May-20	13569.01s	Liquid	S
040	18:05:00 Tue 05-May-20	rinse	Liquid	
041	18:05:46 Tue 05-May-20	13569.02s	Liquid	S
042	18:06:32 Tue 05-May-20	rinse	Liquid	
043	18:07:19 Tue 05-May-20	13569.03s	Liquid	S
044	18:08:05 Tue 05-May-20	rinse	Liquid	
045	18:08:52 Tue 05-May-20	13569.04s	Liquid	S
046	18:09:38 Tue 05-May-20	rinse	Liquid	
047	18:10:25 Tue 05-May-20	13569.05s	Liquid	S
048	18:11:11 Tue 05-May-20	rinse	Liquid	
049	18:11:57 Tue 05-May-20	13569.06s	Liquid	S
050	18:12:43 Tue 05-May-20	rinse	Liquid	
051	18:13:29 Tue 05-May-20	13586.01s	Liquid	S
052	18:14:15 Tue 05-May-20	rinse	Liquid	
053	18:15:01 Tue 05-May-20	13586.02s	Liquid	S
054	18:15:47 Tue 05-May-20	rinse	Liquid	
055	18:22:26 Tue 05-May-20	13586.02 MS-2.0	Liquid	MS
056	18:27:10 Tue 05-May-20	13586.02 MSD	Liquid	MSD

**Form 0: Sequence Log**

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Filename</i>	<i>Run Time</i>	<i>Sample ID</i>	<i>Matrix</i>	<i>QC Type</i>
057	18:23:55 Tue 05-May-20	rinse	Liquid	
058	18:25:25 Tue 05-May-20	13569.01 dil	Liquid	DIL
059	18:26:12 Tue 05-May-20	CCV3-2.0	Liquid	CCV
060	18:26:56 Tue 05-May-20	CCB3	Liquid	CCB
061	18:29:50 Tue 05-May-20	13237.07 dil	Liquid	DIL
062	18:35:35 Tue 05-May-20	13237.07s	Liquid	
063	18:48:06 Tue 05-May-20	CCV4-2.0	Liquid	CCV
064	18:48:51 Tue 05-May-20	CCB4	Liquid	CCB

# Form 0: Sequence Log

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Filename</i>	<i>Run Time</i>	<i>Sample ID</i>	<i>Matrix</i>	<i>QC Type</i>
001	10:47:19 Wed 06-May-20	Blank	Liquid	
002	10:48:37 Wed 06-May-20	Std-0.0	Liquid	
003	10:49:55 Wed 06-May-20	Std-0.0001	Liquid	
004	10:51:13 Wed 06-May-20	Std-0.0005	Liquid	
005	10:52:31 Wed 06-May-20	Std-0.005	Liquid	
006	10:53:50 Wed 06-May-20	Std-0.02	Liquid	
007	10:55:08 Wed 06-May-20	Std-0.05	Liquid	
008	10:56:27 Wed 06-May-20	Std-0.2	Liquid	
009	10:58:21 Wed 06-May-20	ICV-0.1	Liquid	ICV
010	10:59:38 Wed 06-May-20	CCV-0.1	Liquid	CCV
011	11:05:14 Wed 06-May-20	rinse	Liquid	
012	11:06:32 Wed 06-May-20	ICB	Liquid	ICB
013	11:07:50 Wed 06-May-20	CCB	Liquid	CCB
014	11:09:17 Wed 06-May-20	BS-0.0001	Liquid	BS
015	11:10:51 Wed 06-May-20	BS-0.0005	Liquid	BS
016	11:14:46 Wed 06-May-20	BS-0.001	Liquid	BS
017	11:16:03 Wed 06-May-20	BS-0.001	Liquid	
018	11:17:21 Wed 06-May-20	BS-0.001	Liquid	BS
019	11:18:41 Wed 06-May-20	Solu-AB	Liquid	AB
020	11:21:16 Wed 06-May-20	Solu-AA	Liquid	AA
021	11:23:02 Wed 06-May-20	050620_1 LCS-0.05	Liquid	LCS
022	11:24:23 Wed 06-May-20	Rinse	Liquid	
023	11:25:41 Wed 06-May-20	050620_1 LRB	Liquid	LRB
024	11:28:48 Wed 06-May-20	13569.07s	Liquid	S
025	11:41:06 Wed 06-May-20	13569.01 dil	Liquid	DIL
026	11:42:22 Wed 06-May-20	13569.01s	Liquid	S
027	11:51:41 Wed 06-May-20	Rinse	Liquid	
028	11:53:12 Wed 06-May-20	13569.02s	Liquid	S
029	11:56:11 Wed 06-May-20	Rinse	Liquid	
030	11:57:32 Wed 06-May-20	13569.03s	Liquid	S
031	11:58:53 Wed 06-May-20	Rinse	Liquid	
032	12:00:18 Wed 06-May-20	13569.04s	Liquid	S
033	12:01:38 Wed 06-May-20	Rinse	Liquid	
034	12:03:03 Wed 06-May-20	13569.05s	Liquid	S
035	12:09:11 Wed 06-May-20	Rinse	Liquid	
036	12:10:32 Wed 06-May-20	13569.06s	Liquid	S
037	12:11:52 Wed 06-May-20	Rinse	Liquid	
038	12:13:18 Wed 06-May-20	13664.02s	Liquid	S
039	12:14:39 Wed 06-May-20	Rinse	Liquid	
040	12:15:59 Wed 06-May-20	13665.02s	Liquid	S
041	12:17:20 Wed 06-May-20	Rinse	Liquid	
042	12:18:40 Wed 06-May-20	13666.01s	Liquid	S
043	12:23:24 Wed 06-May-20	13569.06 MS-0.05	Liquid	MS
044	12:26:20 Wed 06-May-20	13569.06 MSD-0.05	Liquid	MSD
045	12:29:14 Wed 06-May-20	CCV2-0.1	Liquid	CCV
046	12:39:20 Wed 06-May-20	Rinse	Liquid	
047	12:40:38 Wed 06-May-20	CCB2	Liquid	CCB
048	12:42:17 Wed 06-May-20	13569.07s	Liquid	S
049	12:44:13 Wed 06-May-20	13569.04s	Liquid	S
050	12:45:34 Wed 06-May-20	Rinse	Liquid	
051	12:47:10 Wed 06-May-20	13569.03s	Liquid	S
052	12:48:31 Wed 06-May-20	Rinse	Liquid	
053	12:49:53 Wed 06-May-20	13569.01s	Liquid	S
054	12:51:13 Wed 06-May-20	Rinse	Liquid	
055	12:52:57 Wed 06-May-20	13569.06s	Liquid	S
056	12:54:18 Wed 06-May-20	Rinse	Liquid	

**Form 0: Sequence Log**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Filename</i>	<i>Run Time</i>	<i>Sample ID</i>	<i>Matrix</i>	<i>QC Type</i>
057	12:55:39 Wed 06-May-20	13569.02s	Liquid	S
058	12:59:19 Wed 06-May-20	Rinse	Liquid	
059	13:00:40 Wed 06-May-20	13569.05 dil	Liquid	DIL
060	13:01:59 Wed 06-May-20	13569.05s	Liquid	S
061	13:04:15 Wed 06-May-20	Rinse	Liquid	
062	13:05:36 Wed 06-May-20	13569.06 MS-0.05	Liquid	MS
063	13:06:55 Wed 06-May-20	13569.06 MSD-0.05	Liquid	MSD
064	13:08:30 Wed 06-May-20	CCV3-0.1	Liquid	CCV
065	13:09:58 Wed 06-May-20	Rinse	Liquid	
066	13:11:16 Wed 06-May-20	CCB3	Liquid	CCB



# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.01

Sample Tag: L004070-01 MW-1

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	162	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.02

Sample Tag: L004070-02 MW-2

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	251	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.03

Sample Tag: L004070-03 MW-4

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	113	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.04

Sample Tag: L004070-04 MW-4 Duplicate

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	111	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.05

Sample Tag: L004070-05 MW-5

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	245	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.06

Sample Tag: L004070-06 MW-6

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	142	0.50	0.0433	mg/L	5	05/05/2020	

# Form 1: Metals Analysis Data Sheet

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Lab Sample ID: S13569.07

Sample Tag: L004070-07 Field Blank

Date Collected: 04/28/2020

Matrix: Water

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-70-2	Calcium	0.079	0.50	0.0173	mg/L	2	05/05/2020	b

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.01

Sample Tag: L004070-01 MW-1

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	0.48	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	0.004	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	Not detected	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.149	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	0.036	0.010	0.00163	mg/L	5	05/06/2020	



**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.02

Sample Tag: L004070-02 MW-2

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	3.56	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	Not detected	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	0.010	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.039	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	0.055	0.010	0.00163	mg/L	5	05/06/2020	

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.03

Sample Tag: L004070-03 MW-4

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	0.05	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	0.006	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	Not detected	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.157	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	Not detected	0.010	0.00163	mg/L	5	05/06/2020	

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.04

Sample Tag: L004070-04 MW-4 Duplicate

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	0.05	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	0.006	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	Not detected	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.155	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	Not detected	0.010	0.00163	mg/L	5	05/06/2020	

