Integrated Analytical Laboratories LLC

ANALYTICAL DATA REPORT

JMC Environmental Consultants
2109 Bridge Avenue
Building B
Point Pleasant, NJ 08742

Project Name: **ARSYNCO**
IAL Case Number: **E16-02233**

These data have been reviewed and accepted by:

Michael H. Leftin, Ph.D.
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written consent of Integrated Analytical Laboratories, LLC. The test results included in this report relate only to the samples analyzed. The results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

273 Franklin Road
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IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

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Sample Summary

IAL Case No.

E16-02233

Client JMC Environmental Consultants

Project ARSYNCO

Received On 3/15/2016@17:15

Lab ID	***Client Sample ID***	***Depth Top/Bottom***	***Sampling Time***	***Matrix***	***# of Container***
02233-001	IV-10 A	n/a	3/15/2016@10:45	Soil	1
02233-002	FB	n/a	3/15/2016@11:00	Aqueous	1

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DEFINITIONS / QUALIFIERS

DATA QUALIFIERS

B Indicates the analyte was found in the associated method blank as well as in the sample. It indicates probable laboratory contamination.

C Indicates analyte is a common laboratory contaminant.

D Indicates analyte was reported from diluted analysis.

E Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument.

J Indicates an estimated value. This flag is used when the concentration in the sample is below the RL but above the MDL or for qualification of tentatively identified compounds.

N Presumptive evidence of a compound from the use of GC/MS library search.

X Indicates samples analyzed for total and dissolved metals differ at ≤20% RPD.

Z Indicates internal standard failure. Sample results are either biased high or biased low.

REPORTING DEFINITIONS

RL Reporting Limit. The RL is determined by the lowest concentration in the calibration curve. For most Wet Chemistry methods, the RL is defined by using the PQL.

MDL Method Detection Limit as determined according to 40CFR Part 136 Appendix B.

PQL Practical Quantitation Limit. Usually defined as a value 3-5 times the MDL.

ND Indicates analyte was analyzed for but not detected above the MDL.

DF Dilution Factor

LCS Laboratory Control Sample

LCSD Laboratory Control Sample Duplicate

MS Matrix Spike

MSD Matrix Spike Duplicate

DUP Duplicate

SAMPLE DELIVERY GROUP CASE NARRATIVE
(Conformance / Non-Conformance Summary)

INTEGRATED ANALYTICAL LABORATORIES, LLC

SAMPLE DELIVERY GROUP CASE NARRATIVE

SDG#: E16-02233

Integrated Analytical Laboratories, LLC. received two (2) samples** from JMC Environmental Consultants (IAL SDG# **E16-02233**, Project: ARSYNCO) on March 15, 2016 for the analysis of :

(2) Lead - Pb

**Number of samples listed above may be greater than what is listed on the chain of custody. Any samples that require in-house filtration or splitting will be counted as separate samples.

Samples were received in good condition with documentation in order.
Cooler temperature was acceptable at 4 ± 2°C

Metals By 6020A	**Batch: A160317-01**	**Matrix: Aqueous**

QC
- Calibration Curve Linearity met QC criteria.
- Internal Standard Recovery met QC criteria.
- Method Blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- MS Percent Recovery met QC criteria.
- RPD between Sample/Duplicate met QC criteria.
- Serial Dilution / Post Spike results met QC criteria.

E16-02233
- Digestion Holding Time met requirement for each sample.
- Analysis Holding Time met requirement for each sample.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E16-02233-002	1	NA

Metals By 6020A	**Batch: S160316-01**	**Matrix: Soil**

QC
- Calibration Curve Linearity met QC criteria.
- Internal Standard Recovery met QC criteria.
- Method Blank met QC criteria.
- LCS Percent Recovery met QC criteria.
- MS Percent Recovery met QC criteria.
- RPD between Sample/Duplicate met QC criteria.
- Serial Dilution / Post Spike results met QC criteria.

E16-02233
- Digestion Holding Time met requirement for each sample.
- Analysis Holding Time met requirement for each sample.

Dilution Summary:

Sample ID	DF(s)	Dilution For
E16-02233-001	1	NA

A review of the QA/QC measures for the analysis of the sample(s) contained in this report has been performed by:

aJenno
Reviewed by

3/30/2016
Date

DATA OF KNOWN QUALITY CONFORMANCE/NON-CONFORMANCE SUMMARY QUESTIONNAIRE

Laboratory Name: Integrated Analytical Laboratories
Client: JMC Environmental Consultants
Project Location: ARSYNCO
IAL Project #: E16-02233
IAL Sample ID(s): E16-02233-001 ~ -002
Sampling Date(s): 3/15/2016

List of DKQP Method Used:
Lead - Pb by 6020A

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information is provided in the case narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet the requirements for "Data of Known Quality."

		YES	NO	N/A
1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP	X		
1A	Were the method specified handling, preservation, and holding time requirements met?	X		
1B	EPH Method: Was the EPH method conducted without significant modifications? (see Section 11.3 of respective DKQ methods)			X
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	X		
3	Were samples received at an appropriate temperature (4±2° C)?	X		
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	X		
5A	Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?	X		
5B	Were these reporting limits met?	X		
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	X		
7	Are project-specific matrix spikes and/or laboratory duplicates included in this data set?		X	

RESULTS SUMMARY REPORT

INTEGRATED ANALYTICAL LABORATORIES, LLC.

SUMMARY REPORT
Client: JMC Environmental Consultants
Project: ARSYNCO
Lab Case No.: E16-02233

	Lab ID:	**02233-002**	
	Client ID:	**FB**	
	Matrix:	**Aqueous**	
	Sampled Date	**3/15/16**	
PARAMETER(Units)		Conc	Q MDL
Metals (Units)		***(mg/L)***	
Lead		ND	0.0005
	Lab ID:	**02233-001**	
	Client ID:	**IV-10 A**	
	Matrix:	**Soil**	
	Sampled Date	**3/15/16**	
PARAMETER(Units)		Conc	Q MDL
Metals (Units)		***(mg/Kg)***	
Lead		59.8	0.646

ND = Analyzed for but Not Detected at the MDL

ANALYTICAL RESULTS

INTEGRATED ANALYTICAL LABORATORIES, LLC.

Lead

Client/Project: JMCARSYNCO

Batch #: 135
Date Received: 03/15/16 17:15
Method: 6020A

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	RL	MDL	% Moist	Date Collected	Date Analyzed
E16-02233-001	IV-10 A	59.8		1	Soil-mg/Kg	0.646	0.646	19.3	03/15/16 10:45	03/17/16 02:22

INTEGRATED ANALYTICAL LABORATORIES, LLC.

Lead

Client/Project: JMCARSYNCO

Batch #: 140
Date Received: 03/15/16 17:15
Method: 6020A

Lab ID	Client ID	Result	Q	DF	Matrix-Unit	RL	MDL	% Moist	Date Collected	Date Analyzed
E16-02233-002	FB	ND		1	Aqueous-mg/L	0.0020	0.0005	100	03/15/16 11:00	03/18/16 12:34

ND = Analyzed for but Not Detected at the MDL

METALS

METALS QC SUMMARY

METALS QUALITY CONTROL

INITIAL & CONTINUING CALIBRATION VERIFICATION

Batch (Page) #: 135
SDG #: E16-02238, E16-02201, E16-02167, E16-02247, E16-02233

Matrix: Soil Method: 6020A Units: ppb (ug/L)

