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TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

Tronox LLC, Henderson

SDG: 8304611 Lot #s: D9G080289, D9G100272, D9G100274, D9G110152, D9G110155, and D9G110159

Frank Hagar

Northgate Environmental Management, Inc. 1100 Quail Street Suite 102 Newport Beach, CA 92660

TestAmerica Laboratories, Inc.

Michael P. Phillips

Michael 20 thally

Project Manager

July 29, 2009

Case Narrative SDG 8304611

The samples presented in this report were submitted to TestAmerica by Northgate Environmental Management, Inc. from the Tronox/Henderson site. The samples were received according to documented sample acceptance procedures.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the methods summary page in accordance with the methods indicated.

The results apply only to the samples included in this report and meet all requirements of NELAC. All data have been reviewed for compliance with the laboratory QA/QC plan and have been found to be compliant with laboratory protocols, with the exception of any items noted below.

Sample Receiving

One sample was received under chain of custody at a temperature of 4.8°C on July 8, 2009, and was logged under lot D9G080289. One sample was received under chain of custody at a temperature of 4.3°C on July 10, 2009, and was logged under lot D9G100272. One sample was received under chain of custody at a temperature of 2.7°C on July 10, 2009, and was logged under lot D9G100274. Two samples were received under chain of custody at a temperature of 3.9°C on July 11, 2009, and were logged under lot D9G110152. One sample was received under chain of custody at a temperature of 3.9°C on July 11, 2009, and was logged under lot D9G110155. One sample was received under chain of custody at temperatures of 4.3°C and 2.4°C on July 11, 2009, and was logged under lot D9G110159. These lots are reported here under SDG 8304611.

Total and Dissolved Arsenic and Selenium – SW846 Method 6020/Collision Cell

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the methods. With the exception of sample D9G080289-001 (M-117B), all of the samples analyzed for Total Arsenic, Total Selenium, Dissolved Arsenic or Dissolved Selenium were diluted by a factor of 10X due to the sample matrix. The reporting limits have been adjusted relative to the dilutions required.

The method required MS/MSD was performed for Total Metals QC batch 9190110 using sample D9G080289-001 (M-117B) and all results were in control.

The method required MS/MSD was performed for Total Metals QC batch 9194272 using sample D9G100272-001 (M-120B) and all results were in control. Due to the high concentration of Arsenic in the parent sample and the possibility of the MS and MSD percent recoveries being outside the control limits, the results for Arsenic have been flagged with 'MSB'. However, as previously noted all results were within control.

The method required MS/MSD was performed for Dissolved Metals QC batch 9194274 using sample D9G110152-002 (M-10BDISS) and all results were in control.

Quality Control Definitions of Terms

Term	Definition
Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Laboratory Control Sample	A volume of reagent water for aqueous samples or a contaminant-free solid
and Laboratory Control	matrix (Ottawa sand) for soil and sediment samples which is spiked with
Sample Duplicate (LCS/LCSD)	known amounts of representative target analytes and required surrogates. A LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix
N	effects. An LCSD is a second Laboratory Control Sample.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MS/MSDs are carried throughout the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate	Organic constituents not expected to be detected in environmental media
	and are added to every sample and QC at a known concentration.
	Surrogates are used to determine the efficiency of the sample preparation and the analytical process.
Sample Duplicate	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Method Detection Limit "MDL"	The method detection limit is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from replicate analyses of low level standards in a typical representative matrix.
Reporting Limit "RL"	The TestAmerica reporting limit is normally the lowest level at which measurements become quantitatively meaningful, ie., the quantitation limit, which is approximately three times the MDL. Some projects require RLs that are less than the quantitation limit to achieve particular maximum contaminant levels (MCLs) or relevant and appropriate requirements (ARARs), but RLs cannot be less than the statistically determined MDL.

TestAmerica

Quality Control Definitions of Qualifiers

Qualifier	Definition
*	Surrogate or Relative Percent Difference (RPD) is outside control limits.
a	Spiked analyte recovery is outside control limits.
В	Organics: Method blank contamination. The associated method blank
	contains the target analyte at a reportable level.
	Inorganics: Estimated result. Result is less than the RL
COL	More than 40% difference between the primary and confirmation detector
	results. The lower of the two results is reported.
DIL	The concentration is estimated or not reported due to dilution.
E	Estimated result. Result concentration exceeds the calibration range.
G	Inorganics: Elevated reporting limit. The reporting limit is elevated due to
	matrix interference.
J	Organics: Estimated result. Result is less than RL
	Inorganics: Method blank contamination. The associated method blank
	contains the target analyte at a reportable level.
L	Serial dilution of a digestate in the analytical batch indicates that physical
	and chemical interferences are present
N	Spiked analyte recovery is outside stated control limits.
NC	The recovery and/or RPD were not calculated.
ND	The analyte was not detected at the MDL concentration and with a
	measurable degree of confidence can be said not to be present at or above
	the RL concentration.
p Q	Relative percent difference (RPD) is outside stated control limits.
Q	Elevated reporting limit. The reporting limit is elevated due to high analyte
	levels.
V	General Chemistry: Elevated reporting limit due to limited sample volume.
Wa	Post digestion spike recovery fell between 40-85% due to matrix
	interference.
Wb	Post digestion spike recovery fell between 115-150% due to matrix
	interference.
I	Percent recovery is estimated since the results exceeded the calibration
	range.
T1	A tentatively identified compound that did not generate a spectral match of
	80% or greater. Typically called "unknown"
T2	A tentatively identified compound with a spectral match of 80% or better
T3	A tentatively identified compound that was calibrated for by the lab, but not
	on the client target analyte list.
IC	Diluted due to high inorganic chloride.

TestAmerica

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
M-117B 07/06/09 10:37 001				
Arsenic	45	5.0	ug/L	SW846 6020
Selenium	1.8 B	5.0	ug/L	SW846 6020
	(Continued on next	t page)		

PARAMETER M-120B 07/07/09 08:45 (REPORTING LIMIT	G <u>UNITS</u>	ANALYTICAL METHOD
Arsenic		200	50	ug/L	SW846 6020
	(Contin	ued on next	page)		

PARAMETER M-103B 07/08/09 09:05 001		RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Arsenic		110	50	ug/L	SW846 6020
	(Continu	ued on next	; page)		

PARAMETER M-10B 07/10/09 11:45 001	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Arsenic M-10BDISS 07/10/09 11:45 002	140	50	ug/L	SW846 6020
Arsenic - DISSOLVED	100	50 - nage)	ug/L	SW846 6020

PARAMETER	RESULT	REPORTING LIMIT	G UNITS	ANALYTICAL METHOD
M-121B 07/10/09 07:45 001				
Arsenic	86	50	ug/L	SW846 6020
(Co	ntinued on next	page)		

8304611 : D9G110159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
M-118B 07/09/09 08:45 001				
Arsenic	57	50	ug/L	SW846 6020

TestAmerica

METHODS SUMMARY

8304611

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
ICP-MS (6020)	SW846 6020	SW846 3005A
ICP-MS (6020)	SW846 6020	SW846 3020A

References:

SW846

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

TestAmerica

METHOD / ANALYST SUMMARY

8304611

ANALYTICA METHOD	L ANALYST		ANALYST ID
SW846 602 SW846 602			4729 006929
Reference		·	006929
SW846	"Test Methods for Evaluating Solid Methods", Third Edition, November 1		al

8304611 : D9G080289

			SAMPLED	SAMP
WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
LF7HF	001	M-117B	07/06/09	10:37
			• •	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

(Continued on next page)

TestAmerica

8304611 : D9G100272

 WO #
 SAMPLE#
 CLIENT SAMPLE ID
 SAMP
 DATE
 TIME

 LGCN3
 001
 M-120B
 07/07/09
 08:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

8304611 : D9G100274

WO #	SAMPLE#	CLIENT SAMPLE		SAMP TIME
LGCQK	001	M-103B	07/08/09	09:05

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

8304611 : D9G110152

WO # S	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LGDJV	001	M-10B	07/10/09	
LGDJW	002	M-10BDISS	07/10/09	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

8304611 : D9G110155

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
LGDJ3	001	M-121B	07/10/09	07:45
	_			

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

8304611 : D9G110159

WO #	SAMPLE#	CLIENT SAMPLE		SAMP TIME
LGDKR	001	M-118B	07/09/09	08:45

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

D9G080289

		ANALYTICAL	LEACH	PREP	
SAMPLE#	MATRIX	METHOD	BATCH #	BATCH #	MS RUN#
001	WATER	SW846 6020		9190110	9190071

D9G100272

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 6020		9194272	9194161

D9G100274

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 6020		9194272	9194161

D9G110152

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 6020		9194272	9194161
002	WATER	SW846 6020		9194274	9194163

D9G110155

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 6020		9194272	9194161

D9G110159

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 6020		9194272	9194161

TestAmerica

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G080289</u>

Client: Northgate/Tronox

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

Total Matale Analysis

		MELAIS AHA SANIC ANAI	YSIS DATA PACKAGE	
Contract:	Northgate Environmental Manageme		SDG No.	: D9G080289
Lab Code:	Case No.:		SAS No.	:
SOW No.:	·			
	Sample ID.	Lal	Sample No.	
	M-117B	р90	3080289-001	
	M-117B MS	D90	3080289-001S	
	M-117B MSD	D90	3080289-001SD	
Were ICP i	nterelement corrections applied?		Yes/No	YES
Were TCP h	ackground corrections applied?		Yes/No	YES
	es-were raw data generated before		100/110	
_	ication of background corrections?		Yes/No	NO NO
Commonta				
Comments:				
<u> </u>				
		1.7-14.4		
I certify t	that this data package is in compliance	ce with the	terms and conditions of the	· B
contract, h	ooth technically and for completeness,	, for other	than the conditions detaile	ed
	lease of the data contained in this ha			
	on floppy diskette has been authorized the following signature.	n by the La	boratory manager or the mana	ager's designee, as
Signature:	sama Colli	Name:	Janice Collins	
Ī				
Date:	Jania Colli 7115109	Title:	Metals Analyst	
Jace	1 113 10 1	TTCTA:	Mercaro wigthor	· · · · · · · · · · · · · · · · · · ·

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Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Lot/SDG Number:

D9G080289

Client Sample ID: M-117B

D9G080289-001

Matrix:

Unit:

WATER

% Moisture:

<u>N/A</u>

LF7HF

Basis:

<u>Wet</u>

Date/Time Collected:

07/06/09 10:37

Date/Time Received:

Lab Sample ID:

Lab WorkOrder:

07/08/09 08:30

Analysis Method:

<u>6020</u>

Date Leached: Date/Time Extracted:

07/09/09 12:00

QC Batch ID:

ug/L 9190110

Date/Time Analyzed:

07/09/09 20:58

Sample Aliquot:

<u>50 mL</u>

1

Instrument ID:

<u>024</u>

Dilution Factor:

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	45	0.21	5.0	
7782-49-2	Selenium	1.8	0.70	5.0	В

Total Metals Analysis -2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	menta	l Management,	Inc.		
Lab Code:	Case	No.:		SAS No.:	SDG NO.:	D9G080289
Initial Cal	ibration Source:	High	Purity			
Continuing	Calibration Source:		Inorganic Ver	ntures	···	

Concentration Units: ug/L

	Initial Ca	libration		Contin	uing Calib	ation			Π
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic	40.0	40.1	100.2	50.0	49.1	98.2	49.2	98.4	l M
Selenium	40.0	41.8	3 104.5	50.0		103.6			+

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	mental Managem	ent, Inc.		
Lab Code:	Case	No.:	SAS No.:	SDG NO.:	D9G080289
Initial Cali	ibration Source:	High Purity		:	
Continuing (Calibration Source:	Inorganio	Ventures		
				·	

Concentration Units: ug/L

Initial Calibration			Continuing Calibration						
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic			1	50.0	49.7	99.4	48.8	97.6	М
Selenium	1			50.0	49.0	98.0	48.4	96.8	М

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2BCRDL STANDARD FOR AA AND ICP

Contract:	Northgate	Environmental	Management, Inc.		
Lab Code:		Case No.: _	SAS No.:	SDG No.:	D9G080289
3.3 CDDT C+					

AA CRDL Standard Source:

ICP CRDL Standard Source: Inorganic Ventures

Concentration Units: ug/L

CRDL Standard for AA			CRDL Standard for ICP Initial Final					
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.00	0.997	99.7		
Selenium				1.00	0.824	82.4		1

Comments:



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

D9G090000-110B

Lot/SDG Number:

D9G080289

Lab Sample ID:

Matrix:

Basis:

WATER

Lab WorkOrder:

<u>LF73C</u>

% Moisture:

Wet

Date/Time Collected: Date/Time Received:

Analysis Method:

<u>6020</u>

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/09/09 12:00

QC Batch ID:

9190110

Date/Time Analyzed:

07/09/09 20:52

Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

-		-	
Dil	ution	Factor:	

Factor:	1

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U

Total Metals Analysis

-3-

BLANKS

Contract:	Northgate Environmental Mana	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G080289
Preparation	Blank Matrix (soil/water):	WATER	: 	
Preparation	Blank Concentration Units (ug/I	L or mg/kg):	UG/L	

	Initial Calib. Blank			Con	tinuing (Blank (u		ion		Preparation Blank			
Analyte	(ug/L)	С	1	C	2	c	3	С		С	:	м
Arsenic	0.21	ט ס	0.210	ט	0.21	10 D L	0.210	ן ט	0.21	ט	M	
Selenium	0.70	ט ס	0.700	ויין	0.70	00 0	0.700	ש	0.70	ש	M	╗

Comments:

Total Metals Analysis

-3-

BLANKS

Contract:	Northgate Environmental Manag	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G080289
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug/L	or mg/kg):	UG/L	

Analyte	Initial Calib. Blank (ug/L) C		Continuing Calibration Blank (ug/L)						Preparation Blank			
		С	1	С	2	С	3	с		С		М
Arsenic	l		0.210	ן ט	······································				1	1	ΪĪ	м
Selenium	<u>I</u>		0.700	ן ט]]	М

Comments:

Total Metals Analysis

4

ICP INTERFERENCE CHECK SAMPLE

Contract:	Northgate Environmental	Management, Inc.		
Lab Code:	Case No.:	SAS No.:	-	SDG NO.: D9G080289
ICP ID Numb	er: Agilent 7500		ICS Source:	Inorganic Ventures

Concentration Units):

	True		Initi	al Found	Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.0	100.0	0.12	99.21	99.2			
Selenium	0.0	100.0	0.00	107.00	107.0		:	

ug/L



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-117B

Lot/SDG Number:

D9G080289

MS Lab Sample ID:

D9G080289-001S

Matrix:

WATER

MS Lab WorkOrder:

LF7HF

% Moisture:

07/06/09 10:37

Basis:

N/A <u>Wet</u> Date/Time Collected: Date/Time Received:

07/08/09 08:30

Analysis Method:

6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/09/09 12:00

QC Batch ID:

9190110

Date/Time Analyzed:

07/09/09 21:06

MS Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

MS Dilution Factor: 1

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	45		84.2		99		85 - 117
Selenium	40.0	1.8	В	42.0		101		77 - 122



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-117B

Lot/SDG Number:

D9G080289

MSD Lab Sample ID:

D9G080289-001D

Matrix:

<u>WATER</u>

MSD Lab WorkOrder:

LF7HF

% Moisture:

<u>N/A</u>

Date/Time Collected:

07/06/09 10:37

Basis:

<u>Wet</u>

Date/Time Received:

07/08/09 08:30

Analysis Method:

6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/09/09 12:00

QC Batch ID:

9190110

Date/Time Analyzed: **Instrument ID:**

07/09/09 21:09 <u>024</u>

MSD Sample Aliquot:

<u>50 mL</u>

MSD Dilution Factor:

A 1	Spike	Sample		MSD	6	a/ P		DDD		QC Lin	nits
Analyte	Amount	Result	C	Result	C	% Rec	Q	RPD	Q	% Rec	RPD
Arsenic	40.0	45	**	79.9		88		5.2		85 - 117	20
Selenium	40.0	1.8	В	38.0		91		9.8		77 - 122	20

Total Metals Analysis -5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

					M-117B E	PDS	
Contract:	Northgate	Environmental	Management, Inc.		<u> </u>		J
Lab Code:	·	Case No.:	SAS No.:		SDG NO.:	D9G080289	
Matrix (soi	.1/water):	WATER		Level	(low/med):	LOW	

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R Q	м
Arsenic	75 - 125	232.400	44.510	200.00	93.9	м
Selenium	75 - 125	200.500	1.779 B	200.00	99.4	М



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

Lot/SDG Number:

TESTAMERICA DENVER

Client Sample ID: Lab Sample ID:

D9G090000-110C

D9G080289

Matrix:

WATER

Lab WorkOrder:

LF73C

% Moisture:

<u>N/A</u>

Basis:

<u>Wet</u>

Date/Time Collected: Date/Time Received:

Analysis Method:

6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/09/09 12:00

QC Batch ID:

9190110

Date/Time Analyzed:

07/09/09 20:55

Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution Factor:

<u>1</u>

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	38.9	97		85 - 117
Selenium	40.0	39.5	99	:	77 - 122

Analyte

Arsenic

Selenium

Total Metals Analysis

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

ence

2.4

100.0

M

M

43.430

3.500 U

****					M-117B S	ER	
Contract:	Northgate	Environmental Manag	SAS No.:	: 1	EDG NO.: D	9G080289	
Matrix (so	il/water):	WATER		Level (low/m	ned): Lo	OW	
		Concentration	Units: ug/L		r		
		Initial Sample Result (I)	Serial Dilut: Result (S	_ -	% Differ-	.	

Result (I)

44.510

1.779 B

-10-

DETECTION LIMITS

Contract: Northga	te Environmental Manag	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G080289	
ICP ID Number: Ag	gilent 7500	Date: 4/23/2009	·	
Flame AA ID Number:				
Furnace AA ID Number	::		:	

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	М

Comments:					
•			**	****	 .
-	·	- 			
_					

ICP	LINEA	R RANGES	(QUARTERLY)
-----	-------	----------	-------------

Contract:	Northgate Environmental Manag	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G080289
ICP ID Numbe	er: Agilent 7500	Date: 7/7/2009		

Analyte	Integ. Time (Sec.)	Concentration ug/L	M
Arsenic	0.001	3600	М
Selenium	0.001	3600	М

Comments:			

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PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.		
Lab Code:		Case No.:		SAS No.:	SDG NO.:	D9G080289
Method:	MS	:	Prep Method:			

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
M-117B	7/9/2009	50.0	50.0
M-117B MS	7/9/2009	50.0	50.0
M-117B MSD	7/9/2009	50.0	50.0
MB9190110	7/9/2009	50.0	50.0
Check Sample	7/9/2009	50.0	50.0

ANALYSIS RUN LOG

Contract:	Northgate	Environmental	Management,	Inc.
-----------	-----------	---------------	-------------	------

Lab Code: _____ Case No.: SAS No.: SDG No.: D9G080289

Instrument ID Number: Agilent 7500 Method: M

Start Date: 7/9/2009 End Date: 7/9/2009

	1	 I	1	T									 .	1		 								_	_
Sample	D/F	Time	 % R				_	_		_	_		 	1y		 		:						_	
ID.				A L	S B	A S	B A	B E	D D	C A	C R	0	F E	P B	M G	H G	N	K	S E	A G	N A	T L	v	z N	
CAL BLANK	1.00	19:27				x													х						Г
100 PPB	1.00	19:30				x													х						
ICV	1.00	19:32				х													х						
ICB	1.00	19:38	l .			x													х						Г
RL STD	1.00	19:41				x													х						
ICSA	1.00	19:49				x													x						
RINSE	1.00	19:54				X													x						
LR	1.00	19:57				x													X						
RINSE	1.00	20:00				x													x						
ccv	1.00	20:02				x													x						
ССВ	1.00	20:05				x													x						
ICSAB	1.00	20:11				x													x						
RINSE	1.00	20:13				x													х						
ccv	1.00	20:16				X													X						
ССВ	1.00	20:19				x													X						
ccv	1.00	20:44				X													X						
CCB	1.00	20:47				x													X						
MB9190110	1.00	20:52				X													X						
Check Sample	1.00	20:55				X												:	Х						
M-117B	1.00	20:58				X													x						
M-117B SER	5.00	21:00				x												:	x						
M-117B PDS	1.00	21:03				x													x						
M-117B MS	1.00	21:06				х													x						
M-117B MSD	1.00	21:09				х							Ì						х			Ì			
ccv	1.00	21:11				х													х						
ССВ	1.00	21:14				х								Ī					х						Г

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G100272</u>

Client: <u>Northgate/Tronox</u>

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

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	COVER PAGE - INORG	GANIC ANA	LYSIS DATA PACKAGE	
Contract:	Northgate Environmental Manageme	ent, Inc.	SDG No.	: D9G100272
Lab Code:	Case No.:		SAS No.	:
SOW No.:				
	Sample ID.	La	b Sample No.	
	M-120B	D9	G100272-001	
	M-120B MS		G100272-001S	
	M-120B MSD		G100272-001SD	
Were ICP inte	erelement corrections applied?		Yes/No	YES
Were ICP back	ground corrections applied?		Yes/No	YES
	were raw data generated before			
applica	tion of background corrections?		Yes/No	NO
Comments:				
	t this data package is in compliance			
	h technically and for completeness, se of the data contained in this ha			
submitted on	floppy diskette has been authorized			
verified by t	he following signature.			
ı				
Signature:	amas Collin	Name:	Janice Collins	
(f)	•			
Date:	2/22/09	Title:	Metals Analyst	

COVER PAGE - IN



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-120B

Lot/SDG Number:

D9G100272

Lab Sample ID:

D9G100272-001

Matrix:

WATER

Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

llantad.

07/07/09 08:45

Basis:

Wet

Date/Time Collected:
Date/Time Received:

07/10/09 08:45

Analysis Method:

<u>6020</u>

Date Leached:

0=14.400 a=100

Unit: QC Batch ID: ug/L

Date/Time Extracted:

07/14/09 12:00 07/21/09 18:44

Sample Aliquot:

9194272 50 mL **Date/Time Analyzed: Instrument ID:**

<u>024</u>

Dilution Factor:

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	200	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Code: Case No.: SAS No.: SDG NO.: D9G100272 Initial Calibration Source: High Purity Continuing Calibration Source: Inorganic Ventures	Contract:	Northgate Environ	mental Man	agement, Inc.	
	Lab Code:	Case	No.:	SAS No.:	SDG NO.: D9G100272
Continuing Calibration Source: Inorganic Ventures	Initial Ca	libration Source:	High Puri	ty	
	Continuing	Calibration Source:	Inorg	ganic Ventures	

Concentration Units: ug/L

	Initial Ca	libration	i.	Continuing Calibration						
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м	
Arsenic	40.0	40.1	100.2	50.0	50.2	2 100.4	49.3	98.6	м	
Selenium	40.0	41.7	104.2	50.0	50.2	2 100.4	49.4	98.8	М	

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: North	gate Environ	mental Manag	gement, Inc.		
Lab Code:	Case	No.:	SAS No.:	SDG NO.:	D9G100272
Initial Calibratio	on Source:	High Purity	•		
Continuing Calibra	ation Source:	Inorga	nic Ventures		

Concentration Units: ug/L

	Initial	Calibration		Continuing Calibration					
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic				50.0	50.2	100.4	50.1	L 100.2	м
Selenium				50.0	50.2	100.4	50.6	5 101.2	М

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

Contract:	Northgate Env	rironmental Mana	gement, Inc.	_			
Lab Code:		Case No.:	SAS No.:		SDG No.:	D9G100272	
AA CRDL Sta	andard Source:						
ICP CRDL S	tandard Source:	Inorganic V	/entures				

Concentration Units: ug/L

	CRDL Sta	andard for AA		CRDL Standard for ICP Initial Final					
Analyte	True	Found	%R		True	Found	%R	Found	%R
Arsenic				Ti	1.00	1.038	103.8		
Selenium				Πİ	1.00	0.816	81.6		



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID: Lab Sample ID:

D9G130000-272B

Lot/SDG Number:

D9G100272

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

Date/Time Collected:

Basis:

Unit:

<u>Wet</u>

Date/Time Received:

Analysis Method:

6020

Date Leached:

07/14/09 12:00

QC Batch ID:

ug/L 9194272 Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:39

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

Dilution Factor:

1

CAS No.	Analyte	Conc.	MDL	RL	Q	
7440-38-2	Arsenic	0.21	0.21	5.0	U	
7782-49-2	Selenium	0.70	0.70	5.0	U	

-3-

BLANKS

Contract:	Northgate Environmental Ma	nagement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G100272
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (up	g/L or mg/kg):	UG/L	

	Initial Calib. Blank			Co	ntinuing Cal Blank (ug/		ration	·	Preparation Blank			
Analyte	(ug/L)	c	1	C	2	С	3	С		С		м
Arsenic	0.210	ט	0.210	ן ט	0.210	ט	0.210	ס	0.21	Ū	П	М
Selenium	0.700	ט	0.700	ט	0.700	ט	0.700	ט	0.70	ט	Π	М

-3-

BLANKS

Contract:	Northgate Environmental	Management, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G100272
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units	(ug/L or mg/kg):	UG/L	

Initial Calib. Blank				Preparation Blank								
Analyte	(ug/L)	С	1	C	2	С	3	С		C	$\ \ $	М
Arsenic	l		0.210	اتا							Π	М
Selenium	l		0.700	ן ט							Ħ	м

Selenium

Total Metals Analysis

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract:	Northgate Environmental Man	agement, Inc.	
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G100272
ICP ID Numb	per: Agilent 7500	ICS Source	ce: Inorganic Ventures

	True		Init	ial Found		Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R	
Arsenic	0.0	100.0	0.41	100.30	100.3		1	1	

0.21

108.70

108.7

ug/L

Concentration Units):

100.0

0.0



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-120B

Lot/SDG Number:

D9G100272

MS Lab Sample ID:

D9G100272-001S

Matrix:

WATER

MS Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

Basis:

Date/Time Collected:

07/07/09 08:45

Unit:

<u>Wet</u>

Date/Time Received: Date Leached:

07/10/09 08:45

Analysis Method:

<u>6020</u>

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

ug/L

Date/Time Analyzed:

07/21/09 18:52

MS Sample Aliquot:

9194272 50 mL

<u>10</u>

Instrument ID:

<u>024</u>

MS Dilution Factor:

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	200		234	MSB	91		85 - 117
Selenium	40.0	7.0	U	44.3		98		77 - 122



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-120B

Lot/SDG Number:

D9G100272

MSD Lab Sample ID:

D9G100272-001D

Matrix:

WATER

MSD Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

SD Lab WorkOrder

07/07/09 08:45

Basis:

Wet

Date/Time Collected:
Date/Time Received:

07/10/09 08:45

Analysis Method:

6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00 07/21/09 19:03

QC Batch ID:

<u>9194272</u>

Date/Time Analyzed: Instrument ID:

024

MSD Sample Aliquot: MSD Dilution Factor:

50 mL 10

Amalada	Spike	Sample	C	MSD		A/ P			-	QC Lin	nits
Analyte	Amount	Result	C	Result	C	% Rec	Q	RPD	Q	% Rec	RPD
Arsenic	40.0	200		238	MSB	99		1.4		85 - 117	20
Selenium	40.0	7.0	U	48.4		109		8.8	:	77 - 122	20

Lab Code:

Total Metals Analysis -5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

Contract: Northgate Environmental Management, Inc. Case No.:

SAS No.:

SDG NO.: D9G100272

Matrix (soil/water):

WATER

Level (low/med):

LOW

Concentration Units:

ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R	Q	м
Arsenic	75 - 125	221.600	19.810	200.00	100.9		М
Selenium	75 - 125	205.800	0.700 U	200.00	102.9		М

Commence.	



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

Lot/SDG Number:

TESTAMERICA DENVER

D9G100272

Client Sample ID: Lab Sample ID:

D9G130000-272C

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

N/A

Date/Time Collected:

Basis:

Wet

Date/Time Received:

Analysis Method:

6020

Date Leached:

Unit:

TestAmerica

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 18:41

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

Dilution Factor:

1

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	41.3	103		85 - 117
Selenium	40.0	40.2	101		77 - 122

-9-ICP SERIAL DILUTIONS

SAMPLE NO.

Contract:	Northgate	Environmental	Management,	Inc.		M-120B	SER
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G100272
Matrix (soi	l/water):	WATER			Level	(low/med):	LOW

Concentration Units:

ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S)	c	% - Differ- ence	Q	м
Arsenic	19.810		19.490 B	1.6		М
Selenium	0.700 U		3.500 ປັ	:		М

-10-

DETECTION LIMITS

Contract: North	ngate Environmental Mana	gement, Inc.	
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G100272
ICP ID Number:	Agilent 7500	Date: 4/23/2009	· ·
Flame AA ID Numbe	er:		
Furnace AA ID Num	mber:		:

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	M

Comments:			

Total Metals Analysis -12-ICP LINEAR RANGES (QUARTERLY)

Contract:	Northgate Env	rironmental	Management, Inc	:.				
Lab Code:		Case No.:	SAS N	io.:		SDG NO.:	D9G100272	
ICP ID Numbe	er: Agilent	7500	Date	B:	7/7/2009		:	
	-		1					

Analyte	Integ. Time (Sec.)	Concentration ug/L	М
Arsenic	0.001	3600	М
Selenium	0.001	3600	M

Comments:		_	•

-13-

PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.			
Lab Code:		Case No.:		SAS No.:	SDG NO.:	D9G100272	
Method:	MS	1	Prep Method:		 		

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
M-120B	7/14/2009	50.0	50.0
M-120B MS	7/14/2009	50.0	50.0
M-120B MSD	7/14/2009	50.0	50.0
MB9194272	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

ANALYSIS RUN LOG

COLLCE GCC.	NOI chigace	titi a T.T. Ottrie it ca't	management,	THC.

Instrument ID Number: Agilent 7500 Method: M

Start Date: 7/21/2009 End Date: 7/21/2009

																				_							
Sample	D/F	Time	 % R											Ana	ly	es	3										
ID.	D/F	Time	% K	A L	S B	A S	B A	BE	п	C A	C R	С 0	C U	FE	P B	M G	M N	H G	N	K	S E	A G	N A	Т	v	Z	
CAL BLANK	1.00	17:28				х															х						
100 PPB	1.00	17:31				Х				•						·					х						
ICV	1.00	17:33				х															х				\Box		
ICB	1.00	17:39				х															х						
RL STD	1.00	17:42				х															х				П		
ICSA	1.00	17:50				х															х				\Box		
ICSAB	1.00	17:53				x															х						
RINSE	1.00	17:55				x															x						
LR	1.00	17:58				x															х						
RINSE	1.00	18:00				х															Х						
ccv	1.00	18:03				x															x						
ССВ	1.00	18:06				x															x						
ccv	1.00	18:30				x															x						
ССВ	1.00	18:33				x															x						
MB9194272	1.00	18:39				х															x						
Check Sample	1.00	18:41	!			Х															x						
M-120B	10.00	18:44				x															x						
M-120B SER	50.00	18:47				X															x						
M-120B PDS	1.00	18:50				x															x						
M-120B MS	10.00	18:52				X														:]	x						
ccv	1.00	18:55				X															X						
ССВ	1.00	18:58				X															X						
M-120B MSD	10.00	19:03				x															x						
ccv	1.00	19:17				x															x						
CCB	1.00	19:20				x															x						

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G100274</u>

Client: Northgate/Tronox

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

		GANIC ANAL	YSIS DATA PACKAGE	
Contract:	Northgate Environmental Manageme	ent, Inc.	SDG No.:	D9G100274
Lab Code:	Case No.:		SAS No.:	
SOW No.:				
	Sample ID.	Lab	Sample No.	
	М-103В	<u>D90</u>	3100274-001	
Were ICP i	nterelement corrections applied?		Yes/No	YES
	ackground corrections applied?		Yes/No	YES
	es-were raw data generated before			
app1	ication of background corrections?		Yes/No	NO
Comments:				
			; 	
contract, above. Re	that this data package is in compliand both technically and for completeness, lease of the data contained in this ha	, for other ardcopy data	than the conditions detailed a package and in the computer	r-readable data
	on floppy diskette has been authorized y the following signature.	a by the Lar	ooratory manager or the manager	jer's designee, as
_	1			
Signature:	James Colles	Name:	Janice Collins	
Date:	Jania Collin 7122109	Title:	Metals Analyst	

COVER PAGE - IN



Northgate Environmental Management, Inc. Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-103B

Lot/SDG Number:

D9G100274

Lab Sample ID:

D9G100274-001

Matrix:

WATER

Lab WorkOrder:

LGCQK

% Moisture:

<u>N/A</u>

<u>LGC</u>

Basis:

Wet

Date/Time Collected:
Date/Time Received:

07/08/09 09:05 07/10/09 08:45

Analysis Method:

<u>6020</u>

Date Leached:

Unit: QC Batch ID: ug/L 9194272 **Date/Time Extracted:**

07/14/09 12:00 07/21/09 19:06

Sample Aliquot:

<u>50 mL</u>

Date/Time Analyzed: Instrument ID:

024

Dilution Factor:

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	110	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environm	ental Managemer	nt, Inc.		
Lab Code:	Case I	No.:	SAS No.:	SDG NO.:	D9G100274
Initial Cal	ibration Source: F	ligh Purity			
Continuing	Calibration Source:	Inorganic	Ventures	1	

Concentration Units: ug/L

	Initial Ca	libration		Contin	uing Calib	ration			
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic	40.0	40.1	. 100.2	50.0	50.2	100.4	49.3	98.6	М
Selenium	1 40.0	41.7	104.2	50.0	50.2	100.4	49.4	98.8	М

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	nenta	l Management, Inc.	: 	
Lab Code:	Case	No.:	SAS No	SDG NO.:	D9G100274
Initial Cal	ibration Source:	High	Purity	· · · · · · · · · · · · · · · · · · ·	
Continuing	Calibration Source:		Inorganic Ventures	;	
		_			

Concentration Units: ug/L

	Initial	Calibration		Contin	uing Calib	ration			
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic		Ī	1 1	50.0	50.2	100.4	50.	1 100.2	М
Selenium				50.0	50.2	100.4	50.	6 101.2	М

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

Contract:	Northgate Env	rironmental Mana	gement, Inc.	_		
Lab Code:		Case No.:	SAS No.:		SDG No.:	D9G100274
AA CRDL Sta	ndard Source:					
ICP CRDL St	andard Source:	Inorganic V	Ventures			

Concentration Units: ug/L

	CRDL St	andard for AA		In	CRDL Standa itial	rd for I	CP Final	
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	i i			1.00	1.038	103.8		
Selenium	1			1.00	0.816	81.6	:	



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID: Lab Sample ID:

D9G130000-272B

Lot/SDG Number:

D9G100274

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

Wet

Date/Time Collected:

Date/Time Received:

Basis: Analysis Method:

6020

Date Leached:

07/14/09 12:00

Unit:

ug/L

Date/Time Extracted:

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 18:39

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

Dilution	Factor:	1

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U

-3-

BLANKS

Contract:	Northgate Environmental Man	nagement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G100274
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug	g/L or mg/kg):	UG/L	

	Initial Calib. Blank		Continuing Calibration Blank (ug/L)						Preparation Blank			
Analyte	(ug/L)	С	1	C	2	C	3	С	İ	С	4	MI
Arsenic	0.210	ן ט ו	0.210	ט	0.210	ן ט	0.210	ט	0.21	υ	М	
Selenium	0.700	ט ט	0.700	ן ט	0.700	ט	0.700	ט	0.70	ΰ	М	

-3-

BLANKS

Contract:	Northgate Environmental	Management, Inc.			
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G100274	
Preparation	Blank Matrix (soil/water):	WATER	:		
Preparation	Blank Concentration Units	(ug/L or mg/kg):	UG/L		

	Initial Calib. Blank		Continuing Calibration Blank (ug/L)						Preparation Blank			
Analyte	(ug/L)	С	1	C	2	С	3	С		С		M
Arsenic	i		0.210	ן ט	****	11			i	Ī		M
Selenium			0.700	ן ט		11				i]]	M

1_

ICP INTERFERENCE CHECK SAMPLE

ab Code:	Case No.:	SAS No.:	SDG NO.: D9G100274
CP ID Number:	Agilent 7500	ıcs	Source: Inorganic Ventures
			·

Concentration Units): ug/L

True		Initial Found			Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.0	100.0	0.41	100.30	100.3			
Selenium	0.0	100.0	0.21	108.70	108.7			İ



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G100274

MS Lab Sample ID:

D9G100272-001S

Matrix:

WATER

MS Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

S Lab WorkOrder.

07/07/09 08:45

Basis:

Wet

Date/Time Collected: Date/Time Received:

07/10/09 08:45

Analysis Method:

<u>6020</u>

Date Leached:

7710707 00.10

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 18:52

MS Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

MS Dilution Factor: 10

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	200		234	MSB	91		85 - 117
Selenium	40.0	7.0	U	44.3		98		77 - 122



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G100274

MSD Lab Sample ID:

D9G100272-001D

Matrix:

WATER

MSD Lab WorkOrder:

% Moisture:

N/A

LGCN3

Basis:

Date/Time Collected: Date/Time Received:

07/07/09 08:45

<u>Wet</u>

Date Leached:

07/10/09 08:45

Analysis Method: Unit:

<u>6020</u> ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 19:03

MSD Sample Aliquot:

<u>50 mL</u>

<u>10</u>

MSD Dilution Factor:

Instrument ID:

<u>024</u>

	Spike	Sample	C	MSD		a (=				QC Lin	nits
Analyte	Amount	Result	C	Result	"	% Rec	Q	RPD	Q	% Rec	RPD
Arsenic	40.0	200		238	MSB	99		1.4		85 - 117	20
Selenium	40.0	7.0	U	48.4		109		8.8		77 - 122	20

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

Contract:	Northgate	Environmental	Management,	Inc.		INTRA-LA	B QC PDS
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G100274
Matrix (soi	1/water):	WATER			Level	(low/med):	FOM

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R Q	м
Arsenic	75 - 125	221.600	19.810	200.00	100.9	М
Selenium	75 - 125	205.800	0.700 U	200.00	102.9	М



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

D9G130000-272C

Lot/SDG Number:

D9G100274

Lab Sample ID:

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

<u>N/A</u>

Date/Time Collected:

Basis:

Unit:

Wet

Date/Time Received:

Analysis Method:

<u>6020</u>

Date Leached:

07/14/09 12:00

QC Batch ID:

ug/L

Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:41

Sample Aliquot:

9194272 <u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution Factor:

1

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	41.3	103		85 - 117
Selenium	40.0	40.2	101		77 - 122

Arsenic

Selenium

Total Metals Analysis

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

19.490 B

3.500 ប

Cont	ract:	Northgate	orthgate Environmental Management, Inc.				INTRA-LAB QC SER					
Lab (Code:		Case No.:		SAS No.:		SD	G NO.:	D9G1	0027	4	
Matr	iж (soi	1/water):	WATER	ı		Level	(low/med	i):	FOM			
			Concentration	Units:	ug/	L						
	Anal	yte	Initial Sample Result (I)		Serial Dil		G	% Diffe	er-			

19.810

0.700 U

-10-

DETECTION LIMITS

Contract: North	ngate Environmental Mana	gement, Inc.	
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G100274
ICP ID Number:	Agilent 7500	Date: 4/23/2009	:
Flame AA ID Numbe	er:		
Furnace AA ID Num	ber:		

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	М

Comments:	
	· ···········
	:

Total Metals Analysis -12-ICP LINEAR RANGES (QUARTERLY)

Cont	ract:	Northgate Env	ironmental	Management, Inc.				
Lab (Code:		Case No.:	SAS No.:		SDG NO.:	D9G100274	
ICP I	D Numbe	er: Agilent	7500	Date:	7/7/2009		:	

Analyte	Integ. Time (Sec.)	Concentration ug/L	м
Arsenic	0.001	3600	М
Selenium	0.001	3600	М

Comments:	
	:

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PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.				
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G100274	·
Method:	MS		Prep Method:		T			

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
INTRA-LAB QC	7/14/2009	50.0	50.0
LAB MS/MSD MS	7/14/2009	50.0	50.0
LAB MS/MSD MSD	7/14/2009	50.0	50.0
M-103B	7/14/2009	50.0	50.0
MB9194272	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

ANALYSIS RUN LOG

Contract:	Northgate Environmental M	lanagement, Inc.		
Lab Code:	Case No.	: SAS No.:	SDG No.:	D9G100274

Instrument ID Number: Agilent 7500 Method: M

Start Date: 7/21/2009 End Date: 7/21/2009

7/21/2								Jac		_													
Sample		mi									Ana	ılyı	es	3									
ID.	D/F	Time	% R	A L	S B		BE	C A	C R		F E			M	H G	N	ĸ	S	N A	T L	V	z N	C N
CAL BLANK	1.00	17:28				x												х					
100 PPB	1.00	17:31				х												х					
ICV	1.00	17:33				x												х					
ICB	1.00	17:39				x												х					
RL STD	1.00	17:42				x												x					
ICSA	1.00	17:50				x												х					
ICSAB	1.00	17:53				x												x					
RINSE	1.00	17:55				X												x					
LR	1.00	17:58				x												X					
RINSE	1.00	18:00				x												х					
CCV	1.00	18:03				x							i					x					
ССВ	1.00	18:06				X												X					
ccv	1.00	18:30				X												X					
ССВ	1.00	18:33				X											-	x					
MB9194272	1.00	18:39				x												x					
Check Sample	1.00	18:41				x												X					
INTRA-LAB QC	10.00	18:44				x											:	x					
INTRA-LAB QC SER	50.00	18:47				x												X					
INTRA-LAB QC PDS	1.00	18:50				x											:	x					
LAB MS/MSD MS	10.00	18:52				x												X					
ccv	1.00	18:55				x												x					
ССВ	1.00	18:58				X												х					
LAB MS/MSD MSD	10.00	19:03				x												х					
M-103B	10.00	19:06				X												x					
ccv	1.00	19:17				x												x					
CCB	1.00	19:20				x												х	\neg				_

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G110152</u>

Client: Northgate/Tronox

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

	COVER PAGE - INORG			D9G110152
Contract:	Northgate Environmental Managemen	nt, Inc.	SDG No.:	D9G110152
Lab Code:	Case No.:		SAS No.:	
sow No.:				
	Sample ID.	Lak	Sample No.	
	M-10B	<u>D90</u>	G110152-001	
Were ICP in	terelement corrections applied?		Yes/No	YES
Were TCP ha	ckground corrections applied?		Yes/No	YES
	s-were raw data generated before			
appli	cation of background corrections?		Yes/No	NO
Comments:				
			· · · · · · · · · · · · · · · · · · ·	
I certify t	hat this data package is in complianc	e with the	terms and conditions of the	
contract, be	oth technically and for completeness, ease of the data contained in this ha	for other	than the conditions detaile	đ
submitted o	n floppy diskette has been authorized	by the La	boratory Manager or the Mana	ger's designee, as
verified by	the following signature.			
Signature	h := (11:	Name:	Janice Collins	
Signature:	James Com	evenue i	CAUTOR COTTING	
Date:	Jania Colli 7123109	Title:	Metals Analyst	

COVER PAGE - IN



${\bf Northgate\ Environmental\ Management,\ Inc.}$

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-10B

Lot/SDG Number:

D9G110152

Lab Sample ID:

D9G110152-001

Matrix:

WATER

Lab WorkOrder:

<u>LGDJV</u>

% Moisture:

N/A

Date/Time Collected:

07/10/09 11:45

Basis:

Wet

Date/Time Received:

07/11/09 08:30

Analysis Method:

<u>6020</u>

Date Leached:

07/14/09 12:00

Unit: QC Batch ID: ug/L 9194272 Date/Time Extracted:
Date/Time Analyzed:

<u>07/21/09 12:00</u> <u>07/21/09 19:09</u>

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

Dilution Factor:

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	140	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Northgate Environmental Management, Inc. Lab Code: Case No.: SAS No.: SDG NO.: D9G110152 Initial Calibration Source: High Purity Continuing Calibration Source: Inorganic Ventures						
Lab Code:	Case	No.:	SAS No.:	SDG	NO.:	D9G110152
Initial Cal	ibration Source:	High	Purity			
Continuing	Calibration Source:		Inorganic Ventures			

Concentration Units: ug/L

	Initial Ca	libration		Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м		
Arsenic	40.0	40.1	100.2	50.0	50.2	100.4	49.3	98.6	М		
Selenium	40.0	41.7	104.2	50.0	50.2	100.4	49.4	98.8	М		

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Northo	ate Environme	ental Management,	Inc.		
Lab Code:	Case 1	No.:	SAS No.:	 SDG NO.:	D9G110152
Initial Calibratio	n Source: H	ligh Purity			
Continuing Calibra	tion Source:	Inorganic Ver	atures		

Concentration Units: ug/L

	Initial	Calibration	·	Contin	uing Calibr	ation		-	
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic				50.0	50.2	100.4	50	1 100.2	L M
Selenium				50.0		100.4		6 101.2	

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

ICP CRDL Standard Source:

Total Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

Contract:	Northgate En	vironmental Man	agement, Inc.		
Lab Code:		Case No.:	SAS No.:	SDG No.:	D9G110152
AA CRDL Sta	ndard Source:			·	

Concentration Units: ug/L

Inorganic Ventures

	CRDL St	Init	CRDL Standa:	rd for I	CP Final			
Analyte	True	Found	%R	True	Found	%R	Found	%R
Arsenic	ĺ	1	1	1.00	1.038	103.8		
Selenium				1.00	0.816	81.6		



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID: Lab Sample ID:

D9G130000-272B

Lot/SDG Number:

D9G110152

Lab WorkOrder:

Matrix:

Basis:

Unit:

WATER

LGEER

% Moisture:

Wet

Date/Time Collected:

Analysis Method:

6020

Date/Time Received:

ug/L

Date Leached:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:39

Sample Aliquot:

50 mL

Instrument ID:

024

Dilution Factor:

1

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U

-3-

BLANKS

Contract:	Northgate Environmental M	anagement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G110152
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug/L or mg/kg):	UG/L	

Initial Calib. Blank				Cor	ntinuing Cal Blank (ug,	Preparation Blank					
Analyte	(ug/L) C	С	1	С	2	С	3	С		С	м
Arsenic	0.210	ן ט ן	0.210	ן ש	0.210	ט	0.210	ט	0.21	υ	M
Selenium	0.700	ט	0.700	ן ט	0.700	ט	0.700	ט	0.70	U	M

-3-

BLANKS

Contract:	Northgate Environmental M	Management, Inc.			
Lab Code:	Case No.:	SAS No.:		SDG NO.:	D9G110152
Preparation	Blank Matrix (soil/water):	WATER			
Preparation	Blank Concentration Units ((ug/L or mg/kg):	UG/L		

Initial Calib. Blank			Continuing Calibration Blank (ug/L)						Preparation Blank			
Analyte	(ug/L)	c	1	C	2	С	3	c		C		M
Arsenic		ı i	0.210	ן ט					İ	I	N	M
Selenium		11	0.700	ן ט		Ti		iii		İ	M	Μ

4_

ICP INTERFERENCE CHECK SAMPLE

Contract:	Northgate Environmental Man	agement, Inc.	
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G110152
ICP ID Numb	er: Agilent 7500	ICS Source	ce: Inorganic Ventures

Concentration Units):

ug/L

	True		Initi	al Found		Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R	
Arsenic	0.0	100.0	0.41	100.30	100.3		:		
Selenium	0.0	100.0	0.21	108.70	108.7				



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110152

MS Lab Sample ID:

D9G100272-001S

Matrix:

WATER

MS Lab WorkOrder: Date/Time Collected:

LGCN3

% Moisture: Basis:

<u>N/A</u> Wet 07/07/09 08:45

Analysis Method:

<u>6020</u>

07/10/09 08:45

Unit:

ug/L

Date Leached:

Date/Time Received:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:52

MS Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

MS Dilution Factor:

<u>10</u>

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	200		234	MSB	91		85 - 117
Selenium	40.0	7.0	U	44.3		98		77 - 122



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110152

MSD Lab Sample ID:

D9G100272-001D

Matrix:

WATER

MSD Lab WorkOrder:

LGCN3

% Moisture:

07/07/09 08:45

Basis:

N/A <u>Wet</u> **Date/Time Collected:** Date/Time Received:

07/10/09 08:45

Analysis Method:

6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 19:03

MSD Sample Aliquot:

<u>50 mL</u>

<u>10</u>

Instrument ID:

<u>024</u>

MSD Dilution Factor:

	Spike	Sample	-	MSD		A/ T		DDD	-	QC Lin	aits
Analyte	Amount	Result	C	Result	C	% Rec	Q	RPD	, Q	% Rec	RPD
Arsenic	40.0	200		238	MSB	99		1.4	:	85 - 117	20
Selenium	40.0	7.0	U	48.4		109		8.8		77 - 122	20

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

	Contract:	Northgate	Environmental	Management.	Inc.		INTRA-LA	AB QC PDS	
Matrix (soil/water): WATER Level (low/med): LOW	Lab Code:						SDG NO.:	D9G110152	
	Matrix (soi	1/water):	WATER			Level	(low/med):	LOW	

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R	Q	м
Arsenic	75 - 125	221.600	19.810	200.00	100.9		М
Selenium	75 - 125	205.800	0.700 ט	200.00	102.9		М



Northgate Environmental Management, Inc. Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

Lot/SDG Number:

D9G110152

Lab Sample ID:

D9G130000-272C

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

<u>N/A</u>

Date/Time Collected:

Basis:

Wet

Date/Time Received:

Analysis Method:

<u>6020</u>

Date Leached:

07/14/09 12:00

Unit:

ug/L

Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:41

QC Batch ID: Sample Aliquot: 9194272 50 mL

Instrument ID:

024

Dilution Factor:

1

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	41.3	103		85 - 117
Selenium	40.0	40.2	101	:	77 - 122

-9-ICP SERIAL DILUTIONS

SAMPLE NO.

Contract:	Northgate	Environmental Mana	gement	, Inc.			INTRA	-LAB	QC S	ER		
Lab Code:		Case No.:		SAS No.:			SDG 1	10.:	D9G1	1015	2	_
Matrix (soi	1/water):	WATER				Level	(low/med):		LOW			
		Concentration	Units:	uş	g/L							
,					***************************************		<u> </u>	٥,				

Analyte	Initial Sample Result (I)	Serial Dilution Result (S)	c	% Differ- ence	Q	м
Arsenic	19.810		19.490 B	1.6		М
Selenium	0.700 U		3.500 U			М

Comments:	

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DETECTION LIMITS

IIOnnental Management,	Inc.		
Case No.:	SAS No.:	SDG NO.:	D9G110152
7500	Date: 4/23/2009		
•	Case No.:	Case No.: SAS No.:	

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	M

Comments:			

Total Metals Analysis -12-ICP LINEAR RANGES (QUARTERLY)

Con	tract:	Northgate	Environmental	Management, Inc.				
Lab	Code:		Case No.:	SAS No.:		SDG NO.:	D9G110152	
ICP	ID Numb	er: Agil	ent 7500	Date:	7/7/2009			

Analyte	Integ. Time (Sec.)	Concentration ug/L	м
Arsenic	0.001	3600	м
Selenium	0.001	3600	М

Comments:		

-13-

PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.		
Lab Code:		Case No.:		SAS No.:	SDG NO.:	D9G110152
Method:	MS	I	Prep Method:	,		

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
INTRA-LAB QC	7/14/2009	50.0	50.0
LAB MS/MSD MS	7/14/2009	50.0	50.0
LAB MS/MSD MSD	7/14/2009	50.0	50.0
M-10B	7/14/2009	50.0	50.0
MB9194272	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

Total Metals Analysis

ANALYSIS RUN LOG

Contract:	Northgate	Environmental Manageme	nt, Inc.	
Lab Code:		Case No.:	SAS No.:	SDG No.: D9G110152

Instrument ID Number: Agilent 7500 Method:

Start Date: 7/21/2009 7/21/2009

			<u>, </u>						d 1	Jac			<u>''</u>	21	, 4	-	_			-							
Sample	D/F	Time	% R											Ana	ıly	te	s						-				_
ID.	_, <u>_</u>	- Inc			S B	A S	B A		C D	C A	C R	С 0		F E	P B	M G	M N	H G	N I	K	S E	A G	N A	T L	v	Z N	1
CAL BLANK	1.00	17:28				х															х	_		\dashv	┥	\dashv	_
100 PPB	1.00	17:31				х		_				H									x			-	┪	+	_
ICV	1.00	17:33				х															х			_	+	┿	_
ICB	1.00	17:39				Х				T											х		┪	4	+	+	_
RL STD	1.00	17:42				х						H				-	-		ᅱ	\dashv	x	\dashv	┪	-+	4	+	-
ICSA	1.00	17:50				x				+	-	\dashv	-			┪	╣		ᆛ	┪	х	┪	┪	+	+	+	_
ICSAB	1.00	17:53				x				Ħ	\neg	+	┪	ᅥ	-	┪	┪	┪	+	-	x	\dashv	┥	+	+	+	_
RINSE	1.00	17:55		П		х			┪	1	\dashv	ᆉ	ᅥ	_	+	-	+	ᅥ	\dashv	\dashv	x	_	+	+	+	\dashv	_
LR	1.00	17:58				х			7	┪	7	7	ᅥ	_	┪	┪	┪	\dashv	+	+	x	ᆛ	┽	_	+	+	_
RINSE	1.00	18:00		H		x		ᅥ	1	十	7	┪	┪	+	+	┪	┽	-	\dashv	+	x	+	+	+	+	+	_
ccv	1.00	18:03				х	_	-	\dashv	┪	+	_	┪	+	┪	\dashv	\dashv	+	+	-	x	4	\dashv	+	+	+	_
ССВ	1.00	18:06	-			x			┪	十	\dashv	+	┪	┪	╅	÷	┪	+	+	-	$\frac{\Lambda}{\mathbf{x}}$	+	+	+	+	+	_
ccv	1.00	18:30			-	x		T	┪	┪	┪	寸	\forall	+	┿	+	╅	ᆉ	+	-	x	+	+	+	+	+	_
ССВ	1.00	18:33			_	х	\forall	┪	╅	\dagger	\dashv	+	┪	┿	+	┪	╁	\dashv	+	÷	<u>~ </u> x	+	+	\dashv	+	┿	_
MB9194272	1.00	18:39		寸		x	7	寸	\dagger	\dagger	7	\dagger	\dashv	┿	+	÷	┿	\dashv	+	-	x	+	+	+	+	┿	_
Check Sample	1.00	18:41		\exists	_	x	7	T	\dashv	Ť	+	Ŧ	╅	十	\dagger	+	+	+	+	-	x	\pm	+	+	÷	┿	_
INTRA-LAB QC	10.00	18:44		十	_	x	\dashv	7	+	Ť	+	+	┿	\dashv	┿	┿	+	+	+	÷	x	╬	+	+	+	+	_
INTRA-LAB QC SER	50.00	18:47		_		x	\dagger	\forall	\dagger	+	+	\dagger	+	+	╁	┿	╅	+	+	÷	x	÷	+	+	+	┿	_
INTRA-LAB QC PDS	1.00	18:50		+	_	x	$^{+}$	╅	Ť	÷	┿	÷	╁	+	+	┿	+	+	÷	÷	x	+	+	+	+	十	_
LAB MS/MSD MS	10.00	18:52		7	_	x	+	┪	╁	+	┿	+	+	÷	÷	┿	+	┿	÷	÷	<u>^ </u>	+	+	+	+	+-	4
ccv	1.00	18:55		十	_	x	╅	Ť	\dagger	╁	+	╁	\dagger	÷	+	+	+	+	┿	÷	x	+	+	╁	+	+	4
ССВ	1.00	18:58		\dashv	_	x	╅	+	\dagger	t	+	╅	┿	+	+	+	÷	+	┿	-	x	+	+	+	╁	┿	_
LAB MS/MSD MSD	10.00			+	_	x	+	十	\dagger	\dagger	+	+	┿	+	┿	+	+	+	+	-	K.	┿	+	+	十	+	4
M-10B	10.00	L9:09		+		ĸ	+	+	十	÷	+	+	十	┿	╁	+	+	+	+	-	c	+	+	+	+	十	4
ccv	1.00	L9:17		+	_	K	+	\dagger	╁	+	+	+	+	+	十	+	+	+	┿	12	-	+	+	+	╀	十	4
ССВ	1.00	9:20		+	1	_	+	+	+	+	+	┿	┿	+	+	┿	+	+	+	2		╀	+	+-	╀-		4

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Dissolved Metals

CLP-Like Forms

Lot ID: <u>D9G110152</u>

Client: Northgate/Tronox

Method: SW846 6020/Collision Cell

Associated Sample: <u>002</u>

Dissolved Metals Analysis

	COVER PAGE - INORO	CANIC ANAI		E	
Contract:	Northgate Environmental Manageme			SDG No.:	D9G110152
Lab Code:	Case No.:			SAS No.:	
SOW No.:					
	Sample ID.	La	b Sample No.	:	
	M-10BDISS	D9	G110152-002		
	M-10BDISS MS		G110152-002S		
	M-10BDISS MSD	D9	G110152-002SD	_	
Were ICP in	terelement corrections applied?			Yes/No	YES
	ckground corrections applied? s-were raw data generated before			Yes/No	YES
	cation of background corrections?			Yes/No	NO
Commonto					
Comments:					
				:	
	hat this data package is in compliand				
	oth technically and for completeness, ease of the data contained in this ha				
	n floppy diskette has been authorized				
verified by	the following signature.				
	,				
Signature	1	Name:	Jamiga Callina		
7	7123/09	Manie :	Janice Collins		
Ú					
Date:	7/23/09	Title:	Metals Analyst	:	

COVER PAGE - IN



Northgate Environmental Management, Inc. Dissolved Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-10BDISS

Lot/SDG Number:

D9G110152

Lab Sample ID:

D9G110152-002

Matrix:

WATER

Lab WorkOrder:

<u>LGDJW</u>

% Moisture:

<u>N/A</u>

Date/Time Collected:

07/10/09 11:45

Basis:

Unit:

Wet

Date/Time Received:

07/11/09 08:30

Analysis Method:

6020 ug/L

Date/Time Extracted:

07/14/09 12:00 07/21/09 18:17

QC Batch ID:

9194274 50 mL

Date/Time Analyzed: Instrument ID:

Date Leached:

024

Sample Aliquot: Dilution Factor:

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	100	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

Dissolved Metals Analysis

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	mental Managemen	t, Inc.		
Lab Code:	Case	No.:	SAS No.:	SDG NO.:	D9G110152
Initial Cal	ibration Source:	High Purity		_	
Continuing	Calibration Source:	Inorganic V	/entures		

Concentration Units: ug/L

Initial Calibration				Contin	uing Calib	ration	:		
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м
Arsenic	40.0	40.1	100.2	50.0	50.2	100.4	49.3	98.6	м
Selenium	40.0	41.7	104.2	50.0	50.2	100.4	49.4	98.8	М

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Dissolved Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

CIUL	DIA	TIDAIN	DION	7111	•

Contract:	Northgate Envi	conmental Manag	gement, Inc.		
Lab Code:	c	ase No.:	SAS No.:	SDG No.: D9G110152	_
AA CRDL Sta	ndard Source:			: :	
ICP CRDL St	andard Source:	Inorganic V	entures .		

Concentration Units: ug/L

	CRDL Standard for AA				Init:	CP Final	1		
Analyte	True	Found	%R		True	Found	%R	Found	%R
Arsenic				ÌΪ	1.00	1.038	103.8	:	
Selenium	!			ΠĬ	1.00	0.816	81.6		



Northgate Environmental Management, Inc. **Dissolved Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

Lot/SDG Number:

D9G110152

Lab Sample ID:

D9G130000-274B

Matrix:

Lab WorkOrder:

WATER

LGEE4

% Moisture: Basis:

<u>Wet</u>

Date/Time Collected: Date/Time Received:

Analysis Method:

<u>6020</u>

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194274

Date/Time Analyzed:

07/21/09 18:11

Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution Factor:

1

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U

Dissolved Metals Analysis

-3-

BLANKS

Contract:	Northgate Environmental M	Management, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G110152
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug/L or mg/kg):	UG/L	

	Initial Calib. Blank		Continuing Calibration Blank (ug/L)							Preparation Blank			
Analyte	(ug/L)	С	1	С	2	С	3	С		d	:		М
Arsenic	0.210	ן ט	0.210	ט	0.210	ט]	ı		0.21	<u>ס</u>	ı	<u> </u>
Selenium	0.700	ש	0.700	ט	0.700	Ū				0.70	<u>ט</u>	1	4

Dissolved Metals Analysis

4-

ICP INTERFERENCE CHECK SAMPLE

Lab Code:		Case No.:	SAS No.:		SDG NO.: D9G110152
ICP ID Numb	er: <u>Agi</u>	lent 7500		ICS Source:	Inorganic Ventures
		Congentration			

True			Initi	Initial Found			Final Found		
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R	
Arsenic	0.0	100.0	0.41	100.30	100.3				
Selenium	0.0	100.0	0.21	108.70	108.7				



Northgate Environmental Management, Inc. Dissolved Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-10BDISS

Lot/SDG Number:

D9G110152

MS Lab Sample ID:

D9G110152-002S

Matrix:

WATER

MS Lab WorkOrder:

LGDJW

% Moisture:

N/A

Basis:

Wet

Date/Time Collected:

07/10/09 11:45

Analysis Method:

6020

Date Leached:

07/11/09 08:30

Unit:

ug/L

Date/Time Extracted:

Date/Time Received:

07/14/09 12:00

QC Batch ID:

9194274

Date/Time Analyzed:

07/21/09 18:25

MS Sample Aliquot:

<u>50 mL</u>

Instrument ID:

024

MS Dilution Factor:

<u>10</u>

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	100		146		110		85 - 117
Selenium	40.0	7.0	U	42.8		93		77 - 122



Northgate Environmental Management, Inc. **Dissolved Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-10BDISS

Lot/SDG Number:

D9G110152

MSD Lab Sample ID:

D9G110152-002D

Matrix:

Unit:

WATER

MSD Lab WorkOrder:

LGDJW

% Moisture:

<u>N/A</u>

Date/Time Collected:

07/10/09 11:45

Basis:

<u>Wet</u>

Date/Time Received:

07/11/09 08:30

Analysis Method:

<u>6020</u>

Date Leached:

07/14/09 12:00

QC Batch ID:

ug/L 9194274 **Date/Time Extracted:** Date/Time Analyzed:

07/21/09 18:28

MSD Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

MSD Dilution Factor:

10

Analyte	Spike	Sample	•	MSD	•	0/ T)	_	DDD		QC Lir	nits
	Amount	Result		Result		% Rec	Q	RPD	Q	% Rec	RPD
Arsenic	40.0	100		143		103		1.9	:	85 - 117	20
Selenium	40.0	7.0	U	50.0		111		16	:	77 - 122	20

Dissolved Metals Analysis -5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

M-10BDISS	PDS

Contract: Northgate Environmental Management, Inc.