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.05

Sample Tag: L004070-05 MW-5

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	0.010	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	4.99	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	0.005	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	0.096	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.064	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	0.005	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	0.006	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	0.091	0.010	0.00163	mg/L	5	05/06/2020	

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.06

Sample Tag: L004070-06 MW-6

Date Collected: 04/28/2020

Matrix: Wastewater

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000950	mg/L	5	05/06/2020	
7440-42-8	Boron	0.56	0.04	0.00175	mg/L	5	05/06/2020	
7440-38-2	Arsenic	Not detected	0.002	0.000255	mg/L	5	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.00209	mg/L	5	05/06/2020	
7439-98-7	Molybdenum	0.021	0.005	0.000215	mg/L	5	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.000190	mg/L	5	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00255	mg/L	5	05/06/2020	
7440-39-3	Barium	0.042	0.005	0.000160	mg/L	5	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000850	mg/L	5	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.000190	mg/L	5	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.000215	mg/L	5	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.000110	mg/L	5	05/06/2020	
7439-93-2	Lithium	0.037	0.010	0.00163	mg/L	5	05/06/2020	

**Form 1: Metals Analysis Data Sheet**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Lab Sample ID: S13569.07

Sample Tag: L004070-07 Field Blank

Date Collected: 04/28/2020

Matrix: Water

<i>CAS #</i>	<i>Analyte</i>	<i>Result</i>	<i>RL</i>	<i>MDL</i>	<i>Units</i>	<i>Dilute</i>	<i>Run Date</i>	<i>Notes</i>
7440-47-3	Chromium	Not detected	0.005	0.0000380	mg/L	2	05/06/2020	
7440-42-8	Boron	Not detected	0.04	0.000702	mg/L	2	05/06/2020	
7440-38-2	Arsenic	Not detected	0.002	0.000102	mg/L	2	05/06/2020	
7782-49-2	Selenium	Not detected	0.005	0.000838	mg/L	2	05/06/2020	
7439-98-7	Molybdenum	Not detected	0.005	0.0000860	mg/L	2	05/06/2020	
7440-43-9	Cadmium	Not detected	0.0005	0.0000760	mg/L	2	05/06/2020	
7440-36-0	Antimony	Not detected	0.005	0.00102	mg/L	2	05/06/2020	
7440-39-3	Barium	Not detected	0.005	0.0000640	mg/L	2	05/06/2020	
7440-28-0	Thallium	Not detected	0.002	0.0000340	mg/L	2	05/06/2020	
7439-92-1	Lead	Not detected	0.003	0.0000760	mg/L	2	05/06/2020	
7440-41-7	Beryllium	Not detected	0.001	0.0000860	mg/L	2	05/06/2020	
7440-48-4	Cobalt	Not detected	0.005	0.0000440	mg/L	2	05/06/2020	
7439-93-2	Lithium	Not detected	0.010	0.000654	mg/L	2	05/06/2020	

# Form 1: Metals Analysis Data Sheet - Flag Description Key

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

## Note/Qualifier Key

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b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
m	Duplicate injection precision not met
n	Spiked sample recovery outside control limits
s	Reported value determined by the MSA
u	Analyte not detected above reporting limit
A	TIC is a suspected aldol-condensation product
B	Compound also found in associated method blank
C	Analyte presence confirmed by GC/MS
D	Identified in an analysis at a secondary dilution factor
E	Concentration exceeds calibration range
J	Estimated value less than reporting limit, but greater than MDL
N	Presumptive evidence of TIC
P	Pesticide/Aroclor 2-column RPD exceeds limit
U	Analyte not detected above reporting limit
!	Result is outside of stated limit criteria
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
K	Elevated reporting limit due to low total solids
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
Q	Reported result represents most abundant aroclor
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
V	Accurate value not available due to presence of multiple aroclors
W	Surrogate result not applicable due to sample dilution
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
Z	Estimated result due to matrix interference
a	ASTM prep method F963-11
d	Duplicate analysis not within control limits
f	Filtered and preserved in lab
i	Incremental sampling
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one
r	This analyte is being reported as the best result from multiple
v	VOCs analyzed outside of holding time based on the measurement of
x	Preserved from bulk sample
c	Filtered in lab

**Form 2A: Initial and Continuing Calibration Verification**

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Sample Name</i>	<i>QC Type</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Actual Conc</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
008 ICV-2.0	ICV	1	Na	2.16	2.0	108	90/110	mg/L	Liquid
			Mg	2.09	2.0	105	90/110		
			K	2.20	2.0	110	90/110		
			Ca	2.09	2.0	105	90/110		
009 CCV-2.0	CCV	1	Na	2.13	2.0	107	90/110	mg/L	Liquid
			Mg	2.05	2.0	103	90/110		
			K	2.14	2.0	107	90/110		
			Ca	2.15	2.0	108	90/110		
036 CCV2-2.0	CCV	1	Na	2.11	2.0	106	90/110	mg/L	Liquid
			Mg	2.02	2.0	101	90/110		
			K	2.18	2.0	109	90/110		
			Ca	2.14	2.0	107	90/110		
059 CCV3-2.0	CCV	1	Na	2.16	2.0	108	90/110	mg/L	Liquid
			Mg	2.06	2.0	103	90/110		
			K	2.12	2.0	106	90/110		
			Ca	2.09	2.0	105	90/110		
063 CCV4-2.0	CCV	1	Na	2.01	2.0	101	90/110	mg/L	Liquid
			Mg	1.97	2.0	99	90/110		
			K	2.10	2.0	105	90/110		
			Ca	2.03	2.0	102	90/110		



# Form 2A: Initial and Continuing Calibration Verification

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Sample Name	QC Type	Dilute	Element	Sample Conc	Actual Conc	%Rec	LCL/UCL	Units	Matrix
009 ICV-0.1	ICV	1	Li	0.102	0.1	102	90/110	mg/L	Liquid
			Be	0.105	0.1	105	90/110		
			B	0.104	0.1	104	90/110		
			Cr	0.0989	0.1	99	90/110		
			Co	0.100	0.1	100	90/110		
			As	0.0973	0.1	97	90/110		
			Mo	0.101	0.1	101	90/110		
			Cd	0.0997	0.1	100	90/110		
			Sb	0.0899	0.1	90	90/110		
			Ba	0.101	0.1	101	90/110		
			Tl	0.104	0.1	104	90/110		
			Pb	0.105	0.1	105	90/110		
			Se	0.0992	0.1	99	90/110		
010 CCV-0.1	CCV	1	Li	0.108	0.1	108	90/110	mg/L	Liquid
			Be	0.109	0.1	109	90/110		
			B	0.106	0.1	106	90/110		
			Cr	0.0990	0.1	99	90/110		
			Co	0.101	0.1	101	90/110		
			As	0.0962	0.1	96	90/110		
			Mo	0.104	0.1	104	90/110		
			Cd	0.102	0.1	102	90/110		
			Sb	0.0928	0.1	93	90/110		
			Ba	0.101	0.1	101	90/110		
			Tl	0.102	0.1	102	90/110		
			Pb	0.102	0.1	102	90/110		
			Se	0.100	0.1	100	90/110		
045 CCV2-0.1	CCV	1	Li	0.0998	0.1	100	90/110	mg/L	Liquid
			Be	0.0986	0.1	99	90/110		
			B	0.102	0.1	102	90/110		
			Cr	0.103	0.1	103	90/110		
			Co	0.105	0.1	105	90/110		
			As	0.0971	0.1	97	90/110		
			Mo	0.100	0.1	100	90/110		
			Cd	0.101	0.1	101	90/110		
			Sb	0.0899	0.1	90	90/110		
			Ba	0.0984	0.1	98	90/110		
			Tl	0.106	0.1	106	90/110		
			Pb	0.106	0.1	106	90/110		
			Se	0.0972	0.1	97	90/110		
064 CCV3-0.1	CCV	1	B	0.107	0.1	107	90/110	mg/L	Liquid

**Form 3: Blanks**

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Sample Name</i>	<i>QC Type</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Raw Conc</i>	<i>Units</i>	<i>Matrix</i>
010 ICB	ICB	1	Na	<0.05	0.011042	mg/L	Liquid
			Mg	<0.05	0.011756		
			K	<0.05	0.002201		
			Ca	<0.05	0.013833		
011 CCB	CCB	1	Na	<0.05	0.003129	mg/L	Liquid
			Mg	<0.05	0.002712		
			K	<0.05	-0.003117		
			Ca	<0.05	0.004686		
014 050520_1 LRB	LRB	1	Na	<0.05	0.002766	mg/L	Liquid
			Mg	<0.05	0.000310		
			K	<0.05	-0.001693		
			Ca	<0.05	-0.001262		
037 CCB2	CCB	1	Na	<0.05	0.012249	mg/L	Liquid
			Mg	<0.05	0.012299		
			K	<0.05	0.010554		
			Ca	<0.05	0.007050		
060 CCB3	CCB	1	Na	<0.05	0.009765	mg/L	Liquid
			Mg	<0.05	0.011139		
			K	<0.05	0.008518		
			Ca	<0.05	0.000455		
064 CCB4	CCB	1	Na	<0.05	0.009205	mg/L	Liquid
			Mg	<0.05	0.010691		
			K	<0.05	0.012626		
			Ca	<0.05	-0.010301		