			3/16/16 23:58		3/17/16 00:54		3/17/16 01:47		3/17/16 02:39	
	INST.	ICV & CCV	ICV		CCV		CCV		CCV	
ANALYTE	MDL	TRUE	FOUND	% R	FOUND	% R	FOUND	% R	FOUND	% R
Aluminum	0.500	25.0	23.6	94.4	23.3	93.2	26.8	107	25.5	102
Antimony	0.250	25.0	23.9	95.6	23.2	92.8	24.3	97.2	24.2	96.8
Arsenic	0.250	25.0	23.4	93.6	23.1	92.4	23.3	93.2	24.6	98.4
Barium	0.500	25.0	23.6	94.4	23.3	93.2	23.1	92.4	23.2	92.8
Beryllium	0.200	25.0	22.9	91.6	23.4	93.6	24.3	97.2	23.3	93.2
Cadmium	0.125	25.0	23.8	95.2	23.0	92.0	23.9	95.6	23.9	95.6
Calcium	5.00	250	230	92.0	230	92.0	232	92.8	253	101
Chromium	0.500	25.0	23.6	94.4	22.9	91.6	23.5	94.0	23.2	92.8
Cobalt	0.500	25.0	23.0	92.0	22.8	91.2	22.8	91.2	22.7	90.8
Copper	0.500	25.0	23.2	92.8	22.9	91.6	22.6	90.4	23.1	92.4
Iron	5.00	250	241	96.4	237	94.8	248	99.2	243	97.2
Lead	0.500	25.0	23.0	92.0	23.2	92.8	23.5	94.0	23.3	93.2
Magnesium	5.00	250	232	92.8	227	90.8	235	94.0	259	104
Manganese	0.250	25.0	23.7	94.8	23.3	93.2	23.4	93.6	24.1	96.4
Mercury	0.120	5.00	4.94	98.8	4.81	96.2	4.89	97.8		
Nickel	0.500	25.0	23.4	93.6	22.8	91.2	23.1	92.4	23.0	92.0
Potassium	5.00	250	233	93.2	227	90.8	238	95.2	255	102
Selenium	0.500	25.0	22.5	90.0	24.3	97.2	22.9	91.6	24.1	96.4
Silver	0.125	25.0	24.0	96.0	24.9	99.6	25.4	102	24.7	98.8
Sodium	5.00	250	246	98.4	238	95.2	228	91.2	262	105
Thallium	0.125	25.0	23.5	94.0	24.1	96.4	23.8	95.2	23.3	93.2
Vanadium	0.500	25.0	23.5	94.0	22.9	91.6	22.9	91.6	23.7	94.8
Zinc	0.500	25.0	23.1	92.4	23.1	92.4	23.1	92.4	22.7	90.8

(1) Control Limits: Mercury 80-120; Other Metals 90-110

METALS QUALITY CONTROL

INITIAL & CONTINUING CALIBRATION VERIFICATION

Batch (Page) #: 140
SDG #: E16-02166, E16-02238, E16-02264, E16-02233, E16-02292, E16-02217, E16-02271, E16-02282

Matrix: Aqueous Method: 6020A Units: ppb (ug/L)

			3/18/16 11:24		3/18/16 12:21		3/18/16 13:13		3/18/16 14:06	
	INST.	ICV & CCV	ICV		CCV		CCV		CCV	
ANALYTE	MDL	TRUE	FOUND	% R	FOUND	% R	FOUND	% R	FOUND	% R
Aluminum	0.500	25.0	24.2	96.8	24.5	98.0	25.5	102	24.9	99.6
Antimony	0.250	25.0	23.4	93.6	23.7	94.8	23.8	95.2	23.6	94.4
Arsenic	0.250	25.0	24.3	97.2	24.8	99.2	23.4	93.6	24.0	96.0
Barium	0.500	25.0	24.8	99.2	25.6	102	25.4	102	25.0	100
Beryllium	0.250	25.0	23.1	92.4	23.2	92.8	23.1	92.4	22.9	91.6
Cadmium	0.125	25.0	23.4	93.6	24.1	96.4	23.4	93.6	23.9	95.6
Calcium	5.00	250	246	98.4	270	108	258	103	272	109
Chromium	0.500	25.0	23.6	94.4	24.2	96.8	23.7	94.8	24.1	96.4
Cobalt	0.500	25.0	23.6	94.4	24.2	96.8	23.3	93.2	24.0	96.0
Copper	0.500	25.0	24.2	96.8	24.7	98.8	23.8	95.2	24.9	99.6
Iron	5.00	250	233	93.2	245	98.0	235	94.0	240	96.0
Lead	0.125	25.0	24.8	99.2	25.3	101	24.9	99.6	25.2	101
Magnesium	5.00	250	237	94.8	245	98.0	238	95.2	247	98.8
Manganese	0.500	25.0	23.1	92.4	24.4	97.6	23.0	92.0	24.4	97.6
Mercury	0.150	5.00	4.91	98.2	4.92	98.4				
Nickel	0.250	25.0	23.8	95.2	24.2	96.8	23.1	92.4	24.2	96.8
Potassium	5.00	250	241	96.4	247	98.8	236	94.4	253	101
Selenium	0.500	25.0	25.0	100	24.5	98.0	23.0	92.0	27.4	110
Silver	0.125	25.0	22.9	91.6	25.8	103	25.5	102	25.7	103
Sodium	5.00	250	238	95.2	242	96.8	240	96.0	265	106
Thallium	0.125	25.0	26.5	106	26.9	108	26.4	106	26.5	106
Vanadium	0.500	25.0	23.5	94.0	24.3	97.2	23.5	94.0	23.9	95.6
Zinc	0.500	25.0	23.5	94.0	24.1	96.4	24.0	96.0	24.3	97.2

(1) Control Limits: Mercury 80-120; Other Metals 90-110

METALS QUALITY CONTROL

INITIAL & CONTINUING CALIBRATION VERIFICATION

Batch (Page) #: 140
SDG #: E16-02166, E16-02238, E16-02264, E16-02233, E16-02292, E16-02217, E16-02271, E16-02282

Matrix: Aqueous Method: 6020A Units: ppb (ug/L)

3/18/16 14:59

ANALYTE	INST. MDL	ICV & CCV TRUE	CCV FOUND	CCV % R	FOUND	% R	FOUND	% R	FOUND	% R
Aluminum	0.500	25.0	26.9	108						
Antimony	0.250	25.0	23.8	95.2						
Arsenic	0.250	25.0	24.6	98.4						
Barium	0.500	25.0	26.0	104						
Beryllium	0.250	25.0	23.7	94.8						
Cadmium	0.125	25.0	23.4	93.6						
Calcium	5.00	250	266	106						
Chromium	0.500	25.0	24.2	96.8						
Cobalt	0.500	25.0	24.2	96.8						
Copper	0.500	25.0	25.6	102						
Iron	5.00	250	258	103						
Lead	0.125	25.0	25.0	100						
Magnesium	5.00	250	255	102						
Manganese	0.500	25.0	24.4	97.6						
Nickel	0.250	25.0	24.1	96.4						
Potassium	5.00	250	266	106						
Selenium	0.500	25.0	26.4	106						
Silver	0.125	25.0	25.7	103						
Sodium	5.00	250	254	102						
Thallium	0.125	25.0	26.4	106						
Vanadium	0.500	25.0	24.5	98.0						
Zinc	0.500	25.0	24.7	98.8						

(1) Control Limits: Mercury 80-120; Other Metals 90-110

INTEGRATED ANALYTICAL LABORATORIES, LLC.

METALS QUALITY CONTROL

INITIAL & CONTINUING CALIBRATION BLANKS VERIFICATION

Batch (Page) #: 135
SDG #: E16-02238, E16-02201, E16-02167, E16-02247, E16-02233

Matrix: Soil Method: 6020A Concentration/Units: ppm (mg/kg)

		3/17/16 00:06	3/17/16 00:59	3/17/16 01:51	3/17/16 02:44		
ANALYTE	INST. MDL	ICB	CCB	CCB	CCB		
Aluminum	0.0005	ND	ND	ND	ND		
Antimony	0.00025	ND	ND	ND	ND		
Arsenic	0.00025	ND	ND	ND	ND		
Barium	0.0005	ND	ND	ND	ND		
Beryllium	0.0002	ND	ND	ND	ND		
Cadmium	0.000125	ND	ND	ND	ND		
Calcium	0.005	ND	ND	ND	ND		
Chromium	0.0005	ND	ND	ND	ND		
Cobalt	0.0005	ND	ND	ND	ND		
Copper	0.0005	ND	ND	ND	ND		
Iron	0.005	ND	ND	ND	ND		
Lead	0.0005	ND	ND	ND	ND		
Magnesium	0.005	ND	ND	ND	ND		
Manganese	0.00025	ND	ND	ND	ND		
Mercury	0.00012	ND	ND	ND			
Nickel	0.0005	ND	ND	ND	ND		
Potassium	0.005	ND	ND	ND	ND		
Selenium	0.0005	ND	ND	ND	ND		
Silver	0.000125	ND	ND	ND	ND		
Sodium	0.005	ND	ND	ND	ND		
Thallium	0.000125	ND	ND	ND	ND		
Vanadium	0.0005	ND	ND	ND	ND		
Zinc	0.0005	ND	ND	ND	ND		