Lab Code: Case No.: SAS N

SAS No.: SD

SDG NO.: D9G110152

Matrix (soil/water):

WATER

Level (low/med):

LOW

Concentration Units:

ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R Q	м
Arsenic	75 - 125	214.900	10.210	200.00	102.3	м
Selenium	75 - 125	210.200	0.700 ប	200.00	105.1	М



Northgate Environmental Management, Inc. **Dissolved Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

D9G110152

Client Sample ID: Lab Sample ID:

D9G130000-274C

Matrix:

WATER

Lab WorkOrder:

LGEE4

% Moisture:

<u>N/A</u>

Date/Time Collected:

Basis:

Wet

Date/Time Received:

Analysis Method:

Lot/SDG Number:

6020

Date Leached: Date/Time Extracted:

07/14/09 12:00

Unit: QC Batch ID: ug/L 9194274

Date/Time Analyzed:

07/21/09 18:14

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

1

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	43.8	110		85 - 117
Selenium	40.0	43.3	108		77 - 122

Dissolved Metals Analysis

-9-ICP SERIAL DILUTIONS

SAMPLE NO.

ntract: N	orthoate	Engironmental Manage		t Ina	M-10BDISS SE					
ab Code: Case No.:			SAS No.:			SD	SDG NO.: D9G		G110152	
trix (soil,	/water):	WATER	_		Level	(low/me	d):	LOW		
		Concentration U	nits	: ug/I	,					
Analyt	te	Initial Sample Result (I)	n	Serial Dilu Result (c	% Diffe: ence		Q	м
Arsenic		10.210	1		10.	.140 B		0.7	Ì	м
Seleniur	n i	0.700	Ū		3.	.500 U	İ		İ	М

Dissolved Metals Analysis

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DETECTION LIMITS

Contract: Northga	ate Environmental Manag	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G1	10152
ICP ID Number: A	gilent 7500	Date: 4/23/2009		
Flame AA ID Number:				
Furnace AA ID Numbe	or:			

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	м
Selenium	78		5.000	0.7000	М

Comments:				

Dissolved Metals Analysis -12-

ICP LINEAR RANGES (QUARTERLY)

Contract:	Northgate Env	ironmental	Management,	Inc.				
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G110152	
ICP ID Numbe	er: Agilent	7500		Date:	7/7/2009			
	Г		Integ.					

Analyte	Integ. Time (Sec.)	Concentration ug/L	м
Arsenic	0.001	3600	М
Selenium	0.001	3600	М

Comments:		 	 	
	 	 ***************************************	 	<u>:</u>

Dissolved Metals Analysis

-13-

PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.		
Lab Code:		Case No.:		SAS No.:	 SDG NO.:	D9G110152
Method:	MS	1	Prep Method:	-		

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
M-10BDISS	7/14/2009	50.0	50.0
M-10BDISS MS	7/14/2009	50.0	50.0
M-10BDISS MSD	7/14/2009	50.0	50.0
MB9194274	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

Contract:

Dissolved Metals Analysis

ANALYSIS RUN LOG

Contract:	Northgate Environmental Management	Inc.	
Lab Code:	Case No.:	SAS No.:	SDG No.: D9G110152

Instrument ID Number: Agilent 7500 M Method:

Start Date: 7/21/2009 7/21/2009 End Date:

												_							_						
Sample	D/F	Time	% R										Ana	1y	te	5									
ID.	D/F	Time	% R	A L	S B	A S	B A	B E	C D	C A	C R	C	F E	P B	M G	M N	H G	N	K	S	A G	T L	v	z N	C N
CAL BLANK	1.00	17:28				х														x					
100 PPB	1.00	17:31				х														х					
ICV	1.00	17:33				х														х					
ICB	1.00	17:39				х														х					
RL STD	1.00	17:42				х														х					
ICSA	1.00	17:50				х														х					
ICSAB	1.00	17:53				х														х					
RINSE	1.00	17:55				x														х					
LR	1.00	17:58				x														x					
RINSE	1.00	18:00				x														х					
ccv	1.00	18:03				X														х					Г
ССВ	1.00	18:06				x														х					
MB9194274	1.00	18:11				X														х					Г
Check Sample	1.00	18:14				x														х					
M-10BDISS	10.00	18:17				X														х					
M-10BDISS SER	50.00	18:20				X														x					
M-10BDISS PDS	1.00	18:22				x														х					
M-10BDISS MS	10.00	18:25				x														х					
M-10BDISS MSD	10.00	18:28				X														х					
ccv	1.00	18:30				x														х					
ССВ	1.00	18:33				x														х					

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^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G110155</u>

Client: Northgate/Tronox

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

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	COVER PAGE - INOR	Wietals Ana GANIC ANA		GE	
Contract:	Northgate Environmental Manageme	ent, Inc.		SDG No.:	D9G110155
Lab Code:	Case No.:			SAS No.:	
SOW No.:					
	Sample ID.	La	o Sample No.		
	M-121B	<u>D9</u>	G110155-001		
Were ICP into	erelement corrections applied?			Yes/No	YES
	kground corrections applied? were raw data generated before			Yes/No	YES
	ation of background corrections?			Yes/No	NO
Comments:					
	W-1				
		· · · · · · · · · · · · · · · · · · ·			
contract, bot	at this data package is in compliand th technically and for completeness, ase of the data contained in this ha	for other	than the condition	ons detailed	
submitted on	floppy diskette has been authorized the following signature.				
Signature:	1/23/09	Name:	Janice Collins		
Date: 7	1/23/09	Title:	Metals Analyst		

COVER PAGE - IN



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

M-121B

Lot/SDG Number:

D9G110155

Lab Sample ID:

D9G110155-001

Matrix:

WATER

Lab WorkOrder: Date/Time Collected:

Date/Time Received:

LGDJ3

07/10/09 07:45

07/11/09 08:30

% Moisture:

<u>N/A</u>

Basis:

<u>Wet</u>

Analysis Method:

Unit:

<u>6020</u>

Date Leached: Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

ug/L 9194272

Date/Time Analyzed:

07/21/09 19:11

Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution	Factor

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	86	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	mental Ma	nagement, Inc.		
Lab Code:	Case	No.:	SAS No.:	SDG NO.:	D9G110155
Initial Cal	ibration Source:	High Puri	ty		
Continuing	Calibration Source:	Inor	ganic Ventures	:	

Concentration Units: ug/L

	Initial Calibration			Continuing Calibration								
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м			
Arsenic	40.0	40.1	100.2	50.0	50.2	100.4	49.3	98.6	М			
Selenium	40.0	41.7	104.2	50.0	50.2	100.4	49.4	98.8	М			

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: Northgate Environ	nmental Manage	ment, Inc.	
Lab Code: Case	e No.:	SAS No.:	SDG NO.: D9G110155
Initial Calibration Source:	High Purity		
Continuing Calibration Source:	: Inorgani	ic Ventures	
	Concentration	Units: ug/L	

	Initial	Calibration		Continuing Calibration						
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м	
Arsenic			1	50.0	50.2	2 100.4	50.	1 100.2	М	
Selenium	1			50.0	50.2	2 100.4	50.	6 101.2	М	

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

Contract: N	rthgate Environ	nmental Manageme	nt, Inc.	•			
Lab Code:	Case	e No.:	SAS No.:		SDG No.:	D9G110155	
AA CRDL Stand	ard Source:						
ICP CRDL Star	dard Source:	Inorganic Vent	ures				

Concentration Units: ug/L

CRDL Standard for AA					CRDL Standard for ICP Initial Final				
Analyte	True	Found	%R		True	Found	%R	Found	%R
Arsenic				П	1.00	1.038	103.8		
Selenium	1				1.00	0.816	81.6		



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

Lot/SDG Number:

D9G110155

Lab Sample ID:

D9G130000-272B

Matrix:

Basis:

WATER

Lab WorkOrder:

LGEER

% Moisture:

<u>Wet</u>

Date/Time Collected:

Analysis Method:

<u>6020</u>

Date/Time Received: Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 18:39

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

r:		1
•		_

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U
		0.70	0.70	5.0	

-3-

BLANKS

Contract:	Northgate Environmental Manag	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G110155
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug/L	or mg/kg):	UG/L	

	Initial Calib. Blank		Continuing Calibration Blank (ug/L)						Prepai Blank	Preparation Blank			
Analyte	(ug/L) C	c	1	C	2	C	3	С			С	с м	м
Arsenic	0.210	ן ט	0.210	ן ט	0.210	ִ	0.210	σ	Ì	0.21	U	П	М
Selenium	0.700	ט	0.700	ש	0.700	ם	0.700	σ		0.70	Ū		М

-3-

BLANKS

Contract:	Northgate Environmental Mana	gement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G110155
Preparation	Blank Matrix (soil/water):	WATER		
Preparation	Blank Concentration Units (ug/	L or mg/kg):	UG/L	

	Initial Calib. Blank			Continuing Calibration Blank (ug/L)								
Analyte	(ug/L) C	С	1	С	2	С	3	С		С	M	М
Arsenic	1	1 1	0.210	ש	·						М	1
Selenium			0.700	ט		ii		i l			М	1

4-

ICP INTERFERENCE CHECK SAMPLE

Con	tract:	Northgate Environm	ental Management,	Inc.		
Lab	Code:	Case	No.:	SAS No.:		SDG NO.: D9G110155
ICP	ID Numb	er: Agilent 7500			ICS Source:	Inorganic Ventures

Concentration Units):

ug/L

	True		Initia	al Found	Final Found			
Analyte	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.0	100.0	0.41	100.30	100.3		1	
Selenium	0.0	100.0	0.21	108.70	108.7		!	



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110155

MS Lab Sample ID:

D9G100272-001S

Matrix:

WATER

MS Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

is Lab workOrder:

07/07/09 08:45

Basis:

Wet

Date/Time Collected: Date/Time Received:

07/10/09 08:45

Analysis Method:

<u>6020</u>

Date Leached:

17.20703 00.11

Unit:

____/T

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

ug/L 9194272

Date/Time Extracted:

Date/Time Analyzed:

07/21/09 18:52

MS Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

MS Dilution Factor:

<u>10</u>

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	200		234	MSB	91		85 - 117
Selenium	40.0	7.0	U	44.3		98		77 - 122



Northgate Environmental Management, Inc. **Total Metals Analysis Data Sheet**

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110155

MSD Lab Sample ID:

D9G100272-001D

Matrix:

MSD Lab WorkOrder:

LGCN3

% Moisture:

WATER

07/07/09 08:45

Basis:

<u>N/A</u> <u>Wet</u>

Date/Time Collected: Date/Time Received:

07/10/09 08:45

Analysis Method:

<u>6020</u>

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00 07/21/09 19:03

QC Batch ID:

9194272

Date/Time Analyzed: **Instrument ID:**

<u>024</u>

MSD Sample Aliquot:

<u>50 mL</u>

MSD Dilution Factor:

10

	Spike	Sample	_	MSD	C					QC Lin	nits
Analyte	Amount	Result	С	Result	С	% Rec	Q	RPD	Q	% Rec	RPD
Arsenic	40.0	200		238	MSB	99		1.4	:	85 - 117	20
Selenium	40.0	7.0	U	48.4		109		8.8		77 - 122	20

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

Contract:	Northgate	Environmental	Management,	Inc.		INTRA-LA	B QC PDS
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G110155
Matrix (soi	1/water):	WATER	1-Alice - Alic		Level	(low/med):	LOW
	·····						

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR) C	Sample Result (SR) C	Spike Added(SA)	%R	Q	м
Arsenic	75 - 125	221.600	19.810	200.00	100.9		м
Selenium	75 - 125	205.800	0.700 U	200.00	102.9		М



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

Lot/SDG Number:

D9G110155

Lab Sample ID:

D9G130000-272C

Matrix:

WATER

Lab WorkOrder:

% Moisture:

<u>N/A</u>

Date/Time Collected:

LGEER

Basis:

<u>Wet</u>

Date/Time Received:

Analysis Method:

<u>6020</u>

Date Leached:

07/14/09 12:00

Unit: QC Batch ID: ug/L

Date/Time Extracted: Date/Time Analyzed:

07/21/09 18:41

Sample Aliquot:

9194272 <u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution Factor:

1

Analyte	True	Found	%Rec	Q	Limits
Arsenic	40.0	41.3	103		85 - 117
Selenium	40.0	40.2	101		77 - 122

Analyte

Arsenic

Selenium

Total Metals Analysis

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

1.6

19.490 B

3.500 U

Contract	t: Northgate	Environmental Mana	INTRA-LAB	QC SER		
Lab Code: Matrix (soil/water):		Case No.:	SAS No.:	SDG NO.:	D9G11015	5
		WATER	L	evel (low/med):	LOW	
		Concentration	Units: ug/L			
	1	Initial Sample Result (I)	Serial Dilution Result (S)	% Diffe enc	er-	

19.810

0.700 ^ប

-10-

DETECTION LIMITS

Contract:	Northgate En	vironmental Manag	gement, Inc.		
Lab Code:		Case No.:	SAS No.:	SDG NO.:	D9G110155
ICP ID Numb	ber: Agilent	7500	Date: 4/23/	2009	
Flame AA ID	Number:				
Furnace AA	ID Number:				

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	M

Comments:					
	 	 	 	<u> </u>	

ICP	LINEAT	RANGES	(QUARTERLY)	١
		CICALIOES	(QUAKIEKLI)	,

Contract:	Northgate Env	ironmental	Management,	Inc.				
Lab Code:		Case No.:	S.	AS No.:		SDG NO.:	D9G110155	
ICP ID Numb	er: Agilent	7500		Date:	7/7/2009			
						·		

Analyte	Integ. Time (Sec.)	Concentration ug/L	м
Arsenic	0.001	3600	М
Selenium	0.001	3600	М

Comments:	

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PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.			
Lab Code:		Case No.:		SAS No.:	SDG NO.:	D9G110155	
Method: M	IS	I	Prep Method:				

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
INTRA-LAB QC	7/14/2009	50.0	50.0
LAB MS/MSD MS	7/14/2009	50.0	50.0
LAB MS/MSD MSD	7/14/2009	50.0	50.0
M-121B	7/14/2009	50.0	50.0
MB9194272	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

Total Metals Analysis -14-

ANALYSIS RUN LOG

Contract:	Northgate	Environmental Management,	Inc.		
Lab Code:		Case No.:	SAS No.:	SDG No.:	D9G110155

Instrument ID Number: Agilent 7500 Method:

7/21/2009 Start Date: 7/21/2009 End Date:

start Date: 7/21/2			<u></u>						Jac		_												
Sample	D/E		。								 	Ana	1y	tes	3					 			
Sample ID.	D/F	Time	% R	S B	A S	B A	B E	C D	C A	C R		F		M G		H G	N	K	SE		T	Z N	N C
CAL BLANK	1.00	17:28			х														х			П	
100 PPB	1.00	17:31			х													:	х				
ICV	1.00	17:33			х														х				
ICB	1.00	17:39			х														x				
RL STD	1.00	17:42			х														х				
ICSA	1.00	17:50			Х														x				
ICSAB	1.00	17:53			х														x				
RINSE	1.00	17:55			х														x				
LR	1.00	17:58			x														x				
RINSE	1.00	18:00			х														X				
ccv	1.00	18:03			х														X				
ССВ	1.00	18:06			х														X				
ccv	1.00	18:30			х														x				
ССВ	1.00	18:33			х														X			\prod	
MB9194272	1.00	18:39			x														X				
Check Sample	1.00	18:41			x														x				
INTRA-LAB QC	10.00	18:44			х													:	X				
INTRA-LAB QC SER	50.00	18:47			х													:	x				
INTRA-LAB QC PDS	1.00	18:50			х														x				
LAB MS/MSD MS	10.00	18:52			x														X				
ccv	1.00	18:55			х														x				
ССВ	1.00	18:58			x														X				
LAB MS/MSD MSD	10.00	19:03			x														х				
M-121B	10.00	19:11			x														х				
ccv	1.00	19:17			x													:	x				
ССВ	1.00	19:20			x														х				

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

TestAmerica

Total Metals

CLP-Like Forms

Lot ID: <u>D9G110159</u>

Client: Northgate/Tronox

Method: <u>SW846 6020/Collision Cell</u>

Associated Sample: <u>001</u>

TestAmerica 137

Contract: 1	Northgate Environmental Managemen	nt, Inc.	SDG No.	: D9G110159
Lab Code:	Case No.:		SAS No.	:
SOW No.:				
	Sample ID.	La	b Sample No.	
	M-118B	<u> D9</u>	G110159-001	
Were ICP inte	erelement corrections applied?		Yes/No	YES
Were ICP back	ground corrections applied?		Yes/No	YES
	were raw data generated before tion of background corrections?		Yes/No	NO
				
Comments:				
			:	
I certify tha	t this data package is in compliance	e with the	terms and conditions of the	•
contract, bot	h technically and for completeness, se of the data contained in this har	for other	than the conditions detaile	ed.
submitted on	floppy diskette has been authorized he following signature.	by the La	boratory Manager or the Mana	ger's designee, a
Signature:	amis Collin	Name:	Janice Collins	
σ	7 123109			
Date:	1/23/09	Title:	Metals Analyst	

COVER PAGE - IN



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

<u>M-118B</u>

Lot/SDG Number:

D9G110159

Lab Sample ID:

D9G110159-001

Matrix:

WATER

Lab WorkOrder:

LGDKR

% Moisture:

<u>N/A</u>

•

07/09/09 08:45

Basis:

Wet

Date/Time Collected: Date/Time Received:

07/11/09 08:30

Analysis Method:

<u>6020</u>

Date Leached:

Unit: QC Batch ID: ug/L

Date/Time Extracted: Date/Time Analyzed:

07/14/09 12:00 07/21/09 19:14

Sample Aliquot:

9194272 50 mL

Instrument ID:

<u>024</u>

Dilution Factor:

<u>10</u>

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	57	2.1	50	
7782-49-2	Selenium	7.0	7.0	50	U

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	mental Management,	Inc.		
Lab Code:	Case	No.:	SAS No.:	SDG NO.:	D9G110159
Initial Ca	libration Source:	High Purity			
Continuing	Calibration Source:	Inorganic Ver	atures		
				 	

Concentration Units: ug/L

	Initial Ca	libration		Continuing Calibration							
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м		
Arsenic	40.0	40.1	100.2	50.0	50.2	100.4	49.3	98.6	м		
Selenium	40.0	41.7	104.2	50.0	50.2	100.4	49.4	98.8	М		

⁽¹⁾ Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract:	Northgate Environ	nenta	l Management	, Inc.		
Lab Code:	Case	No.:		SAS No.:	 SDG NO.:	D9G110159
Initial Cal	ibration Source:	High	Purity	-		
Continuing	Calibration Source:		Inorganic Ve	ntures		

Concentration Units: ug/L

	Initial	Calibration		Continuing Calibration						
Analyte	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	м	
Arsenic				50.0	50.2	100.4	50.1	100.2	М	
Selenium	1			50.0	50.2	100.4	50.6	101.2	М	

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

Total Metals Analysis -2B-CRDL STANDARD FOR AA AND ICP

CKDL	DIA	NDAKL	, fuk	$\mathbf{A}\mathbf{A}$	AND	IC.

Contract: Northgate Environmental Management, Inc. Lab Code: Case No.: SAS No.:						
Lab Code:	Ca	se No.:	SAS No.:	SD	G No.:	D9G110159
AA CRDL Sta	ndard Source:					
ICP CRDL St	andard Source:	Inorganic Vent	ures			

Concentration Units: ug/L

	CRDL Sta	CRDL Standard for AA				CRDL Standard for ICP nitial Final			
Analyte	True	Found	%R		True	Found	%R	Found	%R
Arsenic				П	1.00	1.038	103.8		
Selenium				ΙĹ	1.00	0.816	81.6		



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

D9G130000-272B

Lot/SDG Number:

D9G110159

Lab Sample ID:

Matrix:

WATER

Lab WorkOrder:

LGEER

% Moisture:

<u>Wet</u>

Date/Time Collected: Date/Time Received:

Basis:

<u>6020</u>

Analysis Method: Unit:

Date Leached: Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

ug/L 9194272

Date/Time Analyzed:

07/21/09 18:39

Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

Dilution Factor:

1

CAS No.	Analyte	Conc.	MDL	RL	Q
7440-38-2	Arsenic	0.21	0.21	5.0	U
7782-49-2	Selenium	0.70	0.70	5.0	U

-3-

BLANKS

Contract:	Northgate Environmental Mana	agement, Inc.		
Lab Code:	Case No.:	SAS No.:	SDG NO.:	D9G110159
Preparation	Blank Matrix (soil/water):	WATER	·	
Preparation	Blank Concentration Units (ug/	/L or mg/kg):	UG/L	

Initial Calib. Blank			Continuing Calibration Blank (ug/L)						Preparation Blank			
Analyte	(ug/L)	С	1	С	2	С	3	c		С	Н	М
Arsenic	0.210	ן ט	0.210	ן ש	0.210	ש	0.210	ט	0.21	Ū	П	М
Selenium	0.700	ט	0.700	ט	0.700	ט	0.700	ט	0.70	ט	Π	M

Comments:

-3-

BLANKS

Contract:	Northgate Environmental Manage	gement, Inc.			
Lab Code:	Case No.:	SAS No.:		SDG NO.:	D9G110159
Preparation	Blank Matrix (soil/water):	WATER			
Preparation	Blank Concentration Units (ug/I	or mg/kg):	UG/L		

	Initial Calib. Blank			Cor	ntinuing Blank (ion		Preparation Blank			
Analyte	(ug/L)	c	1	C	2	С	3	С		C	1	М
Arsenic			0.210	ן ט ן י		1 1			i	I	M	
Selenium	1		0.700	ן ט	***	i i		T		i	М	\Box

Comments:

4_

ICP INTERFERENCE CHECK SAMPLE

Contract:	Northgate Environmental Manag	gement, Inc.	
Lab Code:	Case No.:	SAS No.:	SDG NO.: D9G110159
ICP ID Numk	per: Agilent 7500	ICS Source:	Inorganic Ventures

Concentration Units): ug/L

	True		Initial Found			Final Found			
Analyte		Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic		0.0	100.0	0.41	100.30	100.3	· .		
Selenium		0.0	100.0	0.21	108.70	108.7			



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110159

MS Lab Sample ID:

D9G100272-001S

Matrix:

WATER

MS Lab WorkOrder:

LGCN3

% Moisture: Basis:

N/AWet **Date/Time Collected:** Date/Time Received:

07/07/09 08:45

6020

Date Leached:

07/10/09 08:45

Analysis Method: Unit:

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

ug/L 9194272

Date/Time Analyzed:

07/21/09 18:52

MS Sample Aliquot:

<u>50 mL</u>

Instrument ID:

<u>024</u>

MS Dilution Factor:

<u>10</u>

Analyte	Spike Amount	Sample Result	C	MS Result	С	% Rec	Q	QC Limit
Arsenic	40.0	200		234	MSB	91		85 - 117
Selenium	40.0	7.0	U	44.3		, 98		77 - 122



Northgate Environmental Management, Inc. Total Metals Analysis Data Sheet

Lab Name:

TESTAMERICA DENVER

Client Sample ID:

LAB MS/MSD

Lot/SDG Number:

D9G110159

MSD Lab Sample ID:

D9G100272-001D

Matrix:

WATER

MSD Lab WorkOrder:

LGCN3

% Moisture:

<u>N/A</u>

SD Lab WorkOrder:

07/07/09 08:45

Basis:

Wet

Date/Time Collected: Date/Time Received:

07/10/09 08:45

Analysis Method:

6020

Date Leached:

:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 19:03

MSD Sample Aliquot:

<u>50 mL</u>

<u>10</u>

Instrument ID:

024

MSD Dilution Factor:

Analyse	Spike	Sample		MSD		0/ P	0	nnn		QC Lin	nits
Analyte	Amount	Result		Result		% Rec	Ų	RPD	Ų	% Rec	RPD
Arsenic	40.0	200		238	MSB	99		1.4		85 - 117	20
Selenium	40.0	7.0	U	48.4		109		8.8		77 - 122	20

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

Contract:	Northgate	Environmental	Management,	Inc.		INTRA-LA	B QC PDS	
Lab Code:		Case No.:		SAS No.:		SDG NO.:	D9G110159	
Matrix (soi	.l/water):	WATER			Level	(low/med):	LOW	

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	2	Sample Result (SR) C	Spike Added(SA)	%R	Q	м
Arsenic	75 - 125	221.600	Ī	19.810	200.00	100.9		М
Selenium	75 - 125	205.800	Ī	0.700 U	200.00	102.9		М

Comments:



Northgate Environmental Management, Inc.

Total Metals Analysis Data Sheet

Lab Name:

Lot/SDG Number:

TESTAMERICA DENVER

Client Sample ID:

D9G130000-272C

D9G110159

Lab Sample ID:

Matrix:

WATER

Lab WorkOrder:

% Moisture:

<u>N/A</u>

Date/Time Collected:

LGEER

Basis:

Date/Time Received:

Analysis Method:

Wet 6020

Date Leached:

Unit:

ug/L

Date/Time Extracted:

07/14/09 12:00

QC Batch ID:

9194272

Date/Time Analyzed:

07/21/09 18:41

Sample Aliquot:

50 mL

Instrument ID:

<u>024</u>

	_
Dilution	Factor:

1

Analyte	True	Found	%Rec	\mathbf{Q}_{-1}	Limits
Arsenic	40.0	41.3	103		85 - 117
Selenium	40.0	40.2	101		77 - 122

-9-ICP SERIAL DILUTIONS

SAMPLE NO.

Contract: N Lab Code: _ Matrix (soil/	Northgate	Environmental Manage	ement, Inc.		INTRA-LAB	QC SER
-		Case No.:	SAS No.:		SDG NO.:	D9G110159
Matrix (soi	.1/water):	WATER		Level	(low/med):	LOW
		Concentration U	mits: ug/L			

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S)	С	% - Differ- ence	Q	м
Arsenic	19.810		19.490 B	1.6		М
Selenium	0.700 0		3.500 U	i	i	м

Comments:

-10-

DETECTION LIMITS

Contract:	<u>Northgate</u>	Environmental Manag	gement, Inc.	, , , , , , , , , , , , , , , , , , , 		
Lab Code:		Case No.:	SAS No.:		SDG NO.:	D9G110159
ICP ID Numl	ber: Agil	ent 7500	Date: 4	/23/2009		
Flame AA ID	Number:					
Furnace AA	ID Number:					

Analyte	Isotope	Back- ground	PQL (ug/L)	MDL (ug/L)	м
Arsenic	75		5.000	0.2100	М
Selenium	78		5.000	0.7000	М

Comments:

Total Metals Analysis -12-ICP LINEAR RANGES (QUARTERLY)

 	1132111	101	OLO	14.	DIME

Contract:	Northgate Env	ironmental	Management, Ir	nc.				
Lab Code:		Case No.:	SAS	No.:		SDG NO.:	D9G110159	
ICP ID Numb	oer: Agilent	7500	Da	te:	7/7/2009		·	
							•	

Analyte	Integ. Time (Sec.)	Concentration ug/L	М
Arsenic	0.001	3600	М
Selenium	0.001	3600	М

Comments:	

-13-

PREPARATION LOG

Contract:	Northgate	Environmental	Management,	Inc.		
Lab Code:		Case No.:		SAS No.:	 SDG NO.:	D9G110159
Method:	MS		Prep Method:		 	

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
INTRA-LAB QC	7/14/2009	50.0	50.0
LAB MS/MSD MS	7/14/2009	50.0	50.0
LAB MS/MSD MSD	7/14/2009	50.0	50.0
M-118B	7/14/2009	50.0	50.0
MB9194272	7/14/2009	50.0	50.0
Check Sample	7/14/2009	50.0	50.0

Comments:

ANALYSIS RUN LOG

Contract:	Northgate Environmental Management,	Inc.	
Lab Code:	Case No.:	SAS No.:	SDG No.: D9G110159

Instrument ID Number: Agilent 7500 Method: M

Start Date: 7/21/2009 End Date: 7/21/2009

	•	Analytes																									
Sample	D/F	Time	 % R	L									,	Ana	ly	tes	3										
ID.	<i>D</i> , 1	111116		A L		A S	B A	B	C D	C A	C R	С 0	D C	F E	P B	M G	M N	H G	I	K	S	A G	N A	T L	V	z N	C N
CAL BLANK	1.00	17:28				х															x						
100 PPB	1.00	17:31				X															х		П				
ICV	1.00	17:33				x															х						
ICB	1.00	17:39				х															x						
RL STD	1.00	17:42				х															х						
ICSA	1.00	17:50				X															х						
ICSAB	1.00	17:53				x															х						
RINSE	1.00	17:55				Х															х						
LR	1.00	17:58				х															x						_
RINSE	1.00	18:00				х															х					T	
CCV	1.00	18:03				х															х					T	
ССВ	1.00	18:06				х														:	x					T	
CCV	1.00	18:30				х															x						_
CCB	1.00	18:33				Х															х						_
MB9194272	1.00	18:39				х															х						
Check Sample	1.00	18:41				х									Ì						x						
INTRA-LAB QC	10.00	18:44				х														:	х						
INTRA-LAB QC SER	50.00	18:47				х															х			Ì	Ī	T	_
INTRA-LAB QC PDS	1.00	18:50				x															х				Ť	Ť	_
LAB MS/MSD MS	10.00	18:52				х															х						
CCV	1.00	18:55				х															х					T	
ССВ	1.00	18:58				х															х		Ì	j	ij	Ť	_
LAB MS/MSD MSD	10.00	19:03				х											Ì				х			Ì	Ī	T	_
M-118B	10.00	19:14				х						Ì	j		Ì		Ì				х					\sqcap	
ccv	1.00	19:17				х											j				х				Ī	T	
ССВ	1.00	19:20				х						Ī	j	Ī	Ť		j				х		T	T	T	寸	_

^{* -} Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

S northgate environmental management, Inc. 1100 Quali Street, Suite 102, Newport Beach, CA 92660 (949) 260-9293

CHAIN-OF-CUSTODY / Analytical Request Document

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COC No. Page: Cooler# 2027.001.00197 1 of 1 1 of

Tripical # Tri	frank.hagar@ngem.com	cindy.arnold@ngem.com	FTP site address provided to labs Notifications provided to:	Northgate Environmental Management, Inc.	As Se only by collison cell All PDF reports and EDDs will be uploaded to:	Additional Comments/Special Instructions:	12	10	0	œ	7	(1)		/	2	M-117B	SAMPLE ID One Character per box. (A-Z, 0-9 / -) ** Samples IDs MUST BE UNIQUE	Applicable Lab Quote #:	testamericainc.com	303-736-0157	Michael P. Phillips	Arvada, CO 80002	Address: 4955 Yarrow Street	Lab Name: TestAmerica	
Registed modes in modes in the management. In the law Cooper of Community of Commu				:	9.						/		/				od o			Site PM Name				Site ID #: TRONG	Required Project Inform
Required involves information: Common		<u> </u>	I C	H	· ·						_						EER W.S. W.S. W.S. W.S. W.S. W.S. W.S. W.S	rick.willi	5-7004	Derrick W	State	Lake Mea	7.001)х ггс. н	ation:
SAMPLE TIME Date Brown TAT: Slandard 30 day X Rush TAT: Slandard 30 day X Rush If Rush, Date due If Rush, Date due GC level Required: Slandard Special EPA Stage AN IReduced Deliverable Package? AN IReduced Deliverable Package? AN IReduced Deliverable Package? AN IRED Folect ID (lab use) TOT to an additional comments below Preservatives ### ### ### ### ### ### #### ### #### ####	PS COURIÉR S MAIL	Y- in	11/10	2		ELINOUISHED BY /			/	/							SAMPLE TYPE	s@ngem.com		IIIIs		d Drive		ENDERSON	
TAT: Slandard 30 dey X Roush R	FEDEX PRINT Names	٠,			1	AFFILIATION			1							7/6/2009	SAMPLE DATE	CC Hardcopy re	CC Hardcopy re	Send EDD to	Reimbursement pro	City/State		Send Invoice to:	Required Invoice I
Phone #:	SAMPLER: FSAMPLER: FSAMPLER:		7/2/2	The loss		DATE										10:37	SAMPLE TIME			Frank Hagar North frank.hagar@ngen	×	Henderson, NV 89	55	Susan Crowley Tronox LLC	iformation:
Comment Comm	<i>Y</i> 2	Kark	900 T	1620	14:30	TIME .	\angle									-	#OF CONTAINERS	onal com	tronic Ver	₹	Von-reimb				
Comment Comm	M SIGN	(CA)	1	R	1	ACCEPTE										z		ments be	sion Only	ronmenta	ursement	hone #:			
Mark one NJ Reduced Deliverable Package? Mark one NJ Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? CT RCP Cert? CT RCP Cert? CT RCP Cert? Comments Sample Receipt Condition Sample Receipt Condition Sample Intract?	MIURE	in	1,		The state of the s	D BY / AI										×	H2SO4	low		Manage	project?	(949)2			
Mark one NJ Reduced Deliverable Package? Mark one NJ Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? Manual Reduced Deliverable Package? CT RCP Cert? CT RCP Cert? CT RCP Cert? Comments Sample Receipt Condition Sample Receipt Condition Sample Intract?	DATE		B			FILIATIO											HCI Preserva			ment, in		60-9293			
TAT: Standard 30 day X Rush		Zi.		' !		N										+					Mark on				
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Temp in 00 Samples on Ice? Sample intact? Temp in 00 Sample Receipt Condition Sample intact? Sample intact? Rush Rush Rush CTRCP Cert? Comments Sample I.I.	14:30	-	100		100/2												CA 8141A OPPOPE	\	ID (lab	et?	Delive	quired:	e due	ard 30 c	
Samples on Ice? Sample intact? Sample intact? Sample intact? Sample intact? Sample intact? Soo ml Plastic Comments Sample intact?		930	8	8	30														use)	СТ	rable Pa	Standa		\dashv	
Samples on Ice? Sample intact? Sample intact? Sample intact? Sample intact? Sample intact? Soo ml Plastic Comments Sample intact?	Temp in 00					Sample														RCP C	ckage?				
Sample intact? Y/N Y/N Stage Mark Trip Blank? Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/Y/		Y/N	Y / N	Y/N	Y/N	Receir										500 mt Pk				ert?	Ť			ž	
Trip Blank? Y Y Y Y Mark Mark		Y/N	۲/N	Y/N	Y/N	xt Condi									i	astic	Comme					EPA Stay			
 	Trip Blank?	Y/N	Y/N	Y/N	Y/N	tions											nts/Lab			Mark One		e Mark on		Mark One	

TestAmerica Denver

Sample Receiving Checklist Date/Time Received: 7.8.09 / 09 30 Northgate -Company Name & Sampling Site: Yes No PM to Complete This Section: Yes No A Quarantined: **2** Residual chlorine check required: Quote #: Special Instructions: Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER **Unpacking Checks:** Temperatures (°C): Initials N/A Yes No CHE 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR. 2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ No:____ 3. Chain of custody present? If no, document on CUR. 4. Bottles broken and/or are leaking? If yes, document on CUR. 5. Multiphasic samples obvious? If yes, document on CUR. 6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR. 7. pH of all samples checked and meet requirements? If no, document on CUR. 8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding. 9. Did chain of custody agree with labels ID and samples received? If no, document on CUR. 10. Were VOA samples without headspace? If no, document on CUR. 11. Were VOA vials preserved? Preservative □HCl □4±2°C □Sodium Thiosulfate □ Ascorbic Acid 12. Did samples require preservation with sodium thiosulfate? ☐ 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR. 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR. 15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding. 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM. 17. Are analyses with short holding times requested?

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

18. Was a quick Turn Around (TAT) requested?

	I	9	SI	080289		
Lo	t#	AC	708	3028 Cur 19		
Lo	gin (Che	eks:			Initials
N/A	1 Yes	No				CH
	_ □ ⁄: ∕		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA document on CUR, and contact PM before proceeding.	\ -0003)	If no,
Ø	۰		20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, do contact PM before proceeding.	ocument o	on CUR, and
	9		21	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, an	id times?	
	্ৰ		22.	Were special log in instructions read and followed?		
ব			23.	Were AFCEE metals logged for refrigerated storage?		
	ď		24.	Were tests logged checked against the COC? Which samples were confirmed?	_	
			25.	Was a Rush form completed for quick TAT?		
Ø			26.	Was a Short Hold form completed for any short holds?		
	ū	0/	27.	Were special archiving instructions indicated in the General Comments? If so, what were the	ney?	
						-
La	belin	g ar	id S	torage Checks:		Initials
Þ			28.	Was the subcontract COC signed and sent with samples to bottle prep?	Ü	
	9		29.	Were sample labels double-checked by a second person?		
Þ	□ /		30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second per	rson?	
``	7		31.	Did the sample ID, Date, and Time from label match what was logged?		
ϕ'	ù		32.	Were stickers for special archiving instructions affixed to each box? See #27		
Þ	. 🗀		33.	Were AFCEE metals stored refrigerated?		

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

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CHAIN-OF-CUSTODY / Analytical Request Document

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cindy.arnold@ngem.com FTP site address provided to labs Northgate Environmental Management, Inc. All PDF reports and EDDs will be uploaded to: As Se only by collison cell Lab PM email hone/Fax: Address: rank.hagar@ngem.com Notifications provided to: Additional Comments/Special Instructions: ab PM: \rvada, CO 80002 ITEM# pplicable Lab Quote #: quired Ship to Lab: M-120B Michael P. Phillips 4955 Yarrow Street TestAmerica Samples IDs MUST BE UNIQUE 303-736-0157 testamericainc.com micnaei.pniiiips@ One Character per box. SAMPLE ID (A-Z, 0-9 / ,-) Phone/Fax: Required Project Information:
Site ID #: TRONGY I I C Site PM Email: Site PM Name Site Address Project # Henderson 949-375-7004 560 W. Lake Mead Drive TRONOX LLC. HENDERSON derrick.willis@ngem.com 2027.001 Derrick Willis 7 9 7 8 8 8 8 8 E State San US MAIL WG RELINOUISHED BY : AFFILIATION MATRIX CODE Ę COURIER FEDEX PRINT Name of SAMPLER. SAMPLE TYPE G=GRAB C=COMP G Send EDD to trank.hagar@ngem.com
CC Hardcopy report to PDF Electronic Version Only CC Hardcopy report to Send Invoice to: Reimbursement project? Address SAMPLE DATE 7/7/2009 PO Box 55 Frank Hagar Northgate Environmental Management, Inc Henderson, NV 89009 Susan Crowley Tronox LLC SAMPLE TIME 8:45 7/19/05 see additional comments below SAMPLER NAME AND SIGNATURE 7/7/09 13:00 1967/50 TIME Non-reimbursement project? #OF CONTAINERS Phone #: FIELD FILTERED? (Y/N Jnpre (949)260-9293 H2SO4 HNO3 × HCI DATE Signed NaOH 山の Na2S2O3 7-7-09 Requested MA MCP Cert? NJ Reduced Deliverable Package? QC level Required: Standard If Rush, Date due TAT: Standard 30 day Lab Project ID (lab use) Analyses Time: 7/10/09/0845 × 17/ EPA 8141A OPPPE So Se 1300 ノヤ 1330 CT RCP Cert? × Sample Receipt Conditions Rush Temp in 00 Y/N イ | | Y/N Special イ | | | 500 ml Plastic Samples on Ice? Sample I.D. Comments/Lab EPA Stage **∀**/N **∀** | X Y/N **∠** × Sample intact? Mark one Mark One Mark One **∀**/z **∀**/N **∀**/**z** Trip Blank?

7/10/09

Page: Cooler#

COC No.

2027.001.00199

Lo	ot #:	D	9	3100272 Date/Time Received: 7 10 09 0845	
Co	mna	nv N	Jan	ne & Sampling Site: Northgate - TRONOX	
	ттра	.11 y 1	ian	to a sampling site.	
PA	1 to C	omn	lete	This Section: Yes No Yes No	_
		•		check required:□ 🛕 Quarantined: □ 🗭	
Qu	ote#:		82	046	
Spe	ecial I	nstru	ctio	18:	
Tin	ne Zor	ne:			
			CD'	T/CST • MDT/MST • PDT/PST • OTHER	_
	_	ā	~1		
Un	раск	ting	Ch	ecks:	
				11.2	
			(°C)	: <u>4.3</u>	
N/A	Yes	No 🗆	1	. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	
<u></u>		ם ם		Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: No:	
				Chain of custody present? If no, document on CUR.	
	_	_ □⁄		Bottles broken and/or are leaking? If yes, document on CUR.	
	_	_ 	_	Multiphasic samples obvious? If yes, document on CUR.	
			6.	Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.	
	Ø		7.	pH of all samples checked and meet requirements? If no, document on CUR.	
			8	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.	
		۵	9.	Did chain of custody agree with labels ID and samples received? If no, document on CUR.	
			10.	Were VOA samples without headspace? If no, document on CUR.	
		ū	11.	Were VOA vials preserved? Preservative □HCl □4±2°C □Sodium Thiosulfate □ Ascorbic Acid	
	ū		12.	Did samples require preservation with sodium thiosulfate?	
4			13.	If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.	
				Sediment present in dissolved/filtered bottles? If yes, document on CUR.	
I			15.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.	
	4		16.	Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
			17.	Are analyses with short holding times requested?	
		ď	18.	Was a quick Turn Around (TAT) requested?	

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

Lo	ot #	$\overline{\mathcal{D}_{\epsilon}}$	70	3100272	
Lo	gin (Che	eks:		Initials
N/A	4 Yes	s No			Ln.
	Þ		19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
A			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document contact PM before proceeding.	on CUR, and
	Þ		21	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	\pu		22.	Were special log in instructions read and followed?	
Þ	□ `		23.	Were AFCEE metals logged for refrigerated storage?	
	þ		24.	Were tests logged checked against the COC? Which samples were confirmed?	
7			25.	Was a Rush form completed for quick TAT?	
Þ			26.	Was a Short Hold form completed for any short holds?	
`		Á	27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	
					<u> </u>
La	belin	g ar	ıd S	torage Checks:	Initials LC
			28.	Was the subcontract COC signed and sent with samples to bottle prep?	
			29.	Were sample labels double-checked by a second person?	
Z			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
	Z		31.	Did the sample ID, Date, and Time from label match what was logged?	
Ø			32.	Were stickers for special archiving instructions affixed to each box? See #27	
/	п		33	Were AFCEF metals stored refrigerated?	

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

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221 10/09/ COC No. Page: Cooler#

cindy.arn frank.hag:	FTP site a Notificatio	Northgate	As Se ont	Additional C.	12	11	10	9	œ	7	6	5	4	3	2	-M-	ITEM#	Applicable Lab Quote #	Lab PM email	Phone/Fax:	Ь—	Arvada, CO 80002	Address:	ø
cindy.arnold@ngem.com frank.hagar@ngem.com	FTP site address provided to labs Notifications provided to:	Northgate Environmental Management, Inc.	As Se only by collison cell All PDF reports and EDDs will be uploaded to:	Additional Comments/Special Instructions:						7-8-09	DR6		***************************************			M-103B	SAMPLE ID One Character per box. (A-Z, 0-9 /,-) Samples IDs MUST BE UNIQUE	b Quote #:	testamericainc.com		Michael P. Phillips	30002	4955 Yarrow Street	TestAmerica
			•									-					MATRIX Desalos water we water desculorated for the control of the	Site PM Email:	Phone/Fax:	Site PM Name	City Henderson	Site Address	Project#	Site ID #: TRONOX LI
	1	Γ.	1	70			***************************************										MATRIX WATER O WY SUFFACE WATER SO MATERIA CO SOLUTION OTHER OTHER OTHER OTHER TA	derrick.willis	949-375-7004	Derrick Willis	State	560 W. Lake Mead Drive	2027.001	TRONOX LLC. HENDERSON
SHIPPING METHOD JPS COURIER JS MAIL			los Hi	RELINQUISHED BY / AFFILIATION									-			wG	SAMPLE TYPE G=GRAB C=COMP	derrick.willis@ngem.com		illis	NV	Drive		NDERSON
(mark as ann	7	***		AFFILIATION												7/8/2009	SAMPLE DATE	CC Hardcopy report to	CC Hardcopy report to	Send EDD to	Reimbursement project?	City/State	Address: PO Box 55	Send Invoice to: Susan Cr Tronox L
e of SAMPLER:	74/0	18/6	7-8	DATE												9:05 AM	SAMPLETIME			Frank Hagar Northgate Environmental Management, Inc frank.hagar@ngem.com	ject?	Henderson, NV 89009	× 55	Susan Crowley Tronox LLC
SAMPLER NAME AND	Je S	1/600	14:15	TIME AC												1	#OF CONTAINERS	see additional comment	PDF Electronic Version	hgate Environm m.com	Non-reimbursement project?	9009 Phor		
SIGNATURE SIGNATURE SIGNATURE		WAY.		CEPTED BY / AFFILIATION												×	FIELD FILTERED? (Y/N) Unpreserved H2SO4 HNO3	ts below	Only	ental Wanageme	ment project?	#		
C. Brown	The state of the s			FILIATION							-					<u>^</u>	HCI Preservatives NaOH Na2S2O3			nt, inc		(949)260-9293		
1-8-0°			GES														Other Requested Analyses		Lab P	MA M	Mark one NJ Re	Э С	If Rus	TAT: 9
7/10/09	$\overline{}$	7/8/05/	7/8//													×	EPA GOOD COMMENT COM		Lab Project ID (lab use)	MA MCP Cert?	NJ Reduced Deliverable Package?	QC level Required: Standard	If Rush, Date due	TAT: Standard 30 day
2480	1030	1600	1415															////	use)	CT RCP Cert?	ble Package	standard	<i>*</i>	×
Temp in 00 Samples on Ice?	۲ 2	≺/N	≺'z	Sample Receipt Conditions								•				500 ml Plastic	s c	////		Cert?	?	Special E	-	Rush
Sample intact?	-	Y/N	⊀/x	Conditions					-			-		***************************************		ć	Comments/Lab	//		Ma		EPA Stage 4 Mark one		M
Trip Blank?	Y/N	Y/N	Y/N														5			Mark One		ark one		Mark One

	NO(-100 -711	Data /Time Das	ceived: 7/10/0	a
Lot #:	D96100274			
Compa	ny Name & Sampling Site:_	Northgate -	- TLONOX	
PM to C	omplete This Section: Yes	No,	Yes No	
Residual	chlorine check required:□	Quarantine	id: 🗅 🎢	
Quote #:	83046			
Special In	nstructions:			
• EDT/ES	ne: ST • CDT/CST • MDT/MST • PI	OT/PST • OTHER		
				:
Unpack	ting Checks:	•		
Co	ooler #(s):			:
	ures (°C): 2.7			
	No			Initials
	☐ 1. Cooler seals intact? (N	N/A if hand delivered) If no, doc	cument on CUR.	CHK
Ø	☐ 2. Coolers scanned for ra-	diation. Is the reading \leq to back	ground levels? Yes:	No:
		ent? If no, document on CUR.		
	4. Bottles broken and/or a	are leaking? If yes, document on	CUR.	
	5. Multiphasic samples of	bvious? If yes, document on CU	R.	
Ø,	☐ 6. Proper container & pre	servatives used? (ref. Attachmen	nt D of SOP# DV-QA-0003)	If no, document on CUR.
ם פ	7. pH of all samples check	ked and meet requirements? If 1	no, document on CUR.	
		ided for all analysis requested? I contact PM before proceeding.		DV-QA-0003) If no,
	9. Did chain of custody ag	gree with labels ID and samples	received? If no, document o	n CUR.
ø 0	☐ 10. Were VOA samples w	ithout headspace? If no, docume	ent on CUR.	
o/ o	☐ 11. Were VOA vials prese	erved? Preservative □HCl □4±	2°C □Sodium Thiosulfate	Ascorbic Acid
	12. Did samples require pre	eservation with sodium thiosulfa	ite?	
	☐ 13. If yes to #11, did the sa	mples contain residual chlorine?	? If yes, document on CUR.	
d , a .	☐ 14. Sediment present in dis	solved/filtered bottles? If yes, de	ocument on CUR.	
	☐ 15. Is sufficient volume procontact PM before proc	ovided for client requested MS, leeding.	MSD or matrix duplicates? I	f no, document on CUR, and
	_	urs past the collection date(s)?	If yes, notify PA/PM.	
	17. Are analyses with short	•		
	18. Was a quick Turn Arou			

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

Lo	t #	Do	<u> 16</u>	2100274	
Lo	gin (Chec	eks:		Initials
N/A	1 Yes	No.			JM.
	Þ	0	19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
4		<u>.</u>	20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document contact PM before proceeding.	on CUR, and
	<i>þ</i>		21	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
	Ŕ		22.	Were special log in instructions read and followed?	
Þ	<u> </u>		23.	Were AFCEE metals logged for refrigerated storage?	
`	Þ		24.	Were tests logged checked against the COC? Which samples were confirmed?	
	Þ		25.	Was a Rush form completed for quick TAT?	
Þ			26.	Was a Short Hold form completed for any short holds?	
•		F	27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	
La	belin	g an	ıd S	torage Checks:	Initials
			28.	Was the subcontract COC signed and sent with samples to bottle prep?	
	□		29.	Were sample labels double-checked by a second person?	
Z			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
-	Ø		31.	Did the sample ID, Date, and Time from label match what was logged?	
Ø			32.	Were stickers for special archiving instructions affixed to each box? See #27	
Ø	. 🗖		33.	Were AFCEF metals stored refrigerated?	

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

Sporthgate ZR | 1100 Quali Street, Suite 102, Newport Beach, CA 92660 (949) 260-9293

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. Page: Cooler#

2027.001.00221 1 of 1 1 of

Required Ship to Lab:	Required Project Information:	tion:		Required Invoice Information:	Information:								ì											
Lab Name: TestAmerica		TRONOX LLC. HENDERSON	DERSON	Send Invoice to:	Susan Crowley Tronox LLC							TA1	TAT: Standard 30 day	ndarc	30 c	ay	×	Rush	ısh				Mark One	Φ
Address: 4955 Yarrow Street	Project # 2027.001	001		Address: PO Box 55	55							툸	If Rush, Date due	ate	ě			Ì		ı				_
Arvada, CO 80002	Site Address 560 W. L	560 W. Lake Mead Drive	Drive	City/State	Henderson, NV 89009	89009	Phone #:	(949)2	(949)260-9293			8	QC level Required: Standard	Requ	řed.	Stan	dard	ᅱ	Special		EPA Stage		Mark one	<u> </u>
Lab PM: Michael P. Phillips	City Henderson	State	NV	Reimbursement project?	ject? X	Non-rei	Non-reimbursement project?	t project?		Mari	Mark one	Ę	NJ Reduced Deliverable Package?	ě	elive	rable	Pac	kag	٦	_				
Phone/Fax: 303-736-0157	Site PM Name	Derrick Willis	S	Send EDD to	Frank Hagar Northgate Environmental Management, Inc	orthgate E gem.com	nvironmen	al Manag	ement,	ਨ		ĕ	MA MCP Cert?	Set.	\dashv		긲	ଚ୍ଚି	CT RCP Cert?	1			Mark One	Ф
Lab PM email micnaer.pniirips@ testamericainc.com	Phone/Fax: 949-375-7004	7004		CC Hardcopy report to		PDF Electronic Versi	Version Only	Ā				Lab	Lab Project ID (lab use)	ect II	(lab	use	_							
Applicable Lab Quote #:	Site PM Email: derr	ck.willis@	derrick.willis@ngem.com	CC Hardcopy report to		dittonal c	see additional comments below	elow			j		١	-	K		コ	N	7	Y	7	1		
	odes					es	Y/N)		Preservatives	atives					\		\			\				
SAMPLE ID One Character per box.	DRINGWO WATER WP WATER GROUND WATER WG SURFACE WATER WASTE WATER OC PREE PRODUCT UF SLUGGE SOL RINGSATE OUL OU OU RINGSATE OU OU OU OU OU RINGSATE	EX CODE	PLE TYPE B C=COM	SAMPLE DATE	SAMPLE TIME	NTAINER:	ERED? ()	d .				queste	alyses	Mejo	IPP PER			\mathbb{N}						
# Samples IDs MUST BE UNIQUE	OIL 999 OTHER WIPE AA AMAMA TISSUE AMBREM AE SUE AMR GS SOIL GAS	≱ 9				#OF COI	FIELD FILT	Unpreserve H2SO4 HNO3	HCI NaOH	Na2S2O3	Methanol Other	Re	/ /	ISA BROIG BA BROIG	77/470					% C	omr Samp	nents	Comments/Lab Sample I.D.	
M-10B		wg	G	7/10/2009	11:45 AM	<u> </u>	z	V					×						500	500 ml Plastic	stic			
M-10BDISS		WG	G	7/10/2009	11:45 AM	_	~	×					×						500	500 ml Plastic	stic			
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Additional Comments/Special Instructions:		178	NOLIVI II 14V 7 AR GENSJONELES	NOTENI BEN	ויאור	Tikar	VCCT-D1	CLETED BY A	VELLITATION	ON				DATE		164E		amp	e Re	ceip	t Cor	Sample Receipt Conditions	ns	
As Se only by collison cell All PDF reports and EDDs will be uploaded to:	io:	J_	11/11/11)(7-10	SA:	r		\mathbb{N}	0			111	1		143	N		۲/۷ ۷	<u> </u>	∀ /N	z	Y/N	
Northgate Environmental Management, Inc.	•	ſÌ	A	R	170	1600	b	4	6	3			Į	P/11/4		0830	0		Y/N	Z —	Y/N	Z	Y/N	
FTP site address provided to labs Notifications provided to:		T													 				Y/N	Z	Y/N	Z	Y/N	
cindy.arnold@ngem.com					:												┝	l	Y/N	Ľ	∀ /z	Ľ	∀/ N	3
II ally.lidgal@iigelii.coiii		SHID SHID		SHIPP NG METHOD, (provides a procondate) WHOS COURTER (FEDEX) PRINT Name of SAMPLER.	e) SAMPLER:	ER NAML AN	7110	DEGINATURE.										p in 00			nple	act?	Blank?	ri ca
		us	US MAIL	SIGNATUR	SIGNATURE of SAMPLER:	C. 1		1	Þ	DATE Signed		7-10-09	Time:	1 =	08:41	\mathcal{I}		Tem	Sam	on Ic		1116	Trip	me
											1		ı	I	ı	I		ı	I	ŀ				Δ

Lot #: 096110152 Date/Time Received: $7/11/9$ 083	30
Company Name & Sampling Site: Northgate - Tronox	
v	
PM to Complete This Section: Yes No Quarantined: ☐ Yes No Quarantined: ☐ Quarantined : ☐ Yes No Quarantined : ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
Quote #: 83046 - water.	
Special Instructions:	
Time 7-and	
Time Zone: • EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER	
Unpacking Checks:	
Cooler #(s):	
Temperatures (°C): 3.9	<u> </u>
N/A Yes No	Initials
☐ ☐ 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	
2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: No:	-
3. Chain of custody present? If no, document on CUR.	
4. Bottles broken and/or are leaking? If yes, document on CUR.	
5. Multiphasic samples obvious? If yes, document on CUR.	
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, of the container of	document on CUR.
7. pH of all samples checked and meet requirements? If no, document on CUR.	
8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA document on CUR, and contact PM before proceeding.	-0003) If no,
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.	
☐ ☐ 10. Were VOA samples without headspace? If no, document on CUR.	
☐ 11. Were VOA vials preserved? Preservative ☐HCl ☐4±2°C ☐Sodium Thiosulfate ☐ Ascort	oic Acid
☐ 12. Did samples require preservation with sodium thiosulfate?	
□ □ 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.	
☐ ☐ ☐ 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.	
□ □ 15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, do contact PM before proceeding.	cument on CUR, and
☐ 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
☐ ☐ 17. Are analyses with short holding times requested?	
☐ ☐ 18. Was a quick Turn Around (TAT) requested?	

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

Lo	t #	$\overline{\mathcal{D}}$	90	6110152	
Lo	gin (Che	cks:		Initfuls
N/A	Ye	s No			
	2	<u> </u>	19.	Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding.	If no,
15			20.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, documen contact PM before proceeding.	t on CUR, and
			21	. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times	3?
	Ø		22.	Were special log in instructions read and followed?	
			23.	Were AFCEE metals logged for refrigerated storage?	
		í 🗖	24.	Were tests logged checked against the COC? Which samples were confirmed?	
			25.	Was a Rush form completed for quick TAT?	
Ø			26.	Was a Short Hold form completed for any short holds?	
		Ø	27.	Were special archiving instructions indicated in the General Comments? If so, what were they?	
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Lal	belin	g ar	id S	torage Checks:	Initials
					ac
			28.	Was the subcontract COC signed and sent with samples to bottle prep?	
	Z		29.	Were sample labels double-checked by a second person?	
Ø			30.	Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
			31.	Did the sample ID, Date, and Time from label match what was logged?	
			32.	Were stickers for special archiving instructions affixed to each box? See #27	
1	П	\Box	22	Were AECEE metals stored refrigerated?	

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

Gnorthgate environmental management, Inc. 1100 Quall Street, Suite 102, Newport Beach, CA 92660 (949) 260-9293

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate.

COC No. Page: Cooler# 2027.001.00212 1 of 1 1 of

папк.падаг@лдет.com	cindy.arnold@ngem.com	Notifications provided to:	Northgate Environmental Management, Inc.	As se only by collison cell All PDF reports and EDDs will be uploaded to:	Additional Comments/Special Instructions:	12	The second secon	10	9	60	7	6					M-121B	SAMPLE ID One Character per box. (A-Z, 0-9 / -) # Samples IDs MUST BE UNIQUE	Applicable Lab Quote #:	ericainc.com	303-736-0157	Lab PM: Michael P. Phillips	Arvada, CO 80002	Address: 4955 Yarrow Street	Required Ship to Lab: Lab Name: TestAmerica
				9								/	/					Voild Martix Codes MATRIX MATRIX MATRIX WE WARE GENERAL WATE WARE WARE WARE WARE WATE	aii:	Phone/Fax: 949-375-7004	me	City Henderson S	Site Address 560 W. Lake Mead Drive	Project # 2027.001	Required Project Information: Site ID #: TRONOX LLC. HENDERSON
UPS CO		Τ	Ŋ	7	RELIA					/							WG	MATRIX CODE	villis@ı		Derrick Willis	State	Mead Dr		C. HEND
OURIER				1/1/1	RELINOUISHED BY / AFFILIATION				/								G	SAMPLE TYPE G=GRAB C=COMP	derrick.willis@ngem.com			AN	rive		
US MAIL SHIPPING (CHICO) (CHICA) FEDEX PRINT Name of SAMPLER. SIGNATURE of SAMPLER.			P	7	VEET INTION				/								7/10/2009	SAMPLE DATE	CC Hardcopy report to	CC Hardcopy report to	Send EDD to	Reimbursement project?	City/State	Address: PO Box 55	Required invoice information: Send invoice to: Susan Crowley Tronox LLC
SAMPLE			The	7-10	BATE												7:45 AM	SAMPLE TIME			Frank Hagar Northgate Environmental Management, Inc frank.hagar@ngem.com	ject?	Henderson, NV 89009	55	nformation: Susan Crowley Tronox LLC
SAMPLER NAME AN			11/2	14:30	TIME	/											1	#OF CONTAINERS	litional c	PDF Electronic Versi	thgate E em.com	Non-rei	9009		
			0	-	20												Z	FIELD FILTERED? (Y/N)	see additional comments below	Version (nvironm	Non-reimbursement project?	Phone #:		
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			700	H	// AFFI	i											_	HNO3			nageme	65	(949)260-9293		
DATE Signed			B		IATION											-		HCI Preservatives			nt, Inc	-	293		
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7-10-09 Time: 14:30																		Other Requested		Lat	MA	Z	8	Ę	ΑT
7 Time		\vdash	7/11	1/1													×	Analyses		Lab Project ID (lab use)	MA MCP Cert?	NJ Reduced Deliverable Package?	QC level Required: Standard	If Rush, Date due	TAT: Standard 30 day
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Temp in 00					Sampl		-							\dashv	\dashv		\dashv				CT RCP Cert?	ckage			Rush
Samples on Ice?	Y/N	Y/N	Y/N	Y / N	e Rec												500 m				Cert?	٦	Special		ङ
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Sample intact?	Υ΄N	Y/N	Y/N	Y/N	Sample Receipt Conditions												ŀ	Comments/I	\forall				EPA Stage		
Trip Blank?	۲/ ۷	۲/۷ ۷	۲/N	۲/z	ons													Comments/Lab			Mark One		Mark one		Mark One

TestAmerica Denver

Sample Receiving Checklist

Lo	t #: <u>_</u> ر	$\overline{\mathcal{P}}$	9	G110155 Date/Time Received: 7/11/9 0830
Co	mna	nv N	amo	e & Sampling Site: Northqate
,00	mpu.			
		•		This Section: Yes No Yes No Check required:
Que	ote#:	8	3	240
Spe	cial I	nstruc	tion	s:
m:	7			
	ne Zor DT/E		CDT	/CST • MDT/MST • PDT/PST • OTHER
Un	pack	cing	Ch	ecks:
	C	ooler	#(s)	·
Ten	nperat	tures ((°C):	<u> </u>
N/A	Yes	s No		Inifials
	2	_ <u></u>		Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
	P			Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: No:
	⊿			Chain of custody present? If no, document on CUR.
		41	_	Bottles broken and/or are leaking? If yes, document on CUR.
		1		Multiphasic samples obvious? If yes, document on CUR. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
a	, <u>2</u> 2			pH of all samples checked and meet requirements? If no, document on CUR.
_				Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no,
	_	_		document on CUR, and contact PM before proceeding.
	æ		9.	Did chain of custody agree with labels ID and samples received? If no, document on CUR.
			10.	Were VOA samples without headspace? If no, document on CUR.
2			11.	Were VOA vials preserved? Preservative □HCl □4±2°C □Sodium Thiosulfate □ Ascorbic Acid
		a		Did samples require preservation with sodium thiosulfate?
9				If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
				Sediment present in dissolved/filtered bottles? If yes, document on CUR.
			15.	Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
			16.	Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
			17.	Are analyses with short holding times requested?
		1	18.	Was a quick Turn Around (TAT) requested?