**Form 3: Blanks**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Sample Name</i>	<i>QC Type</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Raw Conc</i>	<i>Units</i>	<i>Matrix</i>
<b>012 ICB</b>	ICB	1	Li	<0.002	0.000146	mg/L	Liquid
			Be	<0.0002	-0.000029		
			B	<0.008	0.000209		
			Cr	<0.001	0.000060		
			Co	<0.001	0.000046		
			As	<0.0004	0.000272		
			Mo	<0.001	0.000532		
			Cd	<0.0001	0.000050		
			Sb	<0.001	0.000692		
			Ba	<0.001	0.000055		
			Tl	<0.0004	0.000065		
			Pb	<0.0006	0.000022		
			Se	<0.001	-0.000796		
<b>013 CCB</b>	CCB	1	Li	<0.002	0.000151	mg/L	Liquid
			Be	<0.0002	-0.000039		
			B	<0.008	0.000211		
			Cr	<0.001	0.000036		
			Co	<0.001	0.000031		
			As	<0.0004	0.000046		
			Mo	<0.001	0.000413		
			Cd	<0.0001	0.000047		
			Sb	<0.001	0.000508		
			Ba	<0.001	0.000025		
			Tl	<0.0004	0.000050		
			Pb	<0.0006	0.000006		
			Se	<0.001	0.000337		
<b>023 050620_1 LRB</b>	LRB	1	Li	<0.002	0.000058	mg/L	Liquid
			Be	<0.0002	-0.000034		
			B	<0.008	0.000277		
			Cr	<0.001	0.000030		
			Co	<0.001	0.000028		
			As	<0.0004	0.000133		
			Mo	<0.001	0.000838		
			Cd	<0.0001	0.000013		
			Sb	<0.001	0.000090		
			Ba	<0.001	0.000025		
			Tl	<0.0004	0.000052		
			Pb	<0.0006	0.000023		
			Se	<0.001	-0.000172		
<b>047 CCB2</b>	CCB	1	Li	<0.002	-0.000071	mg/L	Liquid
			Be	<0.0002	-0.000052		
			B	<0.008	0.000341		
			Cr	<0.001	0.000022		
			Co	<0.001	0.000008		
			As	<0.0004	0.000078		
			Mo	<0.001	0.000140		
			Cd	<0.0001	-0.000005		
			Sb	<0.001	0.000293		
			Ba	<0.001	-0.000001		
			Tl	<0.0004	0.000011		
			Pb	<0.0006	-0.000026		
			Se	<0.001	-0.000018		
<b>066 CCB3</b>	CCB	1	B	<0.008	0.001682	mg/L	Liquid

**Form 4B: ICP Interference Check Sample**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Sample Name</i>	<i>QC Type</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Actual Conc</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
<b>019 Solu-AB</b>	AB	1	Cr	0.0210	0.02	105	65/135	mg/L	Liquid
			Co	0.0207	0.02	104	65/135		
			As	0.0204	0.02	102	65/135		
			Mo	0.201	0.20	101	65/135		
			Cd	0.0208	0.02	104	65/135		
<b>020 Solu-AA</b>	AA	1	Li	<0.010	0.0	N/A	N/A	mg/L	Liquid
			Be	<0.001	0.0	N/A	N/A		
			B	<0.04	0.0	N/A	N/A		
			Cr	<0.005	0.0	N/A	N/A		
			Co	<0.005	0.0	N/A	N/A		
			As	<0.002	0.0	N/A	N/A		
			Mo	<0.005	0.0	N/A	N/A		
			Cd	<0.0005	0.0	N/A	N/A		
			Sb	<0.005	0.0	N/A	N/A		
			Ba	<0.005	0.0	N/A	N/A		
			Tl	<0.002	0.0	N/A	N/A		
			Pb	<0.003	0.0	N/A	N/A		
			Se	<0.005	0.0	N/A	N/A		

# Form 5A: Matrix Spike Sample Recovery

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Spike Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Spike Conc</i>	<i>Sample Conc</i>	<i>Spike Amount</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
<b>012 BS-0.05</b>		1	Na	0.0517	ND	0.05	103	70/130	mg/L	Liquid
			Mg	0.0518	ND	0.05	104	70/130		
			K	0.0437	ND	0.05	87	70/130		
			Ca	0.0515	ND	0.05	103	70/130		
<b>034 13604.01 MS-2.0 019 13604.01s</b>		50	Na	152	46.9	100.0	105	75/125	mg/L	Liquid
			Mg	117	15.5	100.0	102	75/125		
			K	122	14.0	100.0	108	75/125		
			Ca	162	50.3	100.0	112	75/125		
<b>055 13586.02 MS-2.0 053 13586.02s</b>		5	Na	36.1	27.0	10.0	91	75/125	mg/L	Liquid
			Mg	26.5	15.8	10.0	107	75/125		
			K	22.1	11.5	10.0	106	75/125		
			Ca	43.8	34.3	10.0	95	75/125		

# Form 5A: Matrix Spike Sample Recovery

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Spike Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Spike Conc</i>	<i>Sample Conc</i>	<i>Spike Amount</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
<b>014 BS-0.0001</b>		1	Be	0.000073	ND	0.0001	73	70/130	mg/L	Liquid
			As	0.000073	ND	0.0001	73	70/130		
			Cd	0.000123	ND	0.0001	123	70/130		
			Tl	0.000128	ND	0.0001	128	70/130		
			Pb	0.000089	ND	0.0001	89	70/130		
<b>015 BS-0.0005</b>		1	Li	0.000431	ND	0.0005	86	70/130	mg/L	Liquid
			Be	0.000427	ND	0.0005	85	70/130		
			Cr	0.000504	ND	0.0005	101	70/130		
			Co	0.000518	ND	0.0005	104	70/130		
			As	0.000525	ND	0.0005	105	70/130		
			Cd	0.000517	ND	0.0005	103	70/130		
			Ba	0.000554	ND	0.0005	111	70/130		
			Tl	0.000481	ND	0.0005	96	70/130		
			Pb	0.000434	ND	0.0005	87	70/130		
<b>016 BS-0.001</b>		1	Li	0.00115	ND	0.001	115	70/130	mg/L	Liquid
			Be	0.000904	ND	0.001	90	70/130		
			B	0.00127	ND	0.001	127	70/130		
			Cr	0.00105	ND	0.001	105	70/130		
			Co	0.00102	ND	0.001	102	70/130		
			As	0.00109	ND	0.001	109	70/130		
			Mo	0.00105	ND	0.001	105	70/130		
			Cd	0.00107	ND	0.001	107	70/130		
			Sb	0.00128	ND	0.001	128	70/130		
			Ba	0.00106	ND	0.001	106	70/130		
			Tl	0.000977	ND	0.001	98	70/130		
			Pb	0.000940	ND	0.001	94	70/130		
			<b>018 BS-0.001</b>		1	Se	0.00121	ND		
<b>043 13569.06</b>	<b>036 13569.06s</b>	5	Li	0.304	0.037	0.25	107	75/125	mg/L	Liquid
			Be	0.264	<0.001	0.25	106	75/125		
			Cr	0.257	<0.005	0.25	103	75/125		
			Co	0.253	<0.005	0.25	101	75/125		
			As	0.247	<0.002	0.25	99	75/125		
			Mo	0.266	0.021	0.25	98	75/125		
			Cd	0.249	<0.0005	0.25	100	75/125		
			Sb	0.196	<0.005	0.25	78	75/125		
			Ba	0.281	0.042	0.25	96	75/125		
			Tl	0.236	<0.002	0.25	94	75/125		
			Pb	0.237	<0.003	0.25	95	75/125		
			Se	0.262	<0.005	0.25	105	75/125		
			<b>062 13569.06</b>	<b>055 13569.06s</b>	5	B	0.855	0.56		

# Form 5B: Matrix Spike Duplicate Evaluation

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Duplicate Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Dup Conc</i>	<i>Samp Conc</i>	<i>%RPD</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
035 13604.01 MSD	034 13604.01 MS-2.0	50	Na	147	152	3	0/20	mg/L	Liquid
			Mg	113	117	3	0/20		
			K	118	122	3	0/20		
			Ca	160	162	1	0/20		
056 13586.02 MSD	055 13586.02 MS-2.0	5	Na	36.5	36.1	1	0/20	mg/L	Liquid
			Mg	25.5	26.5	4	0/20		
			K	21.7	22.1	2	0/20		
			Ca	43.8	43.8	0	0/20		

# Form 5B: Matrix Spike Duplicate Evaluation

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Duplicate Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Dup Conc</i>	<i>Samp Conc</i>	<i>%RPD</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
044 13569.06	043 13569.06 MS-0.05	5	Li	0.297	0.304	2	0/20	mg/L	Liquid
			Be	0.258	0.264	2	0/20		
			Cr	0.257	0.257	0	0/20		
			Co	0.256	0.253	1	0/20		
			As	0.250	0.247	1	0/20		
			Mo	0.272	0.266	2	0/20		
			Cd	0.246	0.249	1	0/20		
			Sb	0.201	0.196	3	0/20		
			Ba	0.279	0.281	1	0/20		
			Tl	0.235	0.236	0	0/20		
			Pb	0.237	0.237	0	0/20		
			Se	0.258	0.262	2	0/20		
063 13569.06	062 13569.06 MS-0.05	5	B	0.855	0.855	0	0/20	mg/L	Liquid