METALS QUALITY CONTROL

INITIAL & CONTINUING CALIBRATION BLANKS VERIFICATION

Batch (Page) #: 140
SDG #: E16-02166, E16-02238, E16-02264, E16-02233, E16-02292, E16-02217, E16-02271, E16-02282

Matrix: Aqueous Method: 6020A Concentration/Units: ppb (µg/L)

		3/18/16 11:33	3/18/16 12:25	3/18/16 13:18	3/18/16 14:10	3/18/16 15:03	
ANALYTE	INST. MDL	ICB	CCB	CCB	CCB	CCB	
Aluminum	0.500	ND	ND	ND	ND	ND	
Antimony	0.250	ND	ND	ND	ND	ND	
Arsenic	0.250	ND	ND	ND	ND	ND	
Barium	0.500	ND	ND	ND	ND	ND	
Beryllium	0.250	ND	ND	ND	ND	ND	
Cadmium	0.125	ND	ND	ND	ND	ND	
Calcium	5.00	ND	ND	ND	ND	ND	
Chromium	0.500	ND	ND	ND	ND	ND	
Cobalt	0.500	ND	ND	ND	ND	ND	
Copper	0.500	ND	ND	ND	ND	ND	
Iron	5.00	ND	ND	ND	ND	ND	
Lead	0.125	ND	ND	ND	ND	ND	
Magnesium	5.00	ND	ND	ND	ND	ND	
Manganese	0.500	ND	ND	ND	ND	ND	
Mercury	0.150	ND	ND				
Nickel	0.250	ND	ND	ND	ND	ND	
Potassium	5.00	ND	ND	ND	ND	ND	
Selenium	0.500	ND	ND	ND	ND	ND	
Silver	0.125	ND	ND	ND	ND	ND	
Sodium	5.00	ND	ND	ND	ND	ND	
Thallium	0.125	ND	ND	ND	ND	ND	
Vanadium	0.500	ND	ND	ND	ND	ND	
Zinc	0.500	ND	ND	ND	ND	ND	

METALS QUALITY CONTROL

BLANK 1 RESULTS SUMMARY

03/17/2016 12:11 AM

Batch (Page) #: 135
Associated Lab Case for Blank 1: E16-02167, E16-02201, E16-02233, E16-02238, E16-02247

Matrix: Soil Unit: ppm (mg/kg) Method: 6020A

ANALYTE	SAMPLE MDL	REAGENT BLANK BLKS160316-01
Aluminum	0.500	ND
Antimony	0.250	ND
Arsenic	0.250	ND
Barium	0.500	ND
Beryllium	0.200	ND
Cadmium	0.125	ND
Calcium	5.00	ND
Chromium	0.500	ND
Cobalt	0.500	ND
Copper	0.500	ND
Iron	5.00	ND
Lead	0.500	ND
Magnesium	5.00	ND
Manganese	0.250	ND
Mercury	0.006	ND
Nickel	0.500	ND
Potassium	5.00	ND
Selenium	0.500	ND
Silver	0.125	ND
Sodium	5.00	ND
Thallium	0.125	ND
Vanadium	0.500	ND
Zinc	0.500	ND

Associated Sample for Blank 1:
02167-001; 02201-001; 02233-001; 02238-001~008
02247-001~008

METALS QUALITY CONTROL

BLANK 1 RESULTS SUMMARY

03/18/2016 12:38 PM

Batch (Page) #: 140
Associated Lab Case for Blank 1: E16-02166, E16-02217, E16-02233, E16-02238, E16-02264, E16-02271, E16-02282
E16-02292

Matrix: Aqueous Unit: ppb (µg/L) Method: 6020A

ANALYTE	SAMPLE MDL	REAGENT BLANK BLKA160317-01
Aluminum	2.00	ND
Antimony	1.00	ND
Arsenic	1.00	ND
Barium	2.00	ND
Beryllium	1.00	ND
Cadmium	0.500	ND
Calcium	20.0	ND
Chromium	2.00	ND
Cobalt	2.00	ND
Copper	2.00	ND
Iron	20.0	ND
Lead	0.500	ND
Magnesium	20.0	ND
Manganese	2.00	ND
Mercury	0.300	ND
Nickel	1.00	ND
Potassium	20.0	ND
Selenium	2.00	ND
Silver	0.500	ND
Sodium	20.0	ND
Thallium	0.500	ND
Vanadium	2.00	ND
Zinc	2.00	ND

Associated Sample for Blank 1:
02166-001; 02217-001~003; 02233-002; 02238-009
02264-002~003; 02271-001~002; 02282-002~006,008
02292-001~002

METALS QUALITY CONTROL

ICP-MS ICSAB RESULTS SUMMARY

Instrument: Agilent7700
Batch (Page) #: 135
SDG #: E16-02238, E16-02201, E16-02167, E16-02247, E16-02233

Matrix: Aqueous Concentration/Units: ppb (µg/L)

ANALYTE	TRUE		INITIAL FOUND			CONTROL
	SOL A	SOL B	SOL A	SOL A+B	%R	LIMIT %R
Chlorine	1000000	-	-	-	-	NA
Carbon	200000	-	-	-	-	NA
Aluminum	100000	-	72900	73900	73.9	NA
Calcium	100000	-	77100	77900	77.9	NA
Iron	100000	-	74100	75200	75.2	NA
Potassium	100000	-	70400	71700	71.7	NA
Magnesium	100000	-	70500	71400	71.4	NA
Sodium	100000	-	70500	71200	71.2	NA
Phosphorus	100000	-	-	-	-	NA
Sulfur	100000	-	-	-	-	NA
Molybdenum	2000	-	1710	1730	86.5	NA
Titanium	2000	-	1710	1740	87.0	NA
Silver	-	20.0	-	16.1	80.5	80-120
Arsenic	-	20.0	-	18.4	92.0	80-120
Cadmium	-	20.0	-	16.5	82.5	80-120
Cobalt	-	20.0	-	16.6	83.0	80-120
Chromium	-	20.0	-	17.3	86.5	80-120
Copper	-	20.0	-	16.4	82.0	80-120
Manganese	-	20.0	-	21.5	108	80-120
Nickel	-	20.0	-	16.7	83.5	80-120
Zinc	-	20.0	-	20.3	102	80-120

%R = Percent Recovery

METALS QUALITY CONTROL

ICP-MS ICSAB RESULTS SUMMARY

Instrument: Agilent7500
Batch (Page) #: 140
SDG #: E16-02166, E16-02238, E16-02264, E16-02233, E16-02292, E16-02217, E16-02271, E16-02282

Matrix: Aqueous Concentration/Units: ppb (µg/L)

ANALYTE	TRUE		INITIAL FOUND			CONTROL
	SOL A	SOL B	SOL A	SOL A+B	%R	LIMIT %R
Chlorine	1000000	-	-	-	-	NA
Carbon	200000	-	-	-	-	NA
Aluminum	100000	-	73400	75800	75.8	NA
Calcium	100000	-	76500	79400	79.4	NA
Iron	100000	-	75400	78300	78.3	NA
Potassium	100000	-	71500	74000	74.0	NA
Magnesium	100000	-	71200	73500	73.5	NA
Sodium	100000	-	70500	72600	72.6	NA
Phosphorus	100000	-	-	-	-	NA
Sulfur	100000	-	-	-	-	NA
Molybdenum	2000	-	1770	1800	90.0	NA
Titanium	2000	-	1730	1810	90.5	NA
Silver	-	20.0	-	17.2	86.0	80-120
Arsenic	-	20.0	-	18.6	93.0	80-120
Cadmium	-	20.0	-	18.7	93.5	80-120
Cobalt	-	20.0	-	17.1	85.5	80-120
Chromium	-	20.0	-	17.9	89.5	80-120
Copper	-	20.0	-	17.6	88.0	80-120
Manganese	-	20.0	-	21.8	109	80-120
Nickel	-	20.0	-	16.8	84.0	80-120
Zinc	-	20.0	-	20.0	100	80-120

%R = Percent Recovery

METALS QUALITY CONTROL

LABORATORY CONTROL SAMPLE

Batch (Page) #: 135
SDG #: E16-02167, E16-02201, E16-02233, E16-02238, E16-02247

Matrix: Soil Unit: ppm (mg/kg)