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

Lot # D9 G110155 Login Checks: N/A Yes No 19. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no. document on CUR, and contact PM before proceeding. 20. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding. 21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times? ☐ 22. Were special log in instructions read and followed? ☐ 23. Were AFCEE metals logged for refrigerated storage? ☐ 25. Was a Rush form completed for quick TAT? ☐ 26. Was a Short Hold form completed for any short holds? 27. Were special archiving instructions indicated in the General Comments? If so, what were they? Labeling and Storage Checks: 28. Was the subcontract COC signed and sent with samples to bottle prep? ☐ 29. Were sample labels double-checked by a second person? □ 30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person? □ 31. Did the sample ID, Date, and Time from label match what was logged? ☐ 32. Were stickers for special archiving instructions affixed to each box? See #27 ☐ 33. Were AFCEE metals stored refrigerated?

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

Snorthgate 7/11/9 environmental management, inc. 1100 Quall Street, Suite 102, Newports 949) 280-9293

equired Ship to Lab:

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed and accurate

Page: Cooler# COC No.

cindy.arnold@ngem.com All PDF reports and EDDs will be uploaded to: Notifications provided to: Northgate Environmental Management, Inc. irank.hagar@ngem.com FTP site address provided to labs As Se only by collison cell Lab Name: TestAmerica dditional Comments/Special Instructions: ab PM email Phone/Fax: ITEM# pplicable Lab Quote #: \rvada, CO 80002 ab PM: ddress: M-118B Michael P. Phillips 4955 Yarrow Street Samples IDs MUST BE UNIQUE michael.phillipse 303-736-0157 testamericainc.com One Character per box. (A-Z, 0-9 / ,-) SAMPLE ID Phone/Fax: ₹ Project # Required Project Information:
Site ID #: TRONGY I I C Site PM Email: Site PM Name Site Address Henderson 949-375-7004 560 W. Lake Mead Drive TRONOX LLC. HENDERSON derrick.willis@ngem.com 2027.001 Derrick Willis State US MAIL Sg ₩G MATRIX CODE NOTIVE AS CHARACTOR COURIER FEDEX ₹ SAMPLE TYPE G=GRAB C=COMP G CC Hardcopy report to see additional com CC Hardcopy report to PDF Electronic Version Only Send EDD to Required invoice information:
Send invoice to: Susan Crowley Reimbursement project? Address: SAMPLE DATE 7/9/2009 PO Box 55 PRINT Name of SAMPLER: SNATURE of SAMPLER frank.hagar@ngem.com Frank Hagar Northgate Environmental Management, inc Henderson, NV 89009 SAMPLE TIME 8:45 AM 2-6 1000 Non-reimbursement project? 8 #OF CONTAINERS Phone #: FIELD FILTERED? (Y/N) nents below Unpreserved H2SO4 (949)260-9293 HNO3 laOH Na2S2O3 Mark one dethanol 7-9-09 Time: 13,15 Requested NJ Reduced Deliverable Package? QC level Required: Standard MA MCP Cert? TAT: Standard 30 day Lab Project ID (lab use) If Rush, Date due Analyses 1/6 × 7/11/1 0830 EPA BIATA OPPR 1315 000 1600 CT RCP Cert? × Sample Receipt Conditions Rush Temp in 00 Y/N イ/N Y/N Y/Z Special 500 ml Plastic Samples on Ice? Sample I.D. Comments/Lab EPA Stage Y/N Y/N Ϋ́Ν ≺ × Sample intact? Y/N Mark one Y/N ĭ Mark One Mark One Trip Blank?

Lot #: <u>D9G10159</u> Date/Time Received: <u>7/11/9 0830</u>
Company Name & Sampling Site: North gate
PM to Complete This Section: Yes No Quarantined:
Quote #: 83044
Special Instructions:
Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER
Unpacking Checks:
Cooler #(s):
Temperatures (°C): 4.3 2.4
N/A Yes No N/A Yes No 1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.
2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: No:
3. Chain of custody present? If no, document on CUR.
4. Bottles broken and/or are leaking? If yes, document on CUR.
5. Multiphasic samples obvious? If yes, document on CUR.
6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.
7. pH of all samples checked and meet requirements? If no, document on CUR.
8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.
9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.
☐ ☐ 10. Were VOA samples without headspace? If no, document on CUR.
☐ ☐ ☐ 11. Were VOA vials preserved? Preservative ☐HCl ☐4±2°C ☐Sodium Thiosulfate ☐ Ascorbic Acid
12. Did samples require preservation with sodium thiosulfate?
☐ ☐ 13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.
☐ ☐ 14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.
15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.
☐ ☐ 16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.
☐ 17. Are analyses with short holding times requested?
☐ ☐ 18. Was a quick Turn Around (TAT) requested?

\QA\Edit\FORMS\Sample Receiving\Sample Receiving Checklist 9-2-08

Lot # D96110159 Login Checks: N/A Yes No 19. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) document on CUR, and contact PM before proceeding. 20. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding. 21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times? ☐ 22. Were special log in instructions read and followed? ☐ 23. Were AFCEE metals logged for refrigerated storage? 24. Were tests logged checked against the COC? Which samples were confirmed? ☐ 25. Was a Rush form completed for quick TAT? ☐ 26. Was a Short Hold form completed for any short holds? 27. Were special archiving instructions indicated in the General Comments? If so, what were they? Labeling and Storage Checks: □ 28. Was the subcontract COC signed and sent with samples to bottle prep? 29. Were sample labels double-checked by a second person? □ 30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person? □ 31. Did the sample ID, Date, and Time from label match what was logged? ☐ 32. Were stickers for special archiving instructions affixed to each box? See #27 ☐ 33. Were AFCEE metals stored refrigerated?

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts



Lot ID: <u>D96080289</u>
Client: Northgate (Tronox)
Batch(es) #: 9190110
Associated Samples:
I certify that, to the best of my knowledge, the attached package represents a complete and accurate copy of the original data.
Signature/Date: LRD 07/10/2009

TestAmerica

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr
						0400440	4 O07000D	004
D9G080289	1 D	SE	LF7HF1AH	20090709	6020TOTA	9190110	AG070909B	024
D9G080289	1 S	SE	LF7HF1AG	20090709	6020TOTA	9190110	AG070909B	024
D9G080289	1 D	AS	LF7HF1AF	20090709	6020TOTA	9190110	AG070909B	024
D9G080289	1 S	AS	LF7HF1AE	20090709	6020TOTA	9190110	AG070909B	024
D9G080289	1	SE	LF7HF1AC	20090709	6020TOTA	9190110	AG070909B	024
D9G080289	1	AS	LF7HF1AA	20090709	6020TOTA	9190110	AG070909B	024

Page 1 of 1

METALS PREPARATION LOGS ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 176

Batch Number: 9190110

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

07/09/09

Prepared By: JRW

Lot	Work Order		Due Date:	07/20/09	Initial Weight/Volume
D9G090000 Water	LF73C	В	Due Date: SDG:		<u>50 mL</u>
D9G090000 Water	LF73C	C	Due Date: SDG:		<u>50 mL</u>
D9G080289 Water	LF7HF Total		Due Date: 07/20/09 SDG:		<u>50 mL</u>
D9G080289 Water	LF7HF Total	S	Due Date: 07/20/09 SDG:		<u>50 mL</u>
D9G080289 Water	LF7HF Total	D	Due Date: 07/20/09 SDG:		<u>50 mL</u>

Prep Date:

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

Markey

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	9190110	ALLIQ	JKH			
PREP DATE:	7.9.2009	DIGES	JRW			
CONSUMABLES	USED					
Digestion Cups:	Manufacturer:	Environmental Expres	s Lot #:	A901LS267		
One or more samples	were filtered prior to a	ent. Yes	☐ No			
If "yes", then the metho	od blank and the LCS wer	e also filtered in the sam	ne manner using the sam Analyst(s) Initials:	ne type of filter.		
STANDARDS USE	-D					
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID		
2008Cal-1	STD-2636-09	7/1/10	100uL	15		
2008Cal-2	STD-2635-09	7/1/10	100uL	15		
				Control of the second s		
REAGENTS USED)					
Reagent	Manufacturer	Lot#	Volume Used (mL)			
HNO ₃	JT Baker	H12022	3	·		
TEMPERATURE C	YCLES					
Thermometer ID:	Thermometer ID: \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\					
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)		
HNO3	1200	45	1615	76		
HNO3	1630	96	1700	94		
HNO3						
Samples and QC re	volumed to:	50mL	Analyst's Initials	J810		
COMMENTS:				······································		
I certify that all information above is correct and complete. Signature: ໄພ ພັ້ມ						
Signature: / y W			Date:	4		

TestAmerica 178

METALS SAMPLE DATA ICP-MS

<u>TestAmerica</u>

THE LEADER IN ENVIRONMENTAL TESTING

G:\Metals\Hidden\Forms\MassSpec\ICP-MS Std and Spike True Values.doc

ICP-MS Standard and Spike True Values

Post Digestion Spike 200 200 200 200 200 200 200 200 200 20	
Matrix Spike Sample and Duplicate 40 40 40 40 40 40 40 40 40 40 40 40 40	
Laboratory Control Sample and Duplicate 40 40 40 40 40 40 40 40 40 40 40 40 40	
Interference Check Sample AB	
Interference Check Sample A 100,000 Aluminum 100,000 Calcium 100,000 Magnesium 100,000 Phosphorus 100,000 Potassium 100,000 Carbon 1,000,000 Carbon 1,000,000 Chloride 2000 Molybdenum 2000 Molybdenum	
Continuing Calibration Standard 50 50 50 50 50 50 50 50 50 50 50 50 50	
Initial Calibration Standard 40 40 40 40 40 40 40 40 40 40 40 40 40	
Cal. Std. 100 ppb 100 ppb 100 ppb 100 100 100 100 100 100 100 100 100 10	
Element Aluminum Antimony Arsenic Barium Beryllium Cadmium Chromium Cobalt Cobalt Copper Lead Manganese Molybdenum Nickel Selenium Silver Thallium Tin Uranium	! ! !

Due to the presence of trace contaminants in the ICSA solution, the % recovery for the ICSAB solution is calculated by subtracting the levels in the ICSA from the ICSAB. All units are ug/L.

ICB = Initial Calibration Blank **Quality Control Standards**

CCB = Continuing Calibration Blank

ICV = Initial Calibration Verification (Second Source)

CCV = Continuing Calibration Verification

TestAmerica Denver

Standards Preparation Logbook Record

Jul-09-2009

Analyst: trudelll

Analyst: trudelll

Analyst: trudelll

Analyst: DIAZL

Logbook: \$\$ Logb

STD4841-08, 1000 Zn (Inorganic Ventures)

Lot No.: B2-ZN02045

Vendor's Expiration Date: 10-01-2009

Solvent: 2% HNO3

Date Prep./Opened: 09-04-2008

Vendor: Inorganic Ventures

Date Received: 09-04-2008

Date Expires(1): 10-01-2009 (None) Date Expires(2): 10-01-2009 (None)

(METALS)-Inventory ID: 779

STD6653-08, 1000 Se

Lot No.: B2-SE02003 Vendor's Expiration Date: 12-01-2009

Vendor: Inorganic Ventures Solvent: 2% HNO3

Date Prep./Opened: 11-25-2008

Date/Received: 11-25-2008

Date Expires(1): 12-01-2009 (None) Date Expires(2): 12-01-2009 (None)

(METALS)-Inventory ID: 803

 $\begin{tabular}{lll} \hline Component & & & \underline{Initial\ Conc\ (mg/L)} \\ \hline Se & & & 1,000.0 \\ \hline \end{tabular} & & \underline{Final\ Conc\ (mg/L)} \\ \hline 1,000.0 & & 1,000.0 \\ \hline \end{tabular}$

STD1198-09, 1000 mg/L Sn

Vendor: Inorganic Ventures Lot No.: B2-SN02016 Vendor's Expiration Date: 03-01-2010

Solvent: 1% HNO3

Date Prep./Opened: 03-02-2009 Date Received: 03-02-2009

Date Expires(1): 03-01-2010 (None)

Date Expires(2): 03-01-2010 (None)

(METALS)-Inventory ID: 833

STD1853-09, 1 mg/l Se

Solvent: 5% HN03 Lot No.: H02026 Volume (ml): 100.00

Date Prep./Opened: 04-01-2009

Date Expires(1): 12-01-2009 (1 Year)

pipette: Met 21

Page 1 of 11

Parent Std No.: STD6653-08, 1000 Se		Aliquo	ot Amount (ml): 0.1000
	rent Date Expires(2):		
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Se		1,000.0	1.0000
STD3611-09, ICP-MS 1ppm Sn/Zn			Analyst: DIAZL
Solvent: 5% HNO3 Lo Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)	t No.: H12022		Volume (ml): 10.000
Parent Std No.: STD3609-09, ICP-MS 10 Parent Date Expires(1): 10-01-2009 Pa Component	ppm Zn rent Date Expires(2):	•	ot Amount (ml): 1.0000 Final Conc (mg/L)
1000 Zn		10.000	1.0000
Parent Std No.: STD3610-09, ICP-MS 10	ppm Sn	Alique	ot Amount (ml): 1.0000
Parent Date Expires(1): 03-01-2010 Pa		-	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Sn		10.000	1.0000
STD4008-09, ICP-MS (024) INT STI	BRC-HIGH		Analyst: LILLT
Solvent: 5% HNO3 Lo Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verificate pipettes: Met 20	t No.: H12022 tion ID: 0)		Volume (ml): 250.00
Parent Std No.: STD1469-09, Germaniun Parent Date Expires(1): 03-16-2010 Pa		•	ot Amount (ml): 1.2000
Component	nent Date Expires(2).	Initial Conc (mg/L)	Final Conc (ug/L)
Ge		1,000.0	4,800.0
Parent Std No.: STD1972-09, Lithium 6 S Parent Date Expires(1): 04-07-2010 Pa Component	Stock arent Date Expires(2):	-	ot Amount (ml): 1.5000 Final Conc (ug/L)
Lithium6		1,000.0	6,000.0
Parent Std No.: STD1973-09, Indium Sto	ck	Aliqu	ot Amount (ml): 0.4000
	rent Date Expires(2):	05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L)
In		1,000.0	1,600.0
Parent Std No.: STD6317-08, Scandium	Stock	Aliqu	ot Amount (ml): 0.4000
	rrent Date Expires(2):	-	Final Conc (ug/L) 1,600.0

Parent Std No.: STD6318-08, Holmium Stock	Alique	ot Amount (ml): 0.4000
Parent Date Expires(1): 11-10-2009 Parent Date Expires(2): Component	12-01-2009 Initial Conc (mg/L)	Final Conc (ug/L)
Но	1,000.0	1,600.0
STD4101-09, ICP-MS BLANK		Analyst: DIAZL
Solvent: Water Date Prep./Opened: 07-09-2009 Date Expires(1): 08-09-2009 (1 Month) Date Verified: 12-314714 by - (Verification ID: 0)		Volume (ml): 1,000.0
Parent Std No.: STD4100-09, NITRIC ACID	Aliqu	ot Amount (ml): 50.000
Component	Initial Conc (%)	Final Conc (%)
HNO3	100.00	5.0000
STD4102-09, ICP-MS 10 ppm Sn		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-09-2009 Date Expires(1): 07-10-2009 (1 Day) Date Expires(2): 03-01-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8		Volume (ml): 10.000
Parent Std No.: STD1198-09, 1000 mg/L Sn Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): Component	03-01-2010 Initial Conc (mg/L)	ot Amount (ml): 0.1000 Final Conc (mg/L)
Sn	1,000.0	10.000
STD4103-09, ICP-MS 100 ppb cal		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-09-2009 Date Expires(1): 07-10-2009 (1 Day) Date Expires(2): 07-10-2009 (1 Day) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		Volume (ml): 50.000
Parent Std No.: STD2636-09, ICPMS 2008CAL-1 Inorganic V Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): Component	•	not Amount (ml): 0.2500 Final Conc (ug/L)
Mo Sb	20.000	100.00
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic \ Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): Component	_	Final Conc (ug/L)

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V	20.000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
Tl	20.000	100.00
U	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquo	t Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Fe	1,000.0	5,000.0
	Aliquo	t Amount (ml): 0.5000
Parent Std No.: STD4102-09, ICP-MS 10 ppm Sn Parent Data Funing(1): 07-10-2009 Parent Data Funing(2)	-	t Amount (mi). 0.3000
Parent Date Expires(1): 07-10-2009 Parent Date Expires(2)	Initial Conc (mg/L)	Final Conc (ug/L)
Component	<u> </u>	
Sn	10.000	100.00
STD4104-09, ICP-MS CCV		Analyst: DIAZL
		Volume (ml): 100.00
· · · · · · · · · · · · · · · · · · ·		votume (iii). 100.00
Date Prep./Opened: 07-09-2009		
Date Expires(1): 07-10-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2636-09, ICPMS 2008CAL-1 Inorganic	Ventures Aliquo	t Amount (ml): 0.2500
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2)		
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	20.000	50.000
Mo	20.000	50.000
Sb		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic		4 A
	•	t Amount (ml): 0.2500
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2)	•	t Amount (ml): 0.2500
-	•	Final Conc (ug/L)
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component): 05-01-2010	
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component V): 05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L)
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component V Zn): 05-01-2010 <u>Initial Conc (mg/L)</u> 20.000	Final Conc (ug/L) 50.000
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component V Zn Ag	20.000 20.000 20.000	Final Conc (ug/L) 50.000 50.000
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component V Zn	20.000 20.000 20.000 20.000	Final Conc (ug/L) 50.000 50.000 50.000

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Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000
Mn	20.000	50.000
Ni	20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3862-09, Iron Stock	Alique	ot Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Fe	1,000.0	2,500.0
		,
Parent Std No.: STD4102-09, ICP-MS 10 ppm Sn	•	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-10-2009 Parent Date Expires(2):		TI 10 (1)
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Sn	10.000	50.000
STD4105-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
/		(oranie (iii), 10,000
Date Prep./Opened: 07-09-2009		
Date Expires(1): 07-10-2009 (1 Day)		
pipettes: Met 21 and Met 8		
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Aliqu	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
	W	0.0090
Sn	1.0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4103-09, ICP-MS 100 ppb cal	Aliqu	ot Amount (ml): 0.1000
Parent Date Expires(1): 07-10-2009 Parent Date Expires(2):	07-10-2009	
Component	Initial Conc (ug/L)	Final Conc (mg/L)
Mo	100.00	0.0010
Sb	100.00	0.0010
V	100.00	0.0010
Zn	100.00	0.0010
Ag	100.00	0.0010
Al	100.00	0.0010
As	100.00	0.0010
Ва	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010

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Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010
Ni	100.00	0.0010
Pb	100.00	0.0010
Se	100.00	0.0010
Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
Fe	5,000.0	0.0500
Sn	100.00	0.0010

Analyst: DIAZL

STD4106-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-09-2009

Date Expires(1): 07-10-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4105-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
Mo	0.0010	0.0002
Sb	0.0010	0.0002
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Tl	0.0010	0.0002
U	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

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STD4107-09, ICP-MS ICSA

Solvent: 5% HNO3

Lot No.: H12022

Volume (ml): 50.000

Analyst: DIAZL

Date Prep./Opened: 07-09-2009

Date Expires(1): 08-09-2009 (1 Month) Date Expires(2): 02-01-2010 (None)

pipettes: Met 8

Parent Std No.: STD0664-09, ICPMS Interferent Check Standard
Parent Date Expires(1): 02-01-2010 Parent Date Expires(2): 02-01-2010

Aliquot Amount (ml): 5.0000

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000
Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S	1,000.0	100,000
Ti	20.000	2,000.0

STD4108-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-09-2009 Date Expires(1): 07-10-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard
Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Aliquot Amount (ml): 1.0000

Analyst: DIAZL

Volume (ml): 10.000

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Initial Conc (ug/ml) Final Conc (ug/L) Component 100,000 Αl 1,000.0 200,000 C 2,000.0 Ca 1,000.0 100,000 10,000 1,000,000 Cl 100,000 1,000.0 Fe 1,000.0 100,000 K 100,000 1,000.0 Mg Mo 20.000 2,000.0 1,000.0 100,000 Na 100,000 P 1,000.0 100,000 S 1,000.0 Ti 20.000 2,000.0

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Parent Date Expires(1): 05-01-2 Component	O10 Parent Date Expires(2	Initial Conc (mg/L)	Final Conc (ug/L)
		20.000	100.00
Mo Sb		20.000	100.00
Parent Std No.: STD2637-09, Id	_		Amount (ml): 0.0500
Parent Date Expires(1): 05-01-2	O10 Parent Date Expires(2	Initial Conc (mg/L)	Final Conc (ug/L)
Component			100.00
V		20.000	100.00
Zn		20.000	100.00
Ag		20.000	
Al		20.000	100.00
As		20.000	100.00
Ba		20.000	100.00
Be		20.000	100.00
Cd		20.000	100.00
Co		20.000	100.00
Cr		20.000	100.00
Cu		20.000	100.00
Mn		20.000	100.0
Ni		20.000	100.0
Pb		20.000	100.0
Se		20.000	100.0
Th		20.000	100.0
Tl		20.000	100.00
U		20.000	100.00
Parent Std No.: STD4102-09, I Parent Date Expires(1): 07-10-2		=	t Amount (ml): 0.1000
Component	arent Bute Expires	Initial Conc (mg/L)	Final Conc (ug/L
		10.000	100.00
Sn		10.000	100.00
TD4109-09, ICPMS LR ST	D 1000 ppb		Analyst: DIAZI
Solvent: 5% HNO3	Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 07-09-2009	/		
Date Expires(1): 07-10-2009			
Date Verified: 12-314714 by			
pipettes: Met 20 and Met 8	(Verification 15: 0)		
pipettes. Wet 20 and Wet 0			
Parent Std No.: STD2636-09, I	=	•	t Amount (ml): 0.500
Parent Date Expires(1): 05-01-2	2010 Parent Date Expires(2): 05-01-2010	
Component		Initial Conc (mg/L)	Final Conc (ug/L
Mo		20.000	1,000.
Sb		20.000	1,000.
Parent Std No.: STD2637-09, 1		•	t Amount (ml): 0.500
Parent Date Expires(1): 05-01-2	2010 Parent Date Expires(2): 05-01-2010	
Tarent Date Expires(1): 05 01 .			Final Conc (ug/I

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V	20.000 1,000	0.0
Zn	20.000 1,000	0.0
Ag	20.000 1,000	0.0
Al	20.000 1,000	0.0
As	20.000 1,000	0.0
Ba	20.000 1,000	0.0
Be	20.000 1,000	0.0
Cd	20.000 1,000	0.0
Co	20.000 1,000	0.0
Cr	20.000 1,000	0.0
Cu	20.000 1,000	0.0
Mn	20.000 1,000	0.0
Ni	20.000 1,000	0.0
Pb	20.000 1,000	0.0
Se	20.000 1,000	
Th	20.000 1,000	0.0
Tl	20.000 1,000	
U	20.000 1,000	
Parent Std No.: STD4102-09, ICP-MS 10 ppm		100
1	Date Expires(2): 03-01-2010	л 💉
Component	Initial Conc (mg/L) Final Conc (ug/	<u>(L)</u>
Sn	10.000 1,000	0.0
	A I . DIAG	71
STD4110-09, ICPMS ICV	Analyst: DIAZ	<u>L</u>
Solvent: 5% HNO3 Lot No.	: H12022 Volume (ml): 10.0	00
Date Prep./Opened: 07-09-2009		
Date Expires(1): 07-10-2009 (1 Day)		
Date Expires(2): 02-27-2010 (None)		
Date Verified: 12-314714 by - (Verification I	D: 0)	
pipettes: Met 21 and Met 8	D. 0)	
pipeties. Wet 21 and Wet 6		
Parent Std No.: STD1213-09, ICPMS ICV SC	LUTION A (High Purity) Aliquot Amount (ml): 0.04	ເດດ
	Date Expires(2): 02-27-2010	100
		πъ
Component		
Al	10.000 40.0	
As	10.000 40.0	
Ba	10.000 40.0	
Be	10.000 40.0	
Cd	10.000 40.0	
Co	10.000 40.0	
Cr	10.000 40.0	
Cu	10.000 40.0	
Fe	250.00 1,00	
Li	10.000 40.0	
Mn	10.000 40.0	
Ni	10.000 40.0	
Pb	10.000 40.0	
Se	10.000 40.0	
Th	10.000 40.0)00

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Tl	10.000	40.000
U	10.000	40.000
V	10.000	40.000
Zn	10.000	40,000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (Hig	gh Purity) Aliquo	ot Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):		
Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4111-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 50.000
Date Prep./Opened: 07-09-2009		
Date Expires(1): 07-10-2009 (1 Day)		
pipettes: Met 21 and Met 8		
Parent Std No.: STD1853-09, 1 mg/l Se	Alique	ot Amount (ml): 0.1000
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Se	1.0000	0.0020
STD4112-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 100.00
Date Prep./Opened: 07-09-2009		
Date Expires(1): 07-10-2009 (1 Day)		
Date Expires(2): 05-01-2010 (None)		
pipettes: Met 20		
Parent Std No.: STD3106-09, ICP-MS LLCCV 1	Alique	ot Amount (ml): 1.0000
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2):	•	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Ag	0.5000	5.0000
Ag Al	3.0000	30.000
As	0.5000	5.0000
Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000

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0.1000	1.0000
5.0000	50.000
0.2000	2.0000
0.1000	1.0000
0.5000	5.0000
0.2000	2.0000
0.1000	1.0000
0.1000	1.0000
0.5000	5.0000
1.0000	10.000
Aliquot Amount	(ml): 1.0000
	5.0000 0.2000 0.1000 0.5000 0.2000 0.1000 0.1000 0.5000 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	0.2000	2.0000
Sb	0.2000	2.0000
Sn	1.0000	10.000

07/09/2009 Reviewed By:

Page 11 of 11

Denver RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/10/09 08:29:48

File II	D: AG0709	09B				Analyst: L	.RD	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
2	Cal Blank				1.0	07/09/09 19:24	MAPAN .	
3	Cal Blank				1.0	07/09/09 19:27		
4	100 ppb				1.0	07/09/09 19:30		
5	ICV				1.0	07/09/09 19:32		
6	RLIV				1.0	07/09/09 19:35		
7	ICB				1.0	07/09/09 19:38		
8	RL STD				1.0	07/09/09 19:41		
9	AFCEE RL				1.0	07/09/09 19:43		
10	ALTSe				1.0	07/09/09 19:46		
11	ICSA				1.0	07/09/09 19:49		
12	ICSAB				1.0	07/09/09 19:52		
13	RINSE		1		1.0	07/09/09 19:54		
14	LR				1.0	07/09/09 19:57		
15	RINSE				1.0	07/09/09 20:00		
16	CCV				1.0	07/09/09 20:02		
17	ССВ				1.0	07/09/09 20:05		
18	RLCV				1.0	07/09/09 20:08		
19	ICSAB			, 1	1.0	07/09/09 20:11		
20	RINSE				1.0	07/09/09 20:13		
21	CCV				1.0	07/09/09 20:16		
22	ССВ				1.0	07/09/09 20:19		
23	RLCV				1.0	07/09/09 20:22		
24	IDL 1				1.0	07/09/09 20:24		
25	IDL 2				1.0	07/09/09 20:27		[
26	IDL 3				1.0	07/09/09 20:30		
27	IDL 4				1.0	07/09/09 20:33		
28	IDL 5				1.0	07/09/09 20:35		
29	IDL 6				1.0	07/09/09 20:38		
30	IDL 7				1.0	07/09/09 20:41		
31	CCV				1.0	07/09/09 20:44		
32	CCB				1.0	07/09/09 20:47		
33	RLCV				1.0	+ 		
34	LF73CB	D9G090000	9190110	MS	1.0			
35	LF73CC	D9G090000	9190110	MS	1.0			
36	LF7HF	D9G080289-1	9190110	MS	1.0			
37	LF7HFP5	D9G080289	9190110		5.0			
38	LF7HFZ	D9G080289-1	9190110	-	1.0			[
39		D9G080289-1	9190110	MS	1.0			
40		D9G080289-1	9190110	MS	1.0			
41				-	1.0]
42					1.0		44.	[
43					1.0			1
44		D9G070000	9188047	46				
45		D9G070000	9188047	46]
46		D9G060149-1	9188047	46				
47	LF4C9P5	D9G060149	9188047		5.0	07/09/09 21:28		

Method: 6020 (ICP/MS) ICPMS_024 (024)

Reported: 07/10/09 08:29:48

ile II	D: AG0709	909B				Anal	vst: LRD	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	C
48	LF4C9Z	D9G060149-1	9188047	T	1.0	07/09/09 21:31		
49	LF4C9S	D9G060149-1	9188047	46	1.0	07/09/09 21:33		[
50	LF4C9D	D9G060149-1	9188047	46	1.0	07/09/09 21:36		[
51	LF4DE	D9G060149-2	9188047	46	1.0	07/09/09 21:39		
52	CCV				1.0	07/09/09 21:41		
53	ССВ				1.0	07/09/09 21:44		
54	RLCV				1.0	07/09/09 21:47		
55,,	RINSE				1.0	07/09/09 21:50		
56	RINSE				1.0	07/09/09 21:52		
57	RINSE				1.0	07/09/09 21:55		
58	RINSE				1.0	07/09/09 21:58		
59	RINSE				1.0	07/09/09 22:01		
60	RINSE		-		1.0	07/09/09 22:03		
61	Cal Blank				1.0	07/09/09 22:06		
62	Cal Blank				1.0	07/09/09 22:09		
63	100 ppb				1.0	07/09/09 22:1/2		
64	CCV				1.0	07/09/09 22:14		
65	ССВ				1.0	07/09/08 22:17		
66	RLCV				1.0	07/08/09 22:20		
67	LF72LB	D9G090000	9190097	MS	1.0	07/09/09 22:23		
68	LF72LC	D9G090000	9190097	MS	1.0	07/09/09 22:25	₩.	
69	LF72LL	D9G090000	9190097	MS	1,0	07/09/09 22:28		
70	LF6XM	D9G080199-1	9190097	мѕ	1.0	07/09/09 22:31		
71	LF6X2	D9G080199-2	9190097	MS	1.0	07/09/09 22:34	LRD.	
72	LF6X3	D9G080199-3	9190097	MS	1.0	07/09/09 22:36	07-10-2009	
73	LF6X5	D9G080199-4	9190097	MS	1.0	07/09/09 22:39		
74	CCV		/		1.0	07/09/09 22:42		
75	ССВ				1.0	07/09/09 22:45		
76	RLCV				1.0	07/09/09 22:47		
77	LF6X6	D9G080199-5	91/90097	MS	1.0	07/09/09 22:50		
78	LF6X7	D9G080199-6	ø190097	MS	1.0	07/09/09 22:53		
	LF6X8		9190097	MS	1.0	07/09/09 22:56		
80	LF60A	D9G080199-8	9190097	MS	1.0			
81	LF60C	D9G080199-9	9190097	MS	1.0	07/09/09 23:01		
82		D9G080199-10	9190097	MS	1.0	07/09/09 23:04		
83		D9G080211-1	9190097	MS	1.0	07/09/09 23:07		
84		D9G080211	9190097		5.0	07/09/09 23:09		
85		/			1.0	07/09/09 23:12		
86		/			1.0	07/09/09 23:15		
87	ССВ	/			1.0	07/09/09 23:18		
88		/			1.0	07/09/09 23:21		
89					1.0	07/09/09 23:23		
90					1.0	07/09/09 23:26		
91	—				1.0	07/09/09 23:29		
92	RINSE				1.0	07/09/09 23:33		
93					1.0	07/09/09 23:36		

Method: 6020 (ICP/MS) ICPMS_024 (024)

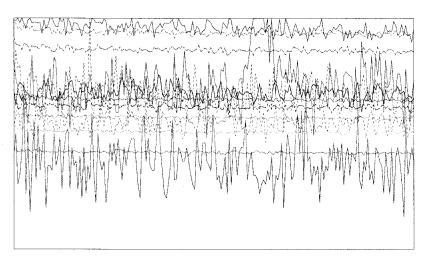
Reported: 07/10/09 08:29:48

Analyst: LRD

File ID: AG070909B	File ID:	AG070909B	
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#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
94 -	RINSE				1.0	07/09/09 23:38	— DN∪	
95_	Cal Blank				1.0	07/09/09 23:41	- LRD 7-10-2009	
96	Cal Blank				1.0	07/09/09 23:44		
97	100 ppb				1.0	07/09/09 23:47		
98	CCV				1.0	07/09/09 23:49		
99	ССВ				1.0	07/09/09 23:52		
100	RLCV				1.0	07/09/09 23:55		
101	LF72LB	D9G090000	9190097	MS	1.0	07/09/09 23:58		
102	LF72LC	D9G090000	9190097	MS	1.0	07/10/09 00:00		
103	LF72LL	D9G090000	9190097	MS	1.0	07/10/09 00:03		
104	LF6XM 2X	D9G080199-1	9190097	MS	2.0	07/10/09 00:06		
105	LF6X2 2X	D9G080199-2	9190097	MS	2.0	07/10/09 00:09		
106	LF6X3 2X	D9G080199-3	9190097	MS	2.0	07/10/09 00:11		
107	LF6X5 2X	D9G080199-4	9190097	MS	2.0	07/10/09 00:14		
108	CCV				1.0	07/10/09 00:17		
109	CCB				1.0	07/10/09 00:20		
110	RLCV				1.0	07/10/09 00:23		
111	LF6X6 2X	D9G080199-5	9190097	MS	2.0	07/10/09 00:25		
112	LF6X7 2X	D9G080199-6	9190097	MS	2.0	07/10/09 00:28		
113	LF6X8 2X	D9G080199-7	9190097	MS	2.0	07/10/09 00:31		
114	LF60A	D9G080199-8	9190097	MS	1.0	07/10/09 00:34		
115	LF60C 2X	D9G080199-9	9190097	MS	2.0	07/10/09 00:36		
116	LF60D 2X	D9G080199-10	9190097	MS	2.0	07/10/09 00:39		
117	LF6WE 2X	D9G080211-1	9190097	MS	2.0	07/10/09 00:42		
118	LF6WEP10	D9G080211	9190097		10.0	07/10/09 00:45		
119	CCV				1.0	07/10/09 00:48		
120	ССВ				1.0	07/10/09 00:50		
121	RLCV				1.0	07/10/09 00:53		
122	LF6WEZ	D9G080211-1	9190097		1.0	07/10/09 00:56		
123	LF6WES 2X	D9G080211-1	9190097	MS	2.0	07/10/09 00:59		
124	LF6WED 2X	D9G080211-1	9190097	MS	2.0	07/10/09 01:01		
125	LF6WK 2X	D9G080211-2	9190097	MS	2.0	07/10/09 01:04		
126	LF6WP 2X	D9G080211-3	9190097	MS	2.0	07/10/09 01:07		
127	LF6WW 2X	D9G080211-4	9190097	MS	2.0			
128	LF7L3 2X	D9G080305-1	9190097	MS	2.0			
129	LF7L5 2X	D9G080305-2	9190097	MS	2.0			
130	CCV			1	1.0			
131	ССВ			+	1.0			
132	RLCV				1.0	07/10/09 01:24		

Tune File : NORM.U Comment : AG070909

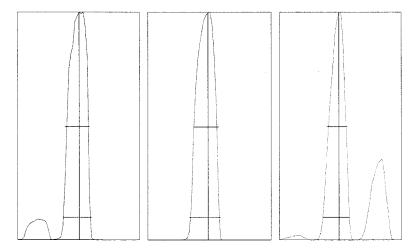


Integration Time: 0.1000 sec Sampling Period: 1.5300 sec 200

Oxide: Doubly Charged:

156/140 2.347% 70/140 1.266%

m/z	Range	Count	Mean	RSD%	Background
6	2,000	1911.0	1917.1	2.68	0.50
7	50,000	20671.0	20922.0	1.22	0.30
59	50,000	29064.0	28517.9	1.15	0.40
63	100	66.0	71.9	14.91	0.60
70	1,000	731.0	679.8	4.33	0.80
7.5	50	19.0	18.9	26.49	0.80
78	500	298.0	274.3	6.50	0.70
89	50,000	47146.0	46927.4	1.15	0.30
115	100,000	51281.0	50779.3	1.18	0.90
118	200	123.0	136.2	10.37	1.50
137	10,000	6122.0	6171.7	1,71	1.10
205	50,000	42734.0	43182.3	1.25	1.80
238	100,000	65235.0	64900.0	1.17	2.50
156/140	5	2.378%	2.398%	3.89	
70/140	2	1.389%	1.274%	4.40	



m/z:	7	89	205
Height:	21,302	47,055	43,853
Axis:	7.05	89.00	20,5.00
W-50%:	0.60	0.60	/0.50
W-10%:	0.700	0.7500	∮ .6500
			,

Integration Time: 0.1000 sec Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 09, 2009 18:55:13 Printed : Jul 09, 2009 18:55:16

Tune Report

Tune File : NORM.U Comment : AG070909

Tuning Paramet	ers										
===Plasma Condi	tion	===		===Ion Lenses=	==			===Q-Pole Param	iet	ers===	
RF Power	:	1550	W	Extract 1	:	0	V	AMU Gain	:	133	
RF Matching	:	1.7	V	Extract 2	:	-175	V	AMU Offset	:	123	
Smpl Depth	:	7.5	mm	Omega Bias-ce	:	-30	V	Axis Gain	:	1.0005	
Torch-H	:	-0.8	mm	Omega Lens-ce	:	-0.2	V	Axis Offset	:	-0.01	
Torch-V	:	-0.3	mm	Cell Entrance	:	-30	V	QP Bias	:	-10	V
Carrier Gas	:	0.83	L/min	QP Focus	:	5	V				
Makeup Gas	:	0.2	L/min	Cell Exit	:	-30	V	===Detector Par	am	eters===	=
Optional Gas	:		%					Discriminator	:	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Pa	rame	ters==	=	Analog HV	:	1720	V
Sample Pump	:		rps	OctP RF	:	180	V	Pulse HV	:	1390	V
S/C Temp	:	2	degC	OctP Bias	:	-18	V				
===Reaction Cel	1===										
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Gas	:	0	mL/min	Optional Gas	:		용

Page: 2

Generated : Jul 09, 2009 18:55:13 Printed : Jul 09, 2009 18:55:19

P/A Factor Tuning Report

Acquired:Jul 9 2009 07:04 pm

6 Li 0.059981 7 (Li) Sensitivity too low 9 Be 0.067873 45 Sc 0.082584 51 V 0.084310 52 Cr 0.087548 53 (Cr) Sensitivity too low 55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low 78 Se Sensitivity too low
45 Sc 0.082584 51 V 0.084310 52 Cr 0.087548 53 (Cr) Sensitivity too low 55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
51 V 0.084310 52 Cr 0.087548 53 (Cr) Sensitivity too low 55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
52 Cr 0.087548 53 (Cr) Sensitivity too low 55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
53 (Cr) Sensitivity too low 55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
55 Mn 0.089495 59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
59 Co 0.092879 60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
60 Ni 0.094545 63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
63 Cu 0.097113 66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
66 Zn 0.096553 72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
72 Ge 0.095074 75 As 0.094172 77 (Se) Sensitivity too low
75 As 0.094172 77 (Se) Sensitivity too low
77 (Se) Sensitivity too low
78 Se Sensitivity too low
78 Se Sensitivity too low 82 (Se) Sensitivity too low
83 (Se) Sensitivity too low
95 Mo 0.095099
98 (Mo) 0.095223
99 (Mo) 0.096796
106 (Cd) 0.101161
107 Ag Sensitivity too low
108 (Cd) 0.101583
111 Cd 0.102100
114 Cd 0.102122
115 In 0.101398
118 Sn 0.101144
121 Sb 0.100917
137 Ba Sensitivity too low
165 Ho Sensitivity too low
205 Tl 0.110883
206 (Pb) 0.109876 207 (Pb) 0.110067
207 (PB) 0.110067 208 Pb 0.109680
232 Th 0.108203
238 U 0.108348

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

- 1 -

200.8 QC Tune Report

Data File:

C:\ICPCHEM\1\DATA\AG070909B.B\001TUNE.D

Date Acquired:

Jul 9 2009 07:21 pm

Acq. Method:

tun_isis.M

Operator:

LRD

Sample Name:

200.8 TUNE

Misc Info:

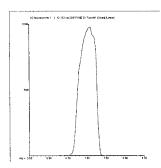
Vial Number:

Current Method:

C:\ICPCHEM\1\METHODS\tun_isis.M

RSD	(%)
Elem	ent

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	19144	19212	19228	19124	18925	19230	2.34	5.00	
9 Be	2168	2189	2180	2155	2195	2116	4.23	5.00	
24 Mg	8596	8665	8699	8712	8624	8278	0.79	5.00	
59 Co	59133	60831	58545	58838	59932	57518	3.42	5.00	
115 In	926453	926260	921780	929015	929023	926184	1.19	5.00	
208 Pb	67972	68486	67856	68574	68187	66754	1.65	5.00	
238 U	142554	145017	143923	142923	143081	137821	2.69	5.00	



7 Li

Mass Calib.

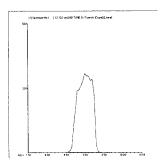
7.10 Actual: 6.90 -7.10 Required Flag:

Peak Width

0.60 Actual: 0.90

Required

Flag:



9 Be

Mass Calib.

Actual: 9.10

9.10 Required:8.90

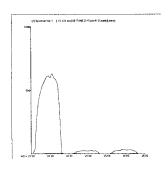
Flag:

Peak Width

Actual: 0.55

Required: 0.90

Flag:



24 Mg

Mass Calib.

Actual: 24.00

24.10 Required:23.90

Flag:

Peak Width

Actual: 0.60 Required: 0.90

Flag:

59 Co

Mass Calib.

Actual: 59.05

- 59.10 Required: 58.90

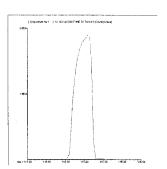
Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:



115 In

Mass Calib.

Actual: 115.05

Required: 114.90 - 115.10

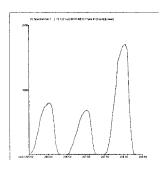
Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:



208 Pb

Mass Calib.

Actual: 208.00

Required: 207.90 -208.10

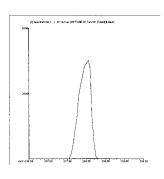
Flag:

Peak Width

Actual: 0.55

Required: 0.90

Flag:



238 U

Mass Calib.

Actual: 238.00

Required: 237.90 -

Flag:

Peak Width

Actual:

0.55

238.10

Required: 0.90

Flag:



Pass

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\002CALB.D\002CALB.D#

Date Acquired: Jul 9 2009 07:24 pm Acq. Method: NormISIS.M

LRD Operator:

Sample Name: Cal Blank

Misc Info:

Vial Number: 1101
Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 09 2009 07:25 pm
Sample Type: CalBlk

QC Elements

QC E.	rement	-3			
Elem	ent	IS Ref	Tune	CPS Mean	RSD(왕)
9	Be	6	1	0	0.00
51	V	72	1	75	53,26
52	Cr	72	1	1663	10.17
55	Mn	72	1	157	20.52
59	Co	72	1	73	20.83
60	Ni	72	1	113	28.36
63	Cu	72	1	280	12.88
66	Zn	72	1	167	4.83
75	As	72	1	26	30.77
78	Se	72	1	37	41.66
95	Mo	72	1	47	32.73
107	Ag	115	1	43	35.25
111	Cd	115	1	13	58.05
118	Sn	115	1	3337	34.02
121	Sb	115	1	38	44.41
137	Ва	115	1	19	10.19
205	Tl	165	1	203	4.92
208	Pb	165	1	303	23.08
232	Th	165	1	773	11.73
238	U	165	1	133	18.88

Internal Standard Elements

Eleme	ent	Tune	CPS Mean	RSD(%)
6	Li	1	370025	0.09
45	Sc	1	953043	1.28
72	Ge	1	560318	0.19
115	In	1	1789206	1.15
165	Но	1	4066845	1.33
100	110	_	1000040	1.55

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Date Acquired: Jul 9 2009 07:27 pm Acq. Method: NormISIS.M

Operator: LRD

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101
Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 09 2009 07:25 pm
Sample Type: CalBlk

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	8	534.66
52	Cr	72	1	1764	4.18
55	Mn	72	1	150	20.00
59	Co	72	1	40	50.00
60	Ni	72	1	73	77.54
63	Cu	72	1	207	26.65
66	Zn	72	1	255	9.98
75	As	72	1	29	22.43
78	Se	72	1	70	14.29
95	Mo	72	1	47	44.61
107	Ag	115	1	43	93.27
111	Cd	115	1	4	112.71
118	Sn	115	1	2654	22.99
121	Sb	115	1	41	16.88
137	Ва	115	1	21	50.76
205	Tl	165	1	100	12.02
208	Pb	165	1	303	2.91
232	Th	165	1	627	17.58
238	U	165	1	4 4	22.91

Internal Standard Elements

Eleme	ent	Tune	CPS Mean	RSD(%)
6	Li	1	371452	0.34
45	Sc	1	968611	0.27
72	Ge	1	564811	0.38
115	In	1	1813857	0.59
165	НО	1	4072608	1.36

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\004ICAL.D\004ICAL.D#

Date Acquired: Jul 9 2009 07:30 pm

Acq. Method: NormISIS.M

Operator: LRD Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:28 pm

Sample Type: ICAL

QC Elements

×0		~			
Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	41620	1.30
51	V	72	1	618896	2.27
52	Cr	72	1	718622	1.08
55	Mn	72	1	657752	0.56
59	Со	72	1	1048922	1.13
60	Ni	72	1	250804	0.93
63	Cu	72	1	618876	1.11
66	Zn	72	1	113272	0.91
75	As	72	1	71050	0.50
78	Se	72	1	10628	1.83
95	Mo	72	1	291695	0.39
107	Ag	115	1	971027	0.97
111	Cd	115	1	165785	1.05
118	Sn	115	1	417154	0.86
121	Sb	115	1	449501	1.13
137	Ва	115	1	180485	1.19
205	Tl	165	1	2209059	0.42
208	Pb	165	1	3021112	0.58
232	Th	165	1	2849635	2.86
238	Ü	165	1	3462625	1.02

ISTD Elements

Eleme	nt	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	359243	0.59	371452	96.7	30 - 120	
45	Sc	1	943804	1.05	968611	97.4	30 - 120	
72	Ge	1	550621	1.18	564811	97.5	30 - 120	
115	In	1	1789392	0.70	1813857	98.7	30 - 120	
165	Но	1	4085911	0.57	4072608	100.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 9 2009 07:32 pm

Operator: LRD QC Summary: Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC Eleme	nts								
Element	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	39.14	ppb	2.87	40	97.9	90 - 110	
51 V	72	1	40.60	ppb	0.83	40	101.5	90 - 110	
52 Cr	72	1	40.85	ppb	0.21	40	102.1	90 - 110	
55 Mn	72	1	41.25	ppb	1.07	40	103.1	90 - 110	
59 Co	72	1	40.05	ppb	0.65	40	100.1	90 - 110	
60 Ni	72	1	40.97	ppb	1.04	40	102.4	90 - 110	
63 Cu	72	1	40.80	ppb	0.26	40	102.0	90 - 110	
66 Zn	72	1	41.15	ppb	0.75	40	102.9	90 - 110	
75 As	72	1	40.10	ppb	0.60	40	100.3	90 - 110	
78 Se	72	1	41.82	ppb	3.65	40	104.6	90 - 110	
95 Mo	72	1	40.27	ppb	0.92	40	100.7	90 - 110	
107 Ag	115	1	39.85	ppb	1.98	40	99.6	90 - 110	
111 Cd	115	1	40.61	ppb	1.82	40	101.5	90 - 110	
118 Sn	115	1	39.33	ppb	2.67	40	98.3	90 - 110	
121 Sb	115	1	38.56	ppb	1.54	40	96.4	90 - 110	
137 Ba	115	1	39.84	ppb	2.45	40	99.6	90 - 110	
205 Tl	165	1	40.85	ppb	1.02	40	102.1	90 - 110	
208 Pb	165	1	40.96	ppb	0.75	40	102.4	90 - 110	. 10
232 Th	165	1	46.06	ppb	2.32	40	115.2	90 - 110	Fail M
238 U	165	1	41.22	ppb	0.97	40	103.1	90 - 110	
ISTD Ele	monta								
Element	mencs	Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li			357860		0.49	371452	96.3	30 - 120	IIay
		1							
45 Sc		1	936644		0.33	968611	96.7	30 - 120	

6 Т	1 1	L	35/860	0.49	3/1452	96.3	30 - 120
45 S	с 1	L	936644	0.33	968611	96.7	30 - 120
72 G	e 1	L	538752	0.33	564811	95.4	30 - 120
115 I	n 1	L	1774140	1.61	1813857	97.8	30 - 120
165 H	0 1	L	4065105	0.36	4072608	99.8	30 - 120

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

1:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\006WASH.D\006WASH.D#

Date Acquired: Jul 9 2009 07:35 pm

Operator: QC Summary: LRD Analytes: Pass Sample Name: RLIV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Elemen	ts
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OC FIEWS	nts					
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	0.950 ppb	8.47	1.30	
51 V	72	1	5.176 ppb	2.26	6.50	
52 Cr	72	1	2.081 ppb	2.64	2.60	
55 Mn	72	1	1.072 ppb	7.32	1.30	
59 Co	72	1	1.010 ppb	2.41	1.30	
60 Ni	72	1	2.094 ppb	3.69	2.60	
63 Cu	72	1	2.069 ppb	5.36	2.60	
66 Zn	72	1	10.200 ppb	0.49	13.00	
75 As	72	1	5.084 ppb	2.18	6.50	
78 Se	72	1	4.845 ppb	17.55	6.50	
95 Mo	72	1	2.074 ppb	2.66	2.60	
107 Ag	115	1	5.183 ppb	3.14	6.50	
111 Cd	115	1	1.040 ppb	0.27	1.30	
118 Sn	115	1	10.090 ppb	2.82	13.00	
121 Sb	115	1	2.176 ppb	2.96	2.60	
137 Ba	115	1	1.043 ppb	7.92	1.30	
205 Tl	165	1	1.137 ppb	0.79	1.30	
208 Pb	165	1	1.065 ppb	0.62	1.30	
232 Th	165	1	3.306 ppb	4.85	2.60	
238 U	165	1	1.115 ppb	2.10	1.30	
			* *			

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	363150	0.59	371452	97.8	30 - 120	
45 Sc	1	942723	2.52	968611	97.3	30 - 120	
72 Ge	1	544294	0.34	564811	96.4	30 - 120	
115 In	1	1781311	0.50	1813857	98.2 /	30 - 120	
165 Ho	1	4003626	0.98	4072608	98.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\				
Tune File#	3	C:\ICPCHEM\	1\7500\		_		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\007 ICB.D\007 ICB.D#

Date Acquired: Jul 9 2009 07:38 pm QC Summary: Operator: Analytes: Pass LRD

Sample Name: ISTD: Pass ICB

Misc Info:

Vial Number: 2104

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: ICB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.01	ppb	148.32	1.00	
52 Cr	72	1	0.01	ppb	132.14	1.00	
55 Mn	72	1	0.00	ppb	70.09	1.00	
59 Co	72	1	0.00	ppb	1081.20	1.00	
60 Ni	72	1	0.01	ppb	43.19	1.00	
63 Cu	72	1	0.01	ppb	9.99	1.00	
66 Zn	72	1	-0.09	ppb	10.10	1.00	
75 As	72	1	0.01	ppb	132.51	1.00	
78 Se	72	1	-0.30	ppb	49.15	1.00	
95 Mo	72	1	0.00	ppb	364.59	1.00	
107 Ag	115	1	0.00	ppb	16.74	1.00	
111 Cd	115	1	-0.01	ppb	182.81	1.00	
118 Sn	115	1	-0.28	ppb	33.54	1.00	
121 Sb	115	1	0.09	ppb	10.23	1.00	
137 Ba	115	1	-0.01	ppb	57.72	1.00	
205 Tl	165	1	0.02	ppb	5.58	1.00	
208 Pb	165	1	0.00	ppb	37.26	1.00	
232 Th	165	1	0.36	ppb	11.30	1.00	
238 U	165	1	0.00	ppb	28.14	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	359517	0.74	371452	96.8	30 - 120	
45 Sc	1	938760	1.45	968611	96.9	30 - 120	
72 Ge	1	549800	0.63	564811	97.3/	30 - 120	
115 In	1	1776383	0.80	1813857	97.⁄9	30 - 120	
165 Ho	1	4000481	0.15	4072608	98/.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\008RLST.D\008RLST.D#

Date Acquired: Jul 9 2009 07:41 pm

Operator: LRD QC Summary: Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: RLSTD Total Dil Factor: 1.00

QC Elements

9 Be 6 1 1.16 ppb 1.23 1 116.1 50 - 150 51 V 72 1 0.96 ppb 5.16 1 95.7 50 - 150	
51 V 72 1 0.96 ppb 5.16 1 95.7 50 - 150	
52 Cr 72 1 0.97 ppb 2.55 1 96.8 50 - 150	
55 Mn 72 1 0.99 ppb 3.09 1 99.2 50 - 150	
59 Co 72 1 0.98 ppb 3.02 1 97.7 50 - 150	
60 Ni 72 1 0.96 ppb 4.26 1 96.2 50 - 150	
63 Cu 72 1 1.01 ppb 6.03 1 101.0 50 - 150	
66 Zn 72 1 10.02 ppb 1.59 10 100.2 50 - 150	
75 As 72 1 1.00 ppb 1.97 1 99.7 50 - 150	
78 Se 72 1 0.82 ppb 18.17 1 82.4 50 - 150	
95 Mo 72 1 1.02 ppb 6.33 1 101.9 50 - 150	
107 Ag 115 1 1.00 ppb 3.51 1 100.2 50 - 150	
111 Cd 115 1 0.99 ppb 3.50 1 98.6 50 - 150	
118 Sn 115 1 9.79 ppb 2.36 10 97.9 50 - 150	
121 Sb 115 1 1.03 ppb 1.46 1 103.2 50 - 150	
137 Ba 115 1 0.98 ppb 7.00 1 98.5 50 - 150	
205 Tl 165 1 1.03 ppb 1.57 1 103.0 50 - 150	
208 Pb 165 1 1.03 ppb 1.81 1 102.5 50 - 150	
232 Th 165 1 1.14 ppb 1.31 1 114.4 50 - 150	
238 U 165 1 1.06 ppb 1.13 1 105.5 50 - 150	

TOME	77 1
ISTD	Elements

Eler	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	361715	1.35	371452	97.4	30 - 120	
45	Sc	1	959618	1.83	968611	99.1	30 - 120	
72	Ge	1	555591	0.47	564811	98.4	30 - 120	
115	In	1	1787863	0.84	1813857	98.6	30 - 120	
165	Но	1	4055202	0.77	4072608	99.6	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

ISTD:

Pass

AFCEE RL QC Report

C:\ICPCHEM\1\DATA\AG070909B.B\009AFCE.D\009AFCE.D# Data File:

Date Acquired: Jul 9 2009 07:43 pm

QC Summary: Operator: LRD Analytes: Pass Sample Name: AFCEE RL

Misc Info:

Vial Number: 2106

C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 09 2009 07:30 pm
Sample Type: C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: Total Dil Factor: 1.00

QC I	QC Elements													
Eler	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag				
9	Ве	6	1	0.17	ppb	20.08	0	74.8	80 - 120					
51	V	72	1	0.20	ppb	12.09	0	106.1	80 - 120					
52	Çr	72	1	0.18	ppb	9,750	0	91.2	80 - 120					
55	Mn	72	1	0.21	ppb	/ 8.23	0	107.9	80 - 120					
59	Co	72	1	0.18	ppb '	√ 5.81	0	91.7	80 - 120					
60	Ni	72	1	0.18	ppb	10.77	0	94.1	80 - 120					
63	Cu	72	1	0.21	ppb	2.82	0	105.4	80 - 120					
66	Zn	72	1	1.87	ppb	6.68	2	93.3	80 - 120					
75	As	72	1	0.21	ppb	11.45	0	106.6	80 - 120					
78	Se	72	1	-0.05	ppb	355.01	0	-33.3	80 - 120					
95	Mo	72	1	0.19	ppb	27.08	0	95.2	80 - 120					
107	Ag	115	1	0.20	ppb	3.64	0	100.8	80 - 120					
111	Cd	115	1	0.21	ppb	5.02	0	104.2	80 - 120					
118	Sn	115	1	1.66	ppb	4.48	2	84.9	80 - 120					
121	Sb	115	1	0.20	ppb	A.07	0	97.2	80 - 120					
137	Ва	115	1	0.20	ppb	/3.16	0	100.9	80 - 120					
205	Tl	165	1	0.21	ppb 🕶	√ 3.35	0	101.4	80 - 120					
208	Pb	165	1	0.20	ppb	1.97	0	97.3	80 - 120					
232	Th	165	1	0.29	ppb	5.69	0	124.6	80 - 120					
238	U	165	1	0.21	ppb	0.79	0	97.3	80 - 120					
		ments						- (0)	00 0	ml -				
	ment		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag				
6	Li		1	364107		0.85	371452	98.0	30 - 120					
45	Sc		1	959804		0.57	968611	99.1	30 - 120					
72	Ge		1	558315		0.28	564811	98.8	30 - 120					
115			1	1801250		0.61	1813857	99.3	30 - 120					
165	Но		1	4083788		0.78	4072608	100.3	30 - 120					

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 9 2009 07:46 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

QC .	гтеше	nts							
Ele	ment	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	
51	V	72	1	-0.04	-0.04	ppb	82.47	3600	
52	Cr	72	1	-0.02	-0.02	ppb	87.10	3600	
55	Mn	72	1	0.00	0.00	ppb	98.92	3600	
59	Со	72	1	0.00	0.00	ppb	199.63	3600	
60	Ni	72	1	0.01	0.01	ppb	43.65	3600	
63	Cu	72	1	0.01	0.01	ppb	29.85	3600	
66	Zn	72	1	-0.06	-0.06	ppb	4.69	3600	
75	As	72	1	-0.01	-0.01	ppb	209.03	3600	
78	Se	72	1	2.07	2.07	ppb	9.66	3600	
95	Mo	72	1	0.00	0.00	ppb	190.65	3600	
107	Ag	115	1	0.00	0.00	ppb	516.81	3600	
111	Cd	115	1	-0.01	-0.01	ppb	122.70	3600	
118	Sn	115	1	-0.33	-0.33	ppb	10.68	3600	
121	Sb	115	1	0.01	0.01	ppb	15.35	3600	
137	Ва	115	1	0.00	0.00	ppb	375.85	3600	
205	Tl	165	1	0.00	0.00	ppb	25.88	3600	
208	Pb	165	1	0.00	0.00	ppb	431.40	3600	
232	Th	165	1	0.03	0.03	ppb	23.78	1000	
238	U	165	1	0.00	0.00	ppb	104.08	3600	

ISTD Elements

Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
1	365128	0.22	371452	98.3	30 - 120	
1	964565	1.57	968611	99.6	30 - 120	
1	564149	0.67	564811	99.9	30 - 120	
1	1816410	0.82	1813857	100.1	30 - 120	
1	4076628	0.47	4072608	100.1	30 - 120	
	Tune 1 1 1 1 1	1 365128 1 964565 1 564149 1 1816410	1 365128 0.22 1 964565 1.57 1 564149 0.67 1 1816410 0.82	1 365128 0.22 371452 1 964565 1.57 968611 1 564149 0.67 564811 1 1816410 0.82 1813857	1 365128 0.22 371452 98.3 1 964565 1.57 968611 99.6 1 564149 0.67 564811 99.9 1 1816410 0.82 1813857 100.1	1 365128 0.22 371452 98.3 30 - 120 1 964565 1.57 968611 99.6 30 - 120 1 564149 0.67 564811 99.9 30 - 120 1 1816410 0.82 1813857 100.1 30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 9 2009 07:49 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: LRD ISTD: Pass Sample Name: ICSA

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: ICSA Dilution Factor: 1.00