# Form 7: Laboratory Control Sample

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Actual Conc</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
013 050520_1 LCS-1.0	1	Na	1.01	1.0	101	85/115	mg/L	Liquid
		Mg	0.988	1.0	99	85/115		
		K	1.05	1.0	105	85/115		
		Ca	1.09	1.0	109	85/115		

# Form 7: Laboratory Control Sample

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Sample Conc</i>	<i>Actual Conc</i>	<i>%Rec</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
021 050620_1 LCS-0.05	1	Li	0.0500	0.05	100	85/115	mg/L	Liquid
		Be	0.0494	0.05	99	85/115		
		B	0.0488	0.05	98	85/115		
		Cr	0.0520	0.05	104	85/115		
		Co	0.0523	0.05	105	85/115		
		As	0.0489	0.05	98	85/115		
		Mo	0.0501	0.05	100	85/115		
		Cd	0.0514	0.05	103	85/115		
		Sb	0.0502	0.05	100	85/115		
		Ba	0.0511	0.05	102	85/115		
		Tl	0.0471	0.05	94	85/115		
		Pb	0.0491	0.05	98	85/115		
		Se	0.0479	0.05	96	85/115		

**Form 8: Serial Dilutions**

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Duplicate Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Dup Conc</i>	<i>Samp Conc</i>	<i>%D</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
028 13625.01 dil	029 13625.01s	10	Na	94.6	95.2	1	0/10	mg/L	Liquid
			Mg	36.9	36.2	2	0/10		
			K	1.65	1.68	2	0/10		
			Ca	114	116	2	0/10		
058 13569.01 dil	039 13569.01s	50	Na	49.6	51.1	3	0/10	mg/L	Liquid
			Mg	43.8	43.1	2	0/10		
			K	1.76	1.75	1	0/10		
			Ca	159	162	2	0/10		
061 13237.07 dil	062 13237.07s	25	Na	12.2	12.0	2	0/10	mg/L	Liquid
			Mg	23.7	24.0	1	0/10		
			K	8.90	9.33	5	0/10		
			Ca	39.3	38.8	1	0/10		

**Form 8: Serial Dilutions**

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Duplicate Name</i>	<i>Sample Name</i>	<i>Dilute</i>	<i>Element</i>	<i>Dup Conc</i>	<i>Samp Conc</i>	<i>%D</i>	<i>LCL/UCL</i>	<i>Units</i>	<i>Matrix</i>
025 13569.01 dil	026 13569.01s	50	Li	0.0440	0.036	22*	0/10	mg/L	Liquid
			Be	<0.00001	<0.001	NC	0/10		
			Cr	0.00360	<0.005	NC	0/10		
			Co	0.00274	<0.005	NC	0/10		
			As	0.00949	0.004	137*	0/10		
			Mo	0.00854	<0.005	NC	0/10		
			Cd	0.000811	<0.0005	NC	0/10		
			Sb	0.000293	<0.005	NC	0/10		
			Ba	0.150	0.149	1	0/10		
			Tl	0.000725	<0.002	NC	0/10		
			Pb	<0.00003	<0.003	NC	0/10		
			Se	<0.00005	<0.005	NC	0/10		
059 13569.05 dil	060 13569.05s	25	B	4.91	4.99	2	0/10	mg/L	Liquid

# Form 13: Analysis Run Log

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Filename</i>	<i>Run Time</i>	<i>Matrix</i>	<i>Analytes</i>
001 Blank	16:48:34 Tue	Liquid	Ca, K, Mg, Na
002 Std-0.0	16:49:17 Tue	Liquid	Ca, K, Mg, Na
003 Std-0.20	16:50:00 Tue	Liquid	Ca, K, Mg, Na
004 Std-0.50	16:50:43 Tue	Liquid	Ca, K, Mg, Na
005 Std-1.0	16:51:26 Tue	Liquid	Ca, K, Mg, Na
006 Std-2.0	16:52:09 Tue	Liquid	Ca, K, Mg, Na
007 Std-5.0	16:52:52 Tue	Liquid	Ca, K, Mg, Na
008 ICV-2.0	16:53:35 Tue	Liquid	Ca, K, Mg, Na
009 CCV-2.0	16:54:22 Tue	Liquid	Ca, K, Mg, Na
010 ICB	16:55:06 Tue	Liquid	Ca, K, Mg, Na
011 CCB	16:55:50 Tue	Liquid	Ca, K, Mg, Na
012 BS-0.05	16:56:34 Tue	Liquid	Ca, K, Mg, Na
013 050520_1 LCS-1.0	17:08:48 Tue	Liquid	Ca, K, Mg, Na
014 050520_1 LRB	17:21:07 Tue	Liquid	Ca, K, Mg, Na
015 13482.01s	17:21:53 Tue	Liquid	Ca, K, Mg, Na
016 13537.01s	17:22:36 Tue	Liquid	Ca, K, Mg, Na
017 13538.01s	17:23:19 Tue	Liquid	Ca, K, Mg, Na
018 13556.01s	17:24:01 Tue	Liquid	Ca, K, Mg, Na
019 13604.01s	17:24:44 Tue	Liquid	Ca, K, Mg, Na
020 rinse	17:27:12 Tue	Liquid	Ca, K, Mg, Na
021 13618.01s	17:27:59 Tue	Liquid	K
022 rinse	17:28:45 Tue	Liquid	Ca, K, Mg, Na
023 rinse	17:32:00 Tue	Liquid	Ca, K, Mg, Na
024 13618.01s -d	17:35:21 Tue	Liquid	Ca, Mg, Na
025 rinse	17:36:08 Tue	Liquid	Ca, K, Mg, Na
026 rinse	17:36:52 Tue	Liquid	Ca, K, Mg, Na
027 rinse	17:42:09 Tue	Liquid	Ca, K, Mg, Na
028 13625.01 dil	17:42:56 Tue	Liquid	Ca, K, Mg, Na
029 13625.01s	17:43:39 Tue	Liquid	Ca, K, Mg, Na
030 rinse	17:44:25 Tue	Liquid	Ca, K, Mg, Na
031 13625.02s	17:45:12 Tue	Liquid	Ca, K, Mg
032 13625.02 dil	17:52:44 Tue	Liquid	Na
033 rinse	17:56:34 Tue	Liquid	Ca, K, Mg, Na
034 13604.01 MS-2.0	17:57:21 Tue	Liquid	Ca, K, Mg, Na
035 13604.01 MSD	17:58:06 Tue	Liquid	Ca, K, Mg, Na
036 CCV2-2.0	17:59:29 Tue	Liquid	Ca, K, Mg, Na
037 CCB2	18:00:14 Tue	Liquid	Ca, K, Mg, Na
038 13569.07s	18:02:11 Tue	Liquid	Ca, K, Mg, Na
039 13569.01s	18:04:14 Tue	Liquid	Ca, K, Mg, Na
040 rinse	18:05:00 Tue	Liquid	Ca, K, Mg, Na
041 13569.02s	18:05:46 Tue	Liquid	Ca, K, Mg, Na
042 rinse	18:06:32 Tue	Liquid	Ca, K, Mg, Na
043 13569.03s	18:07:19 Tue	Liquid	Ca, K, Mg, Na
044 rinse	18:08:05 Tue	Liquid	Ca, K, Mg, Na
045 13569.04s	18:08:52 Tue	Liquid	Ca, K, Mg, Na
046 rinse	18:09:38 Tue	Liquid	Ca, K, Mg, Na
047 13569.05s	18:10:25 Tue	Liquid	Ca, K, Mg, Na
048 rinse	18:11:11 Tue	Liquid	Ca, K, Mg, Na
049 13569.06s	18:11:57 Tue	Liquid	Ca, K, Mg, Na
050 rinse	18:12:43 Tue	Liquid	Ca, K, Mg, Na
051 13586.01s	18:13:29 Tue	Liquid	Ca, K, Mg, Na
052 rinse	18:14:15 Tue	Liquid	Ca, K, Mg, Na
053 13586.02s	18:15:01 Tue	Liquid	Ca, K, Mg, Na
054 rinse	18:15:47 Tue	Liquid	Ca, K, Mg, Na
055 13586.02 MS-2.0	18:22:26 Tue	Liquid	Ca, K, Mg, Na
056 13586.02 MSD	18:23:10 Tue	Liquid	Ca, K, Mg, Na

# Form 13: Analysis Run Log

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

<i>Filename</i>	<i>Run Time</i>	<i>Matrix</i>	<i>Analytes</i>
057 rinse	18:23:55 Tue	Liquid	Ca,K,Mg,Na
058 13569.01 dil	18:25:25 Tue	Liquid	Ca,K,Mg,Na
059 CCV3-2.0	18:26:12 Tue	Liquid	Ca,K,Mg,Na
060 CCB3	18:26:56 Tue	Liquid	Ca,K,Mg,Na
061 13237.07 dil	18:29:50 Tue	Liquid	Ca,K,Mg,Na
062 13237.07s	18:35:35 Tue	Liquid	Ca,K,Mg,Na
063 CCV4-2.0	18:48:06 Tue	Liquid	Ca,K,Mg,Na
064 CCB4	18:48:51 Tue	Liquid	Ca,K,Mg,Na