ANALYTE	LCSS160316-01					
	TRUE	FOUND	%R(1)	TRUE	FOUND	%R(1)
Aluminum	200	165	82.5			
Antimony	40.0	32.2	80.5			
Arsenic	40.0	33.2	83.0			
Barium	40.0	33.7	84.3			
Beryllium	40.0	32.6	81.5			
Cadmium	40.0	32.8	82.0			
Calcium	200	168	84.0			
Chromium	40.0	34.4	86.0			
Cobalt	40.0	33.3	83.3			
Copper	40.0	33.7	84.3			
Iron	200	168	84.0			
Lead	40.0	34.6	86.5			
Magnesium	200	160	80.0			
Manganese	40.0	33.0	82.5			
Mercury	0.500	0.467	93.4			
Nickel	40.0	38.7	96.8			
Potassium	200	171	85.5			
Selenium	40.0	33.8	84.5			
Silver	40.0	37.5	93.8			
Sodium	200	168	84.0			
Thallium	40.0	40.8	102			
Vanadium	40.0	33.1	82.8			
Zinc	40.0	39.2	98.0			

(1) Control Limits % Recovery = 80-120%

LCSS160316-01 3/17/16 00:15

02167-001; 02201-001; 02233-001; 02238-001~008

02247-001~008

METALS QUALITY CONTROL

LABORATORY CONTROL SAMPLE

Batch (Page) #: 140
SDG #: E16-02166, E16-02217, E16-02233, E16-02238, E16-02264, E16-02271, E16-02282
E16-02292

Matrix: Aqueous Unit: ppb (µg/L)

ANALYTE	LCSA160317-01					
	TRUE	FOUND	%R(1)	TRUE	FOUND	%R(1)
Aluminum	400	379	94.8			
Antimony	400	362	90.5			
Arsenic	400	366	91.5			
Barium	400	361	90.3			
Beryllium	400	337	84.3			
Cadmium	400	360	90.0			
Calcium	8000	7320	91.5			
Chromium	400	361	90.3			
Cobalt	400	359	89.8			
Copper	400	359	89.8			
Iron	8000	7310	91.4			
Lead	400	365	91.3			
Magnesium	8000	7190	89.9			
Manganese	400	363	90.8			
Mercury	10.0	9.73	97.3			
Nickel	400	367	91.8			
Potassium	8000	7160	89.5			
Selenium	400	358	89.5			
Silver	400	356	89.0			
Sodium	8000	7130	89.1			
Thallium	400	352	88.0			
Vanadium	400	365	91.3			
Zinc	400	360	90.0			

(1) Control Limits % Recovery = 80-120%

LCSA160317-01 3/18/16 12:43

02166-001; 02217-001~003; 02233-002; 02238-009
02264-002~003; 02271-001~002; 02282-002~006,008
02292-001~002

METALS QUALITY CONTROL

LOW LEVEL INITIAL CALIBRATION VERIFICATION

Batch (Page) #: 135
SDG #: E16-02238, E16-02201, E16-02167, E16-02247, E16-02233

Matrix: Soil Method: 6020A Units: ppb (ug/L)

3/17/16 00:02

ANALYTE	INST. MDL	LLICV TRUE	LLICV FOUND	LLICV % R
Aluminum	0.500	0.500	0.537	107
Antimony	0.250	0.500	0.525	105
Arsenic	0.250	0.500	0.509	102
Barium	0.500	0.500	0.632	126
Beryllium	0.200	0.500	0.544	109
Cadmium	0.125	0.500	0.385	77.0
Calcium	5.00	5.00	4.66	93.2
Chromium	0.500	0.500	0.611	122
Cobalt	0.500	0.500	0.563	113
Copper	0.500	0.500	0.525	105
Iron	5.00	5.00	6.04	121
Lead	0.500	0.500	0.503	101
Magnesium	5.00	5.00	4.54	90.8
Manganese	0.250	0.500	0.484	96.8
Nickel	0.500	0.500	0.570	114
Potassium	5.00	5.00	5.52	110
Selenium	0.500	0.500	0.580	116
Silver	0.125	0.500	0.548	110
Sodium	5.00	5.00	4.34	86.8
Thallium	0.125	0.500	0.529	106
Vanadium	0.500	0.500	0.612	122
Zinc	0.500	0.500	0.571	114

(1) Control Limits: 70-130

METALS QUALITY CONTROL

LOW LEVEL INITIAL CALIBRATION VERIFICATION

Batch (Page) #: 140
SDG #: E16-02166, E16-02238, E16-02264, E16-02233, E16-02292, E16-02217, E16-02271, E16-02282

Matrix: Aqueous Method: 6020A Units: ppb (ug/L)

3/18/16 11:29

ANALYTE	INST. MDL	LLICV TRUE	LLICV FOUND	LLICV % R
Aluminum	0.500	0.500	0.462	92.4
Antimony	0.250	0.500	0.530	106
Arsenic	0.250	0.500	0.601	120
Barium	0.500	0.500	0.576	115
Beryllium	0.250	0.500	0.553	111
Cadmium	0.125	0.500	0.476	95.2
Calcium	5.00	5.00	4.34	86.8
Chromium	0.500	0.500	0.458	91.6
Cobalt	0.500	0.500	0.556	111
Copper	0.500	0.500	0.503	101
Iron	5.00	5.00	5.61	112
Lead	0.125	0.500	0.465	93.0
Magnesium	5.00	5.00	4.35	87.0
Manganese	0.500	0.500	0.467	93.4
Nickel	0.250	0.500	0.564	113
Potassium	5.00	5.00	5.64	113
Selenium	0.500	0.500	0.511	102
Silver	0.125	0.500	0.577	115
Sodium	5.00	5.00	5.72	114
Thallium	0.125	0.500	0.474	94.8
Vanadium	0.500	0.500	0.539	108
Zinc	0.500	0.500	0.623	125

(1) Control Limits: 70-130

INTEGRATED ANALYTICAL LABORATORIES, LLC.

METALS QUALITY CONTROL
SPIKE SAMPLE RECOVERY

Batch (Page) #: 135
SDG #: E16-02167, E16-02201, E16-02233, E16-02238, E16-02247

Matrix: Soil Concentration/Units: ppm (mg/kg)

ANALYTE	3/17/16 00:33 SSR1	3/17/16 00:19 SR1	%R1	SA1	SSR2	SR2	%R2	SA2	CONTROL LIMIT %R
Aluminum	1240	1080	NC	252					75-125
Antimony	40.5	ND	80.4	50.4					75-125
Arsenic	43.3	0.812	84.3	50.4					75-125
Barium	45.2	2.91	83.9	50.4					75-125
Beryllium	42.1	ND	83.5	50.4					75-125
Cadmium	41.3	ND	81.9	50.4					75-125
Calcium	1060	892	NC	252					75-125
Chromium	52.9	10.5	84.1	50.4					75-125
Cobalt	42.7	0.839	83.1	50.4					75-125
Copper	44.2	2.26	83.2	50.4					75-125
Iron	3290	3270	NC	252					75-125
Lead	51.1	9.42	82.7	50.4					75-125
Magnesium	774	552	88.1	252					75-125
Manganese	68.8	30.0	77.0	50.4					75-125
Mercury	0.467	ND	93.4	0.500					75-125
Nickel	53.4	5.24	95.6	50.4					75-125
Potassium	473	220	100	252					75-125
Selenium	45.9	ND	91.1	50.4					75-125
Silver	37.8	ND	75.0	50.4					75-125
Sodium	1270	1120	NC	252					75-125
Thallium	48.6	6.65	83.2	50.4					75-125
Vanadium	45.0	3.30	82.7	50.4					75-125
Zinc	47.5	6.10	82.1	50.4					75-125

SSR = Spike Sample Result
SA = Spike Added
SR = Sample Result
%R = Percent Recovery
NC = Non-calculable % R; Spike sample concentration > 4 x Spike Concentration.