QC	E1	emen	ts
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Element		IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.04 ppb	86.61	1.00	
51	V	72	1	-0.04 ppb	14.04	1.00	
52	Cr	72	1	0.99 ppb	7.78	1.00	
55	Mn	72	1	2.11 ppb	5.98	1.00	
59	Со	72	1	0.05 ppb	8.04	1.00	
60	Ni	72	1	0.73 ppb	6.57	1.00	
63	Cu	72	1	0.29 ppb	11.23	1.00	
66	Zn	72	1	2.54 ppb	3.17	10.00	
75	As	72	1	0.12 ppb	22.94	1.00	
78	Se	72	1	0.00 ppb	6243.40	1.00	
95	Мо	72	1	2038.00 ppb	0.39	2000.00	
107	Ag	115	1	0.07 ppb	23.06	1.00	
111	Cd	115	1	0.25 ppb	64.11	1.00	
118	Sn	115	1	-0.18 ppb	35.76	10.00	
121	Sb	115	1	0.25 ppb	3.53	1.00	
137	Ва	115	1	1.59 ppb	7.67	1.00	
205	Tl	165	1	0.05 ppb	21.81	1.00	
208	Pb	165	1	0.13 ppb	3.17	1.00	
232	Th	165	1	0.10 ppb	19.01	1.00	
238	U	165	1	0.02 ppb	3.26	1.00	

ISTD Elements

Elem	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	317135	1.81	371452	85.4	30 - 120	
45	Sc	1	764732	0.73	968611	79.0	30 - 120	
72	Ge	1	428631	0.56	564811	75.9	30 - 120	
115	In	1	1436592	0.87	1813857	79.2	30 - 120	
165	Но	1	3496711	0.64	4072608	85.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :Max. Nnumber of ISTD Failures Allowed 0 :ISTD Failures

7/9/09 7:50 PM

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 9 2009 07:52 pm

QC Summary: Acq. Method: NormISIS.M Analytes: Fail Operator: LRD **ISTD: Pass**

Sample Name:

ICSAB

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: ICSAB Dilution Factor: 1.00

OC Elements

Ac Prem	CIICO							
Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Ве	6	1	92.06	1.14	100	92.1	80 - 120	
51 V	72	1	101.00	0.49	100	101.0	80 - 120	
52 Cr	72	1	99.95	0.74	100	100.0	80 - 120	
55 Mn	72	1	101.90	1.10	100	101.9	80 - 120	
59 Co	72	1	93.55	0.48	100	93.6	80 - 120	
60 Ni	72	1	89.82	0.49	100	89.8	80 - 120	
63 Cu	72	1	87.74	0.29	100	87.7	80 - 120	
66 Zn	72	1	99.59	0.70	100	99.6	80 - 120	
75 As	. 72	1	98.79	0.68	100	98.8	80 - 120	
78 Se	72	1	107.60	7.07	100	107.6	80 - 120	
95 Mo	72	1	2126.00	1.07	2100	101.2	80 - 120	14
107 Ag	115	1	79.51	1.11	100	79.5	80 - 120	PHI OKY/
111 Cd	115	1	93.14	0.26	100	93.1	80 - 120	- 1.3/M
118 Sn	115	1	100.20	0.34	100	100.2	80 - 120	J! ''
121 Sb	115	1	100.40	0.48	100	100.4	80 - 120	• •
137 Ba	115	1	102.30	0.68	100	102.3	80 - 120	
205 Tl	165	1	94.39	1.18	100	94.4	80 - 120	
208 Pb	165	1	93.47	0.25	100	93.5	80 - 120	
232 Th	165	1	111.50	1.56	100	111.5	80 - 120	
238 U	165	1	102.40	0.65	100	102.4	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	342834	1.33	371452	92.3	30 - 120	
45 Sc	1	764577	0.75	968611	78.9	30 - 120	
72 Ge	1	428588	1.02	564811	75.9	30 - 120	
115 In	1	1467004	0.55	1813857	80.9	30 - 120	
165 Ho	1	3626612	0.17	4072608	89.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 1 :Element Failures

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 9 2009 07:54 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

QC	Freme	nts							
Ele	ment	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.02	0.02	ppb	100.44	3600	
51	V	72	1	-0.01	-0.01	ppb	63.18	3600	
52	Cr	72	1	-0.03	-0.03	ppb	57.07	3600	
55	Mn	72	1	0.01	0.01	ppb	52.11	3600	
59	Co	72	1	0.01	0.01	ppb	43.58	3600	
60	Ni	72	1	0.01	0.01	ppb	104.64	3600	
63	Cu	72	1	0.02	0.02	ppb	45.29	3600	
66	Zn	72	1	-0.05	-0.05	ppb	8.64	3600	
75	As	72	1	0.01	0.01	ppb	90.29	3600	
78	Se	72	1	-0.21	-0.21	ppb	145.61	3600	
95	Mo	72	1	1.37	1.37	ppb	6.78	3600	
107	' Ag	115	1	0.01	0.01	ppb	45.62	3600	
111	. Cd	115	1	0.00	0.00	ppb	277.55	3600	
118	Sn	115	1	-0.31	-0.31	dqq	9.75	3600	
121	. Sb	115	1	0.05	0.05	ppb	22.50	3600	
137	Ba	115	1	0.01	0.01	ppb	92.84	3600	
205	Tl	165	1	0.01	0.01	ppb	34.19	3600	
208	dq 8	165	1	0.01	0.01	ppb	15.08	3600	
232	? Th	165	1	0.82	0.82	dqq	13.57	1000	
238	U	165	1	0.02	0.02	ppb	3.93	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%) Fla	эg
6 Li	1	380418	0.72	371452	102.4	30 - 120	
45 Sc	1	878923	1.34	968611	90.7	30 - 120	
72 Ge	1	517911	0.40	564811	91.7	30 - 120	
115 In	1	1721647	0.65	1813857	94.9	30 - 120	
165 Ho	1	4031480	1.12	4072608	99.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\014 LR.D\014 LR.D#

Date Acquired: Jul 9 2009 07:57 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: LRD LR ISTD: **Pass** Sample Name:

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

LR Sample Type: 1.00 Prep Dil. Factor: Autodil Factor: Undiluted Final Dil Factor: 1.00

	-								
El	ement	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	958.00 ppb	0.72	1000	95.8	90 - 110	
51	V	72	1	944.80 ppb	1.02	1000	94.5	90 - 110	
52	Cr	72	1	949.60 ppb	0.88	1000	95.0	90 - 110	
55	Mn	72	1	974.30 ppb	0.28	1000	97.4	90 - 110	
59	Co	72	1	933.10 ppb	1.25	1000	93.3	90 - 110	
60	Ni	72	1	967.60 ppb	0.71	1000	96.8	90 - 110	
63	Cu	72	1	936.00 ppb	1.00	1000	93.6	90 - 110	
66	Zn	72	1	1022.00 ppb	0.42	1000	102.2	90 - 110	
75	As	72	1	970.40 ppb	0.52	1000	97.0	90 - 110	
78	Se	72	1	1004.00 ppb	0.86	1000	100.4	90 - 110	
95	Mo	72	1	990.30 ppb	0.72	1000	99.0	90 - 110	
10	7 Ag	115	1	916.50 ppb	0.87	1000	91.7	90 - 110	
11	1 Cd	115	1	975.40 ppb	0.66	1000	97.5	90 - 110	
11	8 Sn	115	1	968.70 ppb	1.38	1000	96.9	90 - 110	
12	1 Sb	115	1	957.40 ppb	0.75	1000	95.7	90 - 110	
13	7 Ba	115	1	987.10 ppb	0.93	1000	98.7	90 - 110	
20	5 Tl	165	1	967.70 ppb	1.06	1000	96.8	90 - 110	
20	8 Pb	165	1	963.80 ppb	1.50	1000	96.4	90 - 110	
23	2 Th	165	1	1074.00 ppb	1.75	1000	107.4	90 - 110	
23	8 U	165	1	995.70 ppb	1.15	1000	99.6	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	361861	0.51	371452	97.4	30 - 120	
45 Sc	1	883070	1.31	968611	91.2	30 - 120	
72 Ge	1	513438	0.68	564811	90.9	30 - 120	
115 In	1	1740051	1.04	1813857	95.9	30 - 120	
165 Ho	1	4079027	0.90	4072608	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 9 2009 08:00 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.09	0.09	ppb	66.41	3600	
51 V	72	1	0.07	0.07	ppb	12.19	3600	
52 Cr	72	1	0.05	0.05	ppb	23.76	3600	
55 Mn	72	1	0.07	0.07	ppb	36.20	3600	
59 Co	72	1	0.08	0.08	ppb	23.19	3600	
60 Ni	72	1	0.08	0.08	ppb	32.28	3600	
63 Cu	72	1	0.12	0.12	ppb	26.70	3600	
66 Zn	72	1	0.03	0.03	ppb	62.32	3600	
75 As	72	1	0.12	0.12	ppb	17.82	3600	
78 Se	72	1	0.02	0.02	ppb	664.52	3600	
95 Mo	72	1	0.76	0.76	ppb	10.53	3600	
107 Ag	115	1	0.08	0.08	ppb	30.13	3600	
111 Cd	115	1	0.08	0.08	ppb	22.60	3600	
118 Sn	115	1	1.09	1.09	ppb	8.82	3600	
121 Sb	115	1	0.61	0.61	ppb	5.10	3600	
137 Ba	115	1	0.07	0.07	ppb	32.25	3600	
205 Tl	165	1	0.12	0.12	ppb	19.29	3600	
208 Pb	165	1	0.08	0.08	ppb	26.74	3600	
232 Th	165	1	5.28	5.28	ppb	19.77	1000	
238 U	165	1	0.14	0.14	ppb	10.37	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	375391	1.11	371452	101.1	30 - 120	
45 Sc	1	927611	1.66	968611	95.8	30 - 120	
72 Ge	1	543595	0.25	564811	96.2	30 - 120	
115 In	1	1781913	2.05	1813857	98.2	30 - 120	
165 Ho	1	4090868	0.43	4072608	100.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 9 2009 08:02 pm

QC Summary: Operator: LRD Analytes: Pass Sample Name: CCV ISTD: Pass

Misc Info:

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: CCV Total Dil Factor: 1.00

Tune File# 2

Tune File# 3

QC I	Eleme	nts								
Eler	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	48.44	ppb	1.86	50	96.9	90 - 110	
51	V	72	1	49.34	ppb	0.79	50	98.7	90 - 110	
52	Cr	72	1	49.58	ppb	0.49	50	99.2	90 - 110	
55	Mn	72	1	49.86	ppb	0.34	50	99.7	90 - 110	
59	Со	72	1	48.32	ppb	1.08	50	96.6	90 - 110	
60	Νi	72	1	48.48	ppb	0.76	50	97.0	90 - 110	
63	Cu	72	1	49.40	ppb	0.71	50	98.8	90 - 110	
66	Zn	72	1	49.59	ppb	0.60	50	99.2	90 - 110	
75	As	72	1	49.10	ppb	0.79	50	98.2	90 - 110	
78	Se	72	1	51.76	ppb	6.79	50	103.5	90 - 110	
95	Mo	72	1	49.30	ppb	0.71	50	98.6	90 - 110	
107	Ag	115	1	48.69	ppb	1.54	50	97.4	90 - 110	
111	Cd	115	1	49.30	ppb	0.99	50	98.6	90 - 110	
118	Sn	115	1	49.70	ppb	1.34	50	99.4	90 - 110	
121	Sb	115	1	49.31	ppb	0.96	50	98.6	90 - 110	
137	Ва	115	1	49.34	ppb	1.54	50	98.7	90 - 110	
205	Tl	165	1	49.55	ppb	1.86	50	99.1	90 - 110	
208	Pb	165	1	50.39	ppb	0.18	50	100.8	90 - 110	
232	Th	165	1	52.02	ppb	3.65	50	104.0	90 - 110	
238	U	165	1	50.91	ppb	0.75	50	101.8	90 - 110	
IST	D Ele	ments								
Ele	ment		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	370834		0.30	371452	99.8	30 - 120	
45	Sc		1	933785		0.88	968611	96.4	30 - 120	
72	Ge		1	539608		0.52	564811	95.5	30 - 120	
115	In		1	1798609		0.85	1813857	99.2	30 - 120	
165	Но		1	4123260		0.88	4072608	101.2	30 - 120	
Tune File# 1 c:\icpchem\1\7500\he.u										

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\7500\

C:\ICPCHEM\1\7500\

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 9 2009 08:05 pm

QC Summary: Operator: LRD Analytes: Fail Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number:

1307 C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Calibration 1.
Last Cal Update: Jul 09 2009 07:30 pm

CCB Sample Type: Total Dil Factor: 1.00

QC Elemen	nts
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Elemen	t IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag	
9 Ве	6	1	0.008	ppb	173.22	1.00		
51 V	72	1	-0.028	ppb	113.84	1.00		
52 Cr	72	1	-0.012	ppb	100.08	1.00		
55 Mn	72	1	-0.002	ppb	110.60	1.00		
59 Co	72	1	0.003	ppb	31.54	1.00		
60 Ni	72	1	0.001	ppb	1941.60	1.00		
63 Cu	72	1	0.023	ppb	50.48	1.00		
66 Zn	72	1	-0.087	ppb	24.42	1.00		
75 As	72	1	0.019	ppb	130.61	1.00		
78 Se	72	1	-0.395	ppb	27.37	1.00		
95 Mo	72	1	0.137	ppb	16.90	1.00		
107 Ag	115	1	0.020	ppb	32,82	1.00		
111 Cd	115	1	0.012	ppb	37.28	1.00		
118 Sn	115	1	-0.007	ppb	610.59	1.00		
121 Sb	115	1	0.122	ppb	6.27	1.00		
137 Ba	115	1	0.004	ppb	50.89	1.00		
205 Tl	165	1	0.034	ppb	14.64	1.00		
208 Pb	165	1	0.003	ppb	37.09	1.00		s 10
232 Th	165	1	1.381	ppb	15.50	1.00	Fail	M
238 U	165	1	0.017	ppb	4.24	1.00		

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	373874	0.73	371452	100.7	30 - 120	
45 Sc	1	945270	0.85	968611	97.6	30 - 120	
72 Ge	1	552606	0.40	564811	97.8	30 - 120	
115 In	1	1821881	0.39	1813857	100.4	30 - 120	
165 Ho	1	4138346	0.46	4072608	101.6/	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		1		

ISTD Ref File :

Tune File# 3 C:\ICPCHEM\1\7500\

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\018WASH.D\018WASH.D#

Date Acquired: Jul 9 2009 08:08 pm

Operator: LRD QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: WASH Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.916 ppb	23.53	1.30	
51 V	72	1	5.123 ppb	2.24	6.50	
52 Cr	72	1	2.081 ppb	1.68	2.60	
55 Mn	72	1	1.066 ppb	0.81	1.30	
59 Co	72	1	1.016 ppb	2.30	1.30	
60 Ni	72	1	2.054 ppb	3.70	2.60	
63 Cu	72	1	2,052 ppb	3.73	2.60	
66 Zn	72	1	10.130 ppb	1.21	13.00	
75 As	72	1	4.893 ppb	0.33	6.50	
78 Se	72	1	4.736 ppb	18.54	6.50	
95 Mo	72	1	2.011 ppb	2.11	2.60	
107 Ag	115	1	5.200 ppb	0.85	6.50	
111 Cd	115	1	1.010 ppb	6.91	1.30	
118 Sn	115	1	10.150 ppb	1.93	13.00	
121 Sb	115	1	1.972 ppb	4.04	2.60	
137 Ba	115	1	1.069 ppb	4.72	1.30	
205 Tl	165	1	1.085 ppb	0.91	1.30	
208 Pb	165	1	1.064 ppb	1.05	1.30	
232 Th	165	1	2.600 ppb	1.15	2.60	
238 U	165	1	1.102 ppb	0.33	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	377469	0.68	371452	101.6	30 - 120	
45 Sc	1	965547	1.32	968611	99.7	30 - 120	
72 Ge	1	558611	0.13	564811	98.9	30 - 120	
115 In	1	1815992	0.35	1813857	100.1	30 - 120	
165 Ho	1	4114352	0.60	4072608	101.0	30 - 120	

Tune File# 1' c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Interference (Chec	k Solution	AB (IC	CS-AB) QC	Report		
Data File:		C:\ICPCHEM\1	\DATA\A	G070909B.B\0	19ICSB.D\01	91CSB.zb#	
Date Acquired:		Jul 9 2009	08:11 pr	n			
Acq. Method:		NormISIS.M				QC Summary:	
Operator:		LRD			4	Analytes: Pass	
Sample Name:		ICSAB			/	/ ISTD: Pass	
Misc Info:							6
Vial Number:		2109	1	~\~~ ~~~ .	. /		()
Current Method: Calibration File		C:\ICPCHEM\1 C:\ICPCHEM\1			'		170
Last Cal. Update		Jul 09 2009				20	\sim
Sample Type:		ICSAB		y -		O, Dy,	\1 ^V
Dilution Factor:		1.00				$\lambda \sim \lambda$	' <i>/</i> .
				,			•
QC Elements							
Element IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be 6	1	90.63		/100	90.6	80 - 120	
51 V 72	1	99.86	0.51	/ 100	99.9	80 - 120	
52 Cr 72	1	98.64		100	98.6	80 - 120	
55 Mn 72 59 Co 72	1 1	99.82 92.61		100	99.8 92.6	80 - 120 80 - 120	
60 Ni 72	1	89.30		100	89.3	80 - 120	
63 Cu 72	1	86.63		/ 100		80 - 120	
66 Zn 72	1	98.09	0.56 /	100	98.1	80 - 120	
75 As 72	1	99.21	/	100	99.2	80 - 120	
78 Se 72	1	107.00	,	100		80 - 120	
95 Mo 72	1	2095.00	1.2/0	2100	99.8	80 - 120	
107 Ag 115	1 1	82.18	2/34 1/.83	100 100	82.2 92.4	80 - 120 80 - 120	
111 Cd 115 118 Sn 115	1	92.44 98.94	,	100		80 - 120	
121 Sb 115	1	100.30	· f	100		80 - 120	
137 Ba 115	1	102.00	,	100		80 - 120	
205 Tl 165	1	93.2/6	0.75	100	93.3	80 - 120	
208 Pb 165	1	91,/55	0.38	100	91.6	80 - 120	
232 Th 165	1	108/.30	1.35	100	108.3	80 - 120	
238 U 165	1	196.60	0.28	100	100.6	80 - 120	
		/					
ISTD Elements		/					
Element	Tune	CF/S Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	/349082	0.44	371452	94.0	30 - 120	
45 Sc	1	/ 806033	1.06 1.20	968611	83.2 79.3	30 - 120 30 - 120	
72 Ge 115 In	1 1	447848	1.28		83.3	30 - 120	
165 Ho	1 /	3712403	0.29	4072608	91.2	30 - 120	
Tune File#	1/	c:\icpchem\		e.u			
Tune File# Tune File#	1/3	<pre>C:\ICPCHEM\C:\ICPCHEM\C</pre>					
Tune rile#	1	C. (ICI CILLII).	1 (7500 (
ISTD Ref File :	¢:\IC	PCHEM\1\DATA	A\AG0709	09B.B\003CAI	B.D\003CALB	.D#	
0 :Element Fai	lures		Ω	:Max. Numbe	r of Failure	es Allowed	
0 :Element Failur						ailures Allowed	
<i>y</i>							

Data File:	C:\ICPCHEM\1\DATA\A	G070909B.B\020	SMPL.D\020SM	IPL.D#		
Date Acquired:	Jul 9 2009 08:13 pt					
Acq. Method:	NormISIS.M			/ Q	C Summary:	
Operator:	LRD			Analy		
Sample Name:	RINSE			, –	STD: Pass	
Misc Info:	KINSL			/ -:		
Vial Number:	1101				(^	
Current Method:	C:\ICPCHEM\1\METHOD	S\NormISIS.M			2),	
Calibration File:	C:\ICPCHEM\1\CALIB\		/	/ \)	1 0 1)0	
Last Cal. Update:	Jul 09 2009 07:30		/	\sim \sim		
Sample Type:	SA	•		~ Z 3	N. D	
Dilution Factor:	1.00		/		1/0	
Autodil Factor:	Undiluted			. 0	∕\`	
Final Dil Factor:	1.00					
QC Elements			/			
Element IS Ref Tune	Corr Conc R	aw Conc Units	/ RSD(%) I	High Limit	Flag	
9 Be 6 1	0.00	0.00 ppb	0.00	3600		
51 V 72 1	0.00	0.00 ppb	683.28	3600		
52 Cr 72 1	0.00	0.00 ppb	626.77	3600		
55 Mn 72 1	0.02	0.02 /ppb	25.70	3600		
59 Co 72 1	0.01	0.01 / ppb	42.91	3600		
60 Ni 72 1	0.00	0.00/ ppb	131.20	3600		
63 Cu 72 1	0.02	0.0/2 ppb	33.77	3600		
66 Zn 72 1	-0.05	-0,05 ppb	19.56	3600		
75 As 72 1	0.02	0.02 ppb	90.04	3600		
78 Se 72 1	0.04	0.04 ppb	1062.50	3600		
95 Mo 72 1	1.19	1.19 ppb	11.58	3600		
107 Ag 115 1 111 Cd 115 1	0.01	/ 0.01 ppb	21.97	3600		
	0.02	0.02 ppb -0.28 ppb	88.68 23.24	3600 3600		
118 Sn 115 1 121 Sb 115 1	0.07		3.53	3600		
137 Ba 115 1	0.01	0.07 ppb 0.01 ppb	74.28	3600		
205 Tl 165 1	0.01	0.01 ppb	17.79	3600		
208 Pb 165 1	0.01	0.01 ppb	23.17	3600		
232 Th 165 1	0.98	0.98 ppb	13.49	1000		
238 U 165 1	0/02	0.02 ppb	2.45	3600		
	7.7	FE				
	/					
ISTD Elements	/					
Element Tune	CPS Mean RS	D(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li 1	37 / 618 1	.21	371452	100.3	30 - 120	
45 Sc 1	9ø1389 0	.80	968611	93.1	30 - 120	
72 Ge 1	≸30681 0	. 47	564811	94.0	30 - 120	
115 In 1	<i>f</i>	.14	1813857	96.8	30 - 120	
165 Ho 1	/ 4056355 0	.25	4072608	99.6	30 - 120	
Tune File# 1	c:\icpchem\1\7500\h	e.u				
Tune File# 2	/C:\ICPCHEM\1\7500\					
Tune File# 3	C:\ICPCHEM\1\7500\					
ISTD Ref File : /	C.\ TC	PCHEM\1\DATA\A	2070909P P\()U3CZTB D/O	103CVIB D#	
TOID VGT LITE:	C:\1C	FOREM (I (DATA (A)	JU / U J U J D . B \ (,03CALD.D(U	O DOWID . D#	
0 :Element Fail res		0:Max. N	umber of Fa	ilures All	owed	
0 :ISTD Failures			umber of IS			
-		•				

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\021 CCV.D\021 CCV.D#

Date Acquired: Jul 9 2009 08:16 pm

QC Summary: Operator: LRD Analytes: Pass Sample Name: CCV ISTD: Pass

Misc Info:

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

CCV Sample Type: Total Dil Factor: 1.00

QC	Elemen	its
		* ~

Eler	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	48.38	ppb	1.82	50	96.8	90 - 110	
51	V	72	1	48.86	ppb	0.96	50	97.7	90 - 110	
52	Cr	72	1	49.00	ppb	0.77	50	98.0	90 - 110	
55	Mn	72	1	49,58	ppb	0.40	50	99.2	90 - 110	
59	Со	72	1	48.15	ppb	0.54	50	96.3	90 - 110	
60	Ni	72	1	48.62	ppb	0.64	50	97.2	90 - 110	
63	Cu	72	1	48.29	ppb	0.37	50	96.6	90 - 110	
66	Zn	72	1	49.39	ppb	0.83	50	98.8	90 - 110	
75	As	72	1	49.17	ppb	0.77	50	98.3	90 - 110	
78	Se	72	1	49.13	ppb	2.75	50	98.3	90 - 110	
95	Mo	72	1	48.99	ppb	0.67	50	98.0	90 - 110	
107	Ag	115	1	48.36	ppb	1.26	50	96.7	90 - 110	
111	Cd	115	1	48.73	ppb	0.85	50	97.5	90 - 110	
118	Sn	115	1	49.47	ppb	0.86	50	98.9	90 - 110	
121	Sb	115	1	49.28	ppb	0.35	50	98.6	90 - 110	
137	Ва	115	1	49.33	ppb	0.73	50	98.7	90 - 110	
205	Tl	165	1	50.78	ppb	1.27	50	101.6	90 - 110	
208	Pb	165	1	50.55	ppb	0.77	50	101.1	90 - 110	
232	Th	165	1	51.57	ppb	2.44	50	103.1	90 - 110	
238	U	165	1	50.88	ppb	1.60	50	101.8	90 - 110	

ISTD	Elements
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Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	371040	1.36	371452	99.9	30 - 120	
45 Sc	1	946405	2.60	968611	97.7	30 - 120	
72 Ge	1	548357	0.57	564811	97.1	30 - 120	
115 In	1	1835859	0.45	1813857	101.2	30 - 120	
165 Ho	1	4185510	0.85	4072608	102.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\022 CCB.D\022 CCB.D#

Jul 9 2009 08:19 pm Date Acquired:

QC Summary: Operator: LRD Analytes: Fail Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: CCB Total Dil Factor: 1.00

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	**										
]	Eler	nent	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag		
	9	Ве	, 6	1	0.015	ppb	86.59	1.00			
ļ	51	V	72	1	0.022	ppb	155.27	1.00			
	52	Cr	72	1	-0.006	ppb	68.76	1.00			
	55	Mn	72	1	0.003	ppb	178.90	1.00			
	59	Со	72	1	0.006	ppb	48.35	1.00			
	60	Ni	72	1	0.012	ppb	136.62	1.00			
	63	Cu	72	1	0.011	ppb	103.48	1.00			
	66	Zn	72	1	-0.090	ppb	30.89	1.00			
	75	As	72	1	0.001	ppb	124.39	1.00			
	78	Se	72	1	-0.118	ppb	318.36	1.00			
	95	Mo	72	1	0.132	ppb	7.65	1.00			
	107	Ag	115	1	0.008	ppb	18.76	1.00			
	111	Cd	115	1	0.005	ppb	161.40	1.00			
	118	Sn	115	1	-0.187	ppb	12.73	1.00			
	121	Sb	115	1	0.070	ppb	5.46	1.00			
	137	Ва	115	1	-0.002	ppb	191.93	1.00			
	205	Tl	165	1	0.022	ppb	12.54	1.00			
	208	Pb	165	1	0.002	ppb	33.89	1.00		NR -	
	232	Th	165	1	1.156	ppb	17.21	1.00	Fail 🔥		
	238	U	165	1	0.009	ppb	4.30	1.00			

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	374198	0.72	371452	100.7	30 - 120	
45 Sc	1	961838	1.08	968611	99.3	30 - 120	
72 Ge	1	559480	0.33	564811	99.1	30 - 120	
115 In	1	1837458	0.26	1813857	101.3	30 - 120	
165 Ho	1	4170732	0.49	4072608	102.4	y 30 - 120	
Tune File	e# 1	c:\icpchem\	1\7500\h	e.u	/	/	
Tune File	e# 2	C:\ICPCHEM\	1\7500\				
Tune File	e# 3	C:\ICPCHEM\	1\7500\		•		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 : Max. Number of Failures Allowed 1 :Element Failures

0 :ISTD Failures 0 : Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\023WASH.D\023WASH.D\

Date Acquired: Jul 9 2009 08:22 pm

Operator: LRD QC Summary: Sample Name: RLCV Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: WASH Total Dil Factor: 1.00

QC Eleme:	Elements											
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag						
9 Be	6	1	1.371 ppb	8.72	1.30							
51 V	72	1	5.126 ppb	3.24	6.50							
52 Cr	72	1	2.056 ppb	2.63	2.60							
55 Mn	72	1	1.030 ppb	2.11	1.30							
59 Co	72	1	0.976 ppb	3.41	1.30							
60 Ni	72	1	2.112 ppb	3.33	2.60							
63 Cu	72	1	1.997 ppb	0.64	2.60							
66 Zn	72	1	10.120 ppb	2.07	13.00							
75 As	72	1	5.012 ppb	2.82	6.50							
78 Se	72	1	5.520 ppb	5.25	6.50							
95 Mo	72	1	2.059 ppb	2.28	2.60							
107 Ag	115	1	5.098 ppb	1.32	6.50							
111 Cd	115	1	1.053 ppb	0.46	1.30							
118 Sn	115	1	10.080 ppb	0.39	13.00							
121 Sb	115	1	1.919 ppb	0.96	2.60							
137 Ba	115	1	1.066 ppb	0.73	1.30							
205 Tl	165	1	1.095 ppb	1.35	1.30							
208 Pb	165	1	1.066 ppb	0.75	1.30							
232 Th	165	1	2.459 ppb	0.63	2.60							

ISTD Elements

165

1

238 U

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	375667	0.38	371452	101.1	30 - 120	
45 Sc	1	976276	1.49	968611	100.8	30 - 120	
72 Ge	1	569448	0.08	564811	100.8	30 - 120	
115 In	1	1858307	0.71	1813857	102.5	30 - 120	
165 Ho	1	4210629	0.24	4072608	103.4	30 - 120	

1.104 ppb

0.09

1.30

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\024SMPL.D\024SMPL.D#

Date Acquired: Jul 9 2009 08:24 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: IDL 1 ISTD: Pass

Misc Info: IDL 1
Vial Number: 2201

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	0.00	0.00	ppb	5802.60	3600	
52 Cr	72	1	0.02	0.02	ppb	28.81	3600	
55 Mn	72	1	0.00	0.00	ppb	91.50	3600	
59 Co	72	1	0.00	0.00	ppb	247.44	3600	
60 Ni	72	1	-0.01	-0.01	ppb	257.68	3600	
63 Cu	72	1	0.04	0.04	ppb	37.58	3600	
66 Zn	72	1	0.05	0.05	ppb	33.99	3600	
75 As	72	1	0.00	0.00	ppb	507.59	3600	
78 Se	72	1	-0.25	-0.25	ppb	128.67	3600	
95 Mo	72	1	0.04	0.04	ppb	25.81	3600	
107 Ag	115	1	0.01	0.01	ppb	54.30	3600	
111 Cd	115	1	0.01	0.01	ppb	325.20	3600	
118 Sn	115	1	-0.46	-0.46	ppb	5.97	3600	
121 Sb	115	1	0.04	0.04	ppb	9.87	3600	
137 Ba	115	1	0.01	0.01	ppb	32.85	3600	
205 Tl	165	1	0.01	0.01	ppb	31.69	3600	
208 Pb	165	1	0.00	0.00	ppb	68.00	3600	
232 Th	165	1	0.25	0.25	ppb	13.93	1000	
238 U	165	1	0.00	0.00	ppb	44.27	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	374974	0.39	371452	100.9	30 - 120	
45 Sc	1	980798	1.41	968611	101.3	30 - 120	
72 Ge	1	570443	0.20	564811	101.0	30 - 120	
115 In	1	1860003	0.88	1813857	102.5	30 - 120	
165 Ho	1	4209249	0.46	4072608	103.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\025SMPL.D\025SMPL.D#

Date Acquired: Jul 9 2009 08:27 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: IDL 2 ISTD: Pass

Misc Info: IDL 2
Vial Number: 2202

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.01	-0.01	ppb	290.58	3600	
52 Cr	72	1	0.07	0.07	ppb	10.17	3600	
55 Mn	72	1	0.00	0.00	ppb	1205.20	3600	
59 Co	72	1	0.00	0.00	ppb	89.02	3600	
60 Ni	72	1	0.00	0.00	ppb	658.84	3600	
63 Cu	72	1	0.02	0.02	ppb	33.52	3600	
66 Zn	72	1	0.01	0.01	ppb	270.46	3600	
75 As	72	1	0.00	0.00	ppb	2338.50	3600	
78 Se	72	1	-0.28	-0.28	ppb	32.33	3600	
95 Mo	72	1	0.04	0.04	ppb	23.33	3600	
107 Ag	115	1	0.01	0.01	ppb	34.15	3600	
111 Cd	115	1	0.00	0.00	ppb	198.50	3600	
118 Sn	115	1	-0.49	-0.49	ppb	3.92	3600	
121 Sb	115	1	0.02	0.02	ppb	26.00	3600	
137 Ba	115	1	-0.01	-0.01	ppb	80.45	3600	
205 Tl	165	1	0.01	0.01	ppb	22.38	3600	
208 Pb	165	1	0.00	0.00	ppb	51.13	3600	
232 Th	165	1	0.09	0.09	ppb	11.59	1000	
238 U	165	1	0.00	0.00	ppb	37.55	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	379756	0.97	371452	102.2	30 - 120	
45 Sc	1	989350	0.24	968611	102.1	30 - 120	
72 Ge	1	573316	0.13	564811	101.5	30 - 120	
115 In	1	1861164	1.10	1813857	102.6	30 - 120	
165 Ho	1	4218186	0.65	4072608	103.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\026SMPL.D\026SMPL.D#

Date Acquired: Jul 9 2009 08:30 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: LRD ISTD: Pass Sample Name: IDL 3

Misc Info: IDL 3 Vial Number: 2203

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA Dilution Factor: 1.00 Autodil Factor: Undiluted Final Dil Factor: 1.00

QC Elements

QC E.	Temer	its							
Eleme	ent	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 E	Зе	6	1	0.00	0.00	ppb	0.00	3600	
51 V	7	72	1	0.00	0.00	ppb	499.13	3600	
52 0	Cr	72	1	0.02	0.02	ppb	92.39	3600	
55 M	1n	72	1	0.01	0.01	ppb	66.11	3600	
59 C	Co	72	1	0.00	0.00	ppb	63.94	3600	
60 N	Νi	72	1	0.00	0.00	ppb	1545.20	3600	
63 0	Cu	72	1	0.03	0.03	ppb	29.00	3600	
66 Z	Zn	72	1	0.07	0.07	ppb	26.24	3600	
75 P	As	72	1	0.00	0.00	ppb	2710.50	3600	
78 S	Se	72	1	-0.16	-0.16	ppb	129.36	3600	
95 M	10	72	1	0.02	0.02	ppb	11.75	3600	
107 F	₹g	115	1	0.00	0.00	ppb	146.93	3600	
111 0	Cd	115	1	0.00	0.00	ppb	1586.30	3600	
118 8	3n	115	1	-0.50	-0.50	ppb	6.68	3600	
121 5	Sb	115	1	0.01	0.01	ppb	45.22	3600	
137 E	3a	115	1	0.00	0.00	ppb	1046.50	3600	
205 I	rl	165	1	0.00	0.00	ppb	18.95	3600	
208 E	Pb	165	1	0.00	0.00	ppb	218.20	3600	
232 1	ľh	165	1	0.04	0.04	ppb	22.04	1000	
238 t	J	165	1	0.00	0.00	ppb	193.04	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	379873	0.83	371452	102.3	30 - 120	
45 Sc	1	987950	1.11	968611	102.0	30 - 120	
72 Ge	1	574137	0.18	564811	101.7	30 - 120	
115 In	1	1871771	0.37	1813857	103.2	30 - 120	
165 Ho	1	4206436	0.71	4072608	103.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\027SMPL.D\027SMPL.D#

Date Acquired: Jul 9 2009 08:33 pm

Acq. Method: NormISIS.M

Operator: LRD Analytes: Pass Sample Name: IDL 4 ISTD: Pass

Misc Info: IDL 4
Vial Number: 2204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.07	-0.07	ppb	24.64	3600	
52 Cr	72	1	0.00	0.00	ppb	664.22	3600	
55 Mn	72	1	0.01	0.01	ppb	284.20	3600	
59 Co	72	1	0.00	0.00	ppb	244.55	3600	
60 Ni	72	1	0.00	0.00	ppb	1585.00	3600	
63 Cu	72	1	0.03	0.03	ppb	35.25	3600	
66 Zn	72	1	0.03	0.03	ppb	47.63	3600	
75 As	72	1	0.00	0.00	ppb	248.76	3600	
78 Se	72	1	-0.34	-0.34	ppb	61.23	3600	
95 Mo	72	1	0.02	0.02	ppb	50.18	3600	
107 Ag	115	1	0.00	0.00	ppb	375.54	3600	
111 Cd	115	1	0.00	0.00	ppb	425.12	3600	
118 Sn	115	1	-0.49	-0.49	ppb	4.20	3600	
121 Sb	115	1	0.01	0.01	ppb	8.25	3600	
137 Ba	115	1	0.00	0.00	ppb	1126.70	3600	
205 Tl	165	1	0.00	0.00	ppb	176.64	3600	
208 Pb	165	1	0.00	0.00	ppb	262.52	3600	
232 Th	165	1	0.02	0.02	ppb	35.20	1000	
238 U	165	1	0.00	0.00	ppb	177.20	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	376237	0.50	371452	101.3	30 - 120	
45 Sc	1	998363	1.13	968611	103.1	30 - 120	
72 Ge	1	575791	0.39	564811	101.9	30 - 120	
115 In	1	1873839	0.57	1813857	103.3	30 - 120	
165 Ho	1	4228217	0.27	4072608	103.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

QC Summary:

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\028SMPL.D\028SMPL.D#

Date Acquired: Jul 9 2009 08:35 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: IDL 5 ISTD: Pass

Misc Info: IDL 5
Vial Number: 2205

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

OC Elements

QC.	гтеше	nes							
Ele	ment	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	
51	V	72	1	0.00	0.00	ppb	14894.00	3600	
52	Cr	72	1	0.02	0.02	ppb	169.77	3600	
55	Mn	72	1	0.01	0.01	ppb	55.26	3600	
59	Со	72	1	0.00	0.00	ppb	83.71	3600	
60	Ni	72	1	0.00	0.00	ppb	328.56	3600	
63	Cu	72	1	0.04	0.04	ppb	9.85	3600	
66	Zn	72	1	0.17	0.17	ppb	21.86	3600	
75	As	72	1	0.01	0.01	ppb	140.06	3600	
78	Se	72	1	-0.19	-0.19	ppb	164.39	3600	
95	Mo	72	1	0.01	0.01	ppb	118.05	3600	
107	Ag	115	1	0.01	0.01	ppb	19.41	3600	
111	Cd	115	1	0.00	0.00	ppb	588.81	3600	
118	Sn	115	1	-0.49	-0.49	ppb	0.22	3600	
121	Sb	115	1	0.01	0.01	ppb	43.90	3600	
137	Ва	115	1	0.00	0.00	ppb	166.95	3600	
205	Tl	165	1	0.00	0.00	ppb	50.27	3600	
208	Pb	165	1	0.00	0.00	ppb	8502.10	3600	
232	Th	165	1	0.01	0.01	ppb	11.17	1000	
238	U	165	1	0.00	0.00	ppb	125.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	374700	0.54	371452	100.9	30 - 120	
45 Sc	1	978899	1.65	968611	101.1	30 - 120	
72 Ge	1	572831	0.48	564811	101.4	30 - 120	
115 In	1	1869479	1.78	1813857	103.1	30 - 120	
165 Ho	1	4208556	0.24	4072608	103.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed

0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\029SMPL.D\029SMPL.D#

Date Acquired: Jul 9 2009 08:38 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: IDL 6 Pass

Misc Info: IDL 6
Vial Number: 2206

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

QC.	гтеше	nts							
Ele	ment	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	
51	V	72	1	-0.01	-0.01	ppb	102.93	3600	
52	Cr	72	1	-0.01	-0.01	ppb	251.49	3600	
55	Mn	72	1	0.00	0.00	ppb	62.00	3600	
59	Со	72	1	0.00	0.00	ppb	32.48	3600	
60	Ni	72	1	0.00	0.00	ppb	1609.40	3600	
63	Cu	72	1	0.03	0.03	ppb	33.66	3600	
66	Zn	72	1	0.11	0.11	ppb	34.52	3600	
75	As	72	. 1	0.01	0.01	ppb	223.41	3600	
78	Se	72	1	-0.07	-0.07	ppb	633.99	3600	
95	Mo	72	1	0.01	0.01	ppb	108.56	3600	
107	Ag	115	1	0.00	0.00	ppb	41.08	3600	
111	Cd	115	1	0.01	0.01	ppb	143.50	3600	
118	Sn	115	1	-0.53	-0.53	ppb	2.99	3600	
121	Sb	115	1	0.00	0.00	ppb	125.67	3600	
137	Ва	115	1	-0.01	-0.01	ppb	56.35	3600	
205	Tl	165	1	0.00	0.00	ppb	224.34	3600	
208	Pb	165	1	0.00	0.00	ppb	117.75	3600	
232	Th	165	1	0.00	0.00	ppb	51.00	1000	
238	U	165	1	0.00	0.00	ppb	405.60	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	375497	0.62	371452	101.1	30 - 120	
45 Sc	1	987468	0.24	968611	101.9	30 - 120	
72 Ge	1	575107	0.31	564811	101.8	30 - 120	
115 In	1	1887108	1.27	1813857	104.0	30 - 120	
165 Ho	1	4185520	0.64	4072608	102.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\030SMPL.D\030SMPL.D#

Date Acquired: Jul 9 2009 08:41 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: IDL 7 ISTD: Pass

Misc Info: IDL 7 Vial Number: 2207

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.02	-0.02	ppb	131.12	3600	
52 Cr	72	1	0.07	0.07	ppb	36.03	3600	
55 Mn	72	1	0.01	0.01	ppb	2.03	3600	
59 Co	72	1	0.00	0.00	ppb	24.54	3600	
60 Ni	72	1	0.00	0.00	ppb	311.80	3600	
63 Cu	72	1	0.02	0.02	ppb	46.73	3600	
66 Zn	72	1	0.05	0.05	ppb	36.48	3600	
75 As	72	1	0.00	0.00	ppb	120.97	3600	
78 Se	72	1	-0.13	-0.13	ppb	214.34	3600	
95 Mo	72	1	0.03	0.03	ppb	53.80	3600	
107 Ag	115	1	0.00	0.00	ppb	77.06	3600	
111 Cd	115	1	0.02	0.02	ppb	43.28	3600	
118 Sn	115	1	-0.42	-0.42	ppb	5.96	3600	
121 Sb	115	1	0.00	0.00	ppb	247.25	3600	
137 Ba	115	1	0.01	0.01	ppb	92.38	3600	
205 Tl	165	1	0.00	0.00	ppb	162.81	3600	
208 Pb	165	1	0.00	0.00	ppb	134.43	3600	
232 Th	165	1	0.00	0.00	ppb	575.71	1000	
238 U	165	1	0.00	0.00	ppb	22.12	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	370136	0.34	371452	99.6	30 - 120	
45 Sc	1	988661	2.04	968611	102.1	30 - 120	
72 Ge	1	572814	0.56	564811	101.4	30 - 120	
115 In	1	1864604	1.04	1813857	102.8	30 - 120	
165 Ho	1	4220312	0.35	4072608	103.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

ISTD:

Pass

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\031 CCV.D\031 CCV.D#

Date Acquired: Jul 9 2009 08:44 pm

Operator: LRD QC Summary: Sample Name: CCV Analytes: Pass

Misc Info:

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Ele	QC Elements									
Elemen	nt IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag	
9 B€	e 6	1	49.68	ppb	1.79	50	99.4	90 - 110		
51 V	72	1	49.61	ppb	0.73	50	99.2	90 - 110		
52 C1	r 72	1	49.37	ppb	0.79	50	98.7	90 - 110		
55 Mr	n 72	1	49.91	ppb	1.35	50	99.8	90 - 110		
59 Cd	o 72	1	48.21	ppb	0.33	50	96.4	90 - 110		
60 Ni	i 72	1	49.31	ppb	0.69	50	98.6	90 - 110		
63 Cı	ر 72	1	49.23	ppb	0.42	50	98.5	90 - 110		
66 Zr	n 72	1	49.59	ppb	0.52	50	99.2	90 - 110		
75 As	s 72	1	49.71	ppb	1.44	50	99.4	90 - 110		
78 Se	e 72	1	49.00	ppb	2.10	50	98.0	90 - 110		
95 M	o 72	1	49.14	ppb	0.73	50	98.3	90 - 110		
107 A	g 115	1	48.56	ppb	0.12	50	97.1	90 - 110		
111 C	d 115	1	48.91	ppb	1.67	50	97.8	90 - 110		
118 Sr	n 115	1	48.97	ppb	0.40	50	97.9	90 - 110		
121 SI	b 115	1	49.51	ppb	0.79	50	99.0	90 - 110		
137 Ba	a 115	1	49.81	ppb	0.54	50	99.6	90 - 110		
205 T	1 165	1	50.36	ppb	0.88	50	100.7	90 - 110		
208 P	b 165	1	50.10	ppb	0.34	50	100.2	90 - 110		
232 T	h 165	1	50.43	ppb	3.00	50	100.9	90 - 110		
238 U	165	1	50.65	ppb	1.10	50	101.3	90 - 110		
ISTD E	Elements									
Elemer	nt .	Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag	
6 L:	i	1	368005		0.90	371452	99.1	30 - 120		
45 S	С	1	1002716		1.11	968611	103.5	30 - 120		
72 G	е	1	572137		0.62	564811	101.3	30 - 120		
115 I:	n	1	1885973		0.32	1813857	104.0	30 - 120		
165 H	0	1	4256463		0.48	4072608	104.5	30 - 120		
	Tune File#	1	c:\icpchem\1	7500	\he.u					

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\032 CCB.D\032 CCB.D#

Date Acquired: Jul 9 2009 08:47 pm

QC Summary: Operator: LRD

Analytes: Fail Sample Name: CCB

Misc Info:

ISTD: Pass

Vial Number:

1307
C:\ICPCHEM\1\METHODS\NormISIS.M
C:\ICPCHEM\1\CALIB\NormISIS.C
Jul 09 2009 07:30 pm Current Method: Calibration File:

Calibration
Last Cal Update:

Sample Type: CCB Total Dil Factor: 1.00

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.032	ppb	173.19	1.00	
51 V	72	1	0.033	ppb	70.92	1.00	
52 Cr	72	1	-0.018	ppb	76.95	1.00	
55 Mn	72	1	0.006	ppb	110.93	1.00	
59 Co	72	1	0.001	ppb	235.77	1.00	
60 Ni	72	1	0.000	ppb	1709.30	1.00	
63 Cu	72	1	0.021	ppb	57.14	1.00	
66 Zn	72	1	-0.016	ppb	76.77	1.00	
75 As	72	1	0.011	ppb	123.38	1.00	
78 Se	72	1	-0.132	ppb	104.39	1.00	
95 Mo	72	1	0.038	ppb	13.26	1.00	
107 Ag	115	1	0.002	ppb	82.29	1.00	
111 Cd	115	1	0.003	ppb	635.42	1.00	
118 Sn	115	1	-0.391	ppb	4.07	1.00	
121 Sb	115	1	0.045	ppb	8.66	1.00	
137 Ba	115	1	0.006	ppb	77.45	1.00	
205 Tl	165	1	0.017	ppb	15.63	1.00	
208 Pb	165	1	0.004	ppb	36.76	1.00	4.6
232 Th	165	. 1	1.072	ppb	17.02	1.00	Fail NR
238 U	165	1	0.008	ppb	19.94	1.00	

ISTD Elements

1010 11.	r cmen co							
Element	t	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li		1	364705	0.84	371452	98.2	30 - 120	
45 Sc		1	984523	0.53	968611	101.6	30 - 120	
72 Ge		1	574341	0.19	564811	101.7	30 - 120	
115 In		1	1889799	0.54	1813857	104.2	30 - 120	
165 Ho		1	4189918	0.48	4072608	102.9/	30 - 120	
T	une File#	1	1 c:\icpchem\1\7500\he.u					
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Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 1 :Element Failures

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\033WASH.D\033WASH.D#

Date Acquired: Jul 9 2009 08:49 pm

QC Summary: Operator: LRD Analytes: Pass Sample Name: RLCV ISTD: Pass Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Jul 09 2009 07:30 pm Calibration File:

Last Cal Update:

Sample Type: WASH Total Dil Factor: 1.00

OC	E1	ements
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Oc Preme	nts					
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.983 ppb	29.68	1.30	
51 V	72	1	5.009 ppb	3.24	6.50	
52 Cr	72	1	2.063 ppb	0.35	2.60	
55 Mn	72	1	1.018 ppb	2.35	1.30	
59 Co	72	1	1.007 ppb	2.86	1.30	
60 Ni	72	1	2.004 ppb	5.04	2.60	
63 Cu	72	1	2.025 ppb	3.10	2.60	
66 Zn	72	1	10.030 ppb	1.28	13.00	
75 As	72	1	4.986 ppb	3.85	6.50	
78 Se	72	1	5.700 ppb	9.40	6.50	
95 Mo	72	1	2.058 ppb	3.99	2.60	
107 Ag	115	1	5.137 ppb	0.53	6.50	
111 Cd	115	1	1.035 ppb	6.66	1.30	
118 Sn	115	1	9.868 ppb	0.59	13.00	
121 Sb	115	1	1.908 ppb	2.18	2.60	
137 Ba	115	1	1.048 ppb	5.15	1.30	
205 Tl	165	1	1.104 ppb	0.16	1.30	
208 Pb	165	1	1.057 ppb	0.95	1.30	
232 Th	165	1	2.451 ppb	1.36	2.60	
238 U	165	1	1.110 ppb	0.74	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	363318	0.66	371452	97.8	30 - 120	
45 Sc	1	973480	1.18	968611	100.5	30 - 120	
72 Ge	1	569822	0.47	564811	100.9	30 - 120	
115 In	1	1866025	0.53	1813857	102.9	30 - 120	
165 Ho	1	4188124	0.14	4072608	102.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D# ISTD Ref File :

0 :Element Failures 0 :Max. Number of Failures Allowed

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\034 BLK.D\034 BLK.D#

Date Acquired: Jul 9 2009 08:52 pm

QC Summary: Operator: LRD Analytes: Pass Sample Name: LF73CB ISTD: Pass Misc Info: BLANK 9190110 6020

Vial Number: 2208

Vial Number:

Current Method:

Calibration File:

C:\ICPCHEM\1\METHODS\NormISIS.C

Jul 09 2009 07:30 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Total Dil Factor: 1.00

OC.	F.1	eme	nts

QC Elements										
Element IS Ref Tun		Tune	Conc.	RSD(%)	High Limit	Flag				
	9	Be 6 1		0.000 ppb	0.00	2.00				
	51	V	72	1	-0.001 ppb	1741.90	2.00			
	52	Cr	72	1	0.035 ppb	76.36	2.00			
	55	Mn	72	1	0.196 ppb	9.62	2.00			
	59	Co	72	1	0.002 ppb	125.31	2.00			
	60	Ni	72	1	0.010 ppb	38.10	2.00			
	63	Cu	72	1	0.032 ppb	39.09	2.00			
	66	Zn	72	1	0.217 ppb	17.15	2.00			
	75	As	72	1	-0.004 ppb	251.76	2.00			
	78	Se	72	1	-0.217 ppb	97.83	2.00			
	95	Mo	72	1	0.020 ppb	25.62	2.00			
	107	Ag	115	1	0.002 ppb	109.97	2.00			
	111	. Cd	115	1	0.009 ppb	35.87	2.00			
	118	Sn	115	1	-0.453 ppb	5.58	2.00			
	121	. Sb	115	1	0.025 ppb	22.06	2.00			
	137	Ва	115	1	0.154 ppb	3.60	2.00			
	205	Tl	165	1	0.013 ppb	34.90	2.00			
	208	Pb	165	1	0.009 ppb	16.91	2.00			
	232	Th	165	1	0.241 ppb	15.07	2.00			
	238	U	165	1	0.004 ppb	12.65	2.00			

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	363585	0.48	371452	97.9	30 - 120	
45 Sc	1	980827	0.58	968611	101.3	30 - 120	
72 Ge	1	566517	0.08	564811	100.3	30 - 120	
115 In	1	1868196	0.66	1813857	103.0 /	30 - 120	
165 Ho	1	4202233	1.14	4072608	103.2/	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u	/		
Tune File#	2	C:\ICPCHEM\	1\7500\		./		
Tune File#	3	C:\ICPCHEM\	1\7500\		~		

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D# ISTD Ref File :

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

QC Summary:

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\035 LCS.D\035 LCS.D#

Date Acquired: Jul 9 2009 08:55 pm

Acq. Method: NormISIS.M

Operator: LRD Analytes: Pass Sample Name: LF73CC ISTD: Pass

Misc Info: LCS Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte	Elements
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Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC R	ang	e(%)	Flag
9 Be	6	1	38.26	1.85	40	95.7	80	-	120	
51 V	72	1	40.68	2.24	40	101.7	80	-	120	
52 Cr	72	1	40.53	0.69	40	101.3	80	_	120	
55 Mn	72	1	41.07	0.37	40	102.7	80	_	120	
59 Co	72	1	39.85	0.70	40	99.6	80	-	120	
60 Ni	72	1	39.65	1.44	40	99.1	80	-	120	
63 Cu	72	1	40.22	0.58	40	100.6	80	-	120	
66 Zn	72	1	39.51	1.28	40	98.8	80	-	120	
75 As	72	1	38.94	1.02	40	97.4	80	-	120	
78 Se	72	1	39.52	10.90	40	98.8	80	-	120	
95 Mo	72	1	39.91	0.70	40	99.8	80	-	120	
107 Ag	115	1	39.30	1.03	40	98.3	80	_	120	
111 Cd	115	1	39.06	0.42	40	97.7	80	-	120	
118 Sn	115	1	-0.48	2.28	40	-1.2	80	-	120	
121 Sb	115	1	38.97	1.35	40	97.4	80	-	120	
137 Ba	115	1	40.00	1.06	40	100.0	80	-	120	
205 Tl	165	1	41.68	0.82	40	104.2	80	+	120	
208 Pb	165	1	41.28	0.94	40	103.2	80	-	120	
232 Th	165	1	43.46	3.41	40	108.7	80	-	120	
238 U	165	1	42.07	0.60	40	105.2	80	-	120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Rai	nge (%)	Flag
6 Li	1	358080	0.96	371452	96.4	30 -	- 120	
45 Sc	1	964482	2.43	968611	99.6	30 -	- 120	
72 Ge	1	551605	0.91	564811	97.7	30 -	- 120	
115 In	1	1858378	0.57	1813857	102.5	30 -	- 120	
165 Ho	1	4162616	0.25	4072608	102.2	30	- 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\036AREF.D\036AREF.D#

Date Acquired: Jul 9 2009 08:58 pm

Acq. Method: NormISIS.M QC Summary:

Operator: LRD Analytes: Pass Sample Name: LF7HF ISTD: Pass

Misc Info: D9G080289
Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: AllRef
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

~ -									
Ele	ment	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	
51	V	72	1	26.86	26.86	ppb	0.83	3600	
52	Cr	72	1	13.76	13.76	ppb	0.71	3600	
55	Mn	72	1	4.04	4.04	ppb	1.46	3600	
59	Со	72	1	0.06	0.06	ppb	15.40	3600	
60	Ni	72	1	0.22	0.22	ppb	10.26	3600	
63	Cu	72	1	0.22	0.22	ppb	1.52	3600	
66	Zn	72	1	1.06	1.06	ppb	4.19	3600	
75	As	72	1	44.51	44.51	ppb	1.24	3600	
78	Se	72	1	1.78	1.78	ppb	27.76	3600	
95	Mo	72	1	8.00	8.00	ppb	1.19	3600	
107	Ag	115	1	0.01	0.01	ppb	42.64	3600	
111	Cd	115	1	-0.01	-0.01	ppb	160.13	3600	
118	Sn	115	1	-0.45	-0.45	ppb	4.05	3600	
121	Sb	115	1	0.12	0.12	ppb	6.58	3600	
137	Ва	115	1	19.62	19.62	ppb	0.72	3600	
205	Tl	165	1	0.05	0.05	ppb	22.09	3600	
208	Pb	165	1	0.07	0.07	ppb	7.02	3600	4
232	Th	165	1	1.14	1.14	ppb	34.77	1000	
238	Ü	165	1	2.32	2.32	ppb	1.39	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	355768	0.56	371452	95.8	30 - 120	
45 Sc	1	909133	1.56	968611	93.9	30 - 120	
72 Ge	1	501746	0.46	564811	88.8	30 - 120	
115 In	1	1648812	0.45	1813857	90.9	30 - 120	
165 Ho	1	3902888	1.09	4072608	95.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

ISTD:

Pass

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\037SDIL.D\037SDIL.D#

Date Acquired: Jul 9 2009 09:00 pm QC Summary:
Acq. Method: NormISIS.M Analytes: Pass

Operator: LRD

Sample Name: LF7HFP5

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: SDIL Dilution Factor: 1.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\036AREF.D\036AREF.D

QC elements

										
Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref Conc.	Actual(%)	QC F	Range(%)	Flag
9 Be	6	1	0.02	ppb	173.19	0.00	#DIV/0!	90	_ 110	
51 V	72	1	5.15	ppb	3.56	5.37	95.8	90	- 110	
52 Cr	72	1	2.61	ppb	2.97	2.75	94.9	90	- 110	
55 Mn	72	1	0.78	ppb	5.38	0.81	96.5	90	- 110	
59 Co	72	1	0.01	ppb	35.24	0.01	107.4	90	- 110	
60 Ni	72	1	0.05	ppb	32.59	0.04	114.8	90	- 110	
63 Cu	72	1	0.05	ppb	26.28	0.04	120.6	90	- 110	
66 Zn	72	1	0.22	ppb	18.46	0.21	103.7	90	- 110	
75 As	72	1	8.69	ppb	1.29	8.90	97.6	90	- 110	
78 Se	72	1	-0.06	ppb	526.53	0.36	-15.7	90	- 110	
95 Mo	72	1	1.56	ppb	2.12	1.60	97.4	90	- 110	
107 Ag	115	1	0.00	ppb	61.89	0.00	56.4	90	- 110	
111 Cd	115	1	0.00	ppb	4805.80	0.00	-9.8	90	- 110	
118 Sn	115	1	-0.51	ppb	1.79	-0.09	571.3	90	- 110	
121 Sb	115	1	0.03	ppb	27.98	0.02	121.8	90	- 110	
137 Ba	115	1	3.85	ppb	2.98	3.92	98.0	90	- 110	
205 Tl	165	1	0.01	ppb	11.25	0.01	87.8	90	- 110	
208 Pb	165	1	0.02	ppb	4.26	0.01	106.5	90	- 110	
232 Th	165	1	0.08	ppb	10.90	0.23	36.7	90	- 110	
238 U	165	1	0.46	ppb	1.05	0.46	99.5	90	- 110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	377611	0.58	371452	101.7	30 - 120	
45 Sc	1	962947	0.97	968611	99.4	30 - 120	
72 Ge	1	557321	0.96	564811	98.7	30 - 120	
115 In	1	1816379	0.48	1813857	100.1	30 - 120	
165 Ho	1	4158990	1.51	4072608	102.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Denver

SERIAL DILUTION

Denver					SERI	AL DI	LUTI	N
Method: 6020 (ICP/MS)		ICPMS_02	<u>'</u> 4		Reported	: 07/10/0	9 08:33	:52
Department: 090 (Metals)						Source:	Spreads	heet
Sample: LF7HFP5		Sei	rial Dilution:	5.00	Sample [Dilution:	1.00	
Instrument: Agilent7500		Chann	el 272					
File: AG070909B # 37		Method	16020					
Acquired: 07/09/2009 21:00:00		ICPM:			Matrix	: AQUE	DUS	
Calibrated: 07/09/2009 19:27:00			-		U	nits: ug/L	•	
CASN Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7 Beryllium	9	7	0.07665	0			*	
7440-62-2 Vanadium	51	32256	25.745	26.860	4.15		*	
7440-47-3 Chromium	52	20689	13.060	13.760	5.09		*	
7439-96-5 Manganese	55	5341	3.8995	4.0410	3.50		*	
7440-48-4 Cobalt	59	173	0.06305	0.05873	7.36		*	
7440-02-0 Nickel	60	200	0.25195	0.21950	14.8		*	
7440-50-8 Copper	63	533	0.26315	0.21820	20.6		*	
7440-66-6 Zinc	66	503	1.0960	1.0570	3.69		*	
7440-38-2 Arsenic	75	6273	43.430	44.510	2.43	0.21	2.4	☑
7782-49-2 Selenium	78	63	-0.27890	1.7790	116	0.70	NC	$\overline{\mathbf{Z}}$
7439-98-7 Molybdenum	95	4648	7.7950	8.0000	2.56		*	
7440-22-4 Silver	107	60	0.00843	0.01496	43.6		*	
7440-43-9 Cadmium	111	5	0.00104	-0.01061			*	
7440-31-5 Tin	118	490	-2.5730	-0.45040			* .	
7440-36-0 Antimony	121	174	0.14620	0.12000	21.8		* .	
7440-39-3 Barium	137	7067	19.230	19.620	1.99		*	
7440-28-0 Thallium	205	301	0.04431	0.05048	12.2		*	
7439-92-1 Lead	208	771	0.07505	0.07044	6.54		*	
7440-61-1 Uranium	238	16339	2.3115	2.3240	0.538		*	
7440-29-1 Thorium	232	3064	0.41775	1.1370	63.3		*	
7439-93-2 Lithium	6			0			*	
7440-20-2 Scandium	45			0			*	
7440-74-6 Indium	115			0			*	
7440-56-4 Germanium	72			0				

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E : Difference greater than Limit (10%)

165

Reviewed by: LRD Date: 7/10/05

0

IDB Reports

7440-60-0 Holmium

TestAmerica, Inc.