# Form 13: Analysis Run Log

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Filename</i>	<i>Run Time</i>	<i>Matrix</i>	<i>Analytes</i>
001 Blank	10:47:19 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
002 Std-0.0	10:48:37 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
003 Std-0.0001	10:49:55 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
004 Std-0.0005	10:51:13 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
005 Std-0.005	10:52:31 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
006 Std-0.02	10:53:50 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
007 Std-0.05	10:55:08 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
008 Std-0.2	10:56:27 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
009 ICV-0.1	10:58:21 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
010 CCV-0.1	10:59:38 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
011 rinse	11:05:14 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
012 ICB	11:06:32 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
013 CCB	11:07:50 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
014 BS-0.0001	11:09:17 Wed	Liquid	As, Be, Cd, Pb, Tl
015 BS-0.0005	11:10:51 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Pb, Tl
016 BS-0.001	11:14:46 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Tl
017 BS-0.001	11:16:03 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
018 BS-0.001	11:17:21 Wed	Liquid	Se
019 Solu-AB	11:18:41 Wed	Liquid	As, Cd, Co, Cr, Mo
020 Solu-AA	11:21:16 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
021 050620_1 LCS-0.05	11:23:02 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
022 Rinse	11:24:23 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
023 050620_1 LRB	11:25:41 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
024 13569.07s	11:28:48 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
025 13569.01 dil	11:41:06 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
026 13569.01s	11:42:22 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
027 Rinse	11:51:41 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
028 13569.02s	11:53:12 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
029 Rinse	11:56:11 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
030 13569.03s	11:57:32 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
031 Rinse	11:58:53 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
032 13569.04s	12:00:18 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
033 Rinse	12:01:38 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
034 13569.05s	12:03:03 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
035 Rinse	12:09:11 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
036 13569.06s	12:10:32 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
037 Rinse	12:11:52 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
038 13664.02s	12:13:18 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
039 Rinse	12:14:39 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
040 13665.02s	12:15:59 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
041 Rinse	12:17:20 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
042 13666.01s	12:18:40 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
043 13569.06 MS-0.05	12:23:24 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
044 13569.06 MSD-0.05	12:26:20 Wed	Liquid	As, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
045 CCV2-0.1	12:29:14 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
046 Rinse	12:39:20 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
047 CCB2	12:40:38 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
048 13569.07s	12:42:17 Wed	Liquid	B
049 13569.04s	12:44:13 Wed	Liquid	B
050 Rinse	12:45:34 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
051 13569.03s	12:47:10 Wed	Liquid	B
052 Rinse	12:48:31 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
053 13569.01s	12:49:53 Wed	Liquid	B
054 Rinse	12:51:13 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
055 13569.06s	12:52:57 Wed	Liquid	B
056 Rins	12:54:18 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl

# Form 13: Analysis Run Log

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

<i>Filename</i>	<i>Run Time</i>	<i>Matrix</i>	<i>Analytes</i>
057 13569.02s	12:55:39 Wed	Liquid	B
058 Rinse	12:59:19 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
059 13569.05 dil	13:00:40 Wed	Liquid	B
060 13569.05s	13:01:59 Wed	Liquid	B
061 Rinse	13:04:15 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
062 13569.06 MS-0.05	13:05:36 Wed	Liquid	B
063 13569.06 MSD-0.05	13:06:55 Wed	Liquid	B
064 CCV3-0.1	13:08:30 Wed	Liquid	B
065 Rinse	13:09:58 Wed	Liquid	As, B, Ba, Be, Cd, Co, Cr, Li, Mo, Pb, Sb, Se, Tl
066 CCB3	13:11:16 Wed	Liquid	B



## Performance Check Report

**Sample ID: STD Performance Check**

Sample Date/Time: Tuesday, May 05, 2020 15:31:20

**Sample Description:**

Method File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\STD Performance Check.mth  
 Dataset File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\Optimize2020\STD Performance Check.694  
 MassCal File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun  
 Conditions File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Conditions\Default.dac  
 Dual Detector Mode: Pulse  
 Acq. Dead Time (ns): 35  
 Current Dead Time (ns): 35  
 Torch Z position (mm): 0.00

### Summary

Analyte	Mass	Meas. Intens.	Mean	Net Intens.	Mean	Net Intens. SD	Net Intens. RSD	Mode	
Be	9.0		6698.8		6698.837	96.076	1.4	Standard	
In	114.9		64003.1		64003.061	543.688	0.8	Standard	
U	238.1		71289.0		71289.034	289.053	0.4	Standard	
[	CeO	155.9		1823.2		0.021	0.001	2.8	Standard
>	Ce	139.9		86015.7		86015.659	749.447	0.9	Standard
]	Ce++	70.0		2052.4		0.024	0.001	3.6	Standard
	Bkgd	220.0		1.3		1.300	0.477	36.7	Standard

### Current Conditions File Data

Current Value	Description
0.92	Nebulizer Gas Flow STD/KED [NEB]
1.20	Auxiliary Gas Flow
18.00	Plasma Gas Flow
-12.00	Deflector Voltage
1600.00	ICP RF Power
-1675.00	Analog Stage Voltage
1300.00	Pulse Stage Voltage
-4.00	Quadrupole Rod Offset STD [QRO]
-15.00	Cell Rod Offset STD [CRO]
14.00	Discriminator Threshold
-9.00	Cell Entrance/Exit Voltage STD
0.00	RPa
0.45	RPq
0.92	DRC Mode NEB
-9.00	DRC Mode QRO
-2.00	DRC Mode CRO
-7.00	DRC Mode Cell Entrance/Exit Voltage
0.60	Cell Gas A
200.00	Axial Field Voltage
-13.00	KED Mode CRO
-12.00	KED Mode QRO
-8.00	KED Mode Cell Entrance Voltage
-32.00	KED Mode Cell Exit Voltage
4.00	KED Cell Gas A
0.00	KED RPa
0.25	KED RPq
475.00	KED Mode Axial Field Voltage

## SmartTune Wizard - Summary

### Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\daily optimization.swz

Start Time: 5/5/2020 3:26:06 PM

End Time: 5/5/2020 3:33:25 PM

Torch Alignment - [Passed]

Vertical	Horizontal	Intensity
0.29 mm	-0.15 mm	156113.36

Nebulizer Gas Flow STD/KED [NEB] - [Passed] Optimum value(s): 0.92

Obtained Intensity (In 115): 73070.40

Obtained Formula (CeO 156 / Ce 140): 0.0237 (=2165.16 / 91309.88)

QID STD/DRC - Optimum value(s): Correlation Coefficient = 0.979; Intercept = -12.12

KED Mode QID - Optimum value(s): Correlation Coefficient = 0.980; Intercept = -12.63

Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.705)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.701)

Target/Obtained mass (114.904/114.925), Target/Obtained resolution (0.7/0.705)

Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.720)

STD Performance Check - [Passed] Optimum value(s): N/A

Obtained Intensity (Be 9): 6698.84

Obtained Intensity (In 115): 64003.06

Obtained Intensity (U 238): 71289.03

Obtained Intensity (Bkgd 220): 1.30

Obtained Formula (CeO 156 / Ce 140): 0.021 (=1823.18 / 86015.66)

Obtained Formula (Ce++ 70 / Ce 140): 0.024 (=2052.41 / 86015.66)

## SmartTune Wizard - Details

### Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\daily optimization.swz

### Optimization Status

Start Time: 5/5/2020 3:26:06 PM

### Torch Alignment

#### Optimization Settings:

Method: Torch Alignment.mth.

Intensity Criterion: In 115 Maximum

#### Optimization Results:

	Vertical	Horizontal	Intensity
[Passed]	0.29 mm	-0.15 mm	156113.36

### Nebulizer Gas Flow STD/KED [NEB]

#### Optimization Settings:

Method: Optimize.mth.

Initial Try - Start/End/Step: 0.9/0.96/0.01.

Intensity Criterion: In 115 Maximum

Formula Criterion: CeO 156 / Ce 140 <= 0.025

#### Optimization Results:

Initial Try

Obtained Intensity (In 115): 73070.40

Obtained Formula (CeO 156 / Ce 140): 0.0237 (=2165.16 / 91309.88)

[Passed] Optimum value(s): 0.92

### QID STD/DRC

#### Optimization Settings:

Method: QID Calibration.mth.

Initial Try - Start/End/Step: -20/0/0.5.

#### Optimization Results:

Initial Try

Optimum value(s): Correlation Coefficient = 0.979; Intercept = -12.12

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-12.5	27694.8
Mg	24	41	-13.5	60367.3
In	115	41	-10.5	69946.8
Ce	140	41	-10.5	89209.7
Pb	208	41	-8	42354.7
U	238	41	-7.5	73733.8

### ICP-MS Mode QID

#### Optimization Settings:

Method: QID Calibration.mth.

Initial Try - Start/End/Step: -20/0/0.5.

#### Optimization Results:

Initial Try

Optimum value(s): Correlation Coefficient = 0.980; Intercept = -12.63

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-12.5	22641.9
Mg	24	41	-13	85056.5
In	115	41	-10.5	76633
Ce	140	41	-10	55752.6
Pb	208	41	-5.5	30300.1
U	238	41	-7.5	67237.9

#### Mass Calibration and Resolution

##### Optimization Settings:

Method: Tuning.mth.