QC Sample 1: E16-02238-005
% Solids: 79.4
QC Sample 1 for following samples:
02167-001; 02201-001; 02233-001; 02238-001~008
02247-001~008

QC Sample 2: _____
% Solids: _____
QC Sample 2 for following samples:

METALS QUALITY CONTROL
SPIKE SAMPLE RECOVERY

Batch (Page) #: 140
SDG #: E16-02166, E16-02217, E16-02233, E16-02238, E16-02264, E16-02271, E16-02282
E16-02292

Matrix: Aqueous Concentration/Units: ppb (µg/L)

ANALYTE	3/18/16 13:00 SSR1	3/18/16 12:47 SR1	%R1	SA1	SSR2	SR2	%R2	SA2	CONTROL LIMIT %R
Aluminum	398	47.4	87.7	400					75-125
Antimony	355	ND	88.8	400					75-125
Arsenic	360	9.10	87.7	400					75-125
Barium	594	190	101	400					75-125
Beryllium	334	ND	83.5	400					75-125
Cadmium	351	ND	87.8	400					75-125
Calcium	52400	39800	NC	8000					75-125
Chromium	347	ND	86.8	400					75-125
Cobalt	345	ND	86.3	400					75-125
Copper	342	ND	85.5	400					75-125
Iron	9510	1920	94.9	8000					75-125
Lead	364	0.993	90.8	400					75-125
Magnesium	22000	13100	111	8000					75-125
Manganese	778	382	99.0	400					75-125
Mercury	9.67	ND	96.7	10.0					75-125
Nickel	348	ND	87.0	400					75-125
Potassium	12100	4520	94.8	8000					75-125
Selenium	321	ND	80.3	400					75-125
Silver	354	0.707	88.3	400					75-125
Sodium	73900	59700	NC	8000					75-125
Thallium	348	ND	87.0	400					75-125
Vanadium	357	ND	89.3	400					75-125
Zinc	348	ND	87.0	400					75-125

SSR = Spike Sample Result
SA = Spike Added
SR = Sample Result
%R = Percent Recovery
NC = Non-calculable % R; Spike sample concentration > 4 x Spike Concentration.

QC Sample 1: E16-02166-001
% Solids: 0
QC Sample 1 for following samples:
02166-001; 02217-001~003; 02233-002; 02238-009
02264-002~003; 02271-001~002; 02282-002~006,008
02292-001~002

QC Sample 2: _____
% Solids: _____
QC Sample 2 for following samples:

METALS QUALITY CONTROL
DUPLICATE SAMPLE RECOVERY

Batch (Page) #: 135
SDG #: E16-02167, E16-02201, E16-02233, E16-02238, E16-02247

Matrix: Soil Concentration/Units: ppm (mg/kg)

ANALYTE	CONTROL LIMIT 1	3/17/16 00:19 S1	3/17/16 00:24 D1	RPD1	CONTROL LIMIT 2	S2	D2	RPD2
Aluminum	20	1080	1050	2.82				
Antimony	NA	ND	ND	NC				
Arsenic	20	0.812	0.832	2.43				
Barium	20	2.91	3.15	7.92				
Beryllium	NA	ND	ND	NC				
Cadmium	NA	ND	ND	NC				
Calcium	20	892	872	2.27				
Chromium	20	10.5	10.1	3.88				
Cobalt	20	0.839	0.801	4.63				
Copper	20	2.26	2.35	3.90				
Iron	20	3270	3150	3.74				
Lead	20	9.42	9.03	4.23				
Magnesium	20	552	533	3.50				
Manganese	20	30.0	28.6	4.78				
Mercury	NA	ND	ND	NC				
Nickel	20	5.24	5.04	3.89				
Potassium	20	220	205	7.06				
Selenium	NA	ND	ND	NC				
Silver	NA	ND	ND	NC				
Sodium	20	1120	1080	3.64				
Thallium	20	6.65	6.84	2.82				
Vanadium	20	3.30	3.19	3.39				
Zinc	20	6.10	6.20	1.63				

S1 = Sample 1
D1 = Duplicate 1
NA = Not Applicable
NC = Non-calculable RPD due to result (s) less than the detection limit.

S2 = Sample 2
D2 = Duplicate 2

QC Sample 1: E16-02238-005
% Solids: 79.4
QC Sample 1 for following samples:
02167-001; 02201-001; 02233-001; 02238-001~008
02247-001~008

QC Sample 2:
% Solids:
QC Sample 2 for following samples:

METALS QUALITY CONTROL
DUPLICATE SAMPLE RECOVERY

Batch (Page) #: 140
SDG #: E16-02166, E16-02217, E16-02233, E16-02238, E16-02264, E16-02271, E16-02282
E16-02292

Matrix: Aqueous Concentration/Units: ppb (µg/L)

ANALYTE	CONTROL LIMIT 1	3/18/16 12:47 S1	3/18/16 12:51 D1	RPD1	CONTROL LIMIT 2	S2	D2	RPD2
Aluminum	20	47.4	47.8	0.840				
Antimony	NA	ND	ND	NC				
Arsenic	20	9.10	8.84	2.90				
Barium	20	190	190	0				
Beryllium	NA	ND	ND	NC				
Cadmium	NA	ND	ND	NC				
Calcium	20	39800	38300	3.84				
Chromium	NA	ND	ND	NC				
Cobalt	NA	ND	ND	NC				
Copper	NA	ND	ND	NC				
Iron	20	1920	1850	3.71				
Lead	20	0.993	1.05	5.58				
Magnesium	20	13100	12600	3.89				
Manganese	20	382	369	3.46				
Mercury	NA	ND	ND	NC				
Nickel	NA	ND	ND	NC				
Potassium	20	4520	4350	3.83				
Selenium	NA	ND	ND	NC				
Silver	20	0.707	0.718	1.54				
Sodium	20	59700	57100	4.45				
Thallium	NA	ND	ND	NC				
Vanadium	NA	ND	ND	NC				
Zinc	NA	ND	ND	NC				

S1 = Sample 1
D1 = Duplicate 1
NA = Not Applicable
NC = Non-calculable RPD due to result (s) less than the detection limit.

S2 = Sample 2
D2 = Duplicate 2

QC Sample 1: E16-02166-001
% Solids: 0
QC Sample 1 for following samples:
02166-001; 02217-001~003; 02233-002; 02238-009
02264-002~003; 02271-001~002; 02282-002~006,008
02292-001~002

QC Sample 2:
% Solids:
QC Sample 2 for following samples:

METALS QUALITY CONTROL
SERIAL DILUTIONS & POST SPIKES 1

Batch (Page) #: 135
SDG #: E16-02167, E16-02201, E16-02233, E16-02238, E16-02247

Matrix: Soil Concentration/Units: ppm (mg/kg)

ANALYTE	SERIAL DILUTION 3/17/16 00:19 SR	SERIAL DILUTION 3/17/16 00:28 SDR	% Difference	POST SPIKE 3/17/16 00:37 SPR	POST SPIKE SA	% Recovery
Aluminum	1080	1120	3.64			
Antimony	ND	ND	NC	44.1	50.4	87.5
Arsenic	0.812	ND	NC	44.2	50.4	86.1
Barium	2.91	ND	ERROR	47.1	50.4	87.7
Beryllium	ND	ND	NC	43.7	50.4	86.7
Cadmium	ND	ND	NC	43.8	50.4	86.9
Calcium	892	916	2.65			
Chromium	10.5	11.1	5.56			
Cobalt	0.839	ND	NC	43.7	50.4	85.0
Copper	2.26	ND	NC	45.4	50.4	85.6
Iron	3270	3320	1.52			
Lead	9.42	9.26	1.71	54.2	50.4	88.8
Magnesium	552	556	0.722			
Manganese	30.0	32.0	6.45			
Nickel	5.24	5.67	7.88	48.8	50.4	86.4
Potassium	220	236	7.02			
Selenium	ND	ND	NC	42.4	50.4	84.1
Silver	ND	ND	NC	44.0	50.4	87.3
Sodium	1120	1130	0.889			
Thallium	6.65	6.32	5.09			
Vanadium	3.30	ND	ERROR	46.8	50.4	86.3
Zinc	6.10	5.95	2.49	52.7	50.4	92.5

SR = Sample Result
SDR = Sample Dilution Result
SPR = Sample Post Spike Result
SA = Spike Added

Control Limits: (+) or (-) 10% Difference or 80-120% Recovery

QC Sample1: E16-02238-005
QC Sample 1 for following samples:
02167-001; 02201-001; 02233-001; 02238-001~008
02247-001~008

METALS QUALITY CONTROL
SERIAL DILUTIONS & POST SPIKES 1

Batch (Page) #: 140
SDG #: E16-02166, E16-02217, E16-02233, E16-02238, E16-02264, E16-02271, E16-02282
E16-02292