Version: 6.02.068

Post Digestion Spiked Sample (PDS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\038PDS.D\038PDS.D\#

Date Acquired: Jul 9 2009 09:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: LRD ISTD: Pass

Sample Name: LF7HFZ

Misc Info: POST DIGESTION SPIKE

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: PDS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Spike Ref. File: ---

QC	Elements
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Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	184.80	0.00	ppb	1.84	200	92.4	75 - 125	
51 V	72	1	233.20	26.86	ppb	1.24	200	102.8	75 - 125	
52 Cr	72	1	208.50	13.76	ppb	0.84	200	97.5	75 - 125	
55 Mn	72	1	203.10	4.04	ppb	1.08	200	99.5	75 - 125	
59 Co	72	1	185.50	0.06	ppb	1.81	200	92.7	75 - 125	
60 Ni	72	1	176.50	0.22	ppb	0.98	200	88.2	75 - 125	
63 Cu	72	1	177.70	0.22	ppb	1.66	200	88.8	75 - 125	
66 Zn	72	1	184.00	1.06	ppb	0.65	200	91.5	75 - 125	
75 As	72	1	232.40	44.51	ppb	0.60	200	95.0	75 - 125	
78 Se	72	1	200.50	1.78	ppb	2.82	200	99.4	75 - 125	
95 Mo	72	1	205.60	8.00	ppb	0.96	200	98.8	75 - 125	
107 Ag	115	1	42.25	0.01	ppb	2.67	50	84.5	75 - 125	
111 Cd	115	1	183.10	-0.01	ppb	2.06	200	91.6	75 - 125	
118 Sn	115	1	173.50	-0.45	ppb	2.24	200	86.9	75 - 125	
121 Sb	115	1	192.50	0.12	ppb	2.11	200	96.2	75 - 125	
137 Ba	115	1	213.70	19.62	ppb	1.54	200	97.3	75 - 125	
205 Tl	165	1	178.50	0.05	ppb	1.40	200	89.2	75 - 125	
208 Pb	165	1	178.70	0.07	ppb	1.19	200	89.3	75 - 125	
232 Th	165	1	0.12	1.14	ppb	16.63	200	0.1	75 - 125	
238 U	165	1	193.10	2.32	ppb	1.48	200	95.4	75 - 125	

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	353838	1.61	371452	95.3	30 - 120	
45 Sc	1	913871	1.52	968611	94.3	30 - 120	
72 Ge	1	497712	0.38	564811	88.1	30 - 120	
115 In	1	1663469	1.77	1813857	91.7	30 - 120	
165 Ho	1	3962016	1.60	4072608	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

SAMPLE SPIKE

Method: 6020 (ICP/MS)	ICPMS_024		Reported: 07/10/09 08:33:58		
Department: 090 (Metals)			Source: Spreadshee		
Sample: LF7HFZ	Spike Dilution:	1.00	Sample Dilution: 1.00		
Instrument: Agilent7500	Channel 272				
File: AG070909B # 38	Method 6020_				
Acquired: 07/09/2009 21:03:00	ICPMS_024		Matrix: AQUEOUS		
Calibrated: 07/09/2009 19:27:00		•	Units: ug/L		

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7		9	75774	184.80	0	92.4	200		
	Vanadium	51	1304430	233.20	26.860	103	200		
7440-47-3	Chromium	52	1352930	-208.50	13.760	97.4	200		
7439-96-5	Manganese	55	1207240	203.10	4.0410	99.5	200		
7440-48-4	Cobalt	59	1758300	185.50	0.05873	92.7	200		
7440-02-0	Nickel	60	400079	176.50	0.21950	88.1	200		
7440-50-8	Copper	63	993762	177.70	0.21820	88.7	200		
7440-66-6		66	188231	184.00	1.0570	91.5	200		
7440-38-2	Arsenic	75	149258	232.40	44.510	93.9	200		\square
7782-49-2	Selenium	78	19201	200.50	1.7790	99.4 -	200		
7439-98-7	Molybdenum	95	542078	205.60	8.0000	98.8	200		
7440-22-4	•	107	381331	42.250	0.01496	84.5	50.0		
7440-43-9	Cadmium	111	282160	183.10	-0.01061	91.6	200		
7440-31-5	Tin	118	670880	173.50	-0.45040	86.8	200		
7440-36-0	Antimony	121	804279	192.50	0.12000	96.2	200		
7440-39-3	Barium	137	358479	213.70	19.620	97.0	200		
7440-28-0	Thallium	205	3821970	178.50	0.05048	89.2	200		
7439-92-1	Lead	208	5234390	178.70	0.07044	89.3	200		
7440-61-1	Uranium	238	6483840	193.10	2.3240	95.4	200		
7440-29-1	Thorium	232	3871	0.11820	1.1370				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by: LRD Date: 7/10/09

IDB Reports

TestAmerica, Inc.

Version: 6.02.068

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\039_MS.D\039_MS.D#

Date Acquired: Jul 9 2009 09:06 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: LRD ISTD: Pass

Sample Name: LF7HFS
Misc Info: MATRIX SPIKE

Vial Number: 2301

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: MS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Spike Ref. File: ---

QC	E.	.em	en	ts
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Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	39.18	0.00	ppb	3.32	40	98.0	50 - 150
51 V	72	1	68.46	26.86	ppb	0.36	40	102.4	50 - 150
52 Cr	72	1	53.81	13.76	ppb	0.17	40	100.1	50 - 150
55 Mn	72	1	43.85	4.04	ppb	1.37	40	99.6	50 - 150
59 Co	72	1	38.67	0.06	ppb	1.41	40	96.5	50 - 150
60 Ni	72	1	37.52	0.22	ppb	2.07	40	93.3	50 - 150
63 Cu	72	1	37.67	0.22	ppb	2.01	40	93.7	50 - 150
66 Zn	72	1	39.54	1.06	ppb	1.11	40	96.3	50 - 150
75 As	72	1	84.16	44.51	ppb	1.11	40	99.6	50 - 150
78 Se	72	1	41.98	1.78	ppb	2.98	40	100.5	50 - 150
95 Mo	72	1	49.57	8.00	ppb	1.19	40	103.3	50 - 150
107 Ag	115	1	36.12	0.01	ppb	1.43	40	90.3	50 - 150
111 Cd	115	1	39.49	-0.01	ppb	1.78	40	98.8	50 - 150
118 Sn	115	1	-0.19	-0.45	ppb	17.89	40	-0.5	50 - 150
121 Sb	115	1	42.25	0.12	ppb	1.41	40	105.3	50 - 150
137 Ba	115	1	61.70	19.62	ppb	2.02	40	103.5	50 - 150
205 Tl	165	1	39.67	0.05	ppb	1.65	40	99.0	50 - 150
208 Pb	165	1	39.24	0.07	ppb	1.58	40	97.9	50 - 150
232 Th	165	1	45.10	1.14	ppb	2.23	40	109.6	50 - 150
238 U	165	1	45.31	2.32	ppb	2.39	40	107.1	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	351892	0.32	371452	94.7	30 - 120
45 Sc	1	860109	0.72	968611	88.8	30 - 120
72 Ge	1	480020	0.59	564811	85.0	30 - 120
115 In	1	1566586	0.58	1813857	86.4	30 - 120
165 Ho	1	3737586	0.41	4072608	91.8	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

ISTD:

Pass

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\040 MSD.D\040 MSD.D\#

Date Acquired: Jul 9 2009 09:09 pm QC Summary:
Acq. Method: NormISIS.M Analytes: Pass

Operator: LRD

Sample Name: LF7HFD
Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 09 2009 07:30 pm

Sample Type: MSD Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\039 MS.D\039 MS.D\#

QC Elements

_									
Element	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	6	1	37.76	ppb	2.55	39.18	3.69	20	
51 V	72	1	64.27	ppb	0.14	68.46	6.31	20	
52 Cr	72	1	50.36	ppb	1.29	53.81	6.62	20	
55 Mn	72	1	41.23	ppb	1.26	43.85	6.16	20	
59 Co	72	1	35.85	ppb	0.74	38.67	7.57	20	
60 Ni	72	1	35.50	ppb	0.67	37.52	5.53	20	
63 Cu	72	1	35.41	ppb	0.97	37.67	6.18	20	
66 Zn	72	1	37.62	ppb	0.74	39.54	4.98	20	
75 As	72	1	79.88	ppb	2.24	84.16	5.22	20	
78 Se	72	1	38.04	ppb	5.13	41.98	9.85	20	
95 Mo	72	1	46.20	ppb	0.91	49.57	7.04	20	
107 Ag	115	1	33.56	ppb	2.17	36.12	7.35	20	
111 Cd	115	1	36.43	ppb	1.24	39.49	8.06	20	
118 Sn	115	1	-0.42	ppb	8.52	-0.19	-74.82	20	
121 Sb	115	1	39.15	ppb	2.57	42.25	7.62	20	
137 Ba	115	1	57.10	ppb	2.19	61.70	7.74	20	
205 Tl	165	1	36.21	ppb	1.19	39.67	9.12	20	
208 Pb	165	1	35.90	ppb	1.29	39.24	8.89	20	
232 Th	165	1	42.22	ppb	3.50	45.10	6.60	20	
238 U	165	1	41.52	ppb	2.61	45.31	8.73	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	362788	0.40	371452	97.7	30 - 120	
45 Sc	1	908841	0.52	968611	93.8	30 - 120	
72 Ge	1	500777	0.80	564811	88.7	30 - 120	
115 In	1	1668224	1.91	1813857	92.0	30 - 120	
165 Ho	1	4015644	1.27	4072608	98.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\041 CCV.D\041 CCV.D#

Date Acquired: Jul 9 2009 09:11 pm

Operator: LRD QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

£										
Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	48.04	ppb	3.52	50	96.1	90 - 110	
51	Λ.	72	1	47.80	ppb	1.15	50	95.6	90 - 110	
52	Cr	72	1	47.47	ppb	1.45	50	94.9	90 - 110	
55	Mn	72	1	48.32	ppb	0.61	50	96.6	90 - 110	
59	Со	72	1	46.39	ppb	1.05	50	92.8	90 - 110	
60	Ni	72	1	46.32	ppb	1.49	50	92.6	90 - 110	
63	Cu	72	1	47.46	ppb	1.52	50	94.9	90 - 110	
66	Zn	72	1	49.46	ppb	1.44	50	98.9	90 - 110	
75	As	72	1	48.77	ppb	1.28	50	97.5	90 - 110	
78	Se	72	1	48.43	ppb	0.60	50	96.9	90 - 110	
95	Мо	72	1	48.60	ppb	1.17	50	97.2	90 - 110	
107	Ag	115	1	47.20	ppb	1.56	50	94.4	90 - 110	
111	Cd	115	1	49.13	ppb	0.77	50	98.3	90 - 110	
118	Sn	115	1	49.10	ppb	0.19	50	98.2	90 - 110	
121	Sb	115	1	50.94	ppb	0.80	50	101.9	90 - 110	
137	Ва	115	1	49.65	ppb	1.16	50	99.3	90 - 110	
205	Tl	165	1	50.31	ppb	0.18	50	100.6	90 - 110	
208	Pb	165	1	50.04	ppb	0.44	50	100.1	90 - 110	
232	Th	165	1	51.86	ppb	4.27	50	103.7	90 - 110	
238	U	165	1	50.82	ppb	1.66	50	101.6	90 - 110	
ISTI	Ele	ments								
Eler	nent		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	348142		2.42	371452	93.7	30 - 120	

1

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ISTD Ref File: C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D\#

866465

513248

1694091

3915271

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

45 Sc

72 Ge

115 In

165 Ho

3.13 968611

564811

4072608

1813857

2.09

1.32

1.54

89.5 30 - 120

90.9 93.4

96.1

30 - 120

30 - 120

30 - 120

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\042 CCB.D\042 CCB.D#

Date Acquired: Jul 9 2009 09:14 pm

QC Summary: Operator: LRD Analytes: Fail Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number:

1307 C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: CCB Total Dil Factor: 1.00

QC	Elemen	ts
- 1		

-					·		
Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	0.004	ppb	740.88	1.00	
52 Cr	72	1	-0.028	ppb	52.83	1.00	
55 Mn	72	1	0.030	ppb	6.70	1.00	
59 Co	72	1	0.005	ppb	79.35	1.00	
60 Ni	72	1	-0.003	ppb	248.27	1.00	
63 Cu	72	1	0.014	ppb	98.77	1.00	
66 Zn	72	1	-0.012	ppb	199.91	1.00	
75 As	72	1	0.010	ppb	88.78	1.00	
78 Se	72	1	-0.278	ppb	83.17	1.00	
95 Mo	72	1	0.057	ppb	54.70	1.00	
107 Ag	115	1	0.010	ppb	11.30	1.00	
111 Cd	115	1	0.019	ppb	14.95	1.00	
118 Sn	115	1	-0.361	ppb	3.87	1.00	
121 Sb	115	1	0.065	ppb	13.83	1.00	
137 Ba	115	1	0.003	ppb	110.32	1.00	
205 Tl	165	1	0.019	ppb	10.14	1.00	
208 Pb	165	1	0.004	ppb	32.76	1.00	io
232 Th	165	1	1.289	ppb	16.11	1.00	Fail MR
238 U	165	1	0.012	ppb	7.69	1.00	' ,

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	345778	1.11	371452	93.1	30 - 120	
45 Sc	1	877266	0.95	968611	90.6	30 - 120	
72 Ge	1	518068	0.94	564811	91.7	30 - 120	
115 In	1	1696389	0.50	1813857	93.5	30 - 120	
165 Ho	1	3918576	0.21	4072608	96.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D#

1 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG070909B.B\043WASH.D\043WASH.D#

Date Acquired: Jul 9 2009 09:17 pm

QC Summary: Operator: LRD RLCV Analytes: Pass Sample Name: ISTD: Pass Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C;\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 09 2009 07:30 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	El	emer.	ıts

QC E	Teme	nts					
Elen	nent	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9	Ве	6	1	0.896 ppb	15.00	1.30	
51	V	72	1	5.053 ppb	1.95	6.50	
52	Cr	72	1	1.951 ppb	4.30	2.60	
55	Mn	72	1	1.036 ppb	3.11	1.30	
59	Со	72	1	1.000 ppb	2.51	1.30	
60	Ni	72	1	1.929 ppb	5.60	2.60	
63	Cu	72	1	1.966 ppb	3.28	2.60	
66	Zn	72	1	10.230 ppb	1.16	13.00	
75	As	72	1	5.072 ppb	0.69	6.50	
78	Se	72	1	4.489 ppb	17.54	6.50	
95	Mo	72	1	1.940 ppb	2.16	2.60	
107	Ag	115	1	5.121 ppb	0.61	6.50	
111	Cd	115	1	1.024 ppb	5.77	1.30	
118	Sn	115	1	10.130 ppb	0.39	13.00	
121	Sb	115	1	2.052 ppb	1.51	2.60	
137	Ва	115	1	1.063 ppb	2.45	1.30	
205	T1	165	1	1.119 ppb	0.77	1.30	
208	Pb	165	1	1.096 ppb	1.39	1.30	
232	Th	165	1	2.599 ppb	4.10	2.60	
238	U	165	1	1.148 ppb	0.89	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	327205	1.16	371452	88.1	30 - 120	
45 Sc	1	812564	1.75	968611	83.9	30 - 120	
72 Ge	1	494134	0.32	564811	87.5	30 - 120	
115 In	1	1601401	1.09	1813857	88.3	30 - 120	
165 Ho	1	3708494	1.11	4072608	91.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ 3 C:\ICPCHEM\1\7500\ Tune File#

C:\ICPCHEM\1\DATA\AG070909B.B\003CALB.D\003CALB.D# ISTD Ref File :

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Lot ID:	1796100272	
Client:/	Northgate Environmental	
Batch(es) #:	9194272	·
Associated Samples:		
	e best of my knowledge, the attached package lete and accurate copy of the original data.	:
Signature/Date:	M. fill 1/22/09	

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr
D9G100272	1 D	SE	LGCN31AG	20090721	6020TOTA	9194272	AG072109	024
D9G100272	1 S	SE	LGCN31AF	20090721	6020TOTA	9194272	AG072109	024
D9G100272	1 D	AS	LGCN31AE	20090721	6020TOTA	9194272	AG072109	024
D9G100272	1 S	AS	LGCN31AD	20090721	6020TOTA	9194272	AG072109	024
D9G100272	1	SE	LGCN31AC	20090721	6020TOTA	9194272	AG072109	024
D9G100272	1	AS	LGCN31AA	20090721	6020TOTA	9194272	AG072109	024

Wednesday, July 22, 2009

METALS PREPARATION LOGS ICP-MS



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 246

Batch Number: 9194272

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
_ JRW	

Prep Date: Due Date: 77/13/09 Syn

Lot	Work Order		2	Initial Weight/Volume
D9G130000 Water	LGEER	В	Due Date: SDG:	<u>50 mL</u>
D9G130000 Water	LGEER	С	Due Date: SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total		Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total	S	Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total	D	Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100274 Water	LGCQK Total		Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G110152 Water	LGDJV Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>
D9G110155 Water	LGDJ3 Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>
D9G110159 Water	LGDKR Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

J 2/2/109

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	9194272	ALLIQ	JKH								
PREP DATE:	7/14/2009	DIGES	JRW								
CONSUMABLES	USED		***								
Digestion Cups:	Manufacturer:	Environmental Express	Lot #:	A901LS267							
One or more samples	were filtered prior to an	alysis at the instrume	nt. Yes	☐ No							
If "yes", then the metho	od blank and the LCS were	e also filtered in the sam	e manner using the sam	ne type of filter.							
			Analyst(s) Initials:								
STANDARDS USE	ED.										
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID							
2008Cal-1	STD-2636-09	7/1/10	100uL	15							
2008Cal-2	STD-2635-09	7/1/10	100uL	15							
				Andrew Committee							
REAGENTS USED)										
Reagent	Manufacturer	Lot#	Volume Used (mL)								
HNO ₃	JT Baker	H12022	3								
TEMPERATURE C	CYCLES										
Thermometer ID:	2884	Block 8	k Cup # :	·							
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)							
HNO3	1200	43	1615	42							
HNO3	1630	92	(פנדו								
HNO3											
Samples and QC re	volumed to:	50mL	Analyst's Initials	JUM							
COMMENTS:											
	nation above is correct a	and complete.	,								
Signature: In with											

TestAmerica 248

METALS SAMPLE DATA ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 249

G:\Metals\Hidden\Forms\MassSpec\ICP-MS Std and Spike True Values.doc

ICP-MS Standard and Spike True Values

Post Digestion Spike	200 200	200	200	200	200	200	200	200	200	200	200	200	200	20	200	200	200	200	200	
Matrix Spike Sample and Duplicate	40 40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ry for the ICSAB.
Laboratory Control Sample and Duplicate	40 40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ution, the % recove the ICSA from the
Interference Check Sample AB	100	100	100	100	100	100	100	100	100	1	100	100	100	100	100	100	100	100	100	in the ICSA solong the levels in
Interference Check Sample A	100,000 Aluminum	100,000 Iron	100,000 Magnesium	100,000 Sodium	100,000 Phosphorus	100,000 Potassium	100,000 Sulfur	200,000 Carbon	1,000,000 Chloride	2000 Molybdenum	2000 Titanium									Due to the presence of trace contaminants in the ICSA solution, the % recovery for the ICSAB solution is calculated by subtracting the levels in the ICSA from the ICSAB.
Continuing Calibration Standard	50	20	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	e to the presence SAB solution is
Initial Calibration Standard	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Cal. Std. 100 ppb	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All units are ug/L.
Element	Aluminum	Arsenic	Barium	Bervllium	Cadmium	Chromium	Cobalt	Conner	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Thallium	Tin	Uranium	Vanadium	Zinc	

Quality Control Standards

ICV = Initial Calibration Verification (Second Source)

CCV = Continuing Calibration Verification

CCB = Continuing Calibration Blank ICB = Initial Calibration Blank

250

TestAmerica Denver

Standards Preparation Logbook Record

Jul-21-2009

Logbook: \Densvr06\StdsLog\metals.std Analyst: trudelll STD4841-08, 1000 Zn (Inorganic Ventures) Lot No.: B2-ZN02045 Vendor's Expiration Date: 10-01-2009 Vendor: Inorganic Ventures Solvent: 2% HNO3 Date Prep./Opened: 09-04-2008 Date Received: 09-04-2008 Date Expires(1): 10-01-2009 (None) Date Expires(2): 10-01-2009 (None) (METALS)-Inventory ID: 779 Final Conc (mg/L) Initial Conc (mg/L) Component 1,000.0 1,000.0 1000 Zn Analyst: trudelll STD6653-08, 1000 Se Vendor's Expiration Date: 12-01-2009 Vendor: Inorganic Ventures Lot No.: B2-SE02003 Solvent: 2% HNO3 Date Prep./Opened: 11-25-2008 Date Received: 11-25-2008 Date Expires(1): 12-01-2009 (None) (None) Date Expires(2): 12-01-2009 (METALS)-Inventory ID: 803 Initial Conc (mg/L) Component 1,000.0 1,000.0 Se STD1198-09, 1000 mg/L Sn Analyst: trudelll Lot No.: B2-SN02016 Vendor's Expiration Date: 03-01-2010 Vendor: Inorganic Ventures Solvent: 1% HNO3 Date Received: 03-02-2009 Date Prep./Opened: 03-02-2009 Date Expires(1): 03-01-2010 (None) Date Expires(2): 03-01-2010 (None) (METALS)-Inventory ID: 833 Final Conc (mg/L) Initial Conc (mg/L) Component 1,000.0 1,000.0 Sn Analyst: DIAZL STD1853-09, 1 mg/l Se Lot No.: /H02026 Volume (ml): 100.00 Solvent: 5% HN03 Date Prep./Opened: 04-01-2009 Date Expires(1): 12-01-2009 (1 Year) pipette: Met 21

Page 1 of 11

Parent Std No.: STD6653-08, 1000 Se		t Amount (ml): 0.1000
Parent Date Expires(1): 12-01-2009 Parent Date Expires(2): Component	12-01-2009 <u>Initial Conc (mg/L)</u> 1,000.0	Final Conc (mg/L) 1.0000
Se	2,000	DIAGI
STD3611-09, ICP-MS 1ppm Sn/Zn		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)		Volume (ml): 10.000
Parent Std No.: STD3609-09, ICP-MS 10 ppm Zn	•	ot Amount (ml): 1.0000
Parent Date Expires(1): 10-01-2009 Parent Date Expires(2): Component	10-01-2009 <u>Initial Conc (mg/L)</u> 10.000	Final Conc (mg/L) 1.0000
1000 Zn		ot Amount (ml): 1.0000
Parent Std No.: STD3610-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 03-01-2010 Parent Date Expires(2) Component		Final Conc (mg/L) 1.0000
Sn	2010-1	
STD4008-09, ICP-MS (024) INT STD BRC-HIGH		Analyst: LILLT
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		Volume (ml): 250.00
Parent Std No.: STD1469-09, Germanium Stock	•	ot Amount (ml): 1.2000
Parent Date Expires(1): 03-16-2010 Parent Date Expires(2 Component): 04-01-2010 <u>Initial Conc (mg/L)</u> 1,000.0	Final Conc (ug/L) 4,800.0
Ge	•	not Amount (ml): 1.5000
Parent Std No.: STD1972-09, Lithium 6 Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2 Component		Final Conc (ug/L) 6,000.0
Lithium6		uot Amount (ml): 0.4000
Parent Std No.: STD1973-09, Indium Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2) Component	_	Final Conc (ug/L) 1,600.0
In	•	uot Amount (ml): 0.4000
Parent Std No.: STD6317-08, Scandium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2) Component		Final Conc (ug/L)
Sc	2,-0000	

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Parent Date Expires(1): 11-10-2009 Parent Date Expires(2)		Final Cong (ug/I)
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Но	1,000.0	1,600.0
TD4289-09, ICP-MS ICSA		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-20-2009 Date Expires(1): 08-20-2009 (1 Month) Date Expires(2): 02-01-2010 (None) pipettes: Met 8		Volume (ml): 50.000
Parent Std No.: STD0664-09, ICPMS Interferent Check Stand Parent Date Expires(1): 02-01-2010 Parent Date Expires(2)		oot Amount (ml): 5.0000
Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000
Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S	1,000.0	100,000
Ti	20.000	2,000.0
TD4309-09, ICP-MS BLANK		Analyst: DIAZL
Solvent: Water Date Prep./Opened: 07-21-2009 Date Expires(1): 08-21-2009 (1 Month) Date Verified: 12-314714 by - (Verification ID: 0)		Volume (ml): 1,000.0
Parent Std No.: STD4308-09, NITRIC ACID	Aliqu	oot Amount (ml): 50.000

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Component

HNO3

Initial Conc (%)

100.00

Final Conc (%)

5.0000

STD4310-09, ICP-MS 10 ppm Sn

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 03-01-2010 (None)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21 and Met 8

Parent Std No.: STD1198-09, 1000 mg/L Sn Aliquot Amount (ml): 0.1000

Analyst: DIAZL

Volume (ml): 10.000

Analyst: DIAZL

Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): 03-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (mg/L)}} \\ \underline{\text{Sn}} & \underline{1,000.0} & \underline{10.000} \end{array}$

STD4311-09, ICP-MS 100 ppb cal

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 50.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 20

Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures Aliquot Amount (ml): 0.2500

Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010

Component	Initial Conc (mg/L)	Final Conc (ug/L)
V	20,000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
Tl	20.000	100.00
U	20.000	100.00

Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures Aliquot Amount (ml): 0.2500 Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (ug/L)}} \\ \underline{\text{Mo}} & \underline{20.000} & \underline{100.00} \end{array}$

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Sb	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquot	Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
Fe	1,000.0	5,000.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Aliquot	Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Exp	pires(2): 03-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Sn	10.000	100.00
TD4312-09, ICP-MS CCV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H1202	22	Volume (ml): 100.00
Date Prep./Opened: 07-21-2009		volume (iii). 100.00
Date Expires(1): 07-22-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Ino	2	Amount (ml): 0.2500
• ' '	pires(2): 05-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
V	20.000	50.000
Zn	20.000	50.000
Ag	20.000	50.000
Al	20.000	50.000
As	20.000	50.000
Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000
Mn	20.000	50.000
Ni	20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Ino	organic Ventures Aliquot	Amount (ml): 0.2500
·	pires(2): 07-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
Mo	20.000	50.00
Sb	20.000	50.00
Parent Std No.: STD3862-09, Iron Stock	Aliquot	Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L
Component	minu Conc (mg/L)	I mai cone (ag/L

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Fe	1,000.0	2,500.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Alique	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	03-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Sn	10.000	50.000
STD4313-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 10.000
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Aliqu	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	1.0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4311-09, ICP-MS 100 ppb cal Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component	-	ot Amount (ml): 0.1000 Final Conc (mg/L)
V	100.00	0.0010
Zn	100.00	0.0010
Ag	100.00	0.0010
Al	100.00	0.0010
As	100.00	0.0010
Ba	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010
Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010 0.0010
Ni Di	100.00 100.00	0.0010
Pb	100.00	0.0010
Se Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
Mo	100.00	0.0010
Sb	100.00	0.0010
Fe	5,000.0	0.0500
Sn	100.00	0.0010

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STD4314-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Analyst: DIAZL

Analyst: DIAZL

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4313-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Tl	0.0010	0.0002
U	0.0010	0.0002
Mo	0.0010	0.0002
Sb	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

STD4315-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 1.0000

Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000

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Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S	1,000.0	100,000
Ti	20.000	2,000.0
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures	-	t Amount (ml): 0.050
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010		
Component Initia	l Conc (mg/L)	Final Conc (ug/L
V	20.000	100.0
Zn	20.000	100.0
Ag	20.000	100.0
Al	20.000	100.0
As	20.000	100.0
Ba	20.000	100.0
Be	20.000	100.0
Cd	20.000	100.0
Co	20.000	100.0
Cr	20.000	100.0
Cu	20.000	100.0
Mn	20.000	100.0
Ni	20.000	100.0
Pb	20.000	100.0
Se	20.000	100.0
Th	20.000	100.0
		100.0
Tl	20.000	100.0
U	20.000	
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures	_	ot Amount (ml): 0.050
Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-		E: -1 C (//
<u>Component</u> <u>Initia</u>	al Conc (mg/L)	Final Conc (ug/L
Mo	20.000	100.0
Sb	20.000	100.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Aligno	ot Amount (ml): 0.100
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): 03-01-2	-	t / mount (m). 0.100
		Einel Come (well
	al Conc (mg/L)	Final Conc (ug/L
Sn	10.000	100.0
D4316-09, ICPMS LR STD 1000 ppb		Analyst: DIAZI
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day)		Volume (ml): 10.000
Date Explies(1): 07-22-2009 (1 Day) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20 and Met 8		

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Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component	Initial Conc (mg/L)	Final Conc (ug/
V	20.000	
Zn	20.000	1,000
		1,000
Ag Al	20.000	1,000
	20.000	1,000
As D-	20.000	1,000
Ba	20.000	1,000
Be	20.000	1,000
Cd	20.000	1,000
Co	20.000	1,000
Cr	20.000	1,000
Cu	20.000	1,00
Mn	20.000	1,000
Ni	20.000	1,00
Pb	20.000	1,00
Se	20.000	1,00
Th	20.000	1,00
Tl	20.000	1,00
U	20.000	1,00
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Parent Date Expires(1): 06-23-2010 Parent Date Expires(2)	: 07-01-2010	ot Amount (ml): 0.50
Component	Initial Conc (mg/L)	Final Conc (uga
Mo	20.000	
	20.000	1,000
Sb	20.000	
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Aliqu	1,000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Alique: 03-01-2010	1,000 ot Amount (ml): 1.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component	20.000 Aliqu	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0)	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) Alique	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.00 ot Amount (ml): 0.04
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L)	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000 10.000	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.0 Final Conc (ug/ 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00

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Co	10.000	40.000
Cr	10.000	40.000
Cu	10.000	40.000
Fe	250.00	1,000.0
Li	10.000	40.000
Mn	10.000	40.000
Ni	10.000	40.000
Pb	10.000	40.000
Se	10.000	40.000
Th	10.000	40.000
Tl	10.000	40.000
Ü	10.000	40.000
V	10.000	40.000
Zn	10.000	40.000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (Hi		t Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	• •	
•	Initial Conc (ug/ml)	Final Conc (ug/L)
Component		
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4318-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 50.000
Parent Std No.: STD1853-09, 1 mg/l Se	Aliquo	t Amount (ml): 0.1000
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Se	1.0000	0.0020
	1.0000	0.0020
STD4319-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 05-01-2010 (None) pipettes: Met 20		Volume (ml): 100.00
Parent Std No.: STD3106-09, ICP-MS LLCCV 1 Parent Date Expires(1): 05-01-2010 Parent Date Expires(2):	•	t Amount (ml): 1.0000
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	0.5000	5.0000
Ag Al	3.0000	30.000
As	0.5000	5.0000
വ	0.3000	3.0000

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Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000
Mn	0.1000	1.0000
Na	5.0000	50.000
Ni	0.2000	2.0000
Pb	0.1000	1.0000
Se	0.5000	5.0000
Th	0.2000	2.0000
Tl	0.1000	1.0000
U	0.1000	1.0000
V	0.5000	5.0000
Zn	1.0000	10.000
Parent Std No.: STD3107-09, ICP-MS LLCCV 2	Aliquot Amount	(ml): 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	0.2000	2.0000
Sb	0.2000	2.0000
Sn	1.0000	10.000

LRD 07/21/2009 Reviewed By:

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TestAmerica 261 Denver

RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File ID: AG072109 Analyst: TEL								
#	Sample ID	Lot No.	Batch	~~~	DF	Analyzed Date	Comment	Q
2	Cal Blank				1.0	07/21/09 17:25		
3	Cal Blank				1.0	07/21/09 17:28		
4	100 ppb				1.0	07/21/09 17:31		
5	ICV				1.0	07/21/09 17:33		
6	RLIV				1.0	07/21/09 17:36		
7	ICB				1.0	07/21/09 17:39		
8	RL STD				1.0	07/21/09 17:42		
9	AFCEE RL				1.0	07/21/09 17:44		
10	ALTSe				1.0	07/21/09 17:47		
11	ICSA				1.0	07/21/09 17:50		
12	ICSAB				1.0	07/21/09 17:53		
13	RINSE				1.0	07/21/09 17:55		
14	LR				1.0	07/21/09 17:58		
15	RINSE				1.0	07/21/09 18:00		
16	CCV				1.0	07/21/09 18:03		
17	CCB				1.0	07/21/09 18:06		
18	RLCV				1.0	07/21/09 18:09		
19	LGEE4BF	D9G130000	9194274	MD	1.0	07/21/09 18:11		
20	LGEE4CF	D9G130000	9194274	MD	1.0	07/21/09 18:14		
21	LGDJWF 10X	D9G110152-2	9194274	MD	10.0	07/21/09 18:17		
22	LGDJWP50F	D9G110152	9194274		50.0	07/21/09 18:20		
23	LGDJWZF	D9G110152-2	9194274		1.0	07/21/09 18:22		
24	LGDJWSF 10	D9G110152-2	9194274	MD	10.0	07/21/09 18:25		
25	LGDJWDF 10	D9G110152-2	9194274	MD	10.0	07/21/09 18:28		
26	CCV				1.0	07/21/09 18:30		
27	CCB				1.0	07/21/09 18:33		
28	RLCV				1.0	07/21/09 18:36		
29	LGEERB	D9G130000	9194272	MS	1.0	07/21/09 18:39		
30	LGEERC	D9G130000	9194272	MS	1.0	07/21/09 18:41		□
31	LGCN3 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:44		
32	LGCN3P50	D9G100272	9194272		50.0	07/21/09 18:47		
33	LGCN3Z	D9G100272-1	9194272		1.0	07/21/09 18:50		
34	LGCN3S 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:52		
35	CCV				1.0	07/21/09 18:55		
36	CCB				1.0	07/21/09 18:58		
37	RLCV				1.0			
38		D9G100272-1	9194272	MS	10.0	07/21/09 19:03		
39	LGCQK 10X	D9G100274-1	9194272	MS	10.0	07/21/09 19:06		
40	LGDJV 10X	D9G110152-1	9194272	MS	10.0	07/21/09 19:09		
	LGDJ3 10X	D9G110155-1	9194272	MS	10.0	07/21/09 19:11		□
	LGDKR 10X	D9G110159-1	9194272	MS	10.0	07/21/09 19:14		
43	CCV			1	1.0	07/21/09 19:17		
44	CCB				1.0	07/21/09 19:20		
45	RLCV				1.0	07/21/09 19:22		
	LGFC2B	D9G140000	9195077	46	1.0	07/21/09 19:25		
47	LGFC2C	D9G140000	9195077	46	1.0	07/21/09 19:28		

Denver

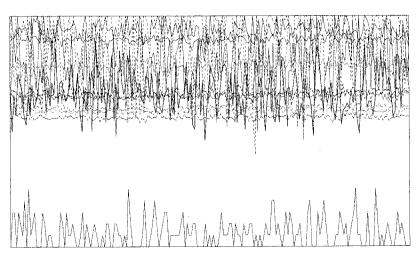
RUN SUMMARY

		(ICP/M			ICPN				Report			

File II	D: AG072	109	Analyst: TEL								
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q			
48	LGEAD	D9G130118-1	9195077	U1	1.0	07/21/09 19:31					
49	LGEAR	D9G130118-2	9195077	U1	1.0	07/21/09 19:33					
50	LGEAX	D9G130118-3	9195077	U1	1.0	07/21/09 19:36					
51	LGEA0	D9G130118-4	9195077	U1	1.0	07/21/09 19:39					
52	LGEA2	D9G130118-5	9195077	U1	1.0	07/21/09 19:42					
53	LGEA3	D9G130118-6	9195077	U1	1.0	07/21/09 19:44					
54	CCV				1.0	07/21/09 19:47					
55	ССВ				1.0	07/21/09 19:50					
56	RLCV				1.0	07/21/09 19:53					
57	LGEA4	D9G130118-7	9195077	U1	1.0	07/21/09 19:55					
58	LGEFC	D9G130118-8	9195077	U1	1.0	07/21/09 19:58					
59	LGEFF	D9G130118-9	9195077	U1	1.0	07/21/09 20:01					
60	LGEFH	D9G130118-10	9195077	U1	1.0	07/21/09 20:03					
61	LGEFL	D9G130118-11	9195077	U1	1.0	07/21/09 20:06					
62	LGEFLP5	D9G130118	9195077		5.0	07/21/09 20:09					
63	LGEFLZ	D9G130118-11	9195077		1.0	07/21/09 20:11					
64	LGEFLS	D9G130118-11	9195077	U1	1.0	07/21/09 20:14					
65	CCV				1.0	07/21/09 20:17					
66	ССВ				1.0	07/21/09 20:20					
67	RLCV				1.0	07/21/09 20:22					
68	LGEFLD	D9G130118-11	9195077	U1	1.0	07/21/09 20:25					
69	LGEFT	D9G130118-12	9195077	U1	1.0	07/21/09 20:28					
70	LGEFX	D9G130118-13	9195077	U1	1.0	07/21/09 20:30					
71	LGEF3	D9G130118-14	9195077	U1	1.0	07/21/09 20:33					
72	LGEF4	D9G130118-15	9195077	U1	1.0	07/21/09 20:36					
73	LGEF6	D9G130118-16	9195077	U1	1.0	07/21/09 20:39					
74	LGEF8	D9G130118-17	9195077	U1	1.0	07/21/09 20:41					
75	CCV				1.0	07/21/09 20:44					
76	CCB				1.0	07/21/09 20:47					
77	RLCV				1.0	07/21/09 20:50					
78	LGKQWBF	D9G160000	9197227	MD	1.0	07/21/09 20:52					
79	LGKQWCF	D9G160000	9197227	MD	1.0	07/21/09 20:55					
80	LGH2HF 10X	D9G150224-2	9197227	MD	10.0	07/21/09 20:58					
81	LGH2HP50F	D9G150224	9197227		50.0	07/21/09 21:01					
82	LGH2HZF	D9G150224-2	9197227		1.0	07/21/09 21:03					
83	LGH2HSF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:06					
84	LGH2HDF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:09					
85	CCV				1.0	07/21/09 21:12					
86	ССВ				1.0	07/21/09 21:14					
87	RLCV				1.0	07/21/09 21:17					
88	FCKODB	D9G160000	9197220	MS	1.0	07/21/09 21:20					
89	LGKQDC	D9G160000	9197220	MS	1.0	07/21/09 21:23					
90	LGH2F 10X	D9G150224-1	9197220	MS	10.0	07/21/09 21:25	DNNX 7/2409				
91	LGH2FP50	D9G150224	9197220	1	50.0	07/21/09 21:28	, , , ,				
92	LGH2FZ	D9G150224-1	9197220	-	1.0	07/21/09_21:31					

Tune File : NORM.U

Comment

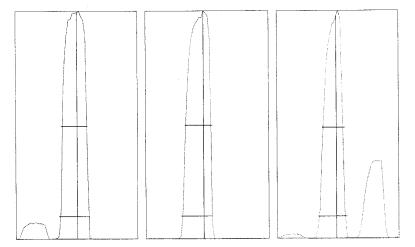


Integration Time: 0.1000 sec 1.5300 sec Sampling Period:

200 n:

1.281% Oxide: 156/140 0.506% Doubly Charged: 70/140

Background	RSD%	Mean	Count	Range	m/z
0.70	3.63	940.8	891.0	1,000	6
0.60	1.91	13059.6	13129.0	20,000	7
0.50	2.40	7856.2	7602.0	10,000	59
0.30	16.38	39.4	42.0	50	63
0.50	13.40	67.2	78.0	100	70
0.80	102.35	1.2	0.0	20	75
0.50	14.56	48.7	43.0	50	78
1.00	1.86	12029.4	12125.0	20,000	89
0.80	1.63	11739.1	11842.0	20,000	115
1.30	21.11	39.7	34.0	50	118
1.10	2.85	1323.1	1330.0	2,000	137
1.80	1.66	11223.5	11244.0	20,000	205
2.40	1.60	17931.0	17300.0	20,000	238
	8.61	1.337%	1.192%	2	156/140
	13.49	0.568%	0.664%	2	70/140



m/z:	7	89	205
Height:	13,051	12,146	11,336
Axis:	7.05	88.95	205.00
₩-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

0.1000 sec Integration Time: Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:30

Tune Report

Tune File : NORM.U

H2 Gas : 0 mL/min

Comment

Tuning Parameters ===Plasma Condition=== ===Q-Pole Parameters=== ===Ion Lenses=== Extract 1 : 0 V AMU Gain : 133 RF Power : 1550 W RF Matching : 1.7 V Extract 2 : -160 V AMU Offset : 1.7 V Extract 2 : -160 V 7.5 mm Omega Bias-ce : -30 V Axis Gain : 1.0005 Smpl Depth : 0 V Axis Offset : -0.02 Torch-H : -0.8 mm Omega Lens-ce : 0 V
Torch-V : -0.3 mm Cell Entrance : -30 V QP Bias : 0 V Carrier Gas : 0.83 L/min QP Focus : 7 VCell Exit : -30 V ===Detector Parameters=== Makeup Gas : 0.2 L/min Discriminator : 8 mV
Analog HV : 1720 V
Pulse HV : 1390 V ___ % Optional Gas : ===Octopole Parameters=== 0.1 rps Nebulizer Pump : OctP RF : 180 V Sample Pump : --- rps OctP Bias : -18 V 2 degC S/C Temp : ===Reaction Cell=== Reaction Mode : OFF He Gas : 0 mL/min Optional Gas : --- %

Page: 2

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:33

P/A Factor Tuning Report

Acquired: Jul 21 2009 04:50 pm

Mass[amu] 6 7 9 45 51	Li (Li) Be Sc V	P/A Factor 0.061203 Sensitivity 0.068907 0.083389 0.086007	too	low
52 53 55 59	Cr (Cr) Mn Co	0.088320 Sensitivity 0.090395 0.093203	too	low
60	Ni		too	low
63	Cu	Sensitivity	too	low
66	Zn	0.096924		
72	Ge	Sensitivity	too	low
75	As	Sensitivity	too	low
77	(Se)	Sensitivity	too	low
78	Se	Sensitivity	too	low
82	(Se)	Sensitivity		low
83	(Se)	Sensitivity	too	low
95	Mo	0.096067		
98	(Mo)	0.096151		
99	(Mo)	Sensitivity	too	low
106	(Cd)	0.101305		,
107	Ag	Sensitivity	too	TOM
108	(Cd)	0.101769		
111	Cd	0.102139		
114	Cd	0.102089		
115	In Sn	0.101222 0.101067		
118 121	Sb	0.101007		
137	Ba	Sensitivity	±00	1074
165	Но	Sensitivity		
205	Tl	0.109272	000	1011
206	(Pb)	0.108216		
207	(Pb)	0.108287		
208	Pb	0.107820		
232	Th	0.106452		
238	U	0.106481		

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

TestAmerica

266

200.8 QC Tune Report

C:\ICPCHEM\1\DATA\AG072109.B\001TUNE.D Data File:

Date Acquired: Jul 21 2009 05:22 pm

Acq. Method: tun isis.M

Operator:

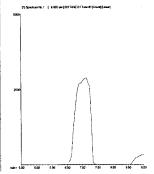
Sample Name: 200.8 TUNE

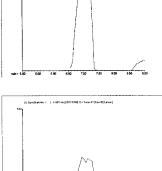
Misc Info:

Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\tun_isis.M

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	31515	31705	31773	31422	31500	31173	0.76	5.00	
9 Be	3503	3538	3524	3507	3428	3516	1.23	5.00	
24 Mg	22462	22829	22575	22353	22572	21980	1.41	5.00	
59 Co	93114	93607	93864	90894	94187	93020	1.41	5.00	
115 In	1915406	1918606	1914965	1924578	1915696	1903185	0.41	5.00	
208 Pb	92064	92990	92149	91680	92260	91243	0.71	5.00	
238 U	187429	191379	187170	188068	186178	184351	1.39	5.00	





7 Li

Mass Calib.

Actual: 7.10 7.10 Required: 6.90 Flag:

Peak Width

Actual: 0.65 Required: 0.90

Flag:

9 Be

Mass Calib.

Actual: 9.05

Required:8.90 9.10

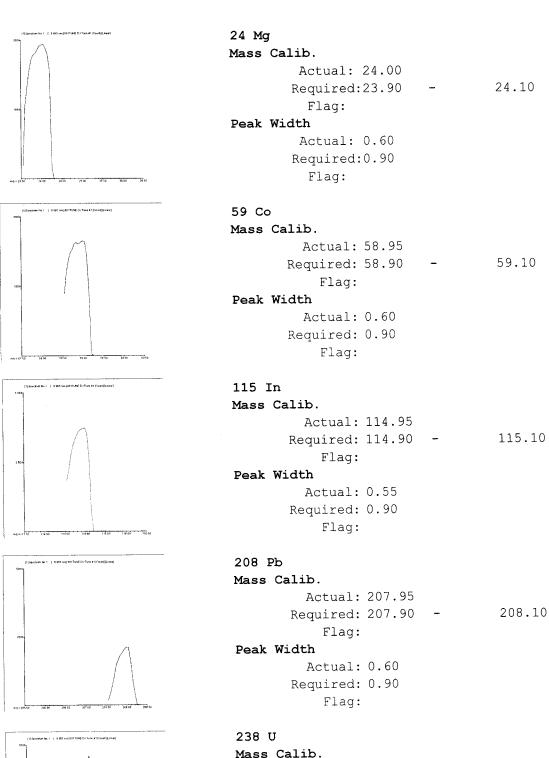
Flag:

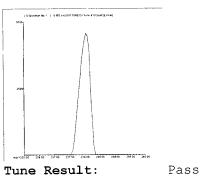
Peak Width

Actual: 0.60

Required: 0.90

Flag:





Peak Width

Actual: 0.60 Required: 0.90 Flag:

Required: 237.90 - 238.10

Actual: 238.05

Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\002CALB.D\002CALB.D#

Date Acquired: Jul 21 2009 05:25 pm

Acq. Method: NormISIS.M

Operator: TEL

Sample Name: Cal Blank

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

CalBlk Sample Type:

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	31	3276.40
52	Cr	72	1	2800	9.18
55	Mn	72	1	1283	9.62
59	Co	72	1	87	67.61
60	Ni	72	1	67	17.32
63	Cu	72	1	503	6.39
66	Zn	72	1	251	8.30
75	As	72	1	105	7.67
78	Se	72	1	513	6.26
95	Mo	72	1	73	15.75
107	Ag	115	1	7	86.60
111	Cd	115	1	9	188.13
118	Sn	115	1	2750	17.56
121	Sb	115	1	19	50.94
137	Ва	115	1	49	3.94
205	Tl	165	1	263	12.21
208	Pb	165	1	323	8.05
232	Th	165	1	220	25.31
238	U	165	1	96	8.06

Internal Standard Elements

Elemen	nt	Tune	CPS Mean	RSD(%)
6	Li	1	576535	0.69
45	Sc	1	2595280	0.11
72	Ge	1	1228451	0.87
115	In	1	3471486	1.12
165	Но	1	5707578	1.58

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Date Acquired: Jul 21 2009 05:28 pm

Acq. Method: NormISIS.M

TEL Operator:

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: CalBlk

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	8 4	380.78
52	Cr	72	1	3224	4.61
55	Mn	72	1	1180	18.88
59	Co	72	1	67	31.23
60	Ni	72	1	77	39.85
63	Cu	72	1	673	17.84
66	Zn	72	1	341	12.93
75	As	72	1	105	1.10
78	Se	72	1	570	15.79
95	Mo	72	1	90	19.25
107	Ag	115	1	10	100.00
111	Cd	115	1	6	183.92
118	Sn	115	1	4558	14.33
121	Sb	115	1	23	37.80
137	Ва	115	1	41	44.66
205	Tl	165	1	229	12.72
208	Pb	165	1	279	7.30
232	Th	165	1	273	29.57
238	U	165	1	22	43.30

Internal Standard Elements

Eleme	ent	Tune	CPS Mean	RSD(%)
6	Li	1	581797	1.92
45	Sc	1	2574983	0.83
72	Ge	1	1211627	0.38
115	In	1	3426576	0.51
165	Но	1	5647086	0.49

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\004ICAL.D\0004ICAL.D#

Date Acquired: Jul 21 2009 05:31 pm

Acq. Method: NormISIS.M

Operator: TEL Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:29 pm

Sample Type: ICAL

QC Elements

Elemen	ıt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	59445	1.77
51	V	72	1	1239197	0.92
52	Cr	72	1	1240930	1.80
55	Mn	72	1	1500976	1.14
59	Co	72	1	1532853	1.14
60	Ni	72	1	335568	1.43
63	Cu	72	1	783637	0.77
66	Zn	72	1	184990	0.36
75	As	72	1	150136	1.32
78	Se	72	1	29896	1.27
95	Мо	72	1	401051	0.94
107	Ag	115	1	1170362	0.20
111	Cd	115	1	241527	0.35
118	Sn	115	1	706295	0.47
121	Sb	115	1	813196	0.45
137	Ва	115	1	335210	0.52
205	Tl	165	1	2698247	0.32
208	Pb	165	1	3677704	0.96
232	Th	165	1	3297948	2.01
238	U	165	1	3849572	0.35

ISTD Elements

Element		Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Ra	nge (%)	Flag
6	Li	1	565258	0.19	581797	97.2	30	- 120	
45	Sc	1	2567639	0.66	2574983	99.7	30	- 120	
72	Ge	1	1211730	1.09	1211627	100.0	30	- 120	
115	In	1	3431729	1.40	3426576	100.2	30	- 120	
165	Но	1	5634252	0.67	5647086	99.8	30	- 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 21 2009 05:33 pm

Operator: TEL QC Summary:

Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC E	lemer	nts								
Elem	ent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	39.64	ppb	0.79	40	99.1	90 - 110	
51	V	72	1	38.95	ppb	0.13	40	97.4	90 - 110	
52	Cr	72	1	39.22	ppb	0.44	40	98.1	90 - 110	
55	Mn	72	1	39.68	ppb	0.45	40	99.2	90 - 110	
59	Со	72	1	39.53 ppb		0.70	40	98.8	90 - 110	
60	Ni	72	1	40.23	ppb	0.53	40	100.6	90 - 110	
63	Cu	72	1	40.61	ppb	0.32	40	101.5	90 - 110	
66	Zn	72	1	40.51	ppb	1.02	40	101.3	90 - 110	
75	As	72	1	40.08	ppb	0.64	40	100.2	90 - 110	
78	Se	72	1	41.67	ppb	1.69	40	104.2	90 - 110	
95	Мо	72	1	39.87	ppb	0.41	40	99.7	90 - 110	
107	Ag	115	1	40.34	ppb	1.30	40	100.9	90 - 110	
111	11 Cd 115 1 41.12 ppb		0.91	40	102.8	90 - 110				
118	Sn	115	1	1 38.88 ppb		0.90	40	97.2	90 - 110	
121	Sb	115	1	38.65 ppb		1.11	40	96.6	90 - 110	
137	Ва	115	1	39.89	ppb	0.94	40	99.7	90 - 110	
205	Tl	165	1	40.05	ppb	1.21	40	100.1	90 - 110	
208	Pb	165	1	40.43	ppb	0.85	40	101.1	90 - 110	
232	Th	165	1	44.22	ppb	2.85	40	110.6	90 - 110	Fail MC
238	U	165	1	40.19	ppb	1.06	40	100.5	90 - 110	
ISTD	Ele	ments								_
Elem			Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	561236		0.19	581797	96.5	30 - 120	
45	Sc		1	2582771		1.09	2574983	100.3	30 - 120	
72	Ge		1	1213066		0.25	1211627	100.1	30 - 120	
	In		1	3417703		1.00	3426576	99.7	30 - 120	
165	Но		1	5664293		1.10	5647086	100.3	30 - 120	
	Tu	ne File#	1	c:\icpchem\1	7500	\he.u				
		ne File#	2	C:\ICPCHEM\1						

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Tune File# 3 C:\ICPCHEM\1\7500\

1 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

ISTD:

Pass

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\006WASH.D\006WASH.D#

Date Acquired: Jul 21 2009 05:36 pm

Operator: TEL QC Summary: Sample Name: RLIV Analytes: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH
Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.123 ppb	10.30	1.30	
51 V	72	1	4.905 ppb	4.36	6,50	
52 Cr	72	1	2.008 ppb	1.94	2.60	
55 Mn	72	1	1.040 ppb	1.71	1.30	
59 Co	72	1	1.042 ppb	3.30	1.30	
60 Ni	72	1	2.082 ppb	1.95	2.60	
63 Cu	72	1	2.043 ppb	4.81	2.60	
66 Zn	72	1	10.290 ppb	0.55	13.00	
75 As	72	1	5.041 ppb	1.23	6.50	
78 Se	72	1	5.606 ppb	11.10	6.50	
95 Mo	72	1	2.125 ppb	3.10	2.60	
107 Ag	115	1	5.269 ppb	0.93	6.50	
111 Cd	115	1	0.985 ppb	1.12	1.30	
118 Sn	115	1	10.060 ppb	1.78	13.00	
121 Sb	115	1	2.181 ppb	4.53	2.60	
137 Ba	115	1	1.073 ppb	3.26	1.30	
205 Tl	165	1	1.130 ppb	0.27	1.30	
208 Pb	165	1	1.039 ppb	0.95	1.30	
232 Th	165	1	2.777 ppb	3.32	2.60	
238 U	165	1	1.064 ppb	0.97	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	561585	0.30	581797	96.5	30 - 120	
45 Sc	1	2567497	0.65	2574983	99.7	30 - 120	
72 Ge	1	1227558	0.55	1211627	101.3	30 - 120	
115 In	1	3427742	1.01	3426576	100.0	30 - 120	
165 Ho	1	5710214	1.06	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\007 ICB.D\007 ICB.D#

QC Summary: Date Acquired: Jul 21 2009 05:39 pm

Analytes: Pass Operator: TEL ISTD: Pass Sample Name: ICB

Misc Info:

Vial Number: 2104

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICB

ICB Sample Type: Total Dil Factor: 1.00

QC	El	em	en	ts
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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.03	ppb	107.86	1.00	
52 Cr	72	1	-0.02	ppb	42.01	1.00	
55 Mn	72	1	0.00	ppb	111.67	1.00	
59 Co	72	1	0.00	ppb	96.89	1.00	
60 Ni	72	1	0.00	ppb	233.62	1.00	
63 Cu	72	1	-0.01	ppb	109.12	1.00	
66 Zn	72	1	0.05	ppb	42.84	1.00	
75 As	72	1	-0.01	ppb	44.09	1.00	
78 Se	72	1	0.34	ppb	46.02	1.00	
95 Mo	72	1	0.01	ppb	40.98	1.00	
107 Ag	115	1	0.01	ppb	15.65	1.00	
111 Cd	115	1	0.00	ppb	432.82	1.00	
118 Sn	115	1	0.13	ppb	28.49	1.00	
121 Sb	115	1	0.08	ppb	2.06	1.00	
137 Ba	115	1	0.00	ppb	38.09	1.00	
205 Tl	165	1	0.03	ppb	5.05	1.00	
208 Pb	165	1	0.00	ppb	1255.10	1.00	
232 Th	165	1	0.16	ppb	5.89	1.00	
238 U	165	1	0.00	ppb	21.84	1.00	

ISTD Elements

1010 110							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565985	1.59	581797	97.3	30 - 120	
45 Sc	1	2566622	0.99	2574983	99.7	30 - 120	
72 Ge	1	1225621	1.10	1211627	101.2	<i>/</i> 30 - 120	
115 In	1	3452773	0.47	3426576	100.8	30 - 120	
165 Ho	1	5650371	0.62	5647086	100.1	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u	✓		
Tune File#	2	C:\ICPCHEM\	1\7500\		N .		