MassCal File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

Iterations: 6

Target accuracy (+/- amu): 0.05 for Mass Cal. and 0.03 for Resolution

Peak height (%) for Res. Opt.: 10

##### Optimization Results:

###### Initial Try

Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.705)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.701)

Target/Obtained mass (114.904/114.925), Target/Obtained resolution (0.7/0.705)

Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.720)

[Passed] Optimum value(s): N/A

#### STD Performance Check

##### Optimization Settings:

Method: STD Performance Check.mth.

Intensity Criterion: Be 9 > 2000

Intensity Criterion: In 115 > 30000

Intensity Criterion: U 238 > 30000

Intensity Criterion: Bkgd 220 <= 5

Formula Criterion: CeO 156 / Ce 140 <= 0.025

Formula Criterion: Ce++ 70 / Ce 140 <= 0.03

##### Optimization Results:

###### Initial Try

Obtained Intensity (Be 9): 6698.84

Obtained Intensity (In 115): 64003.06

Obtained Intensity (U 238): 71289.03

Obtained Intensity (Bkgd 220): 1.30

Obtained Formula (CeO 156 / Ce 140): 0.021 (=1823.18 / 86015.66)

Obtained Formula (Ce++ 70 / Ce 140): 0.024 (=2052.41 / 86015.66)

[Passed] Optimum value(s): N/A

End Time: 5/5/2020 3:33:25 PM

## Performance Check Report

### Sample ID: STD Performance Check

Sample Date/Time: Wednesday, May 06, 2020 10:32:39

Sample Description:

Method File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Method\STD Performance Check.mth

Dataset File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\DataSet\Optimize2020\STD Performance Check.700

MassCal File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

Conditions File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Conditions\Default.dac

Dual Detector Mode: Pulse

Acq. Dead Time (ns): 35

Current Dead Time (ns): 35

Torch Z position (mm): 0.00

### Summary

Analyte	Mass	Meas. Intens.	Mean	Net Intens.	Mean	Net Intens. SD	Net Intens. RSD	Mode	
Be	9.0		7518.7		7518.712	92.534	1.2	Standard	
In	114.9		77799.2		77799.218	731.433	0.9	Standard	
U	238.1		75964.2		75964.175	513.743	0.7	Standard	
[	CeO	155.9		2216.6		0.024	0.000	1.9	Standard
>	Ce	139.9		93182.7		93182.724	487.578	0.5	Standard
[	Ce++	70.0		1309.9		0.014	0.000	1.6	Standard
	Bkgd	220.0		0.8		0.767	0.279	36.4	Standard

### Current Conditions File Data

Current Value	Description
0.94	Nebulizer Gas Flow STD/KED [NEB]
1.20	Auxiliary Gas Flow
18.00	Plasma Gas Flow
-12.00	Deflector Voltage
1600.00	ICP RF Power
-1675.00	Analog Stage Voltage
1300.00	Pulse Stage Voltage
-4.00	Quadrupole Rod Offset STD [QRO]
-15.00	Cell Rod Offset STD [CRO]
14.00	Discriminator Threshold
-9.00	Cell Entrance/Exit Voltage STD
0.00	RPa
0.45	RPq
0.94	DRC Mode NEB
-9.00	DRC Mode QRO
-2.00	DRC Mode CRO
-7.00	DRC Mode Cell Entrance/Exit Voltage
0.60	Cell Gas A
200.00	Axial Field Voltage
-13.00	KED Mode CRO
-12.00	KED Mode QRO
-8.00	KED Mode Cell Entrance Voltage
-32.00	KED Mode Cell Exit Voltage
4.00	KED Cell Gas A
0.00	KED RPa
0.25	KED RPq
475.00	KED Mode Axial Field Voltage

## SmartTune Wizard - Summary

### Optimization Summary

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\Wizard\SmartTune\daily optimization.swz

Start Time: 5/6/2020 10:27:28 AM

End Time: 5/6/2020 10:34:45 AM

Torch Alignment - [Passed]

Vertical	Horizontal	Intensity
0.76 mm	-0.11 mm	56823.79

Nebulizer Gas Flow STD/KED [NEB] - [Passed] Optimum value(s): 0.94

Obtained Intensity (In 115): 77825.41

Obtained Formula (CeO 156 / Ce 140): 0.0231 (=2320.19 / 100368.35)

QID STD/DRC - Optimum value(s): Correlation Coefficient = 1.000; Intercept = -13.54

KED Mode QID - Optimum value(s): Correlation Coefficient = 1.000; Intercept = -12.65

Mass Calibration and Resolution - [Passed] Optimum value(s): N/A

Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.708)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.697)

Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.699)

Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.712)

STD Performance Check - [Passed] Optimum value(s): N/A

Obtained Intensity (Be 9): 7518.71

Obtained Intensity (In 115): 77799.22

Obtained Intensity (U 238): 75964.17

Obtained Intensity (Bkgd 220): 0.77

Obtained Formula (CeO 156 / Ce 140): 0.024 (=2216.57 / 93182.72)

Obtained Formula (Ce++ 70 / Ce 140): 0.014 (=1309.93 / 93182.72)

## SmartTune Wizard - Details

### Optimization Details

SmartTune file: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\wizard\SmartTune\daily optimization.swz

### Optimization Status

Start Time: 5/6/2020 10:27:28 AM

### Torch Alignment

#### Optimization Settings:

Method: Torch Alignment.mth.

Intensity Criterion: In 115 Maximum

#### Optimization Results:

	Vertical	Horizontal	Intensity
[Passed]	0.76 mm	-0.11 mm	56823.79

### Nebulizer Gas Flow STD/KED [NEB]

#### Optimization Settings:

Method: Optimize.mth.

Initial Try - Start/End/Step: 0.9/0.96/0.01.

Intensity Criterion: In 115 Maximum

Formula Criterion: CeO 156 / Ce 140 <= 0.025

#### Optimization Results:

Initial Try

obtained Intensity (In 115): 77825.41

obtained Formula (CeO 156 / Ce 140): 0.0231 (=2320.19 / 100368.35)

[Passed] Optimum value(s): 0.94

### QID STD/DRC

#### Optimization Settings:

Method: QID Calibration.mth.

Initial Try - Start/End/Step: -20/0/0.5.

#### Optimization Results:

Initial Try

Optimum value(s): Correlation Coefficient = 1.000; Intercept = -13.54

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-13	35179.3
Mg	24	41	-12	57708.3
In	115	41	-10	77783.2
Ce	140	41	-9.5	95929
Pb	208	41	-8	41748.9
U	238	41	-8	75905.1

### KED Mode QID

#### Optimization Settings:

Method: QID Calibration.mth.

Initial Try - Start/End/Step: -20/0/0.5.

#### Optimization Results:

Initial Try

Optimum value(s): Correlation Coefficient = 1.000; Intercept = -12.65

Analyte	Mass	Points	DAC	MaxIntensity
Li	7	41	-13	24240.5
Mg	24	41	-13.5	71659.3
In	115	41	-11	83587.8
Ce	140	41	-9	60343.2
Pb	208	41	-6	30324.2
U	238	41	-7.5	71389.9

#### Mass Calibration and Resolution

##### Optimization Settings:

Method: Tuning.mth.

MassCal File: C:\Users\Public\Documents\PerkinElmer Syngistix\ICPMS\MassCal\Default.tun

Iterations: 6

Target accuracy (+/- amu): 0.05 for Mass Cal. and 0.03 for Resolution

Peak height (%) for Res. Opt.: 10

##### Optimization Results:

###### Initial Try

Target/Obtained mass (7.016/7.025), Target/Obtained resolution (0.7/0.708)

Target/Obtained mass (23.985/23.975), Target/Obtained resolution (0.7/0.697)

Target/Obtained mass (114.904/114.875), Target/Obtained resolution (0.7/0.699)

Target/Obtained mass (238.05/238.075), Target/Obtained resolution (0.7/0.712)

[Passed] Optimum value(s): N/A

#### STD Performance Check

##### Optimization Settings:

Method: STD Performance Check.mth.