Matrix: Aqueous Concentration/Units: ppb (µg/L)

ANALYTE	SERIAL DILUTION 3/18/16 12:47 SR	SERIAL DILUTION 3/18/16 12:56 SDR	% Difference	POST SPIKE 3/18/16 13:05 SPR	POST SPIKE SA	% Recovery
Aluminum	47.4	50.0	5.34			
Antimony	ND	ND	NC	367	400	91.8
Arsenic	9.10	9.53	4.62	371	400	90.5
Barium	190	198	4.12			
Beryllium	ND	ND	NC	342	400	85.5
Cadmium	ND	ND	NC	353	400	88.3
Calcium	39800	39100	1.77			
Chromium	ND	ND	NC	352	400	88.0
Cobalt	ND	ND	NC	350	400	87.5
Copper	ND	ND	NC	350	400	87.5
Iron	1920	1960	2.06			
Lead	0.993	ND	NC	369	400	92.0
Magnesium	13100	12900	1.54			
Manganese	382	375	1.85			
Nickel	ND	ND	NC	354	400	88.5
Potassium	4520	4440	1.79			
Selenium	ND	ND	NC	332	400	83.0
Silver	0.707	ND	NC	363	400	90.6
Sodium	59700	58600	1.86			
Thallium	ND	ND	NC	353	400	88.3
Vanadium	ND	ND	NC	362	400	90.5
Zinc	ND	ND	NC	363	400	90.8

SR = Sample Result
SDR = Sample Dilution Result
SPR = Sample Post Spike Result
SA = Spike Added

Control Limits: (+) or (-) 10% Difference or 80-120% Recovery

QC Sample1: E16-02166-001
QC Sample 1 for following samples:
02166-001; 02217-001~003; 02233-002; 02238-009
02264-002~003; 02271-001~002; 02282-002~006,008
02292-001~002

METALS INTERNAL STANDARD AREA SUMMARY
2016 PG135
March 16, 2016
Method: 6020A

	ISTD	Li-6 [2]		Ge-72 [1]		Ge-72 [2]		Rh-103 [2]		Tb-159 [2]		Bi-209 [2]	
002CALB.d	**BLANK**	**97830**		**13631**		**30186**		**218006**		**511303**		**398737**	
		Area Count	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**
	Lower Limit	**68481**	**70**	**9542**	**70**	**21130**	**70**	**152604**	**70**	**357912**	**70**	**279116**	**70**
	Upper Limit	**117396**	**120**	**16357**	**120**	**36223**	**120**	**261607**	**120**	**613564**	**120**	**478484**	**120**
003CALS.d	STD1	96038	98	13743	101	30364	101	217202	100	510385	100	404879	102
004CALS.d	STD2	96661	99	13299	98	29792	99	213179	98	506902	99	399473	100
005CALS.d	STD3	95871	98	13220	97	29440	98	210212	96	502223	98	397975	100
006CALS.d	STD4	92834	95	12952	95	29440	98	205037	94	492075	96	388037	97
007CALS.d	STD5	89436	91	12662	93	27647	92	204200	94	493591	97	385477	97
009_CCV.d	ICV	90594	93	12633	93	28167	93	206912	95	490679	96	389551	98
010LCCV.d	LLICV	90570	93	12273	90	28208	93	204297	94	486441	95	391181	98
011_ICB.d	ICB	90100	92	12640	93	28869	96	202686	93	484868	95	383435	96
012SMPL.d	BLKS160316-01	89810	92	12919	95	28772	95	206703	95	496348	97	391261	98
013SMPL.d	LCSS160316-01	91046	93	12775	94	28204	93	205070	94	491761	96	388360	97
014SMPL.d	E16-02238-005	90175	92	12480	92	28167	93	196814	90	475464	93	378859	95
015SMPL.d	E16-02238-005DUP	89113	91	12848	94	28178	93	200624	92	488725	96	379791	95
016SMPL.d	E16-02238-005SD	89001	91	12250	90	27796	92	192774	88	463989	91	367640	92
017SMPL.d	E16-02238-005MS	90651	93	12715	93	28379	94	206130	95	496884	97	388869	98
018SMPL.d	E16-02238-005PS	90395	92	12764	94	27417	91	200482	92	483007	94	379028	95
021SMPL.d	E16-02238-001	89150	91	12325	90	27592	91	201020	92	485130	95	376978	95
022_CCV.d	CCV	89369	91	12727	93	28375	94	203167	93	484746	95	381685	96
023_CCB.d	CCB	89487	91	12764	94	27692	92	198103	91	471770	92	372293	93
024SMPL.d	E16-02238-002	89572	92	11932	88	28089	93	202888	93	487212	95	379992	95
025SMPL.d	E16-02238-003	90447	92	12550	92	28456	94	197838	91	477626	93	376523	94
026SMPL.d	E16-02238-004	90950	93	12659	93	28628	95	198996	91	484258	95	375262	94
027SMPL.d	E16-02238-006	90849	93	12772	94	28349	94	199119	91	479880	94	372704	93
028SMPL.d	E16-02238-007	91125	93	12530	92	27529	91	198457	91	478240	94	373934	94
029SMPL.d	E16-02238-008	91184	93	11843	87	27781	92	197632	91	469091	92	372656	93
030SMPL.d	E16-02201-001	93064	95	12664	93	28731	95	202783	93	487820	95	378385	95
031SMPL.d	E16-02167-001	104190	107	13560	99	31978	106	219529	101	526678	103	400069	100
032SMPL.d	E16-02247-001	101713	104	14044	103	31652	105	224428	103	524940	103	402534	101
033SMPL.d	E16-02247-002	103977	106	12982	95	31815	105	224618	103	526216	103	406520	102
034_CCV.d	CCV	97804	100	13446	99	30717	102	214890	99	499064	98	388745	97
035_CCB.d	CCB	97617	100	13357	98	30561	101	219648	101	510752	100	399356	100

A* in last column indicates the analysis has failed QC criteria
Sample Limits = 70-120% of reference Standard (CAL BLANK L1)
QC Sample Limits = 80-120% of reference Standard (CAL BLANK L1)

[1] = [He]; [2] = [No Gas]
Ge-72 [1] = Na,Mg,Al,Si,K,Ca,Ti,V,Cr,Mn,Fe,Co,Ni,Cu,Zn,As,Se
Li-6 [2] = Be,B; Ge-72 [2] = Cd; Rh-103 [2] = Mo,Ag,Sn; Tb-159 [2] = Sb,Ba

METALS INTERNAL STANDARD AREA SUMMARY
2016 PG135
March 16, 2016
Method: 6020A

	ISTD	Li-6 [2]		Ge-72 [1]		Ge-72 [2]		Rh-103 [2]		Tb-159 [2]		Bi-209 [2]		
002CALB.d	**BLANK**	**97830**		**13631**		**30186**		**218006**		**511303**		**398737**		
		Area Count	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	
	Lower Limit	**68481**	**70**	**9542**	**70**	**21130**	**70**	**152604**	**70**	**357912**	**70**	**279116**	**70**	
	Upper Limit	**117396**	**120**	**16357**	**120**	**36223**	**120**	**261607**	**120**	**613564**	**120**	**478484**	**120**	
036SMPL.d	E16-02247-003	102168	104	13758	101	31140	103	221236	101	516011	101	398575	100	
037SMPL.d	E16-02247-004	102554	105	13414	98	31578	105	220104	101	512881	100	399768	100	
038SMPL.d	E16-02247-005	105087	107	14031	103	32525	108	228406	105	531240	104	412143	103	
039SMPL.d	E16-02247-006	103191	105	14261	105	31199	103	226527	104	524637	103	409185	103	
040SMPL.d	E16-02247-007	104728	107	13808	101	32205	107	228480	105	527566	103	408172	102	
041SMPL.d	E16-02247-008	104234	107	13888	102	32680	108	227827	105	531314	104	411456	103	
042SMPL.d	E16-02233-001	103175	105	13954	102	32305	107	221718	102	520903	102	400169	100	
044ICSA.d	ICSA	101120	103	13042	96	32012	106	199624	92	508163	99	363889	91	
045ICSB.d	ICSAB	110432	113	13627	100	33148	110	213679	98	542610	106	382588	96	
046_CCV.d	CCV	110018	112	13962	102	33285	110	231895	106	535878	105	417950	105	
047_CCB.d	CCB	107553	110	13902	102	31251	104	226649	104	524938	103	411198	103	