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Tune File# 3 C:\ICPCHEM\1\7500\

0 :Element Failures 0 : Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\008RLST.D\008RLST.D#

Date Acquired: Jul 21 2009 05:42 pm

Operator: TEL QC Summary:

Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: RLSTD Total Dil Factor: 1.00

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	1.05	ppb	12.11	1	104.7	50 - 150	
51	V	72	1	0.93	ppb	7.33	1	93.2	50 - 150	
52	Cr	72	1	0.97	ppb	3.56	1	97.0	50 - 150	
55	Mn	72	1	1.00	ppb	2.49	1	100.4	50 - 150	
59	Со	72	1	1.01	ppb	4.08	1	101.3	50 - 150	
60	Νi	72	1	1.00	ppb	6.56	1	100.0	50 - 150	
63	Cu	72	1	1.04	ppb	7.10	1	104.2	50 - 150	
66	Zn	72	1	10.76	ppb	1.35	10	107.6	50 - 150	
75	As	72	1	1.04	ppb	3.34	1	103.8	50 - 150	
78	Se	72	1	0.82	ppb	33.53	1	81.6	50 - 150	
95	Mo	72	1	1.01	ppb	7.76	1	101.0	50 - 150	
107	Ag	115	1	1.02	ppb	2.10	1	101.5	50 - 150	
111	Cd	115	1	1.10	ppb	3.31	1	109.6	50 - 150	
118	Sn	115	1	10.23	ppb	1.35	10	102.3	50 - 150	
121	Sb	115	1	1.05	ppb	1.23	1	104.8	50 - 150	
137	Ва	115	1	1.05	ppb	4.58	1	104.8	50 - 150	
205	Tl	165	1	1.07	ppb	2.73	1	106.5	50 - 150	
208	Pb	165	1	1.05	ppb	1.07	1	104.7	50 - 150	
232	Th	165	1	1.13	ppb	2.43	1	113.3	50 - 150	
238	U	165	1	1.07	ppb	1.03	1	107.0	50 - 150	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565978	0.78	581797	97.3	30 - 120	
45 Sc	1	2568028	1.20	2574983	99.7	30 - 120	
72 Ge	1	1217338	0.15	1211627	100.5	30 - 120	
115 In	1	3427497	0.45	3426576	100.0	30 - 120	
165 Ho	1	5631637	1.02	5647086	99.7	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

AFCEE RL QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

Date Acquired: Jul 21 2009 05:44 pm

QC Summary: Operator: TEL

Analytes: Pass Sample Name: AFCEE RL ISTD: Pass Misc Info:

Vial Number: 2106

Current Method: Calibration File: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: AFCEERL Total Dil Factor: 1.00

QC E	leme	nts								
Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 -	Ве	6	1	0.18 p	opb	41.26	0	86.0	80 - 120	
51	V	72	1	0.12 g	opb	39.38	0	67.0	80 - 120	
52	Cr	72	1	0.16 g	dqc	3.72	0	82.2	80 - 120	
55	Mn	72	1	0.20 g	o g o	3.24	0	98.6	80 - 120	
59	Co	72	1		opb	5.85	0	99.3	80 - 120	
60	Ni	72	1	0.18 p	ppb	6.47	0	90.0	80 - 120	
63	Cu	72	1	0.32 p	ppb	10.85	0	155.1	80 - 120	
66	Zn	72	1	2.18 g	ppb	0.89	2	101.4	80 - 120	
75	As	72	1	0.20 g	ppb	9.34	0	94.3	80 - 120	
78	Se	72	1	0.27 g	ppb	16.59	0	168.2	80 - 120	
95	Мо	72	1	0.19 p	ppb	6.24	0	93.4	80 - 120	
107	Ag	115	1	0.20 p	ppb	4.78	0	99.7	80 - 120	
111	Cd	115	1	0.21 p	ppb	11.89	0	96.8	80 - 120	
118	Sn	115	1	1.58 p	ppb	4.76	2	77.3	80 - 120	
121	Sb	115	1	0.21 p	ppb	4.92	0	99.2	80 - 120	
137	Ва	115	1	0.22	ppb	2.48	0	102.6	80 - 120	
205	Tl	165	1	0.21 \ 1	ppb	5.92	0	97.3	80 - 120	
208	Pb	165	1	0.20 p	ppb	3.45	0	95.3	80 - 120	
232	Th	165	1	0.24 p	ppb	4.96	0	106.3	80 - 120	
238	U	165	1	0.20	ppb	2.09	0	95.7	80 - 120	
ISTI) Ele	ments								
Eler	nent		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	562011		1.45	581797	96.6	30 - 120	

	1011	J HIGHERTOS							
Element		ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
	6	Li	1	562011	1.45	581797	96.6	30 - 120	
	45	Sc	1	2589915	1.12	2574983	100.6	30 - 120	
	72	Ge	1	1216544	0.44	1211627	100.4	30 - 120	
	115	In	1	3446931	1.30	3426576	100.6	30 - 120	
	165	Но	1	5682005	0.45	5647086	100.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 21 2009 05:47 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC	Elements	,
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Ele	ment	IS Ref	Tune	Corr Conc F	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	dqq	0.00	3600	9
51	$\cdot \Delta$	72	1	-0.04	-0.04	ppb	104.30	3600	
52	Cr	72	1	-0.02	-0.02	ppb	103.76	3600	
55	Mn	72	1	0.02	0.02	ppb	16.79	3600	
59	Со	72	1	0.00	0.00	ppb	621.67	3600	
60	Ni	72	1	0.03	0.03	ppb	16.48	3600	
63	Cu	72	1	0.00	0.00	ppb	932.55	3600	
66	Zn	72	1	0.85	0.85	ppb	6.94	3600	
75	As	72	1	0.00 /	0.00	ppb	664.54	3600	
78	Se	72	1	2.10 🗸	2.10	ppb	12.34	3600	
	Мо	72	1	-0.01	-0.01	ppb	45.44	3600	
107	Ag	115	1	0.00	0.00	ppb	58.87	3600	
111		115	1	0.01	0.01	ppb	69.14	3600	
118		115	1	0.05	0.05	ppb	347.56	3600	
121		115	1	0.02	0.02	ppb	33.89	3600	
137	Ва	115	1	0.02	0.02	ppb	46.40	3600	
205	Tl	165	1	0.01	0.01	ppb	7.09	3600	
208	Pb	165	1	0.01	0.01	ppb	32.33	3600	
232		165	1	0.02	0.02	ppb	9.94	1000	
238	U	165	1	0.00	0.00	ppb	61.35	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	569704	0.90	581797	97.9	30 - 120	-
45 Sc	1	2578530	1.74	2574983	100.1	30 - 120	
72 Ge	1	1225059	0.62	1211627	101.1	30 - 120	
115 In	1	3458256	0.73	3426576	100.9	30 - 120	
165 Ho	1	5659536	0.49	5647086	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed

0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 21 2009 05:50 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: ICSA ISTD: Pass

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSA Dilution Factor: 1.00

QC	Ele	emen	ts
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Elen	nent	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.01 ppb	86.57	1.00	
51	V	72	1	-0.32 ppb	45.77	1.00	
52	Cr	72	1	1.09 ppb	1.54	1.00	
55	Mn	72	1	3.02 ppb	2.13	1.00	
59	Co	72	1	0.14 ppb	6.32	1.00	
60	Ni	72	1	1.14 ppb	8.51	1.00	
63	Cu	72	1	0.52 ppb	6.79	1.00	
66	Zn	72	1	4.12 ppb	0.37	10.00	
75	As	72	1	0.41 ppb	6.37	1.00	
78	Se	72	1	0.21 ppb	202.38	1.00	
95	Мо	72	1	2029.00 ppb	1.48	2000.00	
107	Ag	115	1	0.08 ppb	1.65	1.00	
111	Cd	115	1	0.53 ppb	11.29	1.00	
118	Sn	115	1	6.55 ppb	2.38	10.00	
121	Sb	115	1	0.25 ppb	8.83	1.00	
137	Ва	115	1	1.63 ppb	3.16	1.00	
205	T1	165	1	0.06 ppb	23.67	1.00	
208	Pb	165	1	0.15 ppb	1.74	1.00	
232	Th	165	1	0.06 ppb	7.65	1.00	
238	U	165	1	0.04 ppb	4.73	1.00	

ISTD Elements

Elen	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	541828	0.30	581797	93.1	30 - 120	
45	Sc	1	2271867	1.39	2574983	88.2	30 - 120	
72	Ge	1	1037781	0.72	1211627	85.7	30 - 120	
115	In	1	2905629	2.08	3426576	84.8	30 - 120	
165	Но	1	5091704	1.12	5647086	90.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Nnumber of ISTD Failures Allowed

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 21 2009 05:53 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ICSAB ISTD: Pass

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSAB
Dilution Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	1	96.29	1.44	100	96.3	80 - 120	
51 V	72	1	99.52	1.77	100	99.5	80 - 120	
52 Cr	72	1	99.40	1.59	100	99.4	80 - 120	
55 Mn	72	1	101.10	1.41	100	101.1	80 - 120	
59 Co	72	1	95.14	1.75	100	95.1	80 - 120	
60 Ni	72	1	91.22	1.02	100	91.2	80 - 120	
63 Cu	72	1	89.55	0.75	100	89.6	80 - 120	
66 Zn	72	1	100.10	0.77	100	100.1	80 - 120	
75 As	72	1	100.30	0.37	100	100.3	80 - 120	
78 Se	72	1	108.70	2.11	100	108.7	80 - 120	
95 Mo	72	1	2124.00	1.34	2100	101.1	80 - 120	
107 Ag	115	1	88.04	3.50	100	88.0	80 - 120	
111 Cd	115	1	97.50	1.62	100	97.5	80 - 120	
118 Sn	115	1	101.00	0.92	100	101.0	80 - 120	
121 Sb	115	1	102.40	1.11	100	102.4	80 - 120	
137 Ba	115	1	103.60	1.08	100	103.6	80 - 120	
205 Tl	165	1	96.79	0.86	100	96.8	80 - 120	
208 Pb	165	1	95.41	1.15	100	95.4	80 - 120	
232 Th	165	1	110.10	0.47	100	110.1	80 - 120	
238 U	165	1	103.00	0.22	100	103.0	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551523	0.54	581797	94.8	30 - 120	
45 Sc	1	2262338	0.74	2574983	87.9	30 - 120	
72 Ge	1	1036947	1.75	1211627	85.6	30 - 120	
115 In	1	2927339	0.38	3426576	85.4	30 - 120	
165 Ho	1	5153065	0.14	5647086	91.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 21 2009 05:55 pm

Acq. Method: Normisis.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

OC Elements

9 Be 6 1 0.00 0.00 ppb 0.00 3600 51 V 72 1 -0.06 -0.06 ppb 105.43 3600 52 Cr 72 1 -0.03 -0.03 ppb 42.33 3600 55 Mn 72 1 -0.01 -0.01 ppb 103.23 3600 59 Co 72 1 0.00 0.00 ppb 103.31 3600 60 Ni 72 1 0.00 0.00 ppb 490.13 3600 63 Cu 72 1 -0.01 -0.01 ppb 55.36 3600	g
52 Cr 72 1 -0.03 -0.03 ppb 42.33 3600 55 Mn 72 1 -0.01 -0.01 ppb 103.23 3600 59 Co 72 1 0.00 0.00 ppb 103.31 3600 60 Ni 72 1 0.00 0.00 ppb 490.13 3600	
55 Mn 72 1 -0.01 -0.01 ppb 103.23 3600 59 Co 72 1 0.00 0.00 ppb 103.31 3600 60 Ni 72 1 0.00 0.00 ppb 490.13 3600	
59 Co 72 1 0.00 0.00 ppb 103.31 3600 60 Ni 72 1 0.00 0.00 ppb 490.13 3600	
60 Ni 72 1 0.00 0.00 ppb 490.13 3600	
4.1	
63 Cu 72 1 -0.01 -0.01 ppb 55.36 3600	
66 Zn 72 1 0.02 0.02 ppb 39.30 3600	
75 As 72 1 0.01 0.01 ppb 237.74 3600	
78 Se 72 1 0.22 0.22 ppb 124.98 3600	
95 Mo 72 1 1.24 1.24 ppb 2.11 3600	
107 Ag 115 1 0.01 0.01 ppb 32.64 3600	
111 Cd 115 1 -0.01 -0.01 ppb 87.55 3600	
118 Sn 115 1 -0.44 -0.44 ppb 9.84 3600	
121 Sb 115 1 0.04 0.04 ppb 10.44 3600	
137 Ba 115 1 0.00 0.00 ppb 198.65 3600	
205 Tl 165 1 0.00 0.00 ppb 32.40 3600	
208 Pb 165 1 0.00 0.00 ppb 60.85 3600	
232 Th 165 1 0.61 0.61 ppb 14.09 1000	
238 U 165 1 0.01 0.01 ppb 16.27 3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	617032	1.01	581797	106.1	30 - 120	
45 Sc	1	2571917	0.32	2574983	99.9	30 - 120	
72 Ge	1	1207363	0.62	1211627	99.6	30 - 120	
115 In	1	3468973	0.41	3426576	101.2	30 - 120	
165 Ho	1	5751339	0.52	5647086	101.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\014 LR.D\014 LR.D#

Date Acquired: Jul 21 2009 05:58 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: LR ISTD: Pass

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LR
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	983.10 ppb	1.47	1000	98.3	90 - 110	
51 V	72	1	931.80 ppb	1.87	1000	93.2	90 - 110	
52 Cr	72	1	958.10 ppb	0.33	1000	95.8	90 - 110	
55 Mn	72	1	959.10 ppb	0.74	1000	95.9	90 - 110	
59 Co	72	1	962.90 ppb	0.81	1000	96.3	90 - 110	
60 Ni	72	1	976.00 ppb	1.67	1000	97.6	90 - 110	
63 Cu	72	1	952.70 ppb	0.56	1000	95.3	90 - 110	
66 Zn	72	1	1036.00 ppb	1.42	1000	103.6	90 - 110	
75 As	72	1	1038.00 ppb	0.83	1000	103.8	90 - 110	
78 Se	72	1	1037.00 ppb	0.75	1000	103.7	90 - 110	
95 Mo	72	1	998.50 ppb	1.19	1000	99.9	90 - 110	
107 Ag	115	1	960.60 ppb	0.36	1000	96.1	90 - 110	
111 Cd	115	1	1018.00 ppb	1.94	1000	101.8	90 - 110	
118 Sn	115	1	980.00 ppb	0.99	1000	98.0	90 - 110	
121 Sb	115	1	975.20 ppb	0.25	1000	97.5	90 - 110	
137 Ba	115	1	1014.00 ppb	0.78	1000	101.4	90 - 110	
205 Tl	165	1	970.30 ppb	1.49	1000	97.0	90 - 110	
208 Pb	165	1	959.70 ppb	1.43	1000	96.0	90 - 110	
232 Th	165	1	1070.00 ppb	0.39	1000	107.0	90 - 110	
238 U	165	1	1001.00 ppb	0.48	1000	100.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	602525	1.07	581797	103.6	30 - 120	
45 Sc	1	2585868	0.95	2574983	100.4	30 - 120	
72 Ge	1	1215769	0.81	1211627	100.3	30 - 120	
115 In	1	3432627	0.12	3426576	100.2	30 - 120	
165 Ho	1	5756427	0.96	5647086	101.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 21 2009 06:00 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.01	0.01	ppb	173.21	3600	
51 V	72	1	0.00	0.00	ppb	1096.50	3600	
52 Cr	72	1	-0.02	-0.02	ppb	214.11	3600	
55 Mn	72	1	-0.01	-0.01	ppb	54.41	3600	
59 Co	72	1	0.02	0.02	ppb	17.45	3600	
60 Ni	72	1	0.02	0.02	ppb	36.35	3600	
63 Cu	72	1	0.00	0.00	ppb	3434.80	3600	
66 Zn	72	1	0.04	0.04	ppb	59.09	3600	
75 As	72	1	0.04	0.04	ppb	18.32	3600	
78 Se	72	1	0.56	0.56	ppb	27.17	3600	
95 Mo	72	1	0.75	0.75	ppb	9.81	3600	
107 Ag	115	1	0.03	0.03	ppb	9.09	3600	
111 Cd	115	1	0.01	0.01	ppb	55.86	3600	
118 Sn	115	1	0.58	0.58	ppb	22.30	3600	
121 Sb	115	1	0.43	0.43	ppb	9.45	3600	
137 Ba	115	1	0.02	0.02	ppb	30.56	3600	
205 Tl	165	1	0.10	0.10	ppb	12.56	3600	
208 Pb	165	1	0.02	0.02	ppb	9.09	3600	
232 Th	165	1	3.70	3.70	ppb	19.86	1000	
238 U	165	1	0.09	0.09	ppb	9.53	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	, Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	604269	1.86	581797	103.9	30 - 120	
45 Sc	1	2589065	0.70	2574983	100.5	30 - 120	
72 Ge	1	1243813	0.46	1211627	102.7	30 - 120	
115 In	1	3483172	1.13	3426576	101.7	30 - 120	
165 Ho	1	5709115	0.24	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 21 2009 06:03 pm

Operator: TEL QC Summary: Sample Name: CCV Analytes: Pass

Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Eler	ment	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	
. 0	Do	c	1	40 24 mmh	0 60	EO	00 7	00 110	

						(- /			E	
9	Ве	6	1	49.34	ppb	0.68	50	98.7	90 - 110	
51	V	72	1	49.10	ppb	0.55	50	98.2	90 - 110	
52	Cr	72	1	49.47	ppb	0.91	50	98.9	90 - 110	
55	Mn	72	1	49.47	ppb	1.10	50	98.9	90 - 110	
59	Co	72	1	49,92	ppb	1.17	50	99.8	90 - 110	
60	Ni	72	1	50.75	ppb	0.61	50	101.5	90 - 110	
63	Cu	72	1	50.93	ppb	0.27	50	101.9	90 - 110	
66	Zn	72	1	50.31	ppb	0.73	50	100.6	90 - 110	
75	As	72	1	50.24	ppb	1.12	50	100.5	90 - 110	
78	Se	72	1	50.24	ppb	0.13	50	100.5	90 - 110	
95	Мо	72	1	50.78	ppb	1.42	50	101.6	90 - 110	
107	Ag	115	1	49.22	ppb	2.02	50	98.4	90 - 110	
111	Cd	115	. 1	49.66	ppb	2.34	50	99.3	90 - 110	
118	Sn	115	1	49.06	ppb	1.65	50	98.1	90 - 110	
121	Sb	115	1	49.30	ppb	1.60	50	98.6	90 - 110	
137	Ва	115	1	49.04	ppb	1.67	50	98.1	90 - 110	
205	Tl	165	1	50.73	ppb	1.09	50	101.5	90 - 110	
208	Pb	165	1	49.84	ppb	1.34	50	99.7	90 - 110	
232	Th	165	1	52.15	ppb	2.07	50	104.3	90 - 110	

ISTD Elements

165

1

238 U

Ele	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	588145	2.13	581797	101.1	30 - 120	
45	Sc	1	2623883	0.54	2574983	101.9	30 - 120	
72	Ge	1	1228362	0.50	1211627	101.4	30 - 120	
115	In	1	3530300	1.24	3426576	103.0	30 - 120	
165	Но	1	5768046	0.38	5647086	102.1	30 - 120	

0.38

50

99.6

90 - 110

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

49.79 ppb

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Flag

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 21 2009 06:06 pm

Operator: TEL QC Summary: Sample Name: Analytes: Pass CCB

Misc Info:

ISTD:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.005	ppb	173.19	1.00	_
51 V	72	1	-0.062	ppb	129.47	1.00	
52 Cr	72	1	-0.026	ppb	83.65	1.00	
55 Mn	72	1	-0.007	ppb	143.47	1.00	
59 Co	72	1	0.002	ppb	146.67	1.00	
60 Ni	72	1	0.009	ppb	171.37	1.00	
63 Cu	72	1	-0.013	ppb	47.42	1.00	
66 Zn	72	1	0.004	ppb	593.06	1.00	
75 As	72	1	0.008	ppb	83.97	1.00	
78 Se	72	1	0.635	ppb	21.48	1.00	
95 Mo	72	1	0.156	ppb	13.82	1.00	
107 Ag	115	1	0.013	ppb	10.04	1.00	
111 Cd	115	1	0.005	ppb	226.51	1.00	
118 Sn	115	1	0.091	ppb	27.58	1.00	
121 Sb	115	1	0.092	ppb	4.85	1.00	
137 Ba	115	1	0.007	ppb	96.12	1.00	
205 Tl	165	1	0.044	ppb	9.42	1.00	
208 Pb	165	1	0.005	ppb	16.13	1.00	
232 Th	165	1	0.846	ppb	15.54	1.00	
238 U	165	1	0.016	ppb	7.64	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	582937	1.46	581797	100.2	30 - 120	
45 Sc	1	2618279	0.49	2574983	101.7	30 - 120	
72 Ge	1	1228248	0.40	1211627	101.4	30 - 120	
115 In	1	3493471	0.25	3426576	102.0	30 - 120	
165 Ho	1	5729193	0.17	5647086	101.5	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Pass

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\018WASH.D\018WASH.D#

Date Acquired: Jul 21 2009 06:09 pm

Operator: TEL QC Summary: Sample Name: Analytes: RLCV Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: WASH C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: WASH Total Dil Factor: 1.00

QC.	Eleme	ents
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.506 ppb	66.40	1.30	-
51 V	72	1	5.354 ppb	9.73	6.50	
52 Cr	72	1	2.294 ppb	19.68	2.60	
55 Mn	72	1	1.341 ppb	40.40	1.30	
59 Co	72	1	1.372 ppb	41.06	1.30	
60 Ni	72	1	2.353 ppb	23.65	2.60	
63 Cu	72	1	2.412 ppb	17.43	2.60	
66 Zn	72	1	10.710 ppb	7.57	13.00	
75 As	72	1	5.663 ppb	11.90	6.50	
78 Se	72	1	5.717 ppb	11.15	6.50	
95 Mo	72	1	4.400 ppb	84.36	2.60	
107 Ag	115	1	5.364 ppb	3,44	6.50	
111 Cd	115	1	1.442 ppb	41.34	1.30	
118 Sn	115	1	10.180 ppb	5.67	13.00	
121 Sb	115	1	2.278 ppb	21.30	2.60	
137 Ba	115	1	1.364 ppb	42.96	1.30	
205 Tl	165	1	1.415 ppb	39.27	1.30	
208 Pb	165	1	1.446 ppb	47.86	1.30	
232 Th	165	1	2.676 ppb	20.73	2.60	
238 U	165	1	1.427 ppb	40.32	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	598481	1.35	581797	102.9	30 - 120	
45 Sc	1	2642231	1.82	2574983	102.6	30 - 120	
72 Ge	1	1250188	1.58	1211627	103.2	30 - 120	
115 In	. 1	3540347	1.66	3426576	103.3	30 - 120	
165 Ho	1	5791976	1.24	5647086	102.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\026 CCV.D\026 CCV.D#

Date Acquired: Jul 21 2009 06:30 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

 $\begin{tabular}{ll} $\text{Current Method:} & C:\ICPCHEM_1 & $\text{Calibration File:} & C:\ICPCHEM_1 & Calib_n & $\text{$

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements										
Element	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag	
9 Be	6	1	49.60	ppb	3.76	50	99.2	90 - 110		
51 V	72	1	47.46	ppb	0.73	50	94.9	90 - 110		
52 Cr	72	1	48.46	ppb	1.90	50	96.9	90 - 110		
55 Mn	72	1	48.48	ppb	1.62	50	97.0	90 - 110		
59 Co	72	1	48.65	ppb	0.70	50	97.3	90 - 110		
60 Ni	72	1	49.63	ppb	1.26	50	99.3	90 - 110		
63 Cu	72	1	49.48	ppb	1.11	50	99.0	90 - 110		
66 Zn	72	1	49.17	ppb	0.85	50	98.3	90 - 110		
75 As	72	1	49.33	ppb	1.83	50	98.7	90 - 110		
78 Se	72	1	49.43	ppb	3.65	50	98.9	90 - 110		
95 Mo	72	1	49.52	ppb	1.74	50	99.0	90 - 110		
107 Ag	115	1	49.84	ppb	0.95	50	99.7	90 - 110		
111 Cd	115	1	49.79	ppb	0.88	50	99.6	90 - 110		
118 Sn	115	1	49.36	ppb	1.63	50	98.7	90 - 110		
121 Sb	115	1	49.58	ppb	0.60	50	99.2	90 - 110		
137 Ba	115	1	49.59	ppb	0.66	50	99.2	90 - 110		
205 Tl	165	1	50.54	ppb	0.83	50	101.1	90 - 110		
208 Pb	165	1	50.49	ppb	0.37	50	101.0	90 - 110		
232 Th	165	1	51.99	ppb	2.44	50	104.0	90 - 110		
238 U	165	1	51.90	ppb	0.76	50	103.8	90 - 110		
ISTD Ele	ments									
Element		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag	
6 Li		1	571014		0.79	581797	98.1	30 - 120		
45 Sc		1	2538915		1.25	2574983	98.6	30 - 120		
72 Ge		1	1213633		1.83	1211627	100.2	30 - 120		
115 In		1	3399341		0.85	3426576	99.2	30 - 120		
165 Ho		1	5600207		0.53	5647086	99.2	30 - 120		

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\027 CCB.D\027 CCB.D#

Date Acquired: Jul 21 2009 06:33 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Elemen	it IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.006	ppb	173.20	1.00	
51 V	72	1	-0.006	ppb	515.80	1.00	
52 Cr	72	1	-0.037	ppb	49.31	1.00	
55 Mn	72	1	-0.018	ppb	70.24	1.00	
59 Co	72	1	0.002	ppb	18.76	1.00	
60 Ni	72	1	0.005	ppb	28.03	1.00	
63 Cu	. 72	1	-0.039	ppb	12.85	1.00	
66 Zn	. 72	1	0.010	ppb	155.67	1.00	
75 As	72	1	-0.008	ppb	188.46	1.00	
78 Se	72	1	0.001	ppb	63037.00	1.00	
95 Mo	72	1	0.038	ppb	19.24	1.00	
107 Ag	115	1	0.006	ppb	44.60	1.00	
111 Cd	115	1	0.007	ppb	37.32	1.00	
118 Sn	115	1	-0.057	ppb	99.88	1.00	
121 Sb	115	1	0.059	ppb	8.11	1.00	
137 Ba	115	1	0.003	ppb	62.71	1.00	
205 Tl	165	1	0.021	ppb	14.15	1.00	
208 Pb	165	1	0.004	ppb	24.01	1.00	
232 Th	165	1	0.775	ppb	18.32	1.00	
238 U	165	1	0.010	ppb	13.56	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	568757	0.26	581797	97.8	30 - 120	
45 Sc	1	2523515	0.52	2574983	98.0	30 - 120	
72 Ge	1	1190357	0.87	1211627	98.2	30 - 120	
115 In	1	3393018	0.90	3426576	99.0	30 - 120	
165 Ho	1	5546048	0.69	5647086	98.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\028WASH.D\028WASH.D#

Date Acquired: Jul 21 2009 06:36 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLCV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.945 ppb	17.37	1.30	
51 V	72	1	5.047 ppb	0.91	6.50	
52 Cr	72	1	2.021 ppb	3.49	2.60	
55 Mn	72	1	1.010 ppb	5.40	1.30	
59 Co	72	1	1.024 ppb	2.85	1.30	
60 Ni	72	1	2.156 ppb	3.13	2.60	
63 Cu	72	1	2.053 ppb	0.90	2.60	
66 Zn	72	1	10.450 ppb	1.17	13.00	
75 As	72	1	5.192 ppb	1.28	6.50	
78 Se	72	1	5.235 ppb	5.22	6.50	
95 Mo	72	1	2.123 ppb	6.02	2.60	
107 Ag	115	. 1	5.226 ppb	1.25	6.50	
111 Cd	115	1	1.069 ppb	5.99	1.30	
118 Sn	115	1	9.851 ppb	1.45	13.00	
121 Sb	115	1	1.944 ppb	1.32	2.60	
137 Ba	115	1	1.079 ppb	5.58	1.30	
205 Tl	165	1	1.091 ppb	0.56	1.30	
208 Pb	165	1	1.065 ppb	1.02	1.30	
232 Th	165	1	2.329 ppb	1.74	2.60	
238 U	165	1	1.101 ppb	0.77	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	563752	0.35	581797	96.9	30 - 120	
45 Sc	1	2522070	0.50	2574983	97.9	30 - 120	
72 Ge	1	1195071	0.30	1211627	98.6	30 - 120	
115 In	1	3409514	0.82	3426576	99.5	30 - 120	
165 Ho	1	5555873	0.54	5647086	98.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\029 BLK.D\029 BLK.D#

Date Acquired: Jul 21 2009 06:39 pm

QC Summary: Operator: TEL

LGEERB Analytes: Pass Sample Name: ISTD: Misc Info: Pass BLANK 9194272 6020

Vial Number: 2208

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.000 ppb	0.00	2.00	
51 V	72	1	-0.023 ppb	197.29	2.00	
52 Cr	72	1	0.079 ppb	10.06	2.00	
55 Mn	72.	1	0.108 ppb	12.70	2.00	
59 Co	72	1	0.000 ppb	501.93	2.00	
60 Ni	72	1	0.025 ppb	81.97	2.00	
63 Cu	72	1	0.077 ppb	14.50	2.00	
66 Zn	72	1	0.692 ppb	2.78	2.00	
75 As	72	1	-0.001 ppb	1570.10	2.00	
78 Se	72	1	0.138 ppb	271.86	2.00	
95 Mo	72	1	0.012 ppb	30.51	2.00	
107 Ag	115	1	0.005 ppb	43,98	2.00	
111 Cd	115	1	0.003 ppb	153.49	2.00	
118 Sn	115	1	-0.388 ppb	3.06	2.00	
121 Sb	115	1	0.032 ppb	4.02	2.00	
137 Ba	115	1	0.024 ppb	41.42	2.00	
205 Tl	165	1	0.024 ppb	33.52	2.00	
208 Pb	165	1	0.010 ppb	10.00	2.00	
232 Th	165	1	0.149 ppb	18.82	2.00	
238 U	165	1	0.003 ppb	8.64	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567901	0.49	581797	97.6	30 - 120	
45 Sc	1	2536930	0.98	2574983	98.5	30 - 120	
72 Ge	1	1190052	0.57	1211627	98.2	30 - 120	
115 In	1	3404908	0.81	3426576	99.4	30 - 120	
165 Ho	1	5537384	1.21	5647086	98.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\030 LCS.D\030 LCS.D#

Date Acquired: Jul 21 2009 06:41 pm

Acq. Method: QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGEERC ISTD: Pass

Misc Info: LCS
Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

		Rec(%)	QC Ran	ge(%) Fla	g
9 Be 6 1 40.84 2.97	40	102.1	80 -	120	
51 V 72 1 41.46 0.89	40	103.7	80 -	120	
52 Cr 72 1 42.08 1.02	40	105.2	80 -	120	
55 Mn 72 1 42.07 2.68	40	105.2	80 -	120	
59 Co 72 1 42.43 1.84	40	106.1	80 -	120	
60 Ni 72 1 43.29 2.68	40	108.2	80 -	120	
63 Cu 72 1 43.58 2.40	40	109.0	80 -	120	
66 Zn 72 1 41.11 1.13	40	102.8	80 -	120	
75 As 72 1 41.33 1.55	40	103.3	80 -	120	
78 Se 72 1 40.24 3.32	40	100.6	80 -	120	
95 Mo 72 1 43.74 5.12	40	109.4	80 -	120	
107 Ag 115 1 42.07 1.97	40	105.2	80 -	120	
111 Cd 115 1 41.62 1.54	40	104.1	80 -	120	
118 Sn 115 1 -0.06 879.10	40	-0.2	80 -	120	
121 Sb 115 1 40.67 1.75	40	101.7	80 -	120	
137 Ba 115 1 42.32 1.65	40	105.8	80 -	120	
205 Tl 165 1 43.38 1.33	40	108.5	80 -	120	
208 Pb 165 1 43.18 0.66	40	108.0	80 -	120	
232 Th 165 1 46.22 3.01	40	115.6	80 -	120	
238 U 165 1 44.22 0.28	40	110.6	80 -	120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	572827	4.47	581797	98.5	30 - 120	
45 Sc	1	2536116	1.65	2574983	98.5	30 - 120	
72 Ge	1	1194379	2.43	1211627	98.6	30 - 120	
115 In	1	3408702	2.96	3426576	99.5	30 - 120	
165 Ho	1	5609006	1.65	5647086	99.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

Date Acquired: Jul 21 2009 06:44 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGCN3 10X ISTD: Pass

Misc Info: D9G100272 Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.11	0.01	ppb	86.58	3600	
51 V	72	1	21.63	2.16	ppb	7.43	3600	
52 Cr	72	1	6.32	0.63	ppb	7.96	3600	
55 Mn	72	1	5.24	0.52	ppb	6.66	3600	
59 Co	72	1	0.39	0.04	ppb	16.50	3600	
60 Ni	72	1	4.15	0.41	ppb	14.15	3600	
63 Cu	72	1	0.17	0.02	ppb	16.19	3600	
66 Zn	72	1	3.05	0.31	ppb	11.24	3600	
75 As	72	1	198.10	19.81	ppb	2.87	3600	
78 Se	72	1	4.94	0.49	ppb	39.09	3600	
95 Mo	72	1	16.44	1.64	ppb	4.40	3600	
107 Ag	115	1	0.09	0.01	ppb	63.79	3600	
111 Cd	115	1	0.13	0.01	ppb	29.31	3600	
118 Sn	115	1	-5.34	-0.53	ppb	1.82	3600	
121 Sb	115	1	0.48	0.05	ppb	8.21	3600	
137 Ba	115	1	33.07	3.31	ppb	2.19	3600	
205 Tl	165	1	0.27	0.03	ppb	15.00	3600	
208 Pb	165	1	0.16	0.02	ppb	10.80	3600	
232 Th	165	1	6.24	0.62	ppb	18.22	1000	
238 U	165	1	55.05	5.51	ppb	1.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567824	0.66	581797	97.6	30 - 120	
45 Sc	1	2404508	0.72	2574983	93.4	30 - 120	
72 Ge	1	1124528	1.16	1211627	92.8	30 - 120	
115 In	1	3208719	1.35	3426576	93.6	30 - 120	
165 Ho	1	5383143	1.62	5647086	95.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\032SDIL.D\032SDIL.D#

Date Acquired: Jul 21 2009 06:47 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3P50

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref	Conc.	Actual(%)	QC	Rang	e(%)	Flag
9 Be	6	1	0.00	ppb	0.00		0.00	0.0	90	-	110	
51 V	72	1	0.43	ppb	23.28		0.43	99.3	90	-	110	
52 Cr	72	1	0.29	ppb	4.37		0.13	229.3	90	-	110	
55 Mn	72	1	0.15	ppb	6.68		0.10	144.4	90	_	110	
59 Co	72	1	0.01	ppb	66.01		0.01	130.9	90	_	110	
60 Ni	72	1	0.26	ppb	15.21		0.08	310.4	90	-	110	
63 Cu	72	1	-0.01	ppb	106.68		0.00	-353.0	90	-	110	
66 Zn	72	1	0.09	ppb	22.23		0.06	148.6	90	-	110	
75 As	72	1	3.90	ppb	0.41		3.96	98.4	90	_	110	
78 Se	72	1	0.05	ppb	1070.40		0.10	46.0	90	-	110	
95 Mo	72	1	0.31	ppb	1.89		0.33	95.3	90	-	110	
107 Ag	115	1	0.00	ppb	66.72		0.00	156.3	90	-	110	
111 Cd	115	1	0.00	ppb	175.62		0.00	145.6	90	-	110	
118 Sn	115	1	-0.53	ppb	3.47		-0.11	493.3	90	_	110	
121 Sb	115	1	0.02	ppb	16.35		0.01	181.6	90	-	110	
137 Ba	115	1	0.66	ppb	2.72		0.66	99.8	90	-	110	
205 Tl	165	1	0.00	ppb	195.50		0.01	21.4	90		110	
208 Pb	165	1	0.01	ppb	27.48		0.00	185.7	90	-	110	
232 Th	165	1	0.09	ppb	13.71		0.12	75.2	90	-	110	
238 U	165	1	1.10	ppb	1.87		1.10	100.1	90	-	110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565608	0.94	581797	97.2	30 - 120	
45 Sc	1	2460020	0.58	2574983	95.5	30 - 120	
72 Ge	1	1155387	1.16	1211627	95.4	30 - 120	
115 In	1	3303714	1.14	3426576	96.4	30 - 120	
165 Ho	1	5431207	0.86	5647086	96.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Denver

7440-56-4 Germanium

7440-60-0 Holmium

SERIAL DILUTION

Denver					SERI	AL D	LUII	ON
Method: 6020 (ICP/MS)		ICPMS_0	24		Reported	: 07/22/0	9 08:07	7:22
Department: 090 (Metals)						Source:	Spreads	sheel
Sample: LGCN3P50		Se	erial Dilution:	50.00	Sample I	Dilution:	10.00	
Instrument: Agilent7500		Chanr	nel 272					
File: AG072109 # 32		Method	d 6020					
Acquired: 07/21/2009 18:47:00			S 024		Matrix	: AQUE	ous	
Calibrated: 07/21/2009 17:28:0	0					nits: ug/l		
CASN Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7 Beryllium	9		0	0.11200	100		*	
7440-62-2 Vanadium	51	5166	21.480	21.630	0.693		*	
7440-47-3 Chromium	52	6495	14.490	6.3200	129		*	
7439-96-5 Manganese	55	3291	7.5700	5.2420	44.4		*	
7440-48-4 Cobalt	59	213	0.51000	0.38970	30.9		*	
7440-02-0 Nickel	60	897	12.880	4.1490	210		*	
7440-50-8 Copper	63	553	-0.59100	0.16740	453		*	
7440-66-6 Zinc	66	485	4.5335	3.0510	48.6		*	
7440-38-2 Arsenic	75	5677	194.90	198.10	1.62	0.21	NC	☑
7782-49-2 Selenium	78	557	2.2740	4.9420	54.0	0.70	NC	₹
7439-98-7 Molybdenum	95	1283	15.660	16.440	4.74		*	
7440-22-4 Silver	107	40	0.13490	0.08632	56.3		*	
7440-43-9 Cadmium	111	15	0.19425	0.13340	45.6		*	
7440-31-5 Tin	118	837	-26.330	-5.3380			*	
7440-36-0 Antimony	121	160	0.87700	0.48280	81.6		*	
7440-39-3 Barium	137	2169	32.995	33.070	0.227		*	
7440-28-0 Thallium	205	250	0.05780	0.26950	78.6		*	
7439-92-1 Lead	208	484	0.30480	0.16410	85.7		*	
7440-61-1 Uranium	238	40915	55.100	55.050	0.0908		*	
7440-29-1 Thorium	232	3247	4.6955	6.2410	24.8		*	
7439-93-2 Lithium	6			0			*	
7440-20-2 Scandium	45			0			*	
7440-74-6 Indium	115			0			*	

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E: Difference greater than Limit (10%)

0

0

72

165

Reviewed by: Date: 7 IDB Reports TestAmerica, Inc. Version: 6.02,068

Post Digestion Spiked Sample (PDS) QC Report

C:\ICPCHEM\1\DATA\AG072109.B\033PDS.D\033PDS.D# Data File:

Jul 21 2009 06:50 pm Date Acquired: QC Summary:

NormISIS.M Acq. Method: Analytes: Pass Operator: TEL ISTD: Pass

LGCN3Z Sample Name:

POST DIGESTION SPIKE Misc Info:

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: PDS Prep Dil. Factor: 1.00 Undiluted 1.00 Autodil Factor: Final Dil Factor: 1.00

Spike Ref. File: ___

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	200.50	0.01	ppb	2.01	200	100.2	75 - 125	
51 V	72	1	199.90	2.16	ppb	1.11	200	98.9	75 - 125	
52 Cr	72	1	201.70	0.63	ppb	1.61	200	100.5	75 - 125	
55 Mn	72	1	198.30	0.52	ppb	1.60	200	98.9	75 - 125	
59 Co	72	1	195.50	0.04	ppb	2.21	200	97.7	75 - 125	
60 Ni	72	1	195.10	0.41	ppb	0.98	200	97.3	75 - 125	
63 Cu	72	1	195.80	0.02	ppb	0.06	200	97.9	75 - 125	
66 Zn	72	1	201.20	0.31	ppb	1.52	200	100.4	75 - 125	
75 As	72	1	221.60	19.81	ppb	1.14	200	100.8	75 - 125	
78 Se	72	1	205.80	0.49	ppb	1.72	200	102.6	75 - 125	
95 Mo	72	1	206.50	1.64	ppb	1.30	200	102.4	75 - 125	
107 Ag	115	1	48.42	0.01	ppb	1.14	50	96.8	75 - 125	
111 Cd	115	1	199.60	0.01	ppb	0.85	200	99.8	75 - 125	
118 Sn	115	1	182.90	-0.53	ppb	0.64	200	91.7	75 - 125	
121 Sb	115	1	200.40	0.05	ppb	0.62	200	100.2	75 - 125	
137 Ba	115	1	204.10	3.31	ppb	0.79	200	100.4	75 - 125	
205 Tl	165	1	196.40	0.03	ppb	0.92	200	98.2	75 - 125	
208 Pb	165	1	194.00	0.02	ppb	0.57	200	97.0	75 - 125	
232 Th	1.65	1	0.06	0.62	ppb	5.86	200	0.0	75 - 125	
238 U	165	1	208.90	5.51	ppb	1.19	200	101.7	75 - 125	
ISTD E1	ements									

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC
6 Li	1	552017	0.97	581797	94.9	30 - 120	
45 Sc	1	2393086	1.79	2574983	92.9	30 - 120	
72 Ge	1	1113187	1.37	1211627	91.9	30 - 120	
115 In	1	3182521	0.72	3426576	92.9	30 - 120	
165 Ho	1	5376631	0.55	5647086	95.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\ICPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed Flag

Denver

SAMPLE SPIKE

Method: 6020 (ICP/MS)	ICPMS_024		Reported: 07/22/09	9 08:07:27
Department: 090 (Metals)			Source: \$	Spreadsheet
Sample: LGCN3Z	Spike Dilution:	1.00	Sample Dilution:	10.00
Instrument: Agilent7500	Channel 272			
File: AG072109 # 33	Method 6020			

Acquired: 07/21/2009 18:50:00	ICPMS_024	Matrix: AQUEOUS
Calibrated: 07/21/2009 17:28:00		Units: ug/L

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7	Beryllium	9	116367	200.50	0.01120	100	200		
7440-62-2	Vanadium	51	2276200	199.90	2.1630	98.9	200		
7440-47-3	Chromium	52	2295910	201.70	0.63200	101	200		
7439-96-5	Manganese	55	2733570	198.30	0.52420	98.9	200		
7440-48-4	Cobalt	59	2753080	195.50	0.03897	97.7	200		
7440-02-0	Nickel	60	601491	195.10	0.41490	97.3	200		
7440-50-8	Copper	63	1409320	195.80	0.01674	97.9	200		
7440-66-6	Zinc	66	341573	201.20	0.30510	100	200		
7440-38-2	Arsenic	75	305470	221.60	19.810	102	200		\square
7782-49-2	Selenium	78	55960	205.80	0.49420	(103)	200		
7439-98-7	Molybdenum	95	760715	206.50	1.6440	102	200		
7440-22-4	Silver	107	525638	48.420	0.00863	96.8	50.0		
7440-43-9	Cadmium	111	447213	199.60	0.01334	99.8	200		
7440-31-5	Tin	118	1194630	182.90	-0.53380	91.4	200		
7440-36-0	Antimony	121	1511700	200.40	0.04828	100	200		
7440-39-3	Barium	137	634553	204.10	3.3070	100	200		
7440-28-0	Thallium	205	5056800	196.40	0.02695	98.2	200		
7439-92-1	Lead	208	6807220	194.00	0.01641	97.0	200		
7440-61-1	Uranium	238	7672550	208.90	5.5050	102	200		
7440-29-1	Thorium	232	2147	0.05994	0.62410				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by: Date: 7/21/1

IDB Reports TestAmerica, Inc. Version: 6.02.068

View Page 1 of 1

ISTD: Pass

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\034_MS.D\034_MS.D#

Jul 21 2009 06:52 pm Date Acquired: QC Summary: NormISIS.M Acq. Method: Analytes: Pass

 \mathtt{TEL} Operator:

LGCN3S 10X Sample Name: MATRIX SPIKE Misc Info:

2301 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MS Prep Dil. Factor: 10.00 Undiluted Autodil Factor: 10.00 Final Dil Factor:

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.28	0.01	ppb	3.84	40	10.7	50 - 150
51 V	72	1	6.27	2.16	ppb	1.52	40	14.9	50 - 150
52 Cr	72	1	4.83	0.63	ppb	4.02	40	11.9	50 - 150
55 Mn	72	1	4.67	0.52	ppb	0.82	40	11.5	50 - 150
59 Co	72	1	4.21	0.04	ppb	1.66	40	10.5	50 - 150
60 Ni	72	1	4.58	0.41	ppb	2.25	40	11.3	50 - 150
63 Cu	72	1	4.24	0.02	ppb	2.92	40	10.6	50 - 150
66 Zn	72	1	4.53	0.31	ppb	4.27	40	11.2	50 - 150
75 As	72	1	23.45	19.81	ppb	0.47	40	39.2	50 - 150
78 Se	72	1	4.43	0.49	ppb	4.58	40	10.9	50 - 150
95 Mo	72	1	6.07	1.64	ppb	2.05	40	14.6	50 - 150
107 Ag	115	1	4.06	0.01	ppb	2.34	40	10.2	50 - 150
111 Cd	115	1	4.28	0.01	ppb	1.30	40	10.7	50 - 150
118 Sn	115	1	-0.29	-0.53	ppb	8.52	40	-0.7	50 - 150
121 Sb	115	1	4.37	0.05	ppb	0.90	40	10.9	50 - 150
137 Ba	115	1	7.57	3.31	ppb	1.41	40	17.5	50 - 150
205 Tl	165	1	4.37	0.03	ppb	0.09	40	10.9	50 - 150
208 Pb	165	1	4.34	0.02	ppb	0.98	40	10.9	50 - 150
232 Th	165	1	4.70	0.62	ppb	2.44	40	11.6	50 - 150
238 U	165	1	10.08	5.51	ppb	0.80	40	22.2	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	556944	0.45	581797	95.7	30 - 120
45 Sc	1	2377843	1.11	2574983	92.3	30 - 120
72 Ge	1	1122514	1.35	1211627	92.6	30 - 120
115 In	1	3221254	0.75	3426576	94.0	30 - 120
165 Но	1	5362470	0.23	5647086	95.0	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\035 CCV.D\035 CCV.D#

Date Acquired: Jul 21 2009 06:55 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Elemer	ts

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.42	ppb	1.97	50	98.8	90 - 110	
51	V	72	1	48.32	ppb	0.92	50	96.6	90 - 110	
52	Cr	72	1	48.98	ppb	0.92	50	98.0	90 - 110	
55	Mn	72	1	48.41	ppb	0.46	50	96.8	90 - 110	
59	Co	72	1	49.42	ppb	0.37	50	98.8	90 - 110	
60	Ni	72	1	49.85	ppb	0.52	50	99.7	90 - 110	
63	Cu	72	1	50.16	ppb	0.84	50	100.3	90 - 110	
66	Zn	72	1	49.95	ppb	0.90	50	99.9	90 - 110	
75	As	72	1	50.23	ppb	0.25	50	100.5	90 - 110	
78	Se	72	1	50.22	ppb	2.05	50	100.4	90 - 110	
95	Мо	72	1	50.05	ppb	0.52	50	100.1	90 - 110	
107	Ag	115	1	49.31	ppb	0.59	50	98.6	90 - 110	
111	Cd	115	1	49.60	ppb	0.17	50	99.2	90 - 110	
118	Sn	115	1	49.20	ppb	0.37	50	98.4	90 - 110	
121	Sb	115	1	49.37	ppb	0.88	50	98.7	90 - 110	
137	Ва	115	1	49.60	ppb	0.50	50	99.2	90 - 110	
205	Tl	165	1	50.85	ppb	1.38	50	101.7	90 - 110	
208	Pb	165	1	50.56	ppb	0.82	50	101.1	90 - 110	
232	Th	165	1	52.19	ppb	3.26	50	104.4	90 - 110	
238	U	165	1	51.93	ppb	1.69	50	103.9	90 - 110	

ISTD Elements

Eler	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	540158	0.94	581797	92.8	30 - 120	
45	Sc	1	2438139	1.30	2574983	94.7	30 - 120	
72	Ge	1	1153755	0.36	1211627	95.2	30 - 120	
115	In	1	3309113	0.86	3426576	96.6	30 - 120	
165	Но	1	5464053	0.74	5647086	96.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\036 CCB.D\036 CCB.D#

Date Acquired: Jul 21 2009 06:58 pm

QC Summary: Operator: TELAnalytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

	O.C	El	emen	ts
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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	-0.003	ppb	487.71	1.00	
52 Cr	72	1	-0.001	ppb	1245.80	1.00	
55 Mn	72	1	-0.013	ppb	48.53	1.00	
59 Co	72	1	0.000	ppb	382.88	1.00	
60 Ni	72	1	-0.006	ppb	152.58	1.00	
63 Cu	72	1	-0.033	ppb	14.97	1.00	
66 Zn	72	1	0.013	ppb	162.14	1.00	
75 As	72	1	-0.001	ppb	1279.80	1.00	
78 Se	72	1	0.044	ppb	96.85	1.00	
95 Mo	72	1	0.048	ppb	21.21	1.00	
107 Ag	115	1	0.007	ppb	13.19	1.00	
111 Cd	115	1	0.004	ppb	36.72	1.00	
118 Sn	115	1	-0.066	ppb	28.84	1.00	
121 Sb	115	1	0.060	ppb	6.65	1.00	
137 Ba	115	1	0.010	ppb	78.17	1.00	
205 Tl	165	1	0.019	ppb	11.00	1.00	
208 Pb	165	1	0.004	ppb	45.34	1.00	
232 Th	165	1	0.795	ppb	15.81	1.00	
238 U	165	1	0.011	ppb	4.95	1.00	

ISTD Elements

TOTO HIGHORY							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	552374	0.81	581797	94.9	30 - 120	
45 Sc	1	2446795	1.11	2574983	95.0	30 - 120	
72 Ge	1	1178029	1.15	1211627	97.2	30 - 120	
115 In	1	3329395	0.66	3426576	97.2	/ 30 - 120	
165 Ho	1	5475567	0.43	5647086	97.0 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\		
Tune File#	3	C:\ICPCHEM\	1\7500\		<u> </u>		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Wash QC Report

Data File:

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Date Acquired:

Jul 21 2009 07:01 pm

Operator:

TEL

QC Summary:

Sample Name:

RLCV

Analytes: Pass

Misc Info:

ISTD: Pass

Vial Number:

1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type:

WASH

Total Dil Factor:

1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.001 ppb	9.18	1.30	
51 V	72	1	5.141 ppb	2.55	6.50	
52 Cr	72	1	2.091 ppb	2.49	2.60	
55 Mn	72	1	1.005 ppb	1.26	1.30	
59 Co	72	1	1.028 ppb	5.10	1.30	
60 Ni	72	1	2.103 ppb	0.94	2.60	
63 Cu	72	1	2.128 ppb	2.55	2.60	
66 Zn	72	1	10.560 ppb	2.59	13.00	
75 As	72	1	5.192 ppb	0.09	6.50	
78 Se	72	1	6.309 ppb	1.74	6.50	
95 Mo	72	1	2.070 ppb	2.44	2.60	
107 Ag	115	1	5.185 ppb	1.03	6.50	
111 Cd	115	1	1.087 ppb	10.27	1.30	
118 Sn	115	1	9.916 ppb	0.55	13.00	
121 Sb	115	1	1.957 ppb	2.80	2.60	
137 Ba	115	1	1.051 ppb	2.71	1.30	
205 Tl	165	1	1.091 ppb	2.87	1.30	
208 Pb	165	1	1.075 ppb	0.84	1.30	
232 Th	165	1	2.350 ppb	2.29	2.60	
238 U	165	1	1.116 ppb	0.75	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	550628	0.54	581797	94.6	30 - 120	
45 Sc	1	2456537	0.83	2574983	95.4	30 - 120	
72 Ge	1	1156394	1.08	1211627	95.4	30 - 120	
115 In	1	3321593	0.50	3426576	96.9	30 - 120	
165 Ho	1	5496023	1.28	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :ISTD Failures

0 :Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\038 MSD.D\038 MSD.D#

Date Acquired: Jul 21 2009 07:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3D 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\034 MS.D\034 MS.D\#

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	6	1	4.06	ppb	5.70	4.28	5.18	20	
51 V	72	1	6.38	ppb	1.64	6.27	1.79	20	
52 Cr	72	1	4.79	ppb	0.59	4.83	0.85	20	
55 Mn	72	1	4.66	ppb	1.04	4.67	0.34	20	
59 Co	72	1	4.26	ppb	3.02	4.21	1.11	20	
60 Ni	72	1	4.59	ppb	3.03	4.58	0.15	20	
63 Cu	72	1	4.29	ppb	0.78	4.24	1.17	20	
66 Zn	72	1	4.59	ppb	2.90	4.53	1.23	20	
75 As	72	1	23.78	ppb	1.59	23.45	1.40	20	
78 Se	72	1	4.84	ppb	10.22	4.43	8.78	20	
95 Mo	72	1	5.96	ppb	2.88	6.07	1.73	20	
107 Ag	115	1	4.19	ppb	3,60	4.06	2.98	20	
111 Cd	115	1	4.27	ppb	1.75	4.28	0.12	20	
118 Sn	115	1	-0.49	ppb	0.60	-0.29	-50.16	20	
121 Sb	115	1	4.30	ppb	1.48	4.37	1.66	20	
137 Ba	115	1	7.66	ppb	3.26	7.57	1.09	20	
205 Tl	165	1	4.33	ppb	1.08	4.37	0.87	20	
208 Pb	165	1	4.32	ppb	0.78	4.34	0.44	20	
232 Th	165	1	4.77	ppb	2.43	4.70	1.33	20	
238 U	165	1	9.96	ppb	0.82	10.08	1.22	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	546064	0.27	581797	93.9	30 - 120	
45 Sc	1	2359431	0.90	2574983	91.6	30 - 120	
72 Ge	1	1104590	0.97	1211627	91.2	30 - 120	
115 In	1	3149159	0.41	3426576	91.9	30 - 120	
165 Ho	1	5369723	0.97	5647086	95.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\039SMPL.D\039SMPL.D#

Date Acquired: Jul 21 2009 07:06 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGCQK 10X ISTD: Pass

Misc Info: D9G100274
Vial Number: 2303

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	23.68	2.37	ppb	1.85	3600	
52 Cr	72	1	12.40	1.24	ppb	2.95	3600	
55 Mn	72	1	2.12	0.21	ppb	8.12	3600	
59 Co	72	1	0.30	0.03	ppb	7.53	3600	
60 Ni	72	1	3.33	0.33	ppb	5.22	3600	
63 Cu	72	1	-0.20	-0.02	ppb	5.61	3600	
66 Zn	72	1	2.60	0.26	ppb	8.14	3600	
75 As	72	1	114.20	11.42	ppb	1.08	3600	
78 Se	72	1	2.84	0.28	ppb	68.00	3600	
95 Mo	72	1	42.30	4.23	ppb	2.35	3600	
107 Ag	115	1	0.07	0.01	ppb	37.85	3600	
111 Cd	115	1	0.07	0.01	ppb	133.86	3600	
118 Sn	115	1	-5.30	-0.53	ppb	2.37	3600	
121 Sb	115	1	0.28	0.03	ppb	5.21	3600	
137 Ba	115	1	34.03	3.40	ppb	4.11	3600	
205 Tl	165	1	0.11	0.01	ppb	30.92	3600	
208 Pb	165	1	0.09	0.01	ppb	19.12	3600	
232 Th	165	1	1.32	0.13	ppb	13.37	1000	
238 U	165	1	6.45	0.64	ppb	0.89	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551022	0.60	581797	94.7	30 - 120	
45 Sc	1	2336691	0.75	2574983	90.7	30 - 120	
72 Ge	1	1100169	0.92	1211627	90.8	30 - 120	
115 In	1	3126709	0.78	3426576	91.2	30 - 120	
165 Ho	1	5251243	0.64	5647086	93.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\040SMPL.D\040SMPL.D#

Date Acquired: Jul 21 2009 07:09 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJV 10X ISTD: Pass

Misc Info: D9G110152
Vial Number: 2304

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.12	0.01	ppb	86.63	3600	
51 V	72	1	16.34	1.63	ppb	14.05	3600	
52 Cr	72	1	858.20	85.82	ppb	0.42	3600	
55 Mn	72	1	62.25	6.23	ppb	0.82	3600	
59 Co	72	1	0.35	0.04	ppb	4.83	3600	
60 Ni	72	1	3.24	0.32	ppb	5.41	3600	
63 Cu	72	1	-0.11	-0.01	ppb	134.88	3600	
66 Zn	72	1	0.97	0.10	ppb	20.21	3600	
75 As	72	1	137.30	13.73	ppb	1.37	3600	
78 Se	72	1	1.53	0.15	ppb	126.27	3600	
95 Mo	72	1	23.17	2.32	ppb	1.07	3600	
107 Ag	115	1	0.03	0.00	ppb	74.34	3600	
111 Cd	115	1	0.05	0.00	ppb	97.57	3600	
118 Sn	115	1	-5.16	-0.52	ppb	3.23	3600	
121 Sb	115	1	0.22	0.02	ppb	2.16	3600	
137 Ba	115	1	20.27	2.03	ppb	4.70	3600	
205 Tl	165	1	0.11	0.01	ppb	13.97	3600	
208 Pb	165	1	0.08	0.01	ppb	23.24	3600	
232 Th	165	1	0.36	0.04	ppb	9.36	1000	
238 U	165	1	7.67	0.77	ppb	2.40	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	549478	0.91	581797	94.4	30 - 120	
45 Sc	1	2376723	1.71	2574983	92.3	30 - 120	
72 Ge	1	1096432	0.47	1211627	90.5	30 - 120	
115 In	1	3124200	0.99	3426576	91.2	30 - 120	
165 Ho	1	5324718	1.58	5647086	94.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\041SMPL.D\041SMPL.D#

Date Acquired: Jul 21 2009 07:11 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJ3 10X ISTD: Pass

Misc Info: D9G110155
Vial Number: 2305

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.06	0.01	ppb	173.23	3600	
51 V	72	1	25.99	2.60	ppb	1.41	3600	
52 Cr	72	1	90.81	9.08	ppb	1.84	3600	
55 Mn	72	1	2.28	0.23	ppb	3.91	3600	
59 Co	72	1	0.28	0.03	ppb	8.82	3600	
60 Ni	72	1	3.42	0.34	ppb	10.30	3600	
63 Cu	72	1	-0.03	0.00	ppb	414.27	3600	
66 Zn	72	1	9.09	0.91	ppb	0.15	3600	
75 As	72	1	86.50	8.65	ppb	2.13	3600	
78 Se	72	1	1.59	0.16	ppb	168.68	3600	
95 Mo	72	1	35.52	3.55	ppb	3.38	3600	
107 Ag	115	1	0.02	0.00	ppb	63.47	3600	
111 Cd	115	1	0.11	0.01	ppb	91.74	3600	
118 Sn	115	1	-5.25	-0.52	ppb	1.50	3600	
121 Sb	115	1	0.16	0.02	ppb	27.09	3600	
137 Ba	115	1	26.05	2.61	ppb	2.24	3600	
205 Tl	165	1	0.06	0.01	ppb	15.71	3600	
208 Pb	165	1	0.10	0.01	ppb	12.74	3600	
232 Th	165	1	0.18	0.02	ppb	32.01	1000	
238 U	165	1	8.01	0.80	ppb	0.86	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	558798	0.28	581797	96.0	30 - 120	
45 Sc	1	2360484	0.64	2574983	91.7	30 - 120	
72 Ge	1	1106065	0.59	1211627	91.3	30 - 120	
115 In	1	3160658	0.73	3426576	92.2	30 - 120	
165 Ho	1	5332925	0.28	5647086	94.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\042SMPL.D\042SMPL.D#

Date Acquired: Jul 21 2009 07:14 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDKR 10X ISTD: Pass

Misc Info: D9G110159

Vial Number: 2306

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	30.44	3.04	ppb	4.27	3600	
52 Cr	72	1	17.70	1.77	ppb	1.53	3600	
55 Mn	72	1	3.41	0.34	ppb	1.05	3600	
59 Co	72	1	0.10	0.01	ppb	35.67	3600	
60 Ni	72	1	2.63	0.26	ppb	23.26	3600	
63 Cu	72	1	-0.14	-0.01	ppb	158.27	3600	
66 Zn	72	1	1.23	0.12	ppb	9.20	3600	
75 As	72	1	57.13	5.71	ppb	1.32	3600	
78 Se	72	1	2.47	0.25	ppb	139.38	3600	
95 Mo	72	1	7.30	0.73	ppb	2.20	3600	
107 Ag	115	1	0.01	0.00	ppb	150.52	3600	
111 Cd	115	1	0.05	0.00	ppb	86.56	3600	
118 Sn	115	1	-5.31	-0.53	ppb	1.46	3600	
121 Sb	115	1	0.12	0.01	ppb	36.48	3600	
137 Ba	115	1 .	22.02	2.20	ppb	2.09	3600	
205 Tl	165	1	0.03	0.00	ppb	69.45	3600	
208 Pb	165	1	0.07	0.01	ppb	7.65	3600	
232 Th	165	1	0.10	0.01	ppb	23.71	1000	
238 U	165	1	2.22	0.22	ppb	2.65	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	564989	0.50	581797	97.1	30 - 120	
45 Sc	1	2392180	0.44	2574983	92.9	30 - 120	
72 Ge	1	1130770	0.41	1211627	93.3	30 - 120	
115 In	1	3228355	1.24	3426576	94.2	30 - 120	
165 Ho	1	5420266	0.22	5647086	96.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\043 CCV.D\043 CCV.D#

Date Acquired: Jul 21 2009 07:17 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.65	ppb	2.08	50	99.3	90 - 110	
51	V	72	1	48.04	ppb	1.47	50	96.1	90 - 110	
52	Cr	72	1	48.72	ppb	2.23	50	97.4	90 - 110	
55	Mn	72	1	48.53	ppb	1.91	50	97.1	90 - 110	
59	Co	72	1	49.19	ppb	1.05	50	98.4	90 - 110	
60	Ni	72	1	50.51	ppb	2.15	50	101.0	90 - 110	
63	Cu	72	1	50.79	ppb	1.69	50	101.6	90 - 110	
66	Zn	72	1	49.91	ppb	2.28	50	99.8	90 - 110	
75	As	72	1	50.09	ppb	1.74	50	100.2	90 - 110	
78	Se	72	1	50.55	ppb	0.24	50	101.1	90 - 110	
95	Мо	72	1	50.44	ppb	2.04	50	100.9	90 - 110	
107	Ag	115	1	49.47	ppb	1.12	50	98.9	90 - 110	
111	Cd	115	1	49.64	ppb	0.86	50	99.3	90 - 110	
118	Sn	115	1	49.52	ppb	0.62	50	99.0	90 - 110	
121	Sb	115	1	49.46	ppb	1.50	50	98.9	90 - 110	
137	Ва	115	1	49.75	ppb	0.64	50	99.5	90 - 110	
205	Tl	165	1	52.25	ppb	1.18	50	104.5	90 - 110	
208	Pb	165	1	51.38	ppb	1.02	50	102.8	90 - 110	
232	Th	165	1	53.11	ppb	2.44	50	106.2	90 - 110	
238	U	165	1	53.01	ppb	0.71	50	106.0	90 - 110	
		ments								
Eler	nent		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)		Flag
6	Li		1	536974		0.53	581797	92.3	30 - 120	
45	Sc		1	2404825		0.90	2574983	93.4	30 - 120	

Tune	File#	1	$c:\icpchem\1\7500\he.u$
Tune	File#	2	C:\ICPCHEM\1\7500\
Tune	File#	3	C:\ICPCHEM\1\7500\

1

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ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

1144216

3295604

5413800

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

1.59

0.45

0.49

1211627

3426576

5647086

94.4

96.2

95.9

72 Ge

115 In

165 Ho

30 - 120

30 - 120

30 - 120

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\044 CCB.D\044 CCB.D#

Date Acquired: Jul 21 2009 07:20 pm

Operator: TEL QC Summary:
Sample Name: CCB Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB
Total Dil Factor: 1.00

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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	0.012	ppb	188.91	1.00	
52 Cr	72	1	-0.022	ppb	45.87	1.00	
55 Mn	72	1	-0.011	ppb	53.82	1.00	
59 Co	72	1	0.002	ppb	121.88	1.00	
60 Ni	72	1	0.007	ppb	120.83	1.00	
63 Cu	72	1	-0.039	ppb	12.93	1.00	
66 Zn	72	1	0.001	ppb	1830.70	1.00	
75 As	72	1	-0.015	ppb	100.54	1.00	
78 Se	72	1	0.063	ppb	454.20	1.00	
95 Mo	72	1	0.016	ppb	20.60	1.00	
107 Ag	115	1	0.010	ppb	21.43	1.00	
111 Cd	115	1	0.005	ppb	76.54	1.00	
118 Sn	115	1	-0.106	ppb	36.09	1.00	
121 Sb	115	1	0.051	ppb	15.99	1.00	
137 Ba	115	1	0.010	ppb	31.85	1.00	
205 Tl	165	1	0.020	ppb	11.21	1.00	
208 Pb	165	1	0.003	ppb	16.50	1.00	
232 Th	165	1	0.824	ppb	16.14	1.00	
238 U	165	1	0.009	ppb	11.26	1.00	

ISTD Elements

ISTD Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540872	0.73	581797	93.0	30 - 120	
45 Sc	1	2418946	1.22	2574983	93.9	30 - 120	
72 Ge	1	1139717	0.72	1211627	94.1	30 - 120	
115 In	1	3281751	0.37	3426576	95.8	30 - 120	
165 Ho	1	5438318	1.15	5647086	96.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\checkmark		
Tune File#	3	C:\ICPCHEM\	1\7500\				

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\045WASH.D\045WASH.D#

Date Acquired: Jul 21 2009 07:22 pm

Operator: TEL QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.045 ppb	12.08	1.30	
51 V	72	1	5.035 ppb	1.01	6.50	
52 Cr	72	1	2.023 ppb	2.27	2.60	
55 Mn	72	1	1.007 ppb	2.81	1.30	
59 Co	72	1	1.000 ppb	4.78	1.30	
60 Ni	72	1	2.095 ppb	4.44	2.60	
63 Cu	72	1	2.025 ppb	2.63	2.60	
66 Zn	72	1	10.370 ppb	2.29	13.00	
75 As	72	1	5.157 ppb	1.05	6.50	
78 Se	72	1	4.848 ppb	12.40	6.50	
95 Mo	72	1	2.162 ppb	0.74	2.60	
107 Ag	115	1	5.141 ppb	1.03	6.50	
111 Cd	115	- 1	1.004 ppb	4.06	1.30	
118 Sn	115	1	9.907 ppb	0.76	13.00	
121 Sb	115	1	1.942 ppb	1.51	2.60	
137 Ba	115	1	1.047 ppb	5.14	1.30	
205 Tl	165	1	1.098 ppb	0.61	1.30	
208 Pb	165	1	1.094 ppb	0.45	1.30	
232 Th	165	1	2.411 ppb	1.64	2.60	
238 U	165	1	1.121 ppb	1.49	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	539872	0.98	581797	92.8	30 - 120	
45 Sc	1	2370772	1.41	2574983	92.1	30 - 120	
72 Ge	1	1136181	1.05	1211627	93.8	30 - 120	
115 In	1	3268605	0.72	3426576	95.4	30 - 120	
165 Ho	1	5404596	1.26	5647086	95.7	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Lot ID:	19 9100274	
Client:	Northgate Environmental	
Batch(es) #:	9194272	
Associated Samples:		
	e best of my knowledge, the attached package lete and accurate copy of the original data.	
Signature/Date:	12 fill 7/22/09	

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr	
D9G100274	1	SE	LGCQK1A	20090721	6020TOTA	9194272	AG072109	024	
D9G100274	1	AS	LGCQK1A	20090721	6020TOTA	9194272	AG072109	024	

Wednesday, July 22, 2009

METALS PREPARATION LOGS ICP-MS



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 310

Batch Number: 9194272

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
JAM	

Due Date:

Lot	Work Order		Due Date:	01122109	Initial Weight/Volume
D9G130000 Water	LGEER	В	Due Date: SDG:		<u>50 mL</u>
D9G130000 Water	LGEER	С	Due Date: SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total	S	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total	D	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100274 Water	LGCQK Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G110152 Water	LGDJV Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G110155 Water	LGDJ3 Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G110159 Water	LGDKR Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>