Intensity Criterion: Be 9 > 2000

Intensity Criterion: In 115 > 30000

Intensity Criterion: U 238 > 30000

Intensity Criterion: Bkgd 220 <= 5

Formula Criterion: CeO 156 / Ce 140 <= 0.025

Formula Criterion: Ce++ 70 / Ce 140 <= 0.03

##### Optimization Results:

###### Initial Try

Obtained Intensity (Be 9): 7518.71

Obtained Intensity (In 115): 77799.22

Obtained Intensity (U 238): 75964.17

Obtained Intensity (Bkgd 220): 0.77

Obtained Formula (CeO 156 / Ce 140): 0.024 (=2216.57 / 93182.72)

Obtained Formula (Ce++ 70 / Ce 140): 0.014 (=1309.93 / 93182.72)

[Passed] Optimum value(s): N/A

End Time: 5/6/2020 10:34:45 AM



**Form 15: Internal Standards Summary**

IS Check Reference Sample: 001 Blank

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Element	Count	non-ICB/CCB/ICV/CCV		ICB/CCB/ICV/CCV		Flags
		LCL-UCL	Accept.Range	LCL-UCL	Accept.Range	
Rh	59180	70-125	41426-73975	80-120	47344-71016	0

Seq ID	QC Type	Rh
001		100
002		96
003		107
004		109
005		104
006		100
007		107
008	ICV	103
009	CCV	103
010	ICB	99
011	CCB	98
012	BS	102
013	LCS	103
014	LRB	99
015	S	102
016	S	84
017	S	100
018	S	105
019	S	105
020		100
021	S	96
022		98
023		100
024	S	106
025		98
026		97
027		100
028	DIL	106
029	S	100
030		100
031	S	105
032	S	107
033		102
034	MS	103
035	MSD	105
036	CCV	101
037	CCB	98
038	S	104
039	S	102
040	Page 79 of 260	

**Form 15: Internal Standards Summary**

IS Check Reference Sample: 001 Blank

Data Set ID: MT4-20-0505A

Instrument ID: PE NEXION

Analysis Date: 05/05/20

Analyst: JRH

Element	Count	non-ICB/CCB/ICV/CCV		ICB/CCB/ICV/CCV		Flags
		LCL-UCL	Accept.Range	LCL-UCL	Accept.Range	
Rh	59180	70-125	41426-73975	80-120	47344-71016	0

Seq ID	QC Type	Rh
041	S	103
042		98
043	S	102
044		100
045	S	103
046		99
047	S	102
048		100
049	S	106
050		102
051	S	106
052		99
053	S	106
054		102
055	MS	103
056	MSD	104
057		99
058	DIL	105
059	CCV	102
060	CCB	101
061	DIL	109
062	S	109
063	CCV	107
064	CCB	102

**Form 15: Internal Standards Summary**

IS Check Reference Sample: 001 Blank

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Element	Count	non-ICB/CCB/ICV/CCV		ICB/CCB/ICV/CCV		Flags
		LCL-UCL	Accept.Range	LCL-UCL	Accept.Range	
Li	173721	70-125	121605-217151	80-120	138977-208465	0
Y	311124	70-125	217787-388905	80-120	248899-373349	0
Re	1235572	70-125	864900-1544465	80-120	988458-1482686	0
Rh-1	2954148	70-125	2067904-3692685	80-120	2363318-3544978	0

Seq ID	QC Type	Li	Y	Re	Rh-1
001		100	100	100	100
002		98	98	101	100
003		107	104	105	105
004		107	106	109	107
005		108	106	111	110
006		111	108	110	108
007		106	105	107	107
008		108	109	112	106
009	ICV	101	108	109	107
010	CCV	97	106	109	104
011		99	96	100	98
012	ICB	92	95	100	98
013	CCB	95	99	101	96
014	BS	104	104	108	106
015	BS	103	105	107	105
016	BS	104	105	106	107
017		104	103	106	102
018	BS	105	106	108	106
019	AB	106	104	107	107
020	AA	118	116	121	118
021	LCS	108	108	111	108
022		95	100	102	101
023	LRB	100	100	102	101
024	S	105	108	112	108
025	DIL	102	110	107	105
026	S	106	104	106	100
027		102	100	101	102
028	S	106	109	105	101
029		106	102	99	105
030	S	109	106	105	102
031		107	103	101	101
032	S	112	105	101	104
033		107	100	99	103
034	S	101	112	103	99
035		102	102	100	100
036	S	110	107	104	103
037		105	103	100	101
038	S	111	107	103	104
039		106	101	96	102
040	S	109	109	104	106

**Form 15: Internal Standards Summary**

IS Check Reference Sample: 001 Blank

Data Set ID: MT4-20-0506A

Instrument ID: PE NEXION

Analysis Date: 05/06/20

Analyst: CCM

Element	Count	non-ICB/CCB/ICV/CCV		ICB/CCB/ICV/CCV		Flags
		LCL-UCL	Accept.Range	LCL-UCL	Accept.Range	
Li	173721	70-125	121605-217151	80-120	138977-208465	0
Y	311124	70-125	217787-388905	80-120	248899-373349	0
Re	1235572	70-125	864900-1544465	80-120	988458-1482686	0
Rh-1	2954148	70-125	2067904-3692685	80-120	2363318-3544978	0

Seq ID	QC Type	Li	Y	Re	Rh-1
041		104	102	97	102
042	S	110	107	104	107
043	MS	109	111	104	104
044	MSD	110	111	104	103
045	CCV	118	112	106	110
046		101	101	95	100
047	CCB	107	101	98	99
048	S	111	107	104	103
049	S	111	111	104	100
050		105	100	97	100
051	S	105	105	104	100
052		106	100	97	98
053	S	107	107	101	99
054		102	102	99	100
055	S	111	108	103	100
056		103	104	98	103
057	S	112	112	104	103
058		111	104	99	106
059	DIL	113	111	102	105
060	S	108	108	98	98
061		114	109	98	108
062	MS	107	105	99	99
063	MSD	110	108	99	99
064	CCV	115	116	107	116
065		111	106	98	101
066	CCB	110	102	95	105

## Form 9

Analysis Date varies  
 Analytical Method 6020A/6020/200.8  
 Digestion Date varies  
 Spiked Value varies (ug/L)  
 Estimated Limit varies (ug/L)

Element/Mass	Date	Spike (ug/l)	MDL (ug/l)	Prep Batch
Al-27	4/9/2012	0.50	0.189	MTD-040212-1
Sb-121	3/20/2012	1.00	0.105	MTD-032012-3
As-75	3/20/2012	0.05	0.032	MTD-032012-2
Ba-137	3/20/2012	0.50	0.202	MTD-032012-2
Be-9	4/10/2012	0.10	0.079	MTD-041012-1
B-10	3/20/2012	1.00	0.589	MTD-032012-3
B-11	3/20/2012	1.00	0.277	MTD-032012-3
Cd-111	3/20/2012	0.05	0.038	MTD-032012-2
Cd-114	3/20/2012	0.10	0.030	MTD-032012-2
Cr-52	3/20/2012	0.10	0.023	MTD-032012-2
Cr-53	3/20/2012	0.10	0.054	MTD-032012-2
Co-59	3/20/2012	0.10	0.035	MTD-032012-2
Cu-65	3/20/2012	0.50	0.068	MTD-032012-2
Fe-56	4/9/2012	2.00	0.470	MTD-040912-1
Fe-57	4/9/2012	2.00	0.824	MTD-040912-1
Pb-208	3/20/2012	0.10	0.052	MTD-032012-2
Li-7	3/20/2012	1.00	0.166	MTD-032012-3
Mn-55	3/20/2012	0.10	0.187	MTD-032012-2
Mo-95	4/9/2012	0.50	0.442	MTD-040212-1
Ni-60	4/13/2012	0.10	0.035	MTD-041012-1
Se-78	3/20/2012	0.10	0.058	MTD-032012-2
Se-82	3/20/2012	0.50	0.475	MTD-032012-2
Ag-107	3/20/2012	0.10	0.025	MTD-032012-2
Sr-88	3/20/2012	0.10	0.016	MTD-032012-2
Tl-205	4/9/2012	0.50	0.089	MTD-040212-1
Sn-118	3/20/2012	0.10	0.079	MTD-032012-2
Ti-47	3/20/2012	0.50	0.124	MTD-032012-2
V-51	3/20/2012	0.05	0.018	MTD-032012-2
Zn-66	4/9/2012	2.00	0.366	MTD-040912-1

Element/Mass	Date	Spike (mg/l)	MDL (mg/l)	Prep Batch
Ca-43	4/16/2012	0.01	0.0101	MTD-041012-4
Ca-44	4/16/2012	0.01	0.0041	MTD-041012-4
Mg-24	4/16/2012	0.01	0.0006	MTD-041012-4
K-39	4/16/2012	0.01	0.0030	MTD-041012-4
Na-23	4/16/2012	0.10	0.0101	MTD-041012-4

**Linear Range June 2012**

		<b>Prep Batch</b>	<b>Run Batch</b>
Aluminum	5.0ppm	MTD-061912-5	MT3-12-0619C
Antimony	5.0ppm	MTD-061912-5	MT3-12-0619C
Arsenic	1.0ppm	MTD-061912-5	MT3-12-0619C
Barium	5.0ppm	MTD-061912-5	MT3-12-0619C
Boron-10	5.0ppm	MTD-061912-5	MT3-12-0619C
Boron-11	5.0ppm	MTD-061912-5	MT3-12-0619C
Beryllium	2.0ppm	MTD-061912-5	MT3-12-0619C
Cadmium-111	5.0ppm	MTD-061912-5	MT3-12-0619C
Cadmium-114	5.0ppm	MTD-061912-5	MT3-12-0619C
Chromium	2.0ppm	MTD-061912-5	MT3-12-0619C
Cobalt	2.0ppm	MTD-061912-5	MT3-12-0619C
Copper	5.0ppm	MTD-061912-5	MT3-12-0619C
Iron-56	5.0ppm	MTD-061912-5	MT3-12-0619C
Iron-57	2.0ppm	MTD-061912-5	MT3-12-0619C
Lead	5.0ppm	MTD-061912-5	MT3-12-0619C
Lithium	2.0ppm	MTD-061912-5	MT3-12-0619C
Manganese	1.0ppm	MTD-061912-5	MT3-12-0619C
Molybdenum	1.0ppm	MTD-061912-5	MT3-12-0619C
Nickel	5.0ppm	MTD-061912-5	MT3-12-0619C
Selenium-78	5.0ppm	MTD-061912-5	MT3-12-0619C
Selenium-82	5.0ppm	MTD-061912-5	MT3-12-0619C
Silver	1.0ppm	MTD-061912-5	MT3-12-0619C
Strontium-86	5.0ppm	MTD-061912-5	MT3-12-0619C
Thallium	5.0ppm	MTD-061912-5	MT3-12-0619C
Tin	1.0ppm	MTD-061912-5	MT3-12-0619C
Titanium	1.0ppm	MTD-061912-5	MT3-12-0619C
Vanadium	1.0ppm	MTD-061912-5	MT3-12-0619C
Zinc	2.0ppm	MTD-061912-5	MT3-12-0619C