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Sample Limits = 70-120% of reference Standard (CAL BLANK L1)
QC Sample Limits = 80-120% of reference Standard (CAL BLANK L1)

[1] = [He]; [2] = [No Gas]
Ge-72 [1] = Na,Mg,Al,Si,K,Ca,Ti,V,Cr,Mn,Fe,Co,Ni,Cu,Zn,As,Se
Li-6 [2] = Be,B; Ge-72 [2] = Cd; Rh-103 [2] = Mo,Ag,Sn; Tb-159 [2] = Sb,Ba

METALS INTERNAL STANDARD AREA SUMMARY
2016 PG140
March 18, 2016
Method: 6020A

	ISTD	Li-6 [2]		Ge-72 [1]		Ge-72 [2]		Rh-103 [2]		Tb-159 [2]		Bi-209 [2]		
003CALB.d	**BLANK**	**362161**		**16711**		**102115**		**667140**		**1118946**		**794548**		
		Area Count	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	
	Lower Limit	**253513**	**70**	**11698**	**70**	**71480**	**70**	**466998**	**70**	**783262**	**70**	**556184**	**70**	
	Upper Limit	**434593**	**120**	**20053**	**120**	**122538**	**120**	**800568**	**120**	**1342735**	**120**	**953458**	**120**	
004CALS.d	STD1	371839	103	17134	103	102807	101	681034	102	1145710	102	811717	102	
005CALS.d	STD2	361191	100	15067	90	100701	99	661963	99	1118358	100	797071	100	
006CALS.d	STD3	357390	99	15906	95	99893	98	661161	99	1124871	101	790449	99	
007CALS.d	STD4	347998	96	16246	97	97674	96	646673	97	1097443	98	782270	98	
008CALS.d	STD5	348647	96	16288	97	97334	95	635160	95	1091180	98	770073	97	
010_CCV.d	ICV	359712	99	16338	98	99624	98	660905	99	1126832	101	797655	100	
011LCCV.d	LLICV	355318	98	16130	97	100638	99	652108	98	1117385	100	786689	99	
012_ICB.d	ICB	359644	99	15652	94	100109	98	667105	100	1129139	101	802914	101	
022SMPL.d	E16-02238-009	380213	105	17176	103	105612	103	692710	104	1169264	104	824045	104	
023_CCV.d	CCV	368912	102	16375	98	101517	99	673475	101	1138809	102	803309	101	
024_CCB.d	CCB	366226	101	16237	97	102613	100	678721	102	1145135	102	807527	102	
025SMPL.d	E16-02264-002	373039	103	16940	101	103375	101	677758	102	1145265	102	805427	101	
026SMPL.d	E16-02233-002	374978	104	17322	104	104866	103	680169	102	1137604	102	811409	102	
027SMPL.d	BLKA160317-01	367387	101	17243	103	103068	101	669189	100	1130159	101	805029	101	
028SMPL.d	LCSA160317-01	359956	99	16858	101	99753	98	648452	97	1097375	98	771092	97	
029SMPL.d	E16-02166-001	346850	96	15899	95	98849	97	624462	94	1079221	96	756981	95	
030SMPL.d	E16-02166-001DUP	349495	97	16280	97	96495	94	619836	93	1089120	97	753625	95	
031SMPL.d	E16-02166-001SD	356873	99	16097	96	101540	99	643105	96	1098628	98	778999	98	
032SMPL.d	E16-02166-001MS	349696	97	16350	98	98238	96	621073	93	1093420	98	748049	94	
033SMPL.d	E16-02166-001PS	353344	98	16194	97	100548	98	632988	95	1108345	99	767611	97	
035_CCV.d	CCV	360029	99	16199	97	101167	99	665495	100	1125789	101	797365	100	
036_CCB.d	CCB	362588	100	15671	94	100192	98	658100	99	1112899	99	786368	99	
038SMPL.d	E16-02292-001	360680	100	16609	99	100497	98	635750	95	1129752	101	770316	97	
039SMPL.d	E16-02292-002	369996	102	16264	97	100028	98	626944	94	1138304	102	749144	94	
040SMPL.d	E16-02217-001	375165	104	16485	99	103690	102	657996	99	1136797	102	789565	99	
041SMPL.d	E16-02292-002	372509	103	16672	100	104030	102	664104	100	1146967	103	789590	99	
042SMPL.d	E16-02217-002	363319	100	16773	100	101974	100	644093	97	1135461	101	787418	99	
043SMPL.d	E16-02217-003	351495	97	15234	91	97208	95	618287	93	1092368	98	755781	95	
044SMPL.d	E16-02264-003	353148	98	16360	98	100156	98	630853	95	1105970	99	773605	97	
045SMPL.d	E16-02271-001	364541	101	16801	101	102459	100	652302	98	1136316	102	801215	101	

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Ge-72 [1] = Na,Mg,Al,Si,K,Ca,Ti,V,Cr,Mn,Fe,Co,Ni,Cu,Zn,As,Se
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METALS INTERNAL STANDARD AREA SUMMARY
2016 PG140
March 18, 2016
Method: 6020A

	ISTD	Li-6 [2]		Ge-72 [1]		Ge-72 [2]		Rh-103 [2]		Tb-159 [2]		Bi-209 [2]		
003CALB.d	**BLANK**	**362161**		**16711**		**102115**		**667140**		**1118946**		**794548**		
		Area Count	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	**Area Count**	**% Rec**	
	Lower Limit	**253513**	**70**	**11698**	**70**	**71480**	**70**	**466998**	**70**	**783262**	**70**	**556184**	**70**	
	Upper Limit	**434593**	**120**	**20053**	**120**	**122538**	**120**	**800568**	**120**	**1342735**	**120**	**953458**	**120**	
046SMPL.d	E16-02271-002	367224	101	16433	98	103050	101	661027	99	1151884	103	799432	101	
047_CCV.d	CCV	360571	100	16487	99	103342	101	670929	101	1138087	102	797633	100	
048_CCB.d	CCB	363327	100	16388	98	103845	102	690459	103	1154691	103	816647	103	
049SMPL.d	E16-02282-002	352985	97	16702	100	101246	99	632965	95	1138066	102	761792	96	
050SMPL.d	E16-02282-003	355328	98	17100	102	101750	100	656060	98	1141952	102	789642	99	
051SMPL.d	E16-02282-004	350936	97	16449	98	98668	97	620498	93	1111102	99	751288	95	
052SMPL.d	E16-02282-005	353027	97	16085	96	102454	100	627567	94	1130350	101	759300	96	
053SMPL.d	E16-02282-006	360272	99	16132	97	99739	98	632898	95	1125474	101	771232	97	
054SMPL.d	E16-02282-008	363243	100	16453	98	103745	102	651946	98	1148529	103	785404	99	
056ICSA.d	ICSA	337822	93	16017	96	102736	101	593476	89	1129007	101	731323	92	
057ICSB.d	ICSAB	349073	96	16521	99	106923	105	618360	93	1169767	105	752132	95	
059_CCV.d	CCV	359729	99	16483	99	101713	100	668922	100	1137358	102	804810	101	
060_CCB.d	CCB	374920	104	16937	101	104932	103	692522	104	1198239	107	827891	104	

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Li-6 [2] = Be,B; Ge-72 [2] = Cd; Rh-103 [2] = Mo,Ag,Sn; Tb-159 [2] = Sb,Ba

SAMPLE TRACKING

Integrated Analytical Labs
273 Franklin Road
Randolph, NJ 07869

Chain of Custody Record

Contact Us: 973-361-4252
Fax: 973-989-5288
Web: www.ialonline.com

Customer Information

Company: JMC Environmental
Address: 2109 Bridge Ave Bldg B
PT Pleasant NJ 08742
Telephone #: 732-295-2144
Fax #: 732-295-2150
Project Manager: James Clabby
EMAIL Address: JClabby@JMCEnvironmental
Project Name: ARSYNCO
Project Location (State): NJ
Bottle Order #:
☐ "Report to"/"Invoice To" same as above
Sampled by: SK

Reporting Information

REPORT TO: JMC
Address:
Attn: James Clabby
FAX #
INVOICE TO: ALCO corp
Address: 4 TRI Harbor CT
Port Washington NY 11050
Attn: Ed Kelly
PO # 22126
Quote #