Comments:

Whenked B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAM

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	9194272	ALLIQ	UOTTED BY:	JKH
PREP DATE:	7/14/2009	DIGES	TED BY:	JRW
CONSUMABLES	USED		***	
Digestion Cups:	Manufacturer:	Environmental Express	Lot #:	A901LS267
One or more samples	were filtered prior to an	alysis at the instrume	nt. Yes	☐ No
If "yes", then the metho	od blank and the LCS were	e also filtered in the sam	e manner using the sam	ne type of filter.
			Analyst(s) Initials:	
STANDARDS USE	ED.			
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID
2008Cal-1	STD-2636-09	7/1/10	100uL	15
2008Cal-2	STD-2635-09	7/1/10	100uL	15
				Andrew Control (1998)
REAGENTS USED)			
Reagent	Manufacturer	Lot#	Volume Used (mL)	
HNO ₃	JT Baker	H12022	3	
TEMPERATURE C	CYCLES			
Thermometer ID:	2884	Block 8	k Cup # :	·
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)
HNO3	1200	43	1615	42
HNO3	1630	92	(פנדו	
HNO3				
Samples and QC re	volumed to:	50mL	Analyst's Initials	JRW
COMMENTS:				
	nation above is correct a	and complete.	,	
Signature: In Wil	l		Date: 7(14)	24

TestAmerica 312

METALS SAMPLE DATA ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 313

G:\Metals\Hidden\Forms\MassSpec\ICP-MS Std and Spike True Values.doc

ICP-MS Standard and Spike True Values

Interference Check Interference Laboratory Matrix Spike Sample A Check Control Sample and Diplicate Duplicate S	n 40 40	50 100,000 Calcium 100 40 40 200 50 50 100,000 Iron 100 700 40 40 200	um 100 40 40	100 40 40	50 100,000 Phosphorus 100 40 40 200		50 100,000 Sulfur 100 40 40 200	200,000 Carbon 100 40 40	1,000,000 Chloride 100 40 40	50 2000 Molybdenum 40 40 200	50 2000 Titanium 100 40 40 200	100 40 40	100 40 40	100 40 40	50 40 40 200	50 40 40 200	100 40 40	100 40 40	50 100 40 40 200	Due to the presence of trace contaminants in the ICSA solution, the % recovery for the
	1 1	100	100	100	100	100	100	100	100	•	100	100	100	100	100	100	100	100	100	n the ICSA solu
Interference Check Sample A	100,000 Aluminum	100,000 Calcium 100.000 Iron	100,000 Magnesium	100,000 Sodium	100,000 Phosphorus	100,000 Potassium	100,000 Sulfur	200,000 Carbon	1,000,000 Chloride	2000 Molybdenum	2000 Titanium									bue to the presence of trace contaminants in the ICSA solution, the % recovery for the
Continuing Calibration Standard	50	50 50	50	50	50	20	50	50	50	50	50	50	50	50	50	50	50	50	50	to the presence
Initial Calibration Standard	40	40 40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Cal. Std. 100 ppb	100	9 9	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All units are
Element	Aluminum	Antimony Arsenic	Barium	Bervllium	Cadmium	Chromium	Cobalt	Copper	Lead	Manganese	Molvbdenum	Nickel	Selenium	Silver	Thallium	Tin	Uranium	Vanadium	Zinc	

Quality Control Standards

ICV = Initial Calibration Verification (Second Source) CCV = Continuing Calibration Verification

ICB = Initial Calibration Blank

CCB = Continuing Calibration Blank

TestAmerica Denver

Standards Preparation Logbook Record

Jul-21-2009

Logbook: \\Densvr06\StdsLog\metals.std			
STD4841-08, 1000 Zn (Inorganic Vent	tures)		Analyst: trudelll
Vendor: Inorganic Ventures Lot Solvent: 2% HNO3	No.: B2-ZN02045	Vendor's Expirat	tion Date: 10-01-2009
	e Received: 09-04-200	98	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
1000 Zn		1,000.0	1,000.0
STD6653-08, 1000 Se			Analyst: trudelll
Vendor: Inorganic Ventures Lot Solvent: 2% HNO3	No.: B2-SE02003	Vendor's Expirat	tion Date: 12-01-2009
Date Prep./Opened: 11-25-2008 Date Expires(1): 12-01-2009 (None) Date Expires(2): 12-01-2009 (None) (METALS)-Inventory ID: 803	e Received: 11-25-200	08	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Se		1,000.0	1,000.0
STD1198-09, 1000 mg/L Sn			Analyst: trudelll
Vendor: Inorganic Ventures Lot Solvent: 1% HNO3	No.: B2-SN02016	Vendor's Expira	tion Date: 03-01-2010
Date Prep./Opened: 03-02-2009 Date Expires(1): 03-01-2010 (None) Date Expires(2): 03-01-2010 (None) (METALS)-Inventory ID: 833	te Received: 03-02-200)9	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Sn		1,000.0	1,000.0
STD1853-09, 1 mg/l Se	/		Analyst: DIAZL
Solvent: 5% HN03 Lot Date Prep./Opened: 04-01-2009 Date Expires(1): 12-01-2009 (1 Year) pipette: Met 21	No.: H02026		Volume (ml): 100.00

Page 1 of 11

Parent Std No.: STD6653-08, 1000 Se		t Amount (ml): 0.1000
Parent Date Expires(1): 12-01-2009 Parent Date Expires(2): Component	Illitial Colle (Hight)	Final Conc (mg/L)
Se	1,000.0	1.0000
GED 2611 00 ICD MC 1 nnm Sn/7n		Analyst: DIAZL
STD3611-09, ICP-MS 1ppm Sn/Zn Solvent: 5% HNO3 Lot No.:/H12022		Volume (ml): 10.000
Solvent: 5% HNO3 Lot No.:/H12022 Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)		
Parent Std No.: STD3609-09, ICP-MS 10 ppm Zn		ot Amount (ml): 1.0000
Parent Date Expires(1): 10-01-2009 Parent Date Expires(2): Component	10-01-2009 <u>Initial Conc (mg/L)</u> 10.000	Final Conc (mg/L) 1.0000
1000 Zn		ot Amount (ml): 1.0000
Parent Std No.: STD3610-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 03-01-2010 Parent Date Expires(2):		0(1 mio mio ()
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	10.000	1.0000
AND ASSESSED AND COMMITTED AND HIGH		Analyst: LILLT
STD4008-09, ICP-MS (024) INT STD BRC-HIGH Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 250.00
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		
Parent Std No.: STD1469-09, Germanium Stock	_	ot Amount (ml): 1.2000
Parent Date Expires(1): 03-16-2010 Parent Date Expires(2)	: 04-01-2010	Final Conc (ug/L)
Component	Initial Conc (mg/L) 1,000.0	4,800.0
Ge	•	uot Amount (ml): 1.5000
Parent Std No.: STD1972-09, Lithium 6 Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2) Component): 05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L) 6,000.0
Lithium6	1,000.0	uot Amount (ml): 0.4000
Parent Std No.: STD1973-09, Indium Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2 Component): 05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L) 1,600.0
In	1,000.0	
Parent Std No.: STD6317-08, Scandium Stock		uot Amount (ml): 0.4000
Parent Date Expires(1): 11-10-2009 Parent Date Expires(2 Component	Initial Conc (mg/L)	4 600 0
Sc	1,000.0	1,000.0

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Aliquot Amount (ml): 0.4000 Parent Std No.: STD6318-08, Holmium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2): 12-01-2009 Initial Conc (mg/L) Final Conc (ug/L) Component 1,600.0 1,000.0 Но STD4289-09, ICP-MS ICSA Analyst: DIAZL Volume (ml): 50.000 Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-20-2009 Date Expires(1): 08-20-2009 (1 Month) Date Expires(2): 02-01-2010 (None) pipettes: Met 8 Parent Std No.: STD0664-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 5.0000 Parent Date Expires(1): 02-01-2010 Parent Date Expires(2): 02-01-2010 Final Conc (ug/L) Component Initial Conc (ug/ml) Αl 1,000.0 100,000 C 2,000.0 200,000 1,000.0 100,000 Ca Cl 10,000 1,000,000 1,000.0 100,000 Fe K 1,000.0 100,000 1.000.0 100,000 Mg 20.000 2,000.0 Mo Na 1,000.0 100,000 P 100,000 1,000.0 S 1,000.0 100,000 Ti 2,000.0 20.000 STD4309-09, ICP-MS BLANK Analyst: DIAZL Solvent: Water Volume (ml): 1,000.0 Date Prep./Opened: 07-21-2009 Date Expires(1): 08-21-2009 (1 Month) Date Verified: 12-31--4714 by - (Verification ID: 0)

Aliquot Amount (ml): 50.000

Final Conc (%)

5.0000

Initial Conc (%)

100.00

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Component

HNO3

Parent Std No.: STD4308-09, NITRIC ACID

STD4310-09, ICP-MS 10 ppm Sn

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 03-01-2010 (None)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21 and Met 8

Parent Std No.: STD1198-09, 1000 mg/L Sn Aliquot Amount (ml): 0.1000

Analyst: DIAZL

Volume (ml): 10.000

Analyst: DIAZL

Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): 03-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (mg/L)}} \\ \underline{\text{Sn}} & \underline{1,000.0} & \underline{10.000} \end{array}$

STD4311-09, ICP-MS 100 ppb cal

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 50.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 20

Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures Aliquot Amount (ml): 0.2500

Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010

Component	Initial Conc (mg/L)	Final Conc (ug/L)
V	20.000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
Tl	20.000	100.00
U	20.000	100.00

Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures Aliquot Amount (ml): 0.2500 Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (ug/L)}} \\ \underline{\text{Mo}} & \underline{20.000} & \underline{100.00} \end{array}$

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Sb	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquot	Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
Fe	1,000.0	5,000.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Aliquot	Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Exp	pires(2): 03-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Sn	10.000	100.00
TD4312-09, ICP-MS CCV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H1202	22	Volume (ml): 100.00
Date Prep./Opened: 07-21-2009		volume (iii). 100.00
Date Expires(1): 07-22-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Ino	2	Amount (ml): 0.2500
• ' '	pires(2): 05-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
V	20.000	50.000
Zn	20.000	50.000
Ag	20.000	50.000
Al	20.000	50.000
As	20.000	50.000
Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000
Mn	20.000	50.000
Ni	20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Ino	organic Ventures Aliquot	Amount (ml): 0.2500
·	pires(2): 07-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
Mo	20.000	50.00
Sb	20.000	50.00
Parent Std No.: STD3862-09, Iron Stock	Aliquot	Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L
Component	minu Conc (mg/L)	I mai cone (ag/L

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Fe	1,000.0	2,500.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Alique	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	, ,
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	10.000	50.000
Sn	10.000	30.000
STD4313-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 07-21-2009		` ,
Date Expires(1): 07-22-2009 (1 Day)		
pipettes: Met 21 and Met 8		
p.pentest inter 24 main and 6		
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Alique	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	1.0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4311-09, ICP-MS 100 ppb cal	Δlique	ot Amount (ml): 0.1000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	ot Amount (im). 0.1000
Component	Initial Conc (ug/L)	Final Conc (mg/L)
		0.0010
V	100.00 100.00	0.0010
Zn	100.00	0.0010
Ag Al	100.00	0.0010
As	100.00	0.0010
Ba	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010
Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010
Ni	100.00	0.0010
Pb	100.00	0.0010
Se	100.00	0.0010
Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
Ma	100.00	0.0010

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Mo

Sb

Fe Sn 0.0010

0.0010

0.0500 0.0010

100.00 100.00

5,000.0 100.00

STD4314-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Analyst: DIAZL

Analyst: DIAZL

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4313-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Tl	0.0010	0.0002
U	0.0010	0.0002
Mo	0.0010	0.0002
Sb	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

STD4315-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 1.0000

Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000

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Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S	1,000.0	100,000
Ti	20.000	2,000.0
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic	Ventures Alique	ot Amount (ml): 0.0500
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2)): 05-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
V	20.000	100.0
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.0
As	20.000	100.0
Ba	20.000	100.0
Be	20.000	100.0
Cd	20.000	100.0
Co	20.000	100.0
Cr	20.000	100.0
Cu	20.000	100.0
Mn	20.000	100.0
Ni	20.000	100.0
Pb	20.000	100.0
Se	20.000	100.0
Th	20.000	100.0
Tl	20.000	100.0
Ü	20.000	100.0
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic	Ventures Aliqu	ot Amount (ml): 0.050
Parent Date Expires(1): 06-23-2010 Parent Date Expires(2)	<u>-</u>	
Component	Initial Conc (mg/L)	Final Conc (ug/L
Mo	20.000	100.0
~ ;	20.000	100.0
Sb	20.000	100.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	<u>-</u>	ot Amount (ml): 0.100
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)): 03-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L
Sn	10.000	100.0
TD4316-09, ICPMS LR STD 1000 ppb		Analyst: DIAZI
·· /		•
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Verified: 12-314714 by - (Verification ID: 0)		Volume (ml): 10.000
pipettes: Met 20 and Met 8		

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Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component	Initial Conc (mg/L)	Final Conc (ug/
V	20.000	
Zn	20.000	1,000
		1,000
Ag Al	20.000	1,000
	20.000	1,000
As	20.000	1,000
Ba	20.000	1,000
Be	20.000	1,000
Cd	20.000	1,000
Co	20.000	1,000
Cr	20.000	1,000
Cu	20.000	1,00
Mn	20.000	1,000
Ni	20.000	1,00
Pb	20.000	1,00
Se	20.000	1,00
Th	20.000	1,00
Tl	20.000	1,00
U	20.000	1,00
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Parent Date Expires(1): 06-23-2010 Parent Date Expires(2)	: 07-01-2010	ot Amount (ml): 0.50
Component	Initial Conc (mg/L)	Final Conc (uga
Mo	20.000	
	20.000	1,000
Sb	20.000	
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Aliqu	1,000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Alique: 03-01-2010	1,000 ot Amount (ml): 1.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component	20.000 Aliqu	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0)	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) Alique	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.00 ot Amount (ml): 0.04
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L)	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000 10.000	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.0 Final Conc (ug/ 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00

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Co	10.000	40.000
Cr	10.000	40.000
Cu	10.000	40.000
Fe	250.00	1,000.0
Li	10.000	40.000
Mn	10.000	40.000
Ni	10.000	40.000
Pb	10.000	40.000
Se	10.000	40.000
Th	10.000	40.000
Tl	10.000	40.000
U	10.000	40.000
V	10.000	40.000
v Zn	10.000	40.000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (H	•	ot Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2)		
Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4318-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 50.000
Parent Std No.: STD1853-09, 1 mg/l Se	Aliquo	ot Amount (ml): 0.1000
Commonweat	Initial Cana (ma/I)	Final Cana (ma/L)
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Se	1.0000	0.0020
STD4319-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 100.00
Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 05-01-2010 (None) pipettes: Met 20		volume (iii). 100.00
Parent Std No.: STD3106-09, ICP-MS LLCCV 1	Alique	ot Amount (ml): 1.0000
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2)	: 05-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Ag	0.5000	5.0000
Ag Al	3.0000	30.000
As	0.5000	5.0000
. 10	0.5000	5.0000

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Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000
Mn	0.1000	1.0000
Na	5.0000	50.000
Ni	0.2000	2.0000
Pb	0.1000	1.0000
Se	0.5000	5.0000
Th	0.2000	2.0000
Tl	0.1000	1.0000
U	0.1000	1.0000
V	0.5000	5.0000
Zn	1.0000	10.000
Parent Std No.: STD3107-09, ICP-MS LLCCV 2	Aliquot Amount	(ml): 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	0.2000	2.0000
Sb	0.2000	2.0000
Sn	1.0000	10.000

LRD 07/21/2009 Reviewed By:

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TestAmerica 325 Denver

RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File II	ID: AG072109 Analyst: TEL							
#	Sample ID	Lot No.	Batch	~~~	DF	Analyzed Date	Comment	Q
2	Cal Blank				1.0	07/21/09 17:25		
3	Cal Blank				1.0	07/21/09 17:28		
4	100 ppb				1.0	07/21/09 17:31		
5	ICV				1.0	07/21/09 17:33		
6	RLIV				1.0	07/21/09 17:36		
7	ICB				1.0	07/21/09 17:39		
8	RL STD				1.0	07/21/09 17:42		
9	AFCEE RL				1.0	07/21/09 17:44		
10	ALTSe				1.0	07/21/09 17:47		
11	ICSA				1.0	07/21/09 17:50		
12	ICSAB				1.0	07/21/09 17:53		
13	RINSE				1.0	07/21/09 17:55		
14	LR				1.0	07/21/09 17:58		
15	RINSE				1.0	07/21/09 18:00		
16	CCV				1.0	07/21/09 18:03		
17	CCB				1.0	07/21/09 18:06		
18	RLCV				1.0	07/21/09 18:09		
19	LGEE4BF	D9G130000	9194274	MD	1.0	07/21/09 18:11		
20	LGEE4CF	D9G130000	9194274	MD	1.0	07/21/09 18:14		
21	LGDJWF 10X	D9G110152-2	9194274	MD	10.0	07/21/09 18:17		
22	LGDJWP50F	D9G110152	9194274		50.0	07/21/09 18:20		
23	LGDJWZF	D9G110152-2	9194274		1.0	07/21/09 18:22		
24	LGDJWSF 10	D9G110152-2	9194274	MD	10.0	07/21/09 18:25		
25	LGDJWDF 10	D9G110152-2	9194274	MD	10.0	07/21/09 18:28		
26	CCV				1.0	07/21/09 18:30		
27	CCB				1.0	07/21/09 18:33		
28	RLCV				1.0	07/21/09 18:36		
29	LGEERB	D9G130000	9194272	MS	1.0	07/21/09 18:39		
30	LGEERC	D9G130000	9194272	MS	1.0	07/21/09 18:41		□
31	LGCN3 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:44		
32	LGCN3P50	D9G100272	9194272		50.0	07/21/09 18:47		
33	LGCN3Z	D9G100272-1	9194272		1.0	07/21/09 18:50		
34	LGCN3S 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:52		
35	CCV				1.0	07/21/09 18:55		
36	CCB				1.0	07/21/09 18:58		
37	RLCV				1.0			
38		D9G100272-1	9194272	MS	10.0	07/21/09 19:03		
39	LGCQK 10X	D9G100274-1	9194272	MS	10.0	07/21/09 19:06		
40	LGDJV 10X	D9G110152-1	9194272	MS	10.0	07/21/09 19:09		
	LGDJ3 10X	D9G110155-1	9194272	MS	10.0	07/21/09 19:11		□
	LGDKR 10X	D9G110159-1	9194272	MS	10.0	07/21/09 19:14		
43	CCV			1	1.0	07/21/09 19:17		
44	CCB				1.0	07/21/09 19:20		
45	RLCV				1.0	07/21/09 19:22		
	LGFC2B	D9G140000	9195077	46	1.0	07/21/09 19:25		
47	LGFC2C	D9G140000	9195077	46	1.0	07/21/09 19:28		

Denver

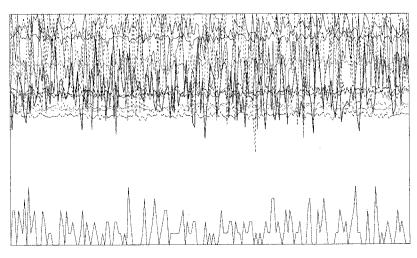
RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File ID): AG072 ⁻	109				Anal	lyst: TEL	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
48	LGEAD	D9G130118-1	9195077	U1	1.0	07/21/09 19:31		
49	LGEAR	D9G130118-2	9195077	U1	1.0	07/21/09 19:33		
50	LGEAX	D9G130118-3	9195077	U1	1.0	07/21/09 19:36		
51	LGEA0	D9G130118-4	9195077	U1	1.0	07/21/09 19:39		
52	LGEA2	D9G130118-5	9195077	U1	1.0	07/21/09 19:42		
53	LGEA3	D9G130118-6	9195077	U1	1.0	07/21/09 19:44		
54	CCV				1.0	07/21/09 19:47		
55	ССВ				1.0	07/21/09 19:50		
56	RLCV				1.0	07/21/09 19:53		
57	LGEA4	D9G130118-7	9195077	U1	1.0	07/21/09 19:55		
58	LGEFC	D9G130118-8	9195077	U1	1.0	07/21/09 19:58		
59	LGEFF	D9G130118-9	9195077	U1	1.0	07/21/09 20:01		
60	LGEFH	D9G130118-10	9195077	U1	1.0	07/21/09 20:03		
61	LGEFL	D9G130118-11	9195077	U1	1.0	07/21/09 20:06		
62	LGEFLP5	D9G130118	9195077		5.0	07/21/09 20:09		
63	LGEFLZ	D9G130118-11	9195077		1.0	07/21/09 20:11		
64	LGEFLS	D9G130118-11	9195077	U1	1.0	07/21/09 20:14		
65	CCV				1.0	07/21/09 20:17		
66	ССВ				1.0	07/21/09 20:20		□□
67	RLCV				1.0	07/21/09 20:22		
68	LGEFLD	D9G130118-11	9195077	U1	1.0	07/21/09 20:25		
69	LGEFT	D9G130118-12	9195077	U1	1.0	07/21/09 20:28		
70	LGEFX	D9G130118-13	9195077	U1	1.0	07/21/09 20:30		
71	LGEF3	D9G130118-14	9195077	U1	1.0	07/21/09 20:33		
72	LGEF4	D9G130118-15	9195077	U1	1.0	07/21/09 20:36		
73	LGEF6	D9G130118-16	9195077	U1	1.0	07/21/09 20:39		
74	LGEF8	D9G130118-17	9195077	U1	1.0	07/21/09 20:41		
75	CCV			1	1.0	07/21/09 20:44		
76	ССВ			ļ	1.0	07/21/09 20:47		
77	RLCV				1.0	07/21/09 20:50		
78	LGKQWBF	D9G160000	9197227	MD	1.0	07/21/09 20:52		
79	LGKQWCF	D9G160000	9197227	MD	1.0	07/21/09 20:55		
80	LGH2HF 10X		9197227	MD	10.0	07/21/09 20:58		
81	LGH2HP50F	D9G150224	9197227	1	50.0	07/21/09 21:01		
82	LGH2HZF	D9G150224-2	9197227		1.0	07/21/09 21:03		
83	LGH2HSF 10		9197227	MD	10.0	07/21/09 21:06		
84	LGH2HDF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:09		
85	CCV				1.0	07/21/09 21:12		
86	CCB			1	1.0	07/21/09 21:14		
87	RLCV	5.5/			1.0	07/21/09 21:17		
88	FCKODB	D9G160000	9197220	MS MS	1.0	07/21/09 21:20		
89	LGKQDC	D9G160000	9197220	MS	1.0	07/21/09 21:23	1.04 7 (5/3)	
90	LGH2F 10X	D9G150224-1	9197220	MS	10.0	07/21/09 21:25	DNNX/7/2/09	
91	LGH2FP50	D9G150224	9197220	-	50.0	07/21/09 21:28		
92	LGH2FZ	D9G150224-1	9197220	+	1.0	07/21/09_21:31		

Tune File : NORM.U

Comment

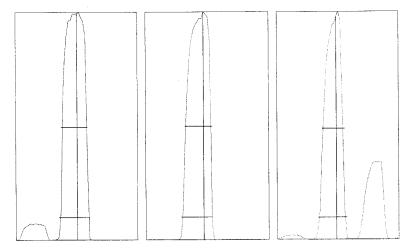


Integration Time: 0.1000 sec 1.5300 sec Sampling Period:

200 n:

1.281% Oxide: 156/140 0.506% Doubly Charged: 70/140

Background	RSD%	Mean	Count	Range	m/z
0.70	3.63	940.8	891.0	1,000	6
0.60	1.91	13059.6	13129.0	20,000	7
0.50	2.40	7856.2	7602.0	10,000	59
0.30	16.38	39.4	42.0	50	63
0.50	13.40	67.2	78.0	100	70
0.80	102.35	1.2	0.0	20	75
0.50	14.56	48.7	43.0	50	78
1.00	1.86	12029.4	12125.0	20,000	89
0.80	1.63	11739.1	11842.0	20,000	115
1.30	21.11	39.7	34.0	50	118
1.10	2.85	1323.1	1330.0	2,000	137
1.80	1.66	11223.5	11244.0	20,000	205
2.40	1.60	17931.0	17300.0	20,000	238
	8.61	1.337%	1.192%	2	156/140
	13.49	0.568%	0.664%	2	70/140



m/z:	7	89	205
Height:	13,051	12,146	11,336
Axis:	7.05	88.95	205.00
₩-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

0.1000 sec Integration Time: Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:30

Tune Report

Tune File : NORM.U

Comment

Tuning Parameters ===Plasma Condition=== ===Q-Pole Parameters=== ===Ion Lenses=== Extract 1 : 0 V AMU Gain : 133 RF Power : 1550 W RF Matching : 1.7 V Extract 2 : -160 V AMU Offset : 1.7 V Extract 2 : -160 V 7.5 mm Omega Bias-ce : -30 V Axis Gain : 1.0005 Smpl Depth : 0 V Axis Offset : -0.02 Torch-H : -0.8 mm Omega Lens-ce : 0 V
Torch-V : -0.3 mm Cell Entrance : -30 V QP Bias : 0 V Carrier Gas : 0.83 L/min QP Focus : 7 VCell Exit : -30 V ===Detector Parameters=== Makeup Gas : 0.2 L/min Discriminator : 8 mV
Analog HV : 1720 V
Pulse HV : 1390 V ___ % Optional Gas : ===Octopole Parameters=== 0.1 rps Nebulizer Pump : OctP RF : 180 V Sample Pump : --- rps OctP Bias : -18 V 2 degC S/C Temp : ===Reaction Cell=== Reaction Mode : OFF He Gas : 0 mL/min Optional Gas : --- % H2 Gas : 0 mL/min

Page: 2

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:33

P/A Factor Tuning Report

Acquired: Jul 21 2009 04:50 pm

Mass[amu] 6	Element Li	P/A Factor 0.061203		
7	(Li)	Sensitivity	too	low
9	Be	0.068907		
45	Sc	0.083389		
51	V	0.086007		
52	Cr	0.088320		
53	(Cr)	Sensitivity	too	low
55	Mn	0.090395		
59	Co	0.093203		
60	Ni	Sensitivity	too	low
63	Cu	Sensitivity	too	low
66	Zn	0.096924		
72	Ge	Sensitivity	too	low
75	As	Sensitivity	too	low
77	(Se)	Sensitivity	too	low
78	Se	Sensitivity		
82	(Se)	Sensitivity		
83	(Se)	Sensitivity	too	low
95	Mo	0.096067		
98	(Mo)	0.096151		_
99	(Mo)	Sensitivity	too	low
106	(Cd)	0.101305		-
107	Ag	Sensitivity	too	TOM
108	(Cd)	0.101769		
111	Cd	0.102139		
114	Cd	0.102089		
115	In	0.101222		
118	Sn	0.101067		
121	Sb	0.100944	+ 00	1 05.7
137 165	Ва	Sensitivity Sensitivity		
205	Ho Tl	0.109272	000	TOW
206	(Pb)	0.109272		
207	(Pb)	0.108287		
208	Pb	0.107820		
232	Th	0.106452		
238	Ü	0.106481		

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

TestAmerica

330

200.8 QC Tune Report

C:\ICPCHEM\1\DATA\AG072109.B\001TUNE.D Data File:

Date Acquired: Jul 21 2009 05:22 pm

Acq. Method: tun isis.M

Operator:

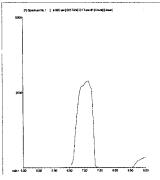
Sample Name: 200.8 TUNE

Misc Info:

Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\tun_isis.M

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	31515	31705	31773	31422	31500	31173	0.76	5.00	
9 Be	3503	3538	3524	3507	3428	3516	1.23	5.00	
24 Mg	22462	22829	22575	22353	22572	21980	1.41	5.00	
59 Co	93114	93607	93864	90894	94187	93020	1.41	5.00	
115 In	1915406	1918606	1914965	1924578	1915696	1903185	0.41	5.00	
208 Pb	92064	92990	92149	91680	92260	91243	0.71	5.00	
238 U	187429	191379	187170	188068	186178	184351	1.39	5.00	



[1] Spectrum to 1 | 1 × 865 conjubition F D (Took 41 (Confillation))

7 Li

Mass Calib.

Actual: 7.10 7.10 Required: 6.90

Flag:

Peak Width

Actual: 0.65 Required: 0.90

Flag:

9 Be

Mass Calib.

Actual: 9.05

Required:8.90 9.10

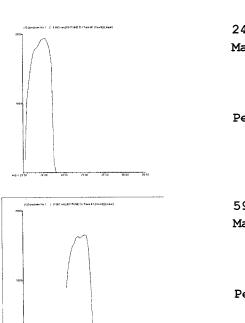
Flag:

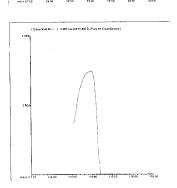
Peak Width

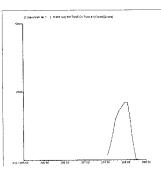
Actual: 0.60

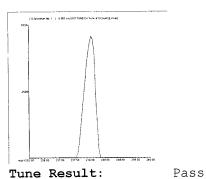
Required: 0.90

Flag:









24 Mg

Mass Calib.

Actual: 24.00
Required:23.90 - 24.10
Flag:

Peak Width

Actual: 0.60 Required:0.90 Flag:

59 Co

Mass Calib.

Actual: 58.95
Required: 58.90 - 59.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

115 In

Mass Calib.

Actual: 114.95
Required: 114.90 - 115.10
Flag:

Peak Width

Actual: 0.55
Required: 0.90
Flag:

208 Pb

Mass Calib.

Actual: 207.95
Required: 207.90 - 208.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

238 U

Mass Calib.

Actual: 238.05
Required: 237.90 - 238.10
Flag:

Peak Width

Actual: 0.60
Required: 0.90
Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\002CALB.D\002CALB.D#

Date Acquired: Jul 21 2009 05:25 pm NormISIS.M

Acq. Method:

Operator: \mathtt{TEL}

Sample Name: Cal Blank

Misc Info:

1101 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

CalBlk Sample Type:

QC Elements

Eleme	nt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	31	3276.40
52	Cr	72	1	2800	9.18
55	Mn	72	1	1283	9.62
59	Со	72	1	87	67.61
60	Ni	72	1	67	17.32
63	Cu	72	1	503	6.39
66	Zn	72	1	251	8.30
75	As	72	1	105	7.67
78	Se	72	1	513	6.26
95	Mo	72	1	73	15.75
107	Ag	115	1	7	86.60
111	Cd	115	1	9	188.13
118	Sn	115	1	2750	17.56
121	Sb	115	1	19	50.94
137	Ва	115	1	49	3.94
205	Tl	165	1	263	12.21
208	Pb	165	1	323	8.05
232	Th	165	1	220	25.31
238	U	165	1	96	8.06

Internal Standard Elements

Elemen	nt	Tune	CPS Mean	RSD(%)
6	Li	1	576535	0.69
45	Sc	1	2595280	0.11
72	Ge	1	1228451	0.87
115	In	1	3471486	1.12
165	Но	1	5707578	1.58

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Date Acquired: Jul 21 2009 05:28 pm

Acq. Method: NormISIS.M

TEL Operator:

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: CalBlk

QC Elements

Eleme	nt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	84	380.78
52	Cr	72	1	3224	4.61
55	Mn	72	1	1180	18.88
59	Со	72	1	67	31.23
60	Ni	72	1	77	39.85
63	Cu	72	1	673	17.84
66	Zn	72	1	341	12.93
75	As	72	1	105	1.10
78	Se	72	1	570	15.79
95	Мо	72	1	90	19.25
107	Ag	115	1	10	100.00
111	Cd	115	1	6	183.92
118	Sn	115	1	4558	14.33
121	Sb	115	1	23	37.80
137	Ва	115	1	41	44.66
205	Tl	165	1	229	12.72
208	Pb	165	1	279	7.30
232	Th	165	1	273	29.57
238	U	165	1	22	43.30

Internal Standard Elements

Eleme	nt	Tune	CPS Mean	RSD(%)
6	Li	1	581797	1.92
45	Sc	1	2574983	0.83
72	Ge	1	1211627	0.38
115	In	1	3426576	0.51
165	Но	1	5647086	0.49

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\004ICAL.D\0004ICAL.D#

Date Acquired: Jul 21 2009 05:31 pm

Acq. Method: NormISIS.M

Operator: TEL Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:29 pm

Sample Type: ICAL

QC Elements

Element		IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	59445	1.77
51	V	72	1	1239197	0.92
52	Cr	72	1	1240930	1.80
55	Mn	72	1	1500976	1.14
59	Co	72	1	1532853	1.14
60	Ni	72	1	335568	1.43
63	Cu	72	1	783637	0.77
66	Zn	72	1	184990	0.36
75	As	72	1	150136	1.32
78	Se	72	1	29896	1.27
95	Mo	72	1	401051	0.94
107	Ag	115	1	1170362	0.20
111	Cd	115	1	241527	0.35
118	Sn	115	1	706295	0.47
121	Sb	115	1	813196	0.45
137	Ва	115	1	335210	0.52
205	Tl	165	1	2698247	0.32
208	Pb	165	1	3677704	0.96
232	Th	165	1	3297948	2.01
238	U	165	1	3849572	0.35

ISTD Elements

Eleme	ent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	565258	0.19	581797	97.2	30 - 120	
45	Sc	1	2567639	0.66	2574983	99.7	30 - 120	
72	Ge	1	1211730	1.09	1211627	100.0	30 - 120	
115	In	1	3431729	1.40	3426576	100.2	30 - 120	
165	Но	1	5634252	0.67	5647086	99.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 21 2009 05:33 pm

Operator: TEL QC Summary:

Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC Eleme	QC Elements											
Element	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag			
9 Be	6	1	39.64	ppb	0.79	40	99.1	90 - 110				
51 V	72	1	38.95	ppb	0.13	40	97.4	90 - 110				
52 Cr	72	1	39.22	ppb	0.44	40	98.1	90 - 110				
55 Mn	72	1	39.68	ppb	0.45	40	99.2	90 - 110				
59 Co	72	1	39.53	ppb	0.70	40	98.8	90 - 110				
60 Ni	72	1	40.23	ppb	0.53	40	100.6	90 - 110				
63 Cu 72		1	40.61	ppb	0.32	40	101.5	90 - 110				
66 Zn	72	1	40.51	ppb	1.02	40	101.3	90 - 110				
75 As	72	1	40.08	ppb	0.64	40	100.2	90 - 110				
78 Se	72	1	41.67	ppb	1.69	40	104.2	90 - 110				
95 Mo	72	1	39.87	ppb	0.41	40	99.7	90 - 110				
107 Ag	115	1	40.34	ppb	1.30	40	100.9	90 - 110				
111 Cd	115	1	41.12	ppb	0.91	40	102.8	90 - 110				
118 Sn	115	1	38.88	ppb	0.90	40	97.2	90 - 110				
121 Sb	115	1	38.65	ppb	1.11	40	96.6	90 - 110				
137 Ba	115	1	39.89	ppb	0.94	40	99.7	90 - 110				
205 Tl	165	1	40.05	ppb	1.21	40	100.1	90 - 110				
208 Pb	165	1	40.43	ppb	0.85	40	101.1	90 - 110	Fail M			
232 Th	165	1	44.22	44.22 ppb		40	110.6	90 - 110	Fail N			
238 U	165	1	40.19	ppb	1.06	40	100.5	90 - 110				
ISTD Ele	ements					1	- (0)	00.5 (0)	71			
Element		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag			
6 Li		1	561236		0.19	581797	96.5	30 - 120				
45 Sc		1	2582771		1.09	2574983	100.3	30 - 120				
72 Ge		1	1213066		0.25	1211627	100.1	30 - 120				
115 In		1	3417703		1.00	3426576	99.7	30 - 120				
165 Но		1	5664293		1.10	5647086	100.3	30 - 120				
Т	une File#	1	c:\icpchem\1	7500	\he.u							
T	une File#	2	C:\ICPCHEM\1	7500	\							
T	une File#	3	C:\ICPCHEM\1	\7500	\							

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

1 : Element Failures 0 : Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\006WASH.D\006WASH.D#

Date Acquired: Jul 21 2009 05:36 pm

Operator: TEL QC Summary: Sample Name: RLIV Analytes: Pass

Sample Name: RLIV Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH
Total Dil Factor: 1.00

QC Elements

-						
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.123 ppb	10.30	1.30	
51 V	72	1	4.905 ppb	4.36	6,50	
52 Cr	72	1	2.008 ppb	1.94	2.60	
55 Mn	72	1	1.040 ppb	1.71	1.30	
59 Co	72	1	1.042 ppb	3.30	1.30	
60 Ni	72	1	2.082 ppb	1.95	2.60	
63 Cu	72	1	2.043 ppb	4.81	2.60	
66 Zn	72	1	10.290 ppb	0.55	13.00	
75 As	72	1	5.041 ppb	1.23	6.50	
78 Se	72	1	5.606 ppb	11.10	6.50	
95 Mo	72	1	2.125 ppb	3.10	2.60	
107 Ag	115	1	5.269 ppb	0.93	6.50	
111 Cd	115	1	0.985 ppb	1.12	1.30	
118 Sn	115	1	10.060 ppb	1.78	13.00	
121 Sb	115	1	2.181 ppb	4.53	2.60	
137 Ba	115	1	1.073 ppb	3.26	1.30	
205 Tl	165	1	1.130 ppb	0.27	1.30	
208 Pb	165	1	1.039 ppb	0.95	1.30	
232 Th	165	1	2.777 ppb	3.32	2.60	
238 U	165	1	1.064 ppb	0.97	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	561585	0.30	581797	96.5	30 - 120	
45 Sc	1	2567497	0.65	2574983	99.7	30 - 120	
72 Ge	1	1227558	0.55	1211627	101.3	30 - 120	
115 In	1	3427742	1.01	3426576	100.0	30 - 120	
165 Ho	1	5710214	1.06	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\007 ICB.D\007 ICB.D#

Date Acquired: Jul 21 2009 05:39 pm QC Summary:

Operator: TEL Analytes: Pass Sample Name: ICB ISTD: Pass

Misc Info:

Vial Number: 2104

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: JCB

Sample Type: ICB
Total Dil Factor: 1.00

QC	Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.03	ppb	107.86	1.00	
52 Cr	72	1	-0.02	ppb	42.01	1.00	
55 Mn	72	1	0.00	ppb	111.67	1.00	
59 Co	72	1	0.00	ppb	96.89	1.00	
60 Ni	72	1	0.00	ppb	233.62	1.00	
63 Cu	72	1	-0.01	ppb	109.12	1.00	
66 Zn	72	1	0.05	ppb	42.84	1.00	
75 As	72	1	-0.01	ppb	44.09	1.00	
78 Se	72	1	0.34	ppb	46.02	1.00	
95 Mo	72	1	0.01	ppb	40.98	1.00	
107 Ag	115	1	0.01	ppb	15.65	1.00	
111 Cd	115	1	0.00	ppb	432.82	1.00	
118 Sn	115	1	0.13	ppb	28.49	1.00	
121 Sb	115	1	0.08	ppb	2.06	1.00	
137 Ba	115	1	0.00	ppb	38.09	1.00	
205 Tl	165	1	0.03	ppb	5.05	1.00	
208 Pb	165	1	0.00	ppb	1255.10	1.00	
232 Th	165	1	0.16	ppb	5.89	1.00	
238 U	165	1	0.00	ppb	21.84	1.00	

ISTD Elements

Element	Tune	e CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565985	1.59	581797	97.3	30 - 120	
45 Sc	1	2566622	0.99	2574983	99.7	30 - 120	
72 Ge	1	1225621	1.10	1211627	101.2	30 - 120	
115 In	1	3452773	0.47	3426576	100.8	30 - 120	
165 Ho	1	5650371	0.62	5647086	100.1/	30 - 120	
Tune	File# 1	c:\icpchem\	.1\7500\h	.e.u	✓		
Tune	File# 2	C:\ICPCHEM\	1\7500\		**************************************		

Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\008RLST.D\008RLST.D#

Date Acquired: Jul 21 2009 05:42 pm

Operator: TEL QC Summary:

Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: RLSTD Total Dil Factor: 1.00

QC Elements

_	_										
E	Elem	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	7	Ве	6	1	1.05	ppb	12.11	1	104.7	50 - 150	
	51	V	72	1	0.93	ppb	7.33	1	93.2	50 - 150	
	52	Cr	72	1	0.97	ppb	3.56	1	97.0	50 - 150	
	55	Mn	72	1	1.00	ppb	2.49	1	100.4	50 - 150	
C	59	Со	72	1	1.01	ppb	4.08	1	101.3	50 - 150	
6	50	Ni	72	1	1.00	ppb	6.56	1	100.0	50 - 150	
6	63	Cu	72	1	1.04	ppb	7.10	1	104.2	50 - 150	
6	66	Zn	72	1	10.76	ppb	1.35	10	107.6	50 - 150	
7	75	As	72	1	1.04	ppb	3.34	1	103.8	50 - 150	
7	78	Se	72	1	0.82	ppb	33.53	1	81.6	50 - 150	
9	95	Mo	72	1	1.01	ppb	7.76	1	101.0	50 - 150	
1	107	Ag	115	1	1.02	ppb	2.10	1	101.5	50 - 150	
1	111	Cd	115	1	1.10	ppb	3.31	1	109.6	50 - 150	
1	118	Sn	115	1	10.23	ppb	1.35	10	102.3	50 - 150	
1	121	Sb	115	1	1.05	ppb	1.23	1	104.8	50 - 150	
1	137	Ва	115	1	1.05	ppb	4.58	1	104.8	50 - 150	
2	205	Tl	165	1	1.07	ppb	2.73	1	106.5	50 - 150	
2	208	Pb	165	1	1.05	ppb	1.07	1	104.7	50 - 150	
2	232	Th	165	1	1.13	ppb	2.43	1	113.3	50 - 150	
2	238	U	165	1	1.07	ppb	1.03	1	107.0	50 - 150	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565978	0.78	581797	97.3	30 - 120	
45 Sc	1	2568028	1.20	2574983	99.7	30 - 120	
72 Ge	1	1217338	0.15	1211627	100.5	30 - 120	
115 In	1	3427497	0.45	3426576	100.0	30 - 120	
165 Но	1	5631637	1.02	5647086	99.7	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

AFCEE RL QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

Date Acquired: Jul 21 2009 05:44 pm

QC Summary: Operator: \mathtt{TEL}

Analytes: Pass Sample Name: AFCEE RL ISTD: Pass Misc Info:

Vial Number: 2106

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: AFCEERL Total Dil Factor: 1.00

QC I	Eleme	nts								
Ele	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 -	Ве	6	1	0.18	ppb	41.26	0	86.0	80 - 120	
51	V	72	1	0.12	ppb	39.38	0	67.0	80 - 120	
52	Cr	72	1	0.16	ppb	3.72	0	82.2	80 - 120	
55	Mn	72	1	0.20	ppb	3.24	0	98.6	80 - 120	
59	Co	72	1	0.20	P pb	5.85	0	99.3	80 - 120	
60	Ni	72	1	0.18	ppb	6.47	0	90.0	80 - 120	
63	Cu	72	1	0.32	ppb	10.85	0	155.1	80 - 120	
66	Zn	72	1	2.18	ppb	0.89	2	101.4	80 - 120	
75	As	72	1	0.20	ppb	9.34	0	94.3	80 - 120	
78	Se	72	1	0.27	ppb	16.59	0	168.2	80 - 120	
95	Mo	72	1	0.19	ppb	6.24	0	93.4	80 - 120	
107	Ag	115	1	0.20	ppb	4.78	0	99.7	80 - 120	
111	Cd	115	1	0.21	ppb	11.89	0	96.8	80 - 120	
118	Sn	115	1	1.58	ppb	4.76	2	77.3	80 - 120	
121	Sb	115	1	0.21	ppb	4.92	0	99.2	80 - 120	
137	Ва	115	1	0.22	ppb	2.48	0	102.6	80 - 120	
205	Tl	165	1	0.21	/ppb	5.92	0	97.3	80 - 120	
208	Pb	165	1	0.20	ppb	3.45	0	95.3	80 - 120	
232	Th	165	1	0.24	ppb	4.96	0	106.3	80 - 120	
238	U	165	1	0.20	ppb	2.09	0	95.7	80 - 120	

ISTD Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	562011	1.45	581797	96.6	30 - 120	
45 Sc	1	2589915	1.12	2574983	100.6	30 - 120	
72 Ge	1	1216544	0.44	1211627	100.4	30 - 120	
115 In	1	3446931	1.30	3426576	100.6	30 - 120	
165 Ho	1	5682005	0.45	5647086	100.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 21 2009 05:47 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC	Elements	,
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Elen	nent	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	,
51	V	72	1	-0.04	-0.04	ppb	104.30	3600	
52	Cr	72	1	-0.02	-0.02	ppb	103.76	3600	
55	Mn	72	1	0.02	0.02	ppb	16.79	3600	
59	Со	72	1	0.00	0.00	ppb	621.67	3600	
60	Ni	72	1	0.03	0.03	ppb	16.48	3600	
63	Cu	72	1	0.00	0.00	ppb	932.55	3600	
66	Zn	72	1	0.85	0.85	ppb	6.94	3600	
75	As	72	1	0.00	0.00	ppb	664.54	3600	
	Se	72	1	2.10 🗸	2.10	ppb	12.34	3600	
	Мо	72	1	-0.01	-0.01	ppb	45.44	3600	
107	Ag	115	1	0.00	0.00	ppb	58.87	3600	
111		115	1	0.01	0.01	ppb	69.14	3600	
118		115	1	0.05	0.05	ppb	347.56	3600	
121		115	1	0.02	0.02	ppb	33.89	3600	
137		115	1	0.02	0.02	ppb	46.40	3600	
205		165	1	0.01	0.01	ppb	7.09	3600	
208		165	1	0.01	0.01	ppb	32.33	3600	
232		165	1	0.02	0.02	ppb	9.94	1000	
238	U	165	1	0.00	0.00	ppb	61.35	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	569704	0.90	581797	97.9	30 - 120	-
45 Sc	1	2578530	1.74	2574983	100.1	30 - 120	
72 Ge	1	1225059	0.62	1211627	101.1	30 - 120	
115 In	1	3458256	0.73	3426576	100.9	30 - 120	
165 Ho	1	5659536	0.49	5647086	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed

0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 21 2009 05:50 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: ICSA ISTD: Pass

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSA Dilution Factor: 1.00

QC Elements

Eler	ment	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.01 ppb	86.57	1.00	
51	V	72	1	-0.32 ppb	45.77	1.00	
52	Cr	72	1	1.09 ppb	1.54	1.00	
55	Mn	72	1	3.02 ppb	2.13	1.00	
59	Со	72	1	0.14 ppb	6.32	1.00	
60	Ni	72	1	1.14 ppb	8.51	1.00	
63	Cu	72	1	0.52 ppb	6.79	1.00	
66	Zn	72	1	4.12 ppb	0.37	10.00	
75	As	72	1	0.41 ppb	6.37	1.00	
78	Se	72	1	0.21 ppb	202.38	1.00	
95	Мо	72	1	2029.00 ppb	1.48	2000.00	
107	Ag	115	1	0.08 ppb	1.65	1.00	
111	Cd	115	1	0.53 ppb	11.29	1.00	
118	Sn	115	1	6.55 ppb	2.38	10.00	
121	Sb	115	1	0.25 ppb	8.83	1.00	
137	Ва	115	1	1.63 ppb	3.16	1.00	
205	Tl	165	1	0.06 ppb	23.67	1.00	
208	Pb	165	1	0.15 ppb	1.74	1.00	
232	Th	165	1	0.06 ppb	7.65	1.00	
238	U	165	1	0.04 ppb	4.73	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	541828	0.30	581797	93.1	30 - 120	
45 Sc	1	2271867	1.39	2574983	88.2	30 - 120	
72 Ge	1	1037781	0.72	1211627	85.7	30 - 120	
115 In	1	2905629	2.08	3426576	84.8	30 - 120	
165 Ho	1	5091704	1.12	5647086	90.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Nnumber of ISTD Failures Allowed

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 21 2009 05:53 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ICSAB ISTD: Pass

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSAB
Dilution Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	1	96.29	1.44	100	96.3	80 - 120	
51 V	72	1	99.52	1.77	100	99.5	80 - 120	
52 Cr	72	1	99.40	1.59	100	99.4	80 - 120	
55 Mn	72	1	101.10	1.41	100	101.1	80 - 120	
59 Co	72	1	95.14	1.75	100	95.1	80 - 120	
60 Ni	72	1	91.22	1.02	100	91.2	80 - 120	
63 Cu	72	1	89.55	0.75	100	89.6	80 - 120	
66 Zn	72	1	100.10	0.77	100	100.1	80 - 120	
75 As	72	1	100.30	0.37	100	100.3	80 - 120	
78 Se	72	1	108.70	2.11	100	108.7	80 - 120	
95 Mo	72	1	2124.00	1.34	2100	101.1	80 - 120	
107 Ag	115	1	88.04	3.50	100	88.0	80 - 120	
111 Cd	115	1	97.50	1.62	100	97.5	80 - 120	
118 Sn	115	1	101.00	0.92	100	101.0	80 - 120	
121 Sb	115	1	102.40	1.11	100	102.4	80 - 120	
137 Ba	115	1	103.60	1.08	100	103.6	80 - 120	
205 Tl	165	1	96.79	0.86	100	96.8	80 - 120	
208 Pb	165	1	95.41	1.15	100	95.4	80 - 120	
232 Th	165	1	110.10	0.47	100	110.1	80 - 120	
238 U	165	1	103.00	0.22	100	103.0	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551523	0.54	581797	94.8	30 - 120	
45 Sc	1	2262338	0.74	2574983	87.9	30 - 120	
72 Ge	1	1036947	1.75	1211627	85.6	30 - 120	
115 In	1	2927339	0.38	3426576	85.4	30 - 120	
165 Ho	1	5153065	0.14	5647086	91.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 21 2009 05:55 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.06	-0.06	ppb	105.43	3600	
52 Cr	72	1	-0.03	-0.03	ppb	42.33	3600	
55 Mn	72	1	-0.01	-0.01	ppb	103.23	3600	
59 Co	72	1	0.00	0.00	ppb	103.31	3600	
60 Ni	72	1	0.00	0.00	dqq	490.13	3600	
63 Cu	72	1	-0.01	-0.01	ppb	55.36	3600	
66 Zn	72	1	0.02	0.02	ppb	39.30	3600	
75 As	72	1	0.01	0.01	ppb	237.74	3600	
78 Se	72	1	0.22	0.22	ppb	124.98	3600	
95 Mo	72	1	1.24	1.24	ppb	2.11	3600	
107 Ag	115	1	0.01	0.01	ppb	32.64	3600	
111 Cd	115	1	-0.01	-0.01	ppb	87.55	3600	
118 Sn	115	1	-0.44	-0.44	ppb	9.84	3600	
121 Sb	115	1	0.04	0.04	ppb	10.44	3600	
137 Ba	115	1	0.00	0.00	ppb	198.65	3600	
205 Tl	165	1	0.00	0.00	ppb	32.40	3600	
208 Pb	165	1	0.00	0.00	ppb	60.85	3600	
232 Th	165	1	0.61	0.61	ppb	14.09	1000	
238 U	165	1	0.01	0.01	ppb	16.27	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	617032	1.01	581797	106.1	30 - 120	
45 Sc	1	2571917	0.32	2574983	99.9	30 - 120	
72 Ge	1	1207363	0.62	1211627	99.6	30 - 120	
115 In	1	3468973	0.41	3426576	101.2	30 - 120	
165 Ho	1	5751339	0.52	5647086	101.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\014 LR.D\014 LR.D#

Date Acquired: Jul 21 2009 05:58 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: LR ISTD: Pass

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LR
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	983.10 ppb	1.47	1000	98.3	90 - 110	
51 V	72	1	931.80 ppb	1.87	1000	93.2	90 - 110	
52 Cr	72	1	958.10 ppb	0.33	1000	95.8	90 - 110	
55 Mn	72	1	959.10 ppb	0.74	1000	95.9	90 - 110	
59 Co	72	1	962.90 ppb	0.81	1000	96.3	90 - 110	
60 Ni	72	1	976.00 ppb	1.67	1000	97.6	90 - 110	
63 Cu	72	1	952.70 ppb	0.56	1000	95.3	90 - 110	
66 Zn	72	1	1036.00 ppb	1.42	1000	103.6	90 - 110	
75 As	72	1	1038.00 ppb	0.83	1000	103.8	90 - 110	
78 Se	72	1	1037.00 ppb	0.75	1000	103.7	90 - 110	
95 Mo	72	1	998.50 ppb	1.19	1000	99.9	90 - 110	
107 Ag	115	1	960.60 ppb	0.36	1000	96.1	90 - 110	
111 Cd	115	1	1018.00 ppb	1.94	1000	101.8	90 - 110	
118 Sn	115	1	980.00 ppb	0.99	1000	98.0	90 - 110	
121 Sb	115	1	975.20 ppb	0.25	1000	97.5	90 - 110	
137 Ba	115	1	1014.00 ppb	0.78	1000	101.4	90 - 110	
205 Tl	165	1	970.30 ppb	1.49	1000	97.0	90 - 110	
208 Pb	165	1	959.70 ppb	1.43	1000	96.0	90 - 110	
232 Th	165	1	1070.00 ppb	0.39	1000	107.0	90 - 110	
238 U	165	1	1001.00 ppb	0.48	1000	100.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	602525	1.07	581797	103.6	30 - 120	
45 Sc	1	2585868	0.95	2574983	100.4	30 - 120	
72 Ge	1	1215769	0.81	1211627	100.3	30 - 120	
115 In	1	3432627	0.12	3426576	100.2	30 - 120	
165 Ho	1	5756427	0.96	5647086	101.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 21 2009 06:00 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.01	0.01	ppb	173.21	3600	
51 V	72	1	0.00	0.00	ppb	1096.50	3600	
52 Cr	72	1	-0.02	-0.02	ppb	214.11	3600	
55 Mn	72	1	-0.01	-0.01	ppb	54.41	3600	
59 Co	72	1	0.02	0.02	ppb	17.45	3600	
60 Ni	72	1	0.02	0.02	ppb	36.35	3600	
63 Cu	72	1	0.00	0.00	ppb	3434.80	3600	
66 Zn	72	1	0.04	0.04	ppb	59.09	3600	
75 As	72	1	0.04	0.04	ppb	18.32	3600	
78 Se	72	1	0.56	0.56	ppb	27.17	3600	
95 Mo	72	1	0.75	0.75	ppb	9.81	3600	
107 Ag	115	1	0.03	0.03	ppb	9.09	3600	
111 Cd	115	1	0.01	0.01	ppb	55.86	3600	
118 Sn	115	1	0.58	0.58	ppb	22.30	3600	
121 Sb	115	1	0.43	0.43	ppb	9.45	3600	
137 Ba	115	1	0.02	0.02	ppb	30.56	3600	
205 Tl	165	1	0.10	0.10	ppb	12.56	3600	
208 Pb	165	1	0.02	0.02	ppb	9.09	3600	
232 Th	165	1	3.70	3.70	ppb	19.86	1000	
238 U	165	1	0.09	0.09	ppb	9.53	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	604269	1.86	581797	103.9	30 - 120	
45 Sc	1	2589065	0.70	2574983	100.5	30 - 120	
72 Ge	1	1243813	0.46	1211627	102.7	30 - 120	
115 In	1	3483172	1.13	3426576	101.7	30 - 120	
165 Ho	1	5709115	0.24	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 21 2009 06:03 pm

Operator: TEL QC Summary: Sample Name: CCV Analytes: Pass

Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Elements

Eler	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.34	ppb	0.68	50	98.7	90 - 110	
51	Λ	72	1	49.10	ppb	0.55	50	98.2	90 - 110	
52	Cr	72	1	49.47	ppb	0.91	50	98.9	90 - 110	
55	Mn	72	1	49.47	ppb	1.10	50	98.9	90 - 110	
59	Co	72	1	49.92	ppb	1.17	50	99.8	90 - 110	
60	Ni	72	1	50.75	ppb	0.61	50	101.5	90 - 110	
63	Cu	72	1	50.93	ppb	0.27	50	101.9	90 - 110	
66	Zn	72	1	50.31	ppb	0.73	50	100.6	90 - 110	
75	As	72	1	50.24	ppb	1.12	50	100.5	90 - 110	
78	Se	72	1	50.24	ppb	0.13	50	100.5	90 - 110	
95	Mo	72	1	50.78	ppb	1.42	50	101.6	90 - 110	
107	Ag	115	1	49.22	ppb	2.02	50	98.4	90 - 110	
111	Cd	115	1	49.66	ppb	2.34	50	99.3	90 - 110	
118	Sn	115	1	49.06	ppb	1.65	50	98.1	90 - 110	
121	Sb	115	1	49.30	ppb	1.60	50	98.6	90 - 110	
137	Ва	115	1	49.04	ppb	1.67	50	98.1	90 - 110	
205	Tl	165	1	50.73	ppb	1.09	50	101.5	90 - 110	
208	Pb	165	1	49.84	ppb	1.34	50	99.7	90 - 110	
232	Th	165	1	52.15	ppb	2.07	50	104.3	90 - 110	
238	U	165	1	49.79	ppb	0.38	50	99.6	90 - 110	

ISTD Elements

Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	588145	2.13	581797	101.1	30 - 120	
45	Sc	1	2623883	0.54	2574983	101.9	30 - 120	
72	Ge	1	1228362	0.50	1211627	101.4	30 - 120	
115	In	1	3530300	1.24	3426576	103.0	30 - 120	
165	Но	1	5768046	0.38	5647086	102.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 21 2009 06:06 pm

QC Summary: Operator: TEL Sample Name: Analytes: **Pass** CCB

Misc Info:

ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.005	ppb	173.19	1.00	
51 V	72	1	-0.062	ppb	129.47	1.00	
52 Cr	72	1	-0.026	ppb	83.65	1.00	
55 Mn	72	1	-0.007	ppb	143.47	1.00	
59 Co	72	1	0.002	ppb	146.67	1.00	
60 Ni	72	1	0.009	ppb	171.37	1.00	
63 Cu	72	1	-0.013	ppb	47.42	1.00	
66 Zn	72	1	0.004	ppb	593.06	1.00	
75 As	72	1	0.008	ppb	83.97	1.00	
78 Se	72	1	0.635	ppb	21.48	1.00	
95 Mo	72	1	0.156	ppb	13.82	1.00	
107 Ag	115	1	0.013	ppb	10.04	1.00	
111 Cd	115	1	0.005	ppb	226.51	1.00	
118 Sn	115	1	0.091	ppb	27.58	1.00	
121 Sb	115	1	0.092	ppb	4.85	1.00	
137 Ba	115	1	0.007	ppb	96.12	1.00	
205 Tl	165	1	0.044	ppb	9.42	1.00	
208 Pb	165	1	0.005	ppb	16.13	1.00	
232 Th	165	1	0.846	ppb	15.54	1.00	
238 U	165	1	0.016	ppb	7.64	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	582937	1.46	581797	100.2	30 - 120	
45 Sc	1	2618279	0.49	2574983	101.7	30 - 120	
72 Ge	1	1228248	0.40	1211627	101.4	30 - 120	
115 In	1	3493471	0.25	3426576	102.0	30 - 120	
165 Ho	1	5729193	0.17	5647086	101.5	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\018WASH.D\018WASH.D#

Date Acquired: Jul 21 2009 06:09 pm

Operator: \mathtt{TEL} QC Summary: Sample Name: Analytes: RLCV Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: WASH C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: WASH Total Dil Factor: 1.00

O.C.	El	emen	ts
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.506 ppb	66.40	1.30	
51 V	72	1	5.354 ppb	9.73	6.50	
52 Cr	72	1	2.294 ppb	19.68	2.60	
55 Mn	72	1	1.341 ppb	40.40	1.30	
59 Co	72	1	1.372 ppb	41.06	1.30	
60 Ni	72	1	2.353 ppb	23.65	2.60	
63 Cu	72	1	2.412 ppb	17.43	2.60	
66 Zn	72	1	10.710 ppb	7.57	13.00	
75 As	72	1	5.663 ppb	11.90	6.50	
78 Se	72	1	5.717 ppb	11.15	6.50	
95 Mo	72	1	4.400 ppb	84.36	2.60	
107 Ag	115	1	5.364 ppb	3.44	6.50	
111 Cd	115	1	1.442 ppb	41.34	1.30	
118 Sn	115	1	10.180 ppb	5.67	13.00	
121 Sb	115	1	2.278 ppb	21.30	2.60	
137 Ba	115	1	1.364 ppb	42.96	1.30	
205 Tl	165	1	1.415 ppb	39.27	1.30	
208 Pb	165	1	1.446 ppb	47.86	1.30	
232 Th	165	1	2.676 ppb	20.73	2.60	
238 U	165	1	1.427 ppb	40.32	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	598481	1.35	581797	102.9	30 - 120	
45 Sc	1	2642231	1.82	2574983	102.6	30 - 120	
72 Ge	1	1250188	1.58	1211627	103.2	30 - 120	
115 In	. 1	3540347	1.66	3426576	103.3	30 - 120	
165 Ho	1	5791976	1.24	5647086	102.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\026 CCV.D\026 CCV.D#