Sodium-23	50ppm	MTD-061912-5	MT3-12-0619B
Magnesium-24	50ppm	MTD-061912-5	MT3-12-0619B
Potassium-39	50ppm	MTD-061912-5	MT3-12-0619B
Calcium-43	50ppm	MTD-061912-5	MT3-12-0619B
Calcium-44	50ppm	MTD-061912-5	MT3-12-0619B

**Maximum spiking levels are instated to ensure the safety and longevity of the instrument. Any sample results above this level result in extended wash runs and sample dilution.**

# Metals Quantitation Summary Report

Sequence #: 001  
Method: 01-MINERALS.mth  
Acq Time: 16:48:34 Tue 05-May-20  
Sample Name: Blank  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	12601.111	0	mg/L		3
Mg	24	4576.667	0	mg/L		3
K	39	163014.444	0	mg/L		3
Ca	44	6200.000	0	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 002  
Method: 01-MINERALS.mth  
Acq Time: 16:49:17 Tue 05-May-20  
Sample Name: Std-0.0  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	12620.000	0.000519	mg/L		3
Mg	24	4696.667	0.000473	mg/L		3
K	39	163562.222	0.007687	mg/L		3
Ca	44	6341.111	0.013839	mg/L		3



# Metals Quantitation Summary Report

Sequence #: 003  
Method: 01-MINERALS.mth  
Acq Time: 16:50:00 Tue 05-May-20  
Sample Name: Std-0.20  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass	Concentration	Units	RSD %	Rep
Na	23	259524.444	0.207796	mg/L	3
Mg	24	149170.000	0.198201	mg/L	3
K	39	369127.778	0.187473	mg/L	3
Ca	44	13801.111	0.225608	mg/L	3

# Metals Quantitation Summary Report

Sequence #: 004  
Method: 01-MINERALS.mth  
Acq Time: 16:50:43 Tue 05-May-20  
Sample Name: Std-0.50  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass	Concentration	Units	RSD %	Rep
Na	23	591790.000	0.481279	mg/L	3
Mg	24	345864.444	0.462251	mg/L	3
K	39	680464.444	0.478624	mg/L	3
Ca	44	23738.889	0.526979	mg/L	3

# Metals Quantitation Summary Report

Sequence #: 005  
Method: 01-MINERALS.mth  
Acq Time: 16:51:26 Tue 05-May-20  
Sample Name: Std-1.0  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	1161617.778	1.002776	mg/L		3
Mg	24	722260.000	1.019030	mg/L		3
K	39	1166086.667	0.993716	mg/L		3
Ca	44	39914.444	1.089866	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 006  
Method: 01-MINERALS.mth  
Acq Time: 16:52:09 Tue 05-May-20  
Sample Name: Std-2.0  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	2405658.889	2.151599	mg/L		3
Mg	24	1419207.778	2.068733	mg/L		3
K	39	2269247.778	2.160431	mg/L		3
Ca	44	68630.000	2.092240	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 007  
Method: 01-MINERALS.mth  
Acq Time: 16:52:52 Tue 05-May-20  
Sample Name: Std-5.0  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	5875267.778	4.940365	mg/L		3
Mg	24	3631275.556	4.972548	mg/L		3
K	39	5318566.667	4.939723	mg/L		3
Ca	44	164044.444	4.941408	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 008  
Method: 01-MINERALS.mth  
Acq Time: 16:53:35 Tue 05-May-20  
Sample Name: ICV-2.0  
Sample Type: Sample  
Matrix: Liquid  
Comments: Spex-std made 04/29/  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	2470265.556	2.167574	mg/L		3
Mg	24	1468848.889	2.099686	mg/L		3
K	39	2363068.889	2.204284	mg/L		3
Ca	44	70315.556	2.097865	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 009  
Method: 01-MINERALS.mth  
Acq Time: 16:54:22 Tue 05-May-20  
Sample Name: CCV-2.0  
Sample Type: Sample  
Matrix: Liquid  
Comments: IV-std made 04/29/20  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	2438906.667	2.130790	mg/L		3
Mg	24	1446286.667	2.058800	mg/L		3
K	39	2311082.222	2.149695	mg/L		3
Ca	44	72142.222	2.153664	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 010  
Method: 01-MINERALS.mth  
Acq Time: 16:55:06 Tue 05-May-20  
Sample Name: ICB  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	24312.222	0.011042	mg/L		3
Mg	24	12310.000	0.011756	mg/L		3
K	39	162517.778	0.002201	mg/L		3
Ca	44	6502.222	0.013833	mg/L		3



# Metals Quantitation Summary Report

Sequence #: 011  
Method: 01-MINERALS.mth  
Acq Time: 16:55:50 Tue 05-May-20  
Sample Name: CCB  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	15621.111	0.003129	mg/L		3
Mg	24	6234.444	0.002712	mg/L		3
K	39	156124.444	-0.003117	mg/L		3
Ca	44	6182.222	0.004686	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 012  
Method: 01-MINERALS.mth  
Acq Time: 16:56:34 Tue 05-May-20  
Sample Name: BS-0.05  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib:  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass	Concentration	Units	RSD %	Rep
Na	23	71021.111	0.051723	mg/L	3
Mg	24	40516.667	0.051876	mg/L	3
K	39	208862.222	0.043732	mg/L	3
Ca	44	7855.556	0.051521	mg/L	3

# Metals Quantitation Summary Report

Sequence #: 013  
Method: 01-MINERALS.mth  
Acq Time: 17:08:48 Tue 05-May-20  
Sample Name: 050520\_1 LCS-1.0  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	1169601.111	1.018112	mg/L		3
Mg	24	695681.111	0.988696	mg/L		3
K	39	1218502.222	1.055011	mg/L		3
Ca	44	39720.000	1.092484	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 014  
Method: 01-MINERALS.mth  
Acq Time: 17:21:07 Tue 05-May-20  
Sample Name: 050520\_1 LRB  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	15393.333	0.002766	mg/L		3
Mg	24	4708.889	0.000310	mg/L		3
K	39	158812.222	-0.001693	mg/L		3
Ca	44	6064.444	-0.001262	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 036  
Method: 01-MINERALS.mth  
Acq Time: 17:59:29 Tue 05-May-20  
Sample Name: CCV2-2.0  
Sample Type: Sample  
Matrix: Liquid  
Comments: IV-std made 04/29/20  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass	Concentration	Units	RSD %	Rep
Na	23	2386894.444	2.119437	mg/L	3
Mg	24	1400531.111	2.027586	mg/L	3
K	39	2306030.000	2.180912	mg/L	3
Ca	44	70694.444	2.142061	mg/L	3

# Metals Quantitation Summary Report

Sequence #: 037  
Method: 01-MINERALS.mth  
Acq Time: 18:00:14 Tue 05-May-20  
Sample Name: CCB2  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 1

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	25397.778	0.012249	mg/L		3
Mg	24	12552.222	0.012299	mg/L		3
K	39	168877.778	0.010554	mg/L		3
Ca	44	6248.889	0.007050	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 038  
Method: 01-MINERALS.mth  
Acq Time: 18:02:11 Tue 05-May-20  
Sample Name: 13569.07s  
Sample Type: Sample  
Matrix: Liquid  
Comments: Field Blank  
Dilution: 2

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	14878.889	0.003023	mg/L		3
Mg	24	6357.778	0.004474	mg/L		3
K	39	164662.222	-0.010710	mg/L		3
Ca	44	7693.333	0.079084	mg/L		3

# Metals Quantitation Summary Report

Sequence #: 039  
Method: 01-MINERALS.mth  
Acq Time: 18:04:14 Tue 05-May-20  
Sample Name: 13569.01s  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 5

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	11514832.222	51.141802	mg/L		3
Mg	24	5952335.556	43.101485	mg/L		3
K	39	510881.111	1.754561	mg/L		3
Ca	44	989405.556	162.964943	mg/L		3



# Metals Quantitation Summary Report

Sequence #: 041  
Method: 01-MINERALS.mth  
Acq Time: 18:05:46 Tue 05-May-20  
Sample Name: 13569.02s  
Sample Type: Sample  
Matrix: Liquid  
Comments:  
Dilution: 5

Operator:  
Acq Mode: Data Acquisition  
Cal Title: 20-0505A.cal  
Cal Type: External Calibration  
Last Calib: MTD-050520-1  
Bkg File:  
Int Correct:  
Blank File: Blank.022

Element	Mass		Concentration	Units	RSD %	Rep
Na	23	9843295.556	43.159644	mg/L		3
Mg	24	8711570.000	62.210092	mg/L		3
K	39	381111.111	1.069083	mg/L		3
Ca	44	1546626.667	251.841163	mg/L		3