****Rush TAT Charge**

24 hr - 100%....
48 hr - 75%.... ✗
72 hr - 50%....
96 hr - 35%....
5 day - 25%....
6-9 day - 10%

Deliverables

NJ, CT, PA	NY
☐ Results Only	☐ ASP Category A
☒ Reduced	☐ ASP Category B*
☐ Regulatory/ Full*	

EDDs

☒ NJ SRP
☐ NYSDEC EQuIS
☐ lab approved custom EDD
☐ NO EDD REQ'D

Concentrations Expected:

Low Med High

These samples have been previously analyzed by IAL
☐ YES ☐ NO

Turn-Around Time (TAT)

Standard (10 business days) Verbal
Rush/date needed (only if pre-approved)** 48 hrs. ✗
Hard Copy: Std 3 week
Other - call for price

Petroleum Hydrocarbons - Selection is REQUIRED

☐ NJ EPH-DRO - Category 1
☐ NJ EPH-C40 - Category 2
☐ NJ EPH-Fractionated - Cat 2
TAT for PHC (if other than 2 weeks):
☐ DRO-8015

Regulatory Requirement

New Jersey	New York
☐ GWQS	☐ AWQS (TOGS Table 1)
☐ IGW	☐ GWEL (TOGS Table 5)
☒ SRS	☐ Part 375-6.8(a) - Unrestricted
☐ Ecological	☐ Part 375-6.8(b) - Restricted
☐ DW	☐ CP-51 Table 2 or 3 (selection required)
☐ SPLP	OTHER Reg. Req. (specify)

Sample Matrix

DW - Drinking Water
WW - Waste Water
GW - Groundwater
SW - Surface Water
LIQ - Liquid (Specify)
OI - Oil
S - Soil
SOL - Solid
SL - Sludge
W - Wipe
B - Biphasic

COMPLETED BY IAL:
_____ Field Sampling _____ Equipment Rental

SAMPLE INFORMATION

ANALYTICAL PARAMETERS (please note if contingent)

Client ID	Depth (ft only)	Sampling Date	Sampling Time	Matrix	# containers	IAL #	Pb								Sample Specific Notes:
IV-10 A		3/15/16	10:45	S	1	1	X								
FB		3/15/16	11:00		1	2	X								

Known Hazard: YES / NO
Describe:

Preservative (use code)
Container Type (use code)

Preservative Code: 1 = None, 2 = HCl, 3 = HNO3, 4 = MeOH, 5 = NaOH, 6 = H2SO4, 7 = Other

Container Code: A = Amber Glass, B = Plastic, C = Vial, D = Glass, E = EnCore, T = Terracore

Please print legibly and fill out completely. Samples cannot be processed and the turnaround time (TAT) will not start until any ambiguities have been resolved. TAT starts the following day if samples rec'd at lab > 5PM. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY IAL'S TERMS & CONDITIONS (found on rear of pink copy).

Carrier (check one :
☒ IAL Courier
☐ Client Courier
☐ FedEx/UPS***
***Tracking #:

Special Instructions/QC Requirements & Comments:
✗ Rush 48 hrs on Sample IV-10A only. Standard turn around on the Field blank

Relinquished by (Signature and Company)	Date	Time	Received by (Signature and Company)	Date	Time
[signature]	3/15/16	12:15	[signature]	3/15/16	12:15
[signature] / IAL	3/15/16	17:15	[signature]	3/15/16	17:15

FOR LAB USE ONLY
SDG #: 2233
Cooler Temp: 4 °C

IAL Rev 2/2014

LAB COPIES - WHITE & YELLOW; CLIENT COPY - PINK

Certification IDs: TNI (TNI01284); CT (PH-0699); NJ (14751); NY (11402); PA (68-00773).

PAGE: 1 of 1

Mar 18, 2016 @ 11:41

IAL
Integrated Analytical Laboratories LLC

PROJECT INFORMATION

RUSH

E16-02233: ARSYNCO

To: Jim Clabby
JMC Environmental Consultants
Fax: 1(732) 295-2150
EMail: jclabby@jmcenvironmental.com; ah

Report To

JMC Environmental Consultants
2109 Bridge Avenue
Building B
Point Pleasant, NJ 08742
Attn: Jim Clabby

Bill To

JMC Environmental Consultants
Aceto Corp.
4 Tri Harbor Court
Port Washington, NY 11050
Attn: Mr. Ed Kelly

Report Format	P.O. #	Received At Lab	TPHC Due	Verbal Due	Hardcopy Due
Reduced	22126	Mar 15, 2016 @ 17:15	NA	Mar 30, 2016	Apr 06, 2016 *

* Any ***Conditional or Hold*** status will delay final hardcopy report sent date.

Diskette Req. SRP TXT

**** QC Requirement (must meet):** NJ SRS

Lab ID	Client Sample ID	Depth	Sampling Time	Matrix	Unit	Field pH/Temp
02233-001	IV-10 A	NA	03/15/16@10:45	Soil	mg/Kg (ppm)	
02233-002	FB	NA	03/15/16@11:00	Aqueous	mg/L (ppm)	

Sample #	Test	Status	QA Method	TAT	Holding Time Expires
001	Lead - Pb	Analyze	6020A	RUSH 48 HRS	9/11/2016
002	Lead - Pb	Analyze	6020A	STD/2 WKS	9/11/2016

Project Notes:

NOTE 1 taken by Frank on 03/15/2016 06:36
48 HR TAT FOR SAMPLE #1, RESULTS DUE 3/18. STD TAT FOR SAMPLE #2, RESULTS DUE 3/29.

273 Franklin Road
Randolph, NJ 07869
Phone: 973 361 4252
Fax: 973 989 5288

IAL is a NELAP accredited lab (TNI01284) and maintains certification in Connecticut (PH-0699), New Jersey (14751), New York (11402), and Pennsylvania (68-00773).

INTEGRATED ANALYTICAL LABORATORIES, LLC

SAMPLE RECEIPT VERIFICATION

CASE NO: **E 16** **02233** CLIENT: JMC

COOLER TEMPERATURE: 2° - 6°C: ✓ (See Chain of Custody)

Comments

COC: (COMPLETE) / INCOMPLETE

KEY

✓ **= YES/NA**
✗ **= NO**

VOA received: (check one) ☐ Encore ☐ IGW - Methanol ☐ Terra Core ☐ No Preservative

✓	Bottles Intact	
✓	no-Missing Bottles	
✓	no-Extra Bottles	
✓	Sufficient Sample Volume	
✓	no-headspace/bubbles in VOs	
✓	Labels intact/correct	
✓	pH Check (exclude VOs)[1]	
✓	Correct bottles/preservative	
✓	Sufficient Holding/Prep Time[1]	
☐	Multiphasic Sample	
☐	Sample to be Subcontracted	
✓	**Chain of Custody is Clear**	

[1] All samples with "Analyze Immediately" holding times will be analyzed by this laboratory past the holding time. This includes but is not limited to the following tests: pH, Temperature, Free Residual Chlorine, Total Residual Chlorine, Dissolved Oxygen, Sulfite.

ADDITIONAL COMMENTS:

SAMPLE(S) VERIFIED BY: INITIAL [illegible] DATE 3/15/16

CORRECTIVE ACTION REQUIRED: **YES** ☐ (SEE BELOW) **NO** ☑

If COC is **NOT** clear, ***STOP*** until you get client to authorize/clarify work.

CLIENT NOTIFIED: YES ☐ Date/ Time: _____ NO ☐

PROJECT CONTACT:

SUBCONTRACTED LAB:

DATE SHIPPED:

ADDITIONAL COMMENTS:

VERIFIED/TAKEN BY: INITIAL VMB DATE 3/16

Laboratory Custody Chronicle

IAL Case No.

E16-02233

Client JMC Environmental Consultants

Project ARSYNCO

Received On 3/15/2016@17:15

Department: Metals			***Prep. Date***	***Analyst***	***Analysis Date***	***Analyst***
Lead - Pb	02233-001	Soil	3/16/16	Frank R.	3/17/16	Danielle
"	-002	Aqueous	3/17/16	Frank R.	3/18/16	Danielle

Integrated Analytical Labs ~ 273 Franklin Road, Randolph, NJ 07869 ~ (973) 361-4252 ~ Fax (973) 989-5288

LAST PAGE OF DOCUMENT