Date Acquired: Jul 21 2009 06:30 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC El	ements								
Eleme	nt IS Re	f Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 B	se 6	1	49.60	ppb	3.76	50	99.2	90 - 110	
51 V	72	1	47.46	ppb	0.73	50	94.9	90 - 110	
52 C	r 72	1	48.46	ppb	1.90	50	96.9	90 - 110	
55 M	In 72	1	48.48	ppb	1.62	50	97.0	90 - 110	
59 C	o 72	1	48.65	ppb	0.70	50	97.3	90 - 110	
60 N	ii 72	1	49.63	ppb	1.26	50	99.3	90 - 110	
63 C	u 72	1	49.48	ppb	1.11	50	99.0	90 - 110	
66 Z	in 72	1	49.17	ppb	0.85	50	98.3	90 - 110	
75 A	s 72	1	49.33	ppb	1.83	50	98.7	90 - 110	
78 S	e 72	1	49.43	ppb	3.65	50	98.9	90 - 110	
95 M	Io 72	1	49.52	ppb	1.74	50	99.0	90 - 110	
107 A	ig 115	1	49.84	ppb	0.95	50	99.7	90 - 110	
111 C	d 115	1	49.79	ppb	0.88	50	99.6	90 - 110	
118 S	n 115	1	49.36	ppb	1.63	50	98.7	90 - 110	
121 S	b 115	1	49.58	ppb	0.60	50	99.2	90 - 110	
137 B	3a 115	1	49.59	ppb	0.66	50	99.2	90 - 110	
205 Т	165	1	50.54	ppb	0.83	50	101.1	90 - 110	
208 P	b 165	1	50.49	ppb	0.37	50	101.0	90 - 110	
232 T	h 165	1	51.99	ppb	2.44	50	104.0	90 - 110	
238 U	165	1	51.90	ppb	0.76	50	103.8	90 - 110	
ISTD	Elements								
Eleme	nt	Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 L	ıi	1	571014		0.79	581797	98.1	30 - 120	
	Sc	1	2538915		1.25	2574983	98.6	30 - 120	
72 G	Se	1	1213633		1.83	1211627	100.2	30 - 120	
115 I	n	1	3399341		0.85	3426576	99.2	30 - 120	

	Tune File#	1	c:\icpchem\1\75	00\he.u			
165	Но	1	5600207	0.53	5647086	99.2	30 - 120
115	In	1	3399341	0.85	3426576	99.2	30 - 120
72	Ge	1	1213633	1.83	1211627	100.2	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\027 CCB.D\027 CCB.D#

Date Acquired: Jul 21 2009 06:33 pm

TEL QC Summary: Operator: Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.006	ppb	173.20	1.00	
51 V	72	1	-0.006	ppb	515.80	1.00	
52 Cr	72	1	-0.037	ppb	49.31	1.00	
55 Mn	72	1	-0.018	ppb	70.24	1.00	
59 Co	72	1	0.002	ppb	18.76	1.00	
60 Ni	72	1	0.005	ppb	28.03	1.00	
63 Cu	72	1	-0.039	ppb	12.85	1.00	
66 Zn	72	1	0.010	ppb	155.67	1.00	
75 As	72	1	-0.008	ppb	188.46	1.00	
78 Se	72	1	0.001	ppb	63037.00	1.00	
95 Mo	72	1	0.038	ppb	19.24	1.00	
107 Ag	115	1	0.006	ppb	44.60	1.00	
111 Cd	115	1	0.007	ppb	37.32	1.00	
118 Sn	115	1	-0.057	ppb	99.88	1.00	
121 Sb	115	1	0.059	ppb	8.11	1.00	
137 Ba	115	1	0.003	ppb	62.71	1.00	
205 Tl	165	1	0.021	ppb	14.15	1.00	
208 Pb	165	1	0.004	ppb	24.01	1.00	
232 Th	165	1	0.775	ppb	18.32	1.00	
238 U	165	1	0.010	ppb	13.56	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	568757	0.26	581797	97.8	30 - 120	
45 Sc	1	2523515	0.52	2574983	98.0	30 - 120	
72 Ge	1	1190357	0.87	1211627	98.2	30 - 120	
115 In	1	3393018	0.90	3426576	99.0	30 - 120	
165 Ho	1	5546048	0.69	5647086	98.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 : Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\028WASH.D\028WASH.D#

Date Acquired: Jul 21 2009 06:36 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLCV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.945 ppb	17.37	1.30	
51 V	72	1	5.047 ppb	0.91	6.50	
52 Cr	72	1	2.021 ppb	3.49	2.60	
55 Mn	72	1	1.010 ppb	5.40	1.30	
59 Co	72	1	1.024 ppb	2.85	1.30	
60 Ni	72	1	2.156 ppb	3.13	2.60	
63 Cu	72	1	2.053 ppb	0.90	2.60	
66 Zn	72	1	10.450 ppb	1.17	13.00	
75 As	72	1	5.192 ppb	1.28	6.50	
78 Se	72	1	5.235 ppb	5.22	6.50	
95 Mo	72	1	2.123 ppb	6.02	2.60	
107 Ag	115	. 1	5.226 ppb	1.25	6.50	
111 Cd	115	1	1.069 ppb	5.99	1.30	
118 Sn	115	1	9.851 ppb	1.45	13.00	
121 Sb	115	1	1.944 ppb	1.32	2.60	
137 Ba	115	1	1.079 ppb	5.58	1.30	
205 Tl	165	1	1.091 ppb	0.56	1.30	
208 Pb	165	1	1.065 ppb	1.02	1.30	
232 Th	165	1	2.329 ppb	1.74	2.60	
238 U	165	1	1.101 ppb	0.77	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	563752	0.35	581797	96.9	30 - 120	
45 Sc	1	2522070	0.50	2574983	97.9	30 - 120	
72 Ge	1	1195071	0.30	1211627	98.6	30 - 120	
115 In	1	3409514	0.82	3426576	99.5	30 - 120	
165 Ho	1	5555873	0.54	5647086	98.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\029 BLK.D\029 BLK.D#

Date Acquired: Jul 21 2009 06:39 pm

QC Summary: Operator: TEL LGEERB Analytes: Pass

Sample Name: ISTD: Misc Info: Pass BLANK 9194272 6020

Vial Number: 2208

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	0.000 ppb	0.00	2.00	
51 V	72	1	-0.023 ppb	197.29	2.00	
52 Cr	72	1	0.079 ppb	10.06	2.00	
55 Mn	72.	1	0.108 ppb	12.70	2.00	
59 Co	72	1	0.000 ppb	501.93	2.00	
60 Ni	72	1	0.025 ppb	81.97	2.00	
63 Cu	72	1	0.077 ppb	14.50	2.00	
66 Zn	72	1	0.692 ppb	2.78	2.00	
75 As	72	1	-0.001 ppb	1570.10	2.00	
78 Se	72	1	0.138 ppb	271.86	2.00	
95 Mo	72	1	0.012 ppb	30.51	2.00	
107 Ag	115	1	0.005 ppb	43.98	2.00	
111 Cd	115	1	0.003 ppb	153.49	2.00	
118 Sn	115	1	-0.388 ppb	3.06	2.00	
121 Sb	115	1	0.032 ppb	4.02	2.00	
137 Ba	115	1	0.024 ppb	41.42	2.00	
205 Tl	165	1	0.024 ppb	33.52	2.00	
208 Pb	165	1	0.010 ppb	10.00	2.00	
232 Th	165	1	0.149 ppb	18.82	2.00	
238 U	165	1	0.003 ppb	8.64	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567901	0.49	581797	97.6	30 - 120	
45 Sc	1	2536930	0.98	2574983	98.5	30 - 120	
72 Ge	1	1190052	0.57	1211627	98.2	30 - 120	
115 In	1	3404908	0.81	3426576	99.4	30 - 120	
165 Ho	1	5537384	1.21	5647086	98.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

ISTD:

Pass

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\030 LCS.D\030 LCS.D#

Date Acquired: Jul 21 2009 06:41 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass

Sample Name: LGEERC
Misc Info: LCS
Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Rar	nge (%)	Flag
9 Be	6	1	40.84	2.97	40	102.1	80 -	- 120	
51 V	72	1	41.46	0.89	40	103.7	80 -	- 120	
52 Cr	72	1	42.08	1.02	40	105.2	80 -	- 120	
55 Mn	72	1	42.07	2.68	40	105.2	80 -	- 120	
59 Co	72	1	42.43	1.84	40	106.1	80 -	- 120	
60 Ni	72	1	43.29	2.68	40	108.2	80 -	- 120	
63 Cu	72	1	43.58	2.40	40	109.0	80 -	- 120	
66 Zn	72	1	41.11	1.13	40	102.8	80 -	- 120	
75 As	72	1	41.33	1.55	40	103.3	80 -	- 120	
78 Se	72	1	40.24	3.32	40	100.6	80 -	- 120	
95 Mo	72	1	43.74	5.12	40	109.4	80 -	- 120	
107 Ag	115	1	42.07	1.97	40	105.2	80 -	- 120	
111 Cd	115	1	41.62	1.54	40	104.1	80 -	- 120	
118 Sn	115	1	-0.06	879.10	40	-0.2	80 -	- 120	
121 Sb	115	1	40.67	1.75	40	101.7	80 -	- 120	
137 Ba	115	1	42.32	1.65	40	105.8	80 -	- 120	
205 Tl	165	1	43.38	1.33	40	108.5	80 -	- 120	
208 Pb	165	1	43.18	0.66	40	108.0	80 -	- 120	
232 Th	165	1	46.22	3.01	40	115.6	80 -	- 120	
238 U	165	1	44.22	0.28	40	110.6	80 -	- 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	572827	4.47	581797	98.5	30 - 120	
45 Sc	1	2536116	1.65	2574983	98.5	30 - 120	
72 Ge	1	1194379	2.43	1211627	98.6	30 - 120	
115 In	1	3408702	2.96	3426576	99.5	30 - 120	
165 Ho	1	5609006	1.65	5647086	99.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

Date Acquired: Jul 21 2009 06:44 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: TEL ISTD: **Pass** Sample Name: LGCN3 10X

Misc Info: D9G100272

Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.11	0.01	ppb	86.58	3600	
51 V	72	1	21.63	2.16	ppb	7.43	3600	
52 Cr	72	1	6.32	0.63	ppb	7.96	3600	
55 Mn	72	1	5.24	0.52	ppb	6.66	3600	
59 Co	72	1	0.39	0.04	ppb	16.50	3600	
60 Ni	72	1	4.15	0.41	ppb	14.15	3600	
63 Cu	72	1	0.17	0.02	ppb	16.19	3600	
66 Zn	72	1	3.05	0.31	ppb	11.24	3600	
75 As	72	1	198.10	19.81	ppb	2.87	3600	
78 Se	72	1	4.94	0.49	ppb	39.09	3600	
95 Mo	72	1	16.44	1.64	ppb	4.40	3600	
107 Ag	115	1	0.09	0.01	ppb	63.79	3600	
111 Cd	115	1	0.13	0.01	ppb	29.31	3600	
118 Sn	115	1	-5.34	-0.53	ppb	1.82	3600	
121 Sb	115	1	0.48	0.05	ppb	8.21	3600	
137 Ba	115	1	33.07	3.31	ppb	2.19	3600	
205 Tl	165	1	0.27	0.03	ppb	15.00	3600	
208 Pb	165	1	0.16	0.02	ppb	10.80	3600	
232 Th	165	1	6.24	0.62	ppb	18.22	1000	
238 U	165	1	55.05	5.51	ppb	1.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567824	0.66	581797	97.6	30 - 120	
45 Sc	1	2404508	0.72	2574983	93.4	30 - 120	
72 Ge	1	1124528	1.16	1211627	92.8	30 - 120	
115 In	1	3208719	1.35	3426576	93.6	30 - 120	
165 Ho	1	5383143	1.62	5647086	95.3	30 - 120	

Tune File# c:\icpchem\1\7500\he.u 1 Tune File# C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\032SDIL.D\032SDIL.D#

Date Acquired: Jul 21 2009 06:47 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3P50

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref	Conc.	Actual(%)	QC	Rang	e(%)	Flag
9 Be	6	1	0.00	ppb	0.00		0.00	0.0	90	_	110	_
51 V	72	1	0.43	ppb	23.28		0.43	99.3	90	-	110	
52 Cr	72	1	0.29	ppb	4.37		0.13	229.3	90	-	110	
55 Mn	72	1	0.15	ppb	6.68		0.10	144.4	90	-	110	
59 Co	72	1	0.01	ppb	66.01		0.01	130.9	90	_	110	
60 Ni	72	1	0.26	ppb	15.21		0.08	310.4	90	-	110	
63 Cu	72	1	-0.01	ppb	106.68		0.00	-353.0	90	-	110	
66 Zn	72	1	0.09	ppb	22.23		0.06	148.6	90	-	110	
75 As	72	1	3.90	ppb	0.41		3.96	98.4	90	_	110	
78 Se	72	1	0.05	ppb	1070.40		0.10	46.0	90	-	110	
95 Mo	72	1	0.31	ppb	1.89		0.33	95.3	90	-	110	
107 Ag	115	1	0.00	ppb	66.72		0.00	156.3	90	_	110	
111 Cd	115	1	0.00	ppb	175.62		0.00	145.6	90	-	110	
118 Sn	115	1	-0.53	ppb	3.47		-0.11	493.3	90	-	110	
121 Sb	115	1	0.02	ppb	16.35		0.01	181.6	90	-	110	
137 Ba	115	1	0.66	ppb	2.72		0.66	99.8	90	-	110	
205 Tl	165	1	0.00	ppb	195.50		0.01	21.4	90	-	110	
208 Pb	165	1	0.01	ppb	27.48		0.00	185.7	90	-	110	
232 Th	165	1	0.09	ppb	13.71		0.12	75.2	90	-	110	
238 U	165	1	1.10	ppb	1.87		1.10	100.1	90	-	110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565608	0.94	581797	97.2	30 - 120	
45 Sc	1	2460020	0.58	2574983	95.5	30 - 120	
72 Ge	1	1155387	1.16	1211627	95.4	30 - 120	
115 In	1	3303714	1.14	3426576	96.4	30 - 120	
165 Ho	1	5431207	0.86	5647086	96.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

SERIAL DILUTION

Denver					SERI	AL DI	LUTT	ON		
Method: 6020 (ICP/MS)		ICPMS_0	24		Reported	Reported: 07/22/09 08:07:22				
Department: 090 (Metals)						Source:	Spreads	sheet		
Sample: LGCN3P50		Se	rial Dilution:	50.00	Sample I	Dilution:	10.00			
Instrument: Agilent7500		Chanr	nel 272							
File: AG072109 #32		Method	d 6020							
Acquired: 07/21/2009 18:47:00			S_024		Matrix	c AQUE	ous			
Calibrated: 07/21/2009 17:28:00				Units: ug/L						
CASN Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q		
7440-41-7 Beryllium	9		0	0.11200	100		*			
7440-62-2 Vanadium	51	5166	21.480	21.630	0.693		*			
7440-47-3 Chromium	52	6495	14.490	6.3200	129		*			
7439-96-5 Manganese	55	3291	7.5700	5.2420	44.4		*			
7440-48-4 Cobalt	59	213	0.51000	0.38970	30.9		*			
7440-02-0 Nickel	60	897	12.880	4.1490	210		*			
7440-50-8 Copper	63	553	-0.59100	0.16740	453		*			
7440-66-6 Zinc	66	485	4.5335	3.0510	48.6		*			
7440-38-2 Arsenic	75	5677	194.90	198.10	1.62	0.21	NC			
7782-49-2 Selenium	78	557	2.2740	4.9420	54.0	0.70	NC			
7439-98-7 Molybdenum	95	1283	15.660	16.440	4.74		*			
7440-22-4 Silver	107	40	0.13490	0.08632	56.3		*			
7440-43-9 Cadmium	111	15	0.19425	0.13340	45.6		*			
7440-31-5 Tin	118	837	-26.330	-5.3380			*			
7440-36-0 Antimony	121	160	0.87700	0.48280	81.6		*			
7440-39-3 Barium	137	2169	32.995	33.070	0.227		*			
7440-28-0 Thallium	205	250	0.05780	0.26950	78.6		*			
7439-92-1 Lead	208	484	0.30480	0.16410	85.7		*			
7440-61-1 Uranium	238	40915	55.100	55.050	0.0908		*			
7440-29-1 Thorium	232	3247	4.6955	6.2410	24.8		*			
7439-93-2 Lithium	6			0			*			
7440-20-2 Scandium	45			0			*			
7440-74-6 Indium	115			0			*			
7440-56-4 Germanium	72			0			*			

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E : Difference greater than Limit (10%)

0

165

Reviewed by:

Date: 72Wg

IDB Reports

TestAmerica, Inc.

Version: 6.02.068

View Page 1 of 1

7440-60-0 Holmium

Post Digestion Spiked Sample (PDS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\033PDS.D\033PDS.D\#

Date Acquired: Jul 21 2009 06:50 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3Z

Misc Info: POST DIGESTION SPIKE

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: PDS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Spike Ref. File; ---

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	200.50	0.01	ppb	2,01	200	100.2	75 - 125	
51 V	72	1	199.90	2.16	ppb	1.11	200	98.9	75 - 125	
52 Cr	72	1	201.70	0.63	ppb	1.61	200	100.5	75 - 125	
55 Mn	72	1	198.30	0.52	ppb	1.60	200	98.9	75 - 125	
59 Co	72	1	195.50	0.04	ppb	2.21	200	97.7	75 - 125	
60 Ni	72	1	195.10	0.41	ppb	0.98	200	97.3	75 - 125	
63 Cu	72	1	195.80	0.02	ppb	0.06	200	97.9	75 - 125	
66 Zn	72	1	201.20	0.31	ppb	1.52	200	100.4	75 - 125	
75 As	72	1	221.60	19.81	ppb	1.14	200	100.8	75 - 125	
78 Se	72	1	205.80	0.49	ppb	1.72	200	102.6	75 - 125	
95 Mo	72	1	206.50	1.64	ppb	1.30	200	102.4	75 - 125	
107 Ag	115	1	48.42	0.01	ppb	1.14	50	96.8	75 - 125	
111 Cd	115	1	199.60	0.01	ppb	0.85	200	99.8	75 - 125	
118 Sn	115	1	182.90	-0.53	ppb	0.64	200	91.7	75 - 125	
121 Sb	115	1	200.40	0.05	ppb	0.62	200	100.2	75 - 125	
137 Ba	115	1	204.10	3.31	ppb	0.79	200	100.4	75 - 125	
205 Tl	165	1	196.40	0.03	ppb	0.92	200	98.2	75 - 125	
208 Pb	165	1	194.00	0.02	ppb	0.57	200	97.0	75 - 125	
232 Th	1.65	1	0.06	0.62	ppb	5.86	200	0.0	75 - 125	
238 U	165	1	208.90	5.51	ppb	1.19	200	101.7	75 - 125	

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	552017	0.97	581797	94.9	30 - 120	
45 Sc	1	2393086	1.79	2574983	92.9	30 - 120	
72 Ge	1	1113187	1.37	1211627	91.9	30 - 120	
115 In	1	3182521	0.72	3426576	92.9	30 - 120	
165 Ho	1	5376631	0.55	5647086	95.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

 $\verb| ISTD Ref File : C:\| C:\| CPCHEM\| 1\| DATA\| AG072109.B\| 003CALB.D\| 003CALB.D\| 4$

Denver

SAMPLE SPIKE

Method: 6020 (ICP/MS)	ICPMS_024		Reported: 07/22/09 08:07:27		
Department: 090 (Metals)			Source: Spreadsheet		
Sample: LGCN3Z	Spike Dilution:	1.00	Sample Dilution: 10.00		
Instrument: Agilent7500	Channel 272				
File: AG072109 #33	Method 6020_				
Acquired: 07/21/2009 18:50:00	ICPMS_024	Matrix: AQUEOUS			
Calibrated: 07/21/2009 17:28:00		Units: ug/L			

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7	Beryllium	9	116367	200.50	0.01120	100	200		
7440-62-2	Vanadium	51	2276200	199.90	2.1630	98.9	200		
7440-47-3	Chromium	52	2295910	201.70	0.63200	101	200		
7439-96-5	Manganese	55	2733570	198.30	0.52420	98.9	200		
7440-48-4	Cobalt	59	2753080	195.50	0.03897	97.7	200		
7440-02-0	Nickel	60	601491	195.10	0.41490	97.3	200		
7440-50-8	Copper	63	1409320	195.80	0.01674	97.9	200		
7440-66-6	Zinc	66	341573	201.20	0.30510	100	200		
7440-38-2	Arsenic	75	305470	221.60	19.810	102	200		
7782-49-2	Selenium	78	55960	205.80	0.49420	(103)	200		
7439-98-7	Molybdenum	95	760715	206.50	1.6440	102	200		
7440-22-4	Silver	107	525638	48.420	0.00863	96.8	50.0		
7440-43-9	Cadmium	111	447213	199.60	0.01334	99.8	200		
7440-31-5	Tin	118	1194630	182.90	-0.53380	91.4	200		
7440-36-0	Antimony	121	1511700	200.40	0.04828	100	200		
7440-39-3	Barium	137	634553	204.10	3.3070	100	200		
7440-28-0	Thallium	205	5056800	196.40	0.02695	98.2	200		
7439-92-1	Lead	208	6807220	194.00	0.01641	97.0	200		
7440-61-1	Uranium	238	7672550	208.90	5.5050	102	200		
7440-29-1	Thorium	232	2147	0.05994	0.62410				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by: Date: 7/21/09

IDB Reports TestAmerica, Inc. Version: 6.02.068

View Page 1 of 1

ISTD: Pass

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\034_MS.D\034_MS.D#

Jul 21 2009 06:52 pm QC Summary: Date Acquired: NormISIS.M Acq. Method: Analytes: Pass

 \mathtt{TEL} Operator:

LGCN3S 10X Sample Name: MATRIX SPIKE Misc Info:

2301 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

MS Sample Type: Prep Dil. Factor: 10.00 Undiluted Autodil Factor: 10.00 Final Dil Factor:

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.28	0.01	ppb	3.84	40	10.7	50 - 150
51 V	72	1	6.27	2.16	ppb	1.52	40	14.9	50 - 150
52 Cr	72	1	4.83	0.63	ppb	4.02	40	11.9	50 - 150
55 Mn	72	1	4.67	0.52	ppb	0.82	40	11.5	50 - 150
59 Co	72	1	4.21	0.04	ppb	1.66	40	10.5	50 - 150
60 Ni	72	1	4.58	0.41	ppb	2.25	40	11.3	50 - 150
63 Cu	72	1	4.24	0.02	ppb	2.92	40	10.6	50 - 150
66 Zn	72	1	4.53	0.31	ppb	4.27	40	11.2	50 - 150
75 As	72	1	23.45	19.81	ppb	0.47	40	39.2	50 - 150
78 Se	72	1	4.43	0.49	ppb	4.58	40	10.9	50 - 150
95 Mo	72	1	6.07	1.64	ppb	2.05	40	14.6	50 - 150
107 Ag	115	1	4.06	0.01	ppb	2.34	40	10.2	50 - 150
111 Cd	115	1	4.28	0.01	ppb	1.30	40	10.7	50 - 150
118 Sn	115	1	-0.29	-0.53	ppb	8.52	40	-0.7	50 - 150
121 Sb	115	1	4.37	0.05	ppb	0.90	40	10.9	50 - 150
137 Ba	115	1	7.57	3.31	ppb	1.41	40	17.5	50 - 150
205 Tl	165	1	4.37	0.03	ppb	0.09	40	10.9	50 - 150
208 Pb	165	1	4.34	0.02	ppb	0.98	40	10.9	50 - 150
232 Th	165	1	4.70	0.62	ppb	2.44	40	11.6	50 - 150
238 U	165	1	10.08	5.51	ppb	0.80	40	22.2	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	556944	0.45	581797	95.7	30 - 120
45 Sc	1	2377843	1.11	2574983	92.3	30 - 120
72 Ge	1	1122514	1.35	1211627	92.6	30 - 120
115 In	1	3221254	0.75	3426576	94.0	30 - 120
165 Но	1	5362470	0.23	5647086	95.0	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\035 CCV.D\035 CCV.D#

Date Acquired: Jul 21 2009 06:55 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Eleme	nts
បារ	mont	TC

Eler	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.42	ppb	1.97	50	98.8	90 - 110	
51	V	72	1	48.32	ppb	0.92	50	96.6	90 - 110	
52	Cr	72	1	48.98	ppb	0.92	50	98.0	90 - 110	
55	Mn	72	1	48.41	ppb	0.46	50	96.8	90 - 110	
59	Co	72	1	49.42	ppb	0.37	50	98.8	90 - 110	
60	Νi	72	1	49.85	ppb	0.52	50	99.7	90 - 110	
63	Cu	72	1	50.16	ppb	0.84	50	100.3	90 - 110	
66	Zn	72	1	49.95	ppb	0.90	50	99.9	90 - 110	
75	As	72	1	50.23	ppb	0.25	50	100.5	90 - 110	
78	Se	72	1	50.22	ppb	2.05	50	100.4	90 - 110	
95	Mo	72	1	50.05	ppb	0.52	50	100.1	90 - 110	
107	Ag	115	1	49.31	ppb	0.59	50	98.6	90 - 110	
111	Cd	115	1	49.60	ppb	0.17	50	99.2	90 - 110	
118	Sn	115	1	49.20	ppb	0.37	50	98.4	90 - 110	
121	Sb	115	1	49.37	ppb	0.88	50	98.7	90 - 110	
137	Ва	115	1	49.60	ppb	0.50	50	99.2	90 - 110	
205	Tl	165	1	50.85	ppb	1.38	50	101.7	90 - 110	
208	Pb	165	1	50.56	ppb	0.82	50	101.1	90 - 110	
232	Th	165	1	52.19	ppb	3.26	50	104.4	90 - 110	
238	U	165	1	51.93	ppb	1.69	50	103.9	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540158	0.94	581797	92.8	30 - 120	
45 Sc	1	2438139	1.30	2574983	94.7	30 - 120	
72 Ge	1	1153755	0.36	1211627	95.2	30 - 120	
115 In	1	3309113	0.86	3426576	96.6	30 - 120	
165 Ho	1	5464053	0.74	5647086	96.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\036 CCB.D\036 CCB.D#

Date Acquired: Jul 21 2009 06:58 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC E	Lemen	ts
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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	-0.003	ppb	487.71	1.00	
52 Cr	72	1	-0.001	ppb	1245.80	1.00	
55 Mn	72	1	-0.013	ppb	48.53	1.00	
59 Co	72	1	0.000	ppb	382.88	1.00	
60 Ni	72	1	-0.006	ppb	152.58	1.00	
63 Cu	72	1	-0.033	ppb	14.97	1.00	
66 Zn	72	1	0.013	ppb	162.14	1.00	
75 As	72	1	-0.001	ppb	1279.80	1.00	
78 Se	72	1	0.044	ppb	96.85	1.00	
95 Mo	72	1	0.048	ppb	21.21	1.00	
107 Ag	115	1	0.007	ppb	13.19	1.00	
111 Cd	115	1	0.004	ppb	36.72	1.00	
118 Sn	115	1	-0.066	ppb	28.84	1.00	
121 Sb	115	1	0.060	ppb	6.65	1.00	
137 Ba	115	1	0.010	ppb	78.17	1.00	
205 Tl	165	1	0.019	ppb	11.00	1.00	
208 Pb	165	1	0.004	ppb	45.34	1.00	
232 Th	165	1	0.795	ppb	15.81	1.00	
238 U	165	1	0.011	ppb	4.95	1.00	

ISTD Elements

TOTO HIGHER							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	552374	0.81	581797	94.9	30 - 120	
45 Sc	1	2446795	1.11	2574983	95.0	30 - 120	
72 Ge	1	1178029	1.15	1211627	97.2	30 - 120	
115 In	1	3329395	0.66	3426576	97.2	/ 30 - 120	
165 Ho	1	5475567	0.43	5647086	97.0 /	/ 30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\				
Tune File#	3	C:\ICPCHEM\	1\7500\		•		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Wash QC Report

Data File:

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Date Acquired:

Jul 21 2009 07:01 pm

Operator:

TEL

QC Summary:

Sample Name:

RLCV

Analytes: Pass

Misc Info:

ISTD: Pass

Vial Number:

1204

C:\ICPCHEM\1\METHODS\NormISIS.M

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type:

WASH

Total Dil Factor:

1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.001 ppb	9.18	1.30	
51 V	72	1	5.141 ppb	2.55	6.50	
52 Cr	72	1	2.091 ppb	2.49	2.60	
55 Mn	72	1	1.005 ppb	1.26	1.30	
59 Co	72	1	1.028 ppb	5.10	1.30	
60 Ni	72	1	2.103 ppb	0.94	2.60	
63 Cu	72	1	2.128 ppb	2.55	2.60	
66 Zn	72	1	10.560 ppb	2.59	13.00	
75 As	72	1	5.192 ppb	0.09	6.50	
78 Se	72	1	6.309 ppb	1.74	6.50	
95 Mo	72	1	2.070 ppb	2.44	2.60	
107 Ag	115	1	5.185 ppb	1.03	6.50	
111 Cd	115	1	1.087 ppb	10.27	1.30	
118 Sn	115	1	9.916 ppb	0.55	13.00	
121 Sb	115	1	1.957 ppb	2.80	2.60	
137 Ba	115	1	1.051 ppb	2.71	1.30	
205 Tl	165	1	1.091 ppb	2.87	1.30	
208 Pb	165	1	1.075 ppb	0.84	1.30	
232 Th	165	1	2.350 ppb	2.29	2.60	
238 U	165	1	1.116 ppb	0.75	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	550628	0.54	581797	94.6	30 - 120	
45 Sc	1	2456537	0.83	2574983	95.4	30 - 120	
72 Ge	1	1156394	1.08	1211627	95.4	30 - 120	
115 In	1	3321593	0.50	3426576	96.9	30 - 120	
165 Ho	1	5496023	1.28	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :ISTD Failures

0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\038 MSD.D\038 MSD.D#

Date Acquired: Jul 21 2009 07:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3D 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\034 MS.D\034 MS.D\#

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	6	1	4.06	ppb	5.70	4.28	5.18	20	
51 V	72	1	6.38	ppb	1.64	6.27	1.79	20	
52 Cr	72	1	4.79	ppb	0.59	4.83	0.85	20	
55 Mn	72	1	4.66	ppb	1.04	4.67	0.34	20	
59 Co	72	1	4.26	ppb	3.02	4.21	1.11	20	
60 Ni	72	1	4.59	ppb	3.03	4.58	0.15	20	
63 Cu	72	1	4.29	ppb	0.78	4.24	1.17	20	
66 Zn	72	1	4.59	ppb	2.90	4.53	1.23	20	
75 As	72	1	23.78	ppb	1.59	23.45	1.40	20	
78 Se	72	1	4.84	ppb	10.22	4.43	8.78	20	
95 Mo	72	1	5.96	ppb	2.88	6.07	1.73	20	
107 Ag	115	1	4.19	ppb	3,60	4.06	2.98	20	
111 Cd	115	1	4.27	ppb	1.75	4.28	0.12	20	
118 Sn	115	1	-0.49	ppb	0.60	-0.29	-50.16	20	
121 Sb	115	1	4.30	ppb	1.48	4.37	1.66	20	
137 Ba	115	1	7.66	ppb	3.26	7.57	1.09	20	
205 Tl	165	1	4.33	ppb	1.08	4.37	0.87	20	
208 Pb	165	1	4.32	ppb	0.78	4.34	0.44	20	
232 Th	165	1	4.77	ppb	2.43	4.70	1.33	20	
238 U	165	1	9.96	ppb	0.82	10.08	1.22	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	546064	0.27	581797	93.9	30 - 120	
45 Sc	1	2359431	0.90	2574983	91.6	30 - 120	
72 Ge	1	1104590	0.97	1211627	91.2	30 - 120	
115 In	1	3149159	0.41	3426576	91.9	30 - 120	
165 Ho	1	5369723	0.97	5647086	95.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\039SMPL.D\039SMPL.D#

Date Acquired: Jul 21 2009 07:06 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: TEL ISTD: Pass Sample Name: LGCQK 10X

Misc Info: D9G100274 Vial Number: 2303

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	23.68	2.37	ppb	1.85	3600	
52 Cr	72	1	12.40	1.24	ppb	2.95	3600	
55 Mn	72	1	2.12	0.21	ppb	8.12	3600	
59 Co	72	1	0.30	0.03	ppb	7.53	3600	
60 Ni	72	1	3.33	0.33	ppb	5.22	3600	
63 Cu	72	1	-0.20	-0.02	ppb	5.61	3600	
66 Zn	72	1	2.60	0.26	ppb	8.14	3600	
75 As	72	1	114.20	11.42	ppb	1.08	3600	
78 Se	72	1	2.84	0.28	ppb	68.00	3600	
95 Mo	72	1	42.30	4.23	ppb	2.35	3600	
107 Ag	115	1	0.07	0.01	ppb	37.85	3600	
111 Cd	115	1	0.07	0.01	ppb	133.86	3600	
118 Sn	115	1	-5.30	-0.53	ppb	2.37	3600	
121 Sb	115	1	0.28	0.03	ppb	5.21	3600	
137 Ва	115	1	34.03	3.40	ppb	4.11	3600	
205 Tl	165	1	0.11	0.01	ppb	30.92	3600	
208 Pb	165	1	0.09	0.01	ppb	19.12	3600	
232 Th	165	1	1.32	0.13	ppb	13.37	1000	
238 U	165	1	6.45	0.64	ppb	0.89	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551022	0.60	581797	94.7	30 - 120	
45 Sc	1	2336691	0.75	2574983	90.7	30 - 120	
72 Ge	1	1100169	0.92	1211627	90.8	30 - 120	
115 In	1	3126709	0.78	3426576	91.2	30 - 120	
165 Ho	1	5251243	0.64	5647086	93.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ 3 C:\ICPCHEM\1\7500\ Tune File#

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\040SMPL.D\040SMPL.D\#

Date Acquired: Jul 21 2009 07:09 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJV 10X ISTD: Pass

Misc Info: D9G110152
Vial Number: 2304

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.12	0.01	ppb	86.63	3600	
51 V	72	1	16.34	1.63	ppb	14.05	3600	
52 Cr	72	1	858.20	85.82	ppb	0.42	3600	
55 Mn	72	1	62.25	6.23	ppb	0.82	3600	
59 Co	72	1	0.35	0.04	ppb	4.83	3600	
60 Ni	72	1	3.24	0.32	ppb	5.41	3600	
63 Cu	72	1	-0.11	-0.01	ppb	134.88	3600	
66 Zn	72	1	0.97	0.10	ppb	20.21	3600	
75 As	72	1	137.30	13.73	ppb	1.37	3600	
78 Se	72	1	1.53	0.15	ppb	126.27	3600	
95 Mo	72	1	23.17	2.32	ppb	1.07	3600	
107 Ag	115	1	0.03	0.00	ppb	74.34	3600	
111 Cd	115	1	0.05	0.00	ppb	97.57	3600	
118 Sn	115	1	-5.16	-0.52	ppb	3.23	3600	
121 Sb	115	1	0.22	0.02	ppb	2.16	3600	
137 Ba	115	1	20.27	2.03	ppb	4.70	3600	
205 Tl	165	1	0.11	0.01	ppb	13.97	3600	
208 Pb	165	1	0.08	0.01	ppb	23.24	3600	
232 Th	165	1	0.36	0.04	ppb	9.36	1000	
238 U	165	1	7.67	0.77	ppb	2.40	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	549478	0.91	581797	94.4	30 - 120	
45 Sc	1	2376723	1.71	2574983	92.3	30 - 120	
72 Ge	1	1096432	0.47	1211627	90.5	30 - 120	
115 In	1	3124200	0.99	3426576	91.2	30 - 120	
165 Ho	1	5324718	1.58	5647086	94.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\041SMPL.D\041SMPL.D#

Date Acquired: Jul 21 2009 07:11 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJ3 10X ISTD: Pass

Misc Info: D9G110155

Vial Number: 2305

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Elem	nent	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.06	0.01	ppb	173.23	3600	
51	V	72	1	25.99	2.60	ppb	1.41	3600	
52	Cr	72	1	90.81	9.08	ppb	1.84	3600	
55	Mn	72	1	2.28	0.23	ppb	3.91	3600	
59	Со	72	1	0.28	0.03	ppb	8.82	3600	
60	Ni	72	1	3.42	0.34	ppb	10.30	3600	
63	Cu	72	1	-0.03	0.00	ppb	414.27	3600	
66	Zn	72	1	9.09	0.91	ppb	0.15	3600	
75 .	As	72	1	86.50	8.65	ppb	2.13	3600	
78	Se	72	1	1.59	0.16	ppb	168.68	3600	
95	Мо	72	1	35.52	3.55	ppb	3.38	3600	
107.	Ag	115	1	0.02	0.00	ppb	63.47	3600	
111	Cd	115	1	0.11	0.01	ppb	91.74	3600	
118	Sn	115	1	-5.25	-0.52	ppb	1.50	3600	
121	Sb	115	1	0.16	0.02	ppb	27.09	3600	
137	Ва	115	1	26.05	2.61	ppb	2.24	3600	
205	T1	165	1	0.06	0.01	ppb	15.71	3600	
208	Pb	165	1	0.10	0.01	ppb	12.74	3600	
232	Th	165	1	0.18	0.02	ppb	32.01	1000	
238	U	165	1	8.01	0.80	ppb	0.86	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	558798	0.28	581797	96.0	30 - 120	
45 Sc	1	2360484	0.64	2574983	91.7	30 - 120	
72 Ge	1	1106065	0.59	1211627	91.3	30 - 120	
115 In	1	3160658	0.73	3426576	92.2	30 - 120	
165 Ho	1	5332925	0.28	5647086	94.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\042SMPL.D\042SMPL.D#

C:\ICPCHEM\1\CALIB\NormISIS.C

Date Acquired: Jul 21 2009 07:14 pm

QC Summary: Acq. Method: NormISIS.M

Operator: TEL Analytes: Pass ISTD: Pass Sample Name: LGDKR 10X

Misc Info: D9G110159 Vial Number:

2306 Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File:

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	30.44	3.04	ppb	4.27	3600	
52 Cr	72	1	17.70	1.77	ppb	1.53	3600	
55 Mn	72	1	3.41	0.34	ppb	1.05	3600	
59 Co	72	1	0.10	0.01	ppb	35.67	3600	
60 Ni	72	1	2.63	0.26	ppb	23.26	3600	
63 Cu	72	1	-0.14	-0.01	ppb	158.27	3600	
66 Zn	72	1	1.23	0.12	ppb	9.20	3600	
75 As	72	1	57.13	5.71	ppb	1.32	3600	
78 Se	72	1	2.47	0.25	ppb	139.38	3600	
95 Mo	72	1	7.30	0.73	ppb	2.20	3600	
107 Ag	115	1	0.01	0.00	ppb	150.52	3600	
111 Cd	115	1	0.05	0.00	ppb	86.56	3600	
118 Sn	115	1	-5.31	-0.53	ppb	1.46	3600	
121 Sb	115	1	0.12	0.01	ppb	36.48	3600	
137 Ba	115	1 .	22.02	2.20	ppb	2.09	3600	
205 Tl	165	1	0.03	0.00	ppb	69.45	3600	
208 Pb	165	1	0.07	0.01	ppb	7.65	3600	
232 Th	165	1	0.10	0.01	ppb	23.71	1000	
238 U	165	1	2.22	0.22	ppb	2.65	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	564989	0.50	581797	97.1	30 - 120	
45 Sc	1	2392180	0.44	2574983	92.9	30 - 120	
72 Ge	1	1130770	0.41	1211627	93.3	30 - 120	
115 In	1	3228355	1.24	3426576	94.2	30 - 120	
165 Ho	1	5420266	0.22	5647086	96.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\043 CCV.D\043 CCV.D#

Date Acquired: Jul 21 2009 07:17 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Eler	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.65	ppb	2.08	50	99.3	90 - 110	
51	V	72	1	48.04	ppb	1.47	50	96.1	90 - 110	
52	Cr	72	1	48.72	ppb	2.23	50	97.4	90 - 110	
55	Mn	72	1	48.53	ppb	1.91	50	97.1	90 - 110	
59	Co	72	1	49.19	ppb	1.05	50	98.4	90 - 110	
60	Ni	72	1	50.51	ppb	2.15	50	101.0	90 - 110	
63	Cu	72	1	50.79	ppb	1.69	50	101.6	90 - 110	
66	Zn	72	1	49.91	ppb	2.28	50	99.8	90 - 110	
75	As	72	1	50.09	ppb	1.74	50	100.2	90 - 110	
78	Se	72	1	50.55	ppb	0.24	50	101.1	90 - 110	
95	Mo	72	1	50.44	ppb	2.04	50	100.9	90 - 110	
107	Ag	115	1	49.47	ppb	1.12	50	98.9	90 - 110	
111	Cd	115	1	49.64	ppb	0.86	50	99.3	90 - 110	
118	Sn	115	1	49.52	ppb	0.62	50	99.0	90 - 110	
121	Sb	115	1	49.46	ppb	1.50	50	98.9	90 - 110	
137	Ва	115	1	49.75	ppb	0.64	50	99.5	90 - 110	
205	Tl	165	1	52.25	ppb	1.18	50	104.5	90 - 110	
208	Pb	165	1	51.38	ppb	1.02	50	102.8	90 - 110	
232	Th	165	1	53.11	ppb	2.44	50	106.2	90 - 110	
238	U	165	1	53.01	ppb	0.71	50	106.0	90 - 110	
IST	D Ele	ments								

	ID WIEWELLCS							
Εl	ement	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	536974	0.53	581797	92.3	30 - 120	
45	Sc	1	2404825	0.90	2574983	93.4	30 - 120	
72	Ge	1	1144216	1.59	1211627	94.4	30 - 120	
11	5 In	1	3295604	0.45	3426576	96.2	30 - 120	
16	5 Ho	1	5413800	0.49	5647086	95.9	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\044 CCB.D\044 CCB.D#

Date Acquired: Jul 21 2009 07:20 pm

Operator: TEL QC Summary:
Sample Name: CCB Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB
Total Dil Factor: 1.00

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Elem	ent	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 - 1	Ве	6	1	0.000	ppb	0.00	1.00	
51	V	72	1	0.012	ppb	188.91	1.00	
52	Cr	72	1	-0.022	ppb	45.87	1.00	
55 1	Mn	72	1	-0.011	ppb	53.82	1.00	
59 (Со	72	1	0.002	ppb	121.88	1.00	
60	Ni	72	1	0.007	ppb	120.83	1.00	
63	Cu	72	1	-0.039	ppb	12.93	1.00	
66	Zn	72	1	0.001	ppb	1830.70	1.00	
75	As	72	1	-0.015	ppb	100.54	1.00	
78	Se	72	1	0.063	ppb	454.20	1.00	
95 1	Мо	72	1	0.016	ppb	20.60	1.00	
107	Ag	115	1	0.010	ppb	21.43	1.00	
111	Cd	115	1	0.005	ppb	76.54	1.00	
118	Sn	115	1	-0.106	ppb	36.09	1.00	
121	Sb	115	1	0.051	ppb	15.99	1.00	
137	Ва	115	1	0.010	ppb	31.85	1.00	
205	Tl	165	1	0.020	ppb	11.21	1.00	
208	Pb	165	1	0.003	ppb	16.50	1.00	
232	Th	165	1	0.824	ppb	16.14	1.00	
238	U	165	1	0.009	ppb	11.26	1.00	

ISTD Elements

ISTD Ref File :

ISTD Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540872	0.73	581797	93.0	30 - 120	
45 Sc	1	2418946	1.22	2574983	93.9	30 - 120	
72 Ge	1	1139717	0.72	1211627	94.1	30 - 120	
115 In	1	3281751	0.37	3426576	95.8	30 - 120	
165 Ho	1	5438318	1.15	5647086	96.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\checkmark		
Tune File#	3	C:\ICPCHEM\	1\7500\				

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\045WASH.D\045WASH.D#

Date Acquired: Jul 21 2009 07:22 pm

Operator: TEL QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH
Total Dil Factor: 1.00

OC	10.1			
UL	E L	.ean	en	L.S

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.045 ppb	12.08	1.30	
51 V	72	1	5.035 ppb	1.01	6.50	
52 Cr	72	1	2.023 ppb	2.27	2.60	
55 Mn	72	1	1.007 ppb	2.81	1.30	
59 Co	72	1	1.000 ppb	4.78	1.30	
60 Ni	72	1	2.095 ppb	4.44	2.60	
63 Cu	72	1	2.025 ppb	2.63	2.60	
66 Zn	72	1	10.370 ppb	2.29	13.00	
75 As	72	1	5.157 ppb	1.05	6.50	
78 Se	72	1	4.848 ppb	12.40	6.50	
95 Mo	72	1	2.162 ppb	0.74	2.60	
107 Ag	115	1	5.141 ppb	1.03	6.50	
111 Cd	115	1	1.004 ppb	4.06	1.30	
118 Sn	115	1	9.907 ppb	0.76	13.00	
121 Sb	115	1	1.942 ppb	1.51	2.60	
137 Ba	115	1	1.047 ppb	5.14	1.30	
205 Tl	165	1	1.098 ppb	0.61	1.30	
208 Pb	165	1	1.094 ppb	0.45	1.30	
232 Th	165	1	2.411 ppb	1.64	2.60	
238 U	165	1	1.121 ppb	1.49	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	539872	0.98	581797	92.8	30 - 120	
45 Sc	1	2370772	1.41	2574983	92.1	30 - 120	
72 Ge	1	1136181	1.05	1211627	93.8	30 - 120	
115 In	1	3268605	0.72	3426576	95.4	30 - 120	
165 Ho	1	5404596	1.26	5647086	95.7	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts

TestAmerica THE LEADER IN ENVIRONMENTAL TESTENG

Lo	t ID:	D90	1101	52	/	
Cl	ient:	North	igate	Envir	onmental	<u>/</u>
Ва	.tch(es) #:_		9194	1274,	919427	2
Associated S	Samples:			1,2		
Ιc	ertify that, to	the best of	my know	ledge, the a	ittached paci	kage

represents a complete and accurate copy of the original data.

TestAmerica

Signature/Date:_

372

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr
D9G110152	1	SE	LGDJV1AC	20090721	6020TOTA	9194272	AG072109	024
D9G110152	1	AS	LGDJV1AA	20090721	6020TOTA	9194272	AG072109	024
D9G110152	2 D	SE	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024
D9G110152	2 S	SE	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024
D9G110152	2 D	AS	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024
D9G110152	2 S	AS	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024
D9G110152	2	SE	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024
D9G110152	2	AS	LGDJW1A	20090721	6020DSVD	9194274	AG072109	024

METALS PREPARATION LOGS ICP-MS



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 374

Batch Number:

Lot

D9G130000

Water D9G130000

Water

D9G110152

Water

9194274

Work Order

LGEE4

LGEE4

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
JRW	

Zlixley

Prep Date:	07/13/09 Sn
Due Date:	07/23/09
	/
	/
	\ /

Initial Weight/Volume

50 mL

50 mL

Due Date: 07/23/09 **LGDJW** Dissolved SDG:

В

C

50 mL

LGDJW D9G110152 Dissolved Water D9G110152

Due Date: 07/23/09 SDG:

Due Date:

Due Date:

SDG:

SDG:

<u>50 mL</u>

LGDJW Due Date: 07/23/09 D SDG: Dissolved

50 mL

Comments:

Water

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE, SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

METALS PREP SHEET

SOP: DEN-IP-0014



DISSOLVED WATER DIGESTION FOR ICPMS (Prep code MD)

BATCH#	9194274	ALLIQ	JKH	
PREP DATE:	7/14/2009	DIGES	JRW	
CONSUMABLES	USED			
Digestion Cups:	Manufacturer:	Environmental Express	s Lot #:	A901LS267
Were samples filtered	I in the lab? od blank and the LCS were	filtered prior to digestic	Yes on.	₩ No
·			Analyst(s) Initials:	
STANDARDS USE	=n			
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID
2008Cal-1	STD-2636-09	7/1/10	100uL	15
2008Cal-2	STD-2635-09	7/1/10	100uL	15
				in the second second
REAGENTS USEL				
Reagent	Manufacturer	Lot#	Volume Used (mL)	
HNO ₃	JT Baker	H12022	2	
TEMPERATURE (CYCLES			
Thermometer ID	: 4082	Block 8	% Cup # : 4/24	
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)
HNO3/HCI	1200	95	1700	५ ડ
Samples and QC re	evolumed to:	50 mL	Analyst's Initials	Jan
COMMENTS:				

I certify that all information above is correct and complete.

Signature: In with

Date: 7/14/09

Batch Number: 9194272

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
Snw	

Prep Date: Due Date: 77/13/09 Syn

Lot		Work Order			. /	Initial Weight/Volume
D9G1: Wat		LGEER	В	Due Date: SDG:		<u>50 mL</u>
D9G1: Wat		LGEER	С	Due Date: SDG:		<u>50 mL</u>
D9G1 Wat		LGCN3 Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G1 Wa		LGCN3 Total	S	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G1 Wa		LGCN3 Total	D	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G1 Wa		LGCQK Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G1 Wa		LGDJV Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G1 Wa		LGDJ3 Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G1 Wa	10159 ter	LGDKR Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

J 2/2/109

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	9194272	ALLIQ	JKH	
PREP DATE:	7/14/2009	DIGES	JRW	
CONSUMABLES	USED			
Digestion Cups:	Manufacturer:	Environmental Express	Lot #:	A901LS267
One or more samples	s were filtered prior to an	alysis at the instrume	nt. Yes	☐ No
If "yes", then the metho	od blank and the LCS were	e also filtered in the sam	e manner using the san	ne type of filter.
			Analyst(s) Initials:	
STANDARDS USE	ED .			
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID
2008Cal-1	STD-2636-09	7/1/10	100uL	15
2008Cal-2	STD-2635-09	7/1/10	100uL	15
				- Andrews College Coll
REAGENTS USEL)	,		
Reagent	Manufacturer	Lot #	Volume Used (mL)	
HNO ₃	JT Baker	H12022	3	
TEMPERATURE (CYCLES			
Thermometer ID	: <u>J</u> 8864	Block 8	k Cup # : 🕽 🕓	· · · · · · · · · · · · · · · · · · ·
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)
HNO3	1200	43	1615	42
HNO3	1630	92	1700/	
HNO3				
Samples and QC re	evolumed to:	50mL	Analyst's Initials	JUM
COMMENTS:				
I certify that all inform	nation above is correct a	nd complete.	_	
Signature: $\int_{\mathbb{R}^n} \mathbb{R}_n \omega_{\hat{U}}$	d.		Date: 7(14)	oq

TestAmerica 378

METALS SAMPLE DATA ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 379

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ICP-MS Standard and Spike True Values

Post Digestion Spike	200	200	200	200	200	200	200	200	200	200	200	200	200	20	200	200	200	200	200	
Matrix Spike Sample and Duplicate	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ry for the ICSAB.
Laboratory Control Sample and Duplicate	40	040	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ution, the % recove the ICSA from the
Interference Check Sample AB	1	100	100	100	100	100	100	100	100	ŧ	100	100	100	100	100	100	100	100	100	in the ICSA soling the levels in
Interference Check Sample A	100,000 Aluminum	100,000 Calcium	100,000 Magnesium	100,000 Sodium	100,000 Phosphorus	100,000 Potassium	100,000 Sulfur	200,000 Carbon	1,000,000 Chloride	2000 Molybdenum	2000 Titanium									Due to the presence of trace contaminants in the ICSA solution, the % recovery for the ICSAB solution is calculated by subtracting the levels in the ICSA from the ICSAB.
Continuing Calibration Standard	50	20) (20	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	e to the presence SAB solution is
Initial Calibration Standard	40	40	40 40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Cal. Std. 100 ppb	100	100	001	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All units are ug/L.
Element	Aluminum	Antimony	Arsenic	Bervllium	Cadmium	Chromium	Cobalt	Conner	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Thallium	Tin	Uranium	Vanadium	Zinc	

Quality Control Standards

CCB = Continuing Calibration Blank ICB = Initial Calibration Blank ICV = Initial Calibration Verification (Second Source) CCV = Continuing Calibration Verification

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TestAmerica Denver

Standards Preparation Logbook Record

Jul-21-2009

Logbook: \\Densvr06\StdsLog\metals.std			
STD4841-08, 1000 Zn (Inorganic Ventur	res)		Analyst: trudelll
Vendor: Inorganic Ventures Lot No. Solvent: 2% HNO3	o.: B2-ZN02045	Vendor's Expira	ation Date: 10-01-2009
	Received: 09-04-20	08	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
1000 Zn		1,000.0	1,000.0
STD6653-08, 1000 Se			Analyst: trudelll
Solvent: 2% HNO3	o.: B2-SE02003 Received: 11-25-20	-	ation Date: 12-01-2009
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Se		1,000.0	1,000.0
STD1198-09, 1000 mg/L Sn			Analyst: trudelll
Solvent: 1% HNO3	o.: B2-SN02016 Received: 03-02-20	-	ation Date: 03-01-2010
(METALS)-Inventory ID: 833			
Component Sn		Initial Conc (mg/L) 1,000.0	Final Conc (mg/L) 1,000.0
STD1853-09, 1 mg/l Se	/		Analyst: DIAZL
Solvent: 5% HN03 Lot N Date Prep./Opened: 04-01-2009 Date Expires(1): 12-01-2009 (1 Year) pipette: Met 21	o.: H02026		Volume (ml): 100.00

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Parent Std No.: STD6653-08, 1000 Se		t Amount (ml): 0.1000
Parent Date Expires(1): 12-01-2009 Parent Date Expires(2): Component	12-01-2009 <u>Initial Conc (mg/L)</u> 1,000.0	Final Conc (mg/L)
Se	1,000.0	1.0000
STD3611-09, ICP-MS 1ppm Sn/Zn		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)		
Parent Std No.: STD3609-09, ICP-MS 10 ppm Zn	Alique	ot Amount (ml): 1.0000
Parent Std No.: \$1D3009-09, 1C1-1M3 To ppin 2nd Parent Date Expires(1): 10-01-2009 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (mg/L) 1.0000
1000 Zn	10.000	ot Amount (ml): 1.0000
Parent Std No.: STD3610-09, ICP-MS 10 ppm Sn		ot Amount (mi). 1.0000
Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	10.000	1.0000
		Analyst: LILLT
STD4008-09, ICP-MS (024) INT STD BRC-HIGH Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 250.00
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		
Parent Std No.: STD1469-09, Germanium Stock	_	ot Amount (ml): 1.2000
Parent Date Expires(1): 03-16-2010 Parent Date Expires(2)): 04-01-2010	Final Conc (ug/L)
Component	Initial Conc (mg/L) 1,000.0	4,800.0
Ge	•	uot Amount (ml): 1.5000
Parent Std No.: STD1972-09, Lithium 6 Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2)		
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Lithium6	1,000.0	6,000.0
Parent Std No.: STD1973-09, Indium Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2)	-	uot Amount (ml): 0.4000 Final Conc (ug/L)
Component	1,000.0	
In Registration of the State o		uot Amount (ml): 0.4000
Parent Std No.: STD6317-08, Scandium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2)	2): 12-01-2009	
Component	Initial Conc (mg/L)	
Sc	1,000.0	1,000.0

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Aliquot Amount (ml): 0.4000 Parent Std No.: STD6318-08, Holmium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2): 12-01-2009 Initial Conc (mg/L) Final Conc (ug/L) Component 1,600.0 1,000.0 Но STD4289-09, ICP-MS ICSA Analyst: DIAZL Volume (ml): 50.000 Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-20-2009 Date Expires(1): 08-20-2009 (1 Month) Date Expires(2): 02-01-2010 (None) pipettes: Met 8 Parent Std No.: STD0664-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 5.0000 Parent Date Expires(1): 02-01-2010 Parent Date Expires(2): 02-01-2010 Final Conc (ug/L) Component Initial Conc (ug/ml) Αl 1,000.0 100,000 C 2,000.0 200,000 1,000.0 100,000 Ca Cl 10,000 1,000,000 1,000.0 100,000 Fe K 1,000.0 100,000 1.000.0 100,000 Mg 20.000 2,000.0 Mo Na 1,000.0 100,000 P 100,000 1,000.0 S 1,000.0 100,000 Ti 2,000.0 20.000 STD4309-09, ICP-MS BLANK Analyst: DIAZL Solvent: Water Volume (ml): 1,000.0 Date Prep./Opened: 07-21-2009 Date Expires(1): 08-21-2009 (1 Month) Date Verified: 12-31--4714 by - (Verification ID: 0) Parent Std No.: STD4308-09, NITRIC ACID Aliquot Amount (ml): 50.000

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Component

HNO3

Initial Conc (%)

100.00

Final Conc (%)

5.0000

STD4310-09, ICP-MS 10 ppm Sn

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 03-01-2010 (None)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21 and Met 8

Parent Std No.: STD1198-09, 1000 mg/L Sn Aliquot Amount (ml): 0.1000

Analyst: DIAZL

Volume (ml): 10.000

Analyst: DIAZL

Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): 03-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (mg/L)}} \\ \underline{\text{Sn}} & \underline{1,000.0} & \underline{10.000} \end{array}$

STD4311-09, ICP-MS 100 ppb cal

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 50.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 20

Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures Aliquot Amount (ml): 0.2500

Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010

Component	Initial Conc (mg/L)	Final Conc (ug/L)
V	20.000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
Tl	20.000	100.00
U	20.000	100.00

Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures Aliquot Amount (ml): 0.2500 Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (ug/L)}} \\ \underline{\text{Mo}} & \underline{20.000} & \underline{100.00} \end{array}$

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Sb	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquo	t Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Fe	1,000.0	5,000.0
Depart Std No. STD4210 00 ICD MS 10 nnm Sn	Alique	t Amount (ml): 0.5000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	pires(2): 03-01-2010	t Amount (mr). 0.3000
	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
Sn	10.000	100.00
ГD4312-09, ICP-MS CCV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H1202	22	Volume (ml): 100.00
Date Prep./Opened: 07-21-2009		, ,
Date Expires(1): 07-22-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inc	arganic Ventures Alique	ot Amount (ml): 0.2500
	pires(2): 05-01-2010	it Amount (mr). 0.2500
1 \ \ /	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
V -	20.000	50.000
Zn	20.000	50.000
Ag	20.000	50.000
Al	20.000	50.000
As	20.000	50.000
Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000 50.000
Mn Ni	20.000 20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inc		ot Amount (ml): 0.2500
• • • • • • • • • • • • • • • • • • • •	oires(2): 07-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	20.000	50.000
Sb	20.000	50.000
Parent Std No.: STD3862-09, Iron Stock	Aliquo	ot Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Component	minai Colic (liig/L)	mai Conc (ug/L)

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Fe	1,000.0	2,500.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Alique	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	, ,
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	10.000	50.000
Sn	10.000	30.000
STD4313-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 07-21-2009		` ,
Date Expires(1): 07-22-2009 (1 Day)		
pipettes: Met 21 and Met 8		
p.pentest inter 24 main and 6		
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Alique	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	1.0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4311-09, ICP-MS 100 ppb cal	Δlique	ot Amount (ml): 0.1000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	ot Amount (im). 0.1000
Component	Initial Conc (ug/L)	Final Conc (mg/L)
		0.0010
V	100.00 100.00	0.0010
Zn	100.00	0.0010
Ag Al	100.00	0.0010
As	100.00	0.0010
Ba	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010
Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010
Ni	100.00	0.0010
Pb	100.00	0.0010
Se	100.00	0.0010
Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
Ma	100.00	0.0010

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Mo

Sb

Fe Sn 0.0010

0.0010

0.0500 0.0010

100.00 100.00

5,000.0 100.00

STD4314-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Analyst: DIAZL

Analyst: DIAZL

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4313-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Tl	0.0010	0.0002
U	0.0010	0.0002
Mo	0.0010	0.0002
Sb	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

STD4315-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 1.0000

Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000

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Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S	1,000.0	100,000
Ti	20.000	2,000.0
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures	-	t Amount (ml): 0.050
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010		
Component Initia	l Conc (mg/L)	Final Conc (ug/L
V	20.000	100.0
Zn	20.000	100.0
Ag	20.000	100.0
Al	20.000	100.0
As	20.000	100.0
Ba	20.000	100.0
Be	20.000	100.0
Cd	20.000	100.0
Co	20.000	100.0
Cr	20.000	100.0
Cu	20.000	100.0
Mn	20.000	100.0
Ni	20.000	100.0
Pb	20.000	100.0
Se	20.000	100.0
Th	20.000	100.0
		100.0
Tl	20.000	100.0
U	20.000	
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures	_	ot Amount (ml): 0.050
Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-		E: -1 C (//
<u>Component</u> <u>Initia</u>	al Conc (mg/L)	Final Conc (ug/L
Mo	20.000	100.0
Sb	20.000	100.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Aligno	ot Amount (ml): 0.100
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): 03-01-2	-	t / mount (m). 0.100
		Einel Come (well
	al Conc (mg/L)	Final Conc (ug/L
Sn	10.000	100.0
D4316-09, ICPMS LR STD 1000 ppb		Analyst: DIAZI
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day)		Volume (ml): 10.000
Date Explies(1): 07-22-2009 (1 Day) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20 and Met 8		

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Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component	Initial Conc (mg/L)	Final Conc (ug/
V	20.000	
Zn	20.000	1,000
		1,000
Ag Al	20.000	1,000
	20.000	1,000
As D-	20.000	1,000
Ba	20.000	1,000
Be	20.000	1,000
Cd	20.000	1,000
Co	20.000	1,000
Cr	20.000	1,000
Cu	20.000	1,00
Mn	20.000	1,000
Ni	20.000	1,00
Pb	20.000	1,00
Se	20.000	1,00
Th	20.000	1,00
Tl	20.000	1,00
U	20.000	1,00
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Parent Date Expires(1): 06-23-2010 Parent Date Expires(2)	: 07-01-2010	ot Amount (ml): 0.50
Component	Initial Conc (mg/L)	Final Conc (uga
Mo	20.000	
	20.000	1,000
Sb	20.000	
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Aliqu	1,000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Alique: 03-01-2010	1,000 ot Amount (ml): 1.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component	20.000 Aliqu	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0)	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) Alique	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.00 ot Amount (ml): 0.04
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L)	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000 10.000	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.0 Final Conc (ug/ 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00

Page 9 of 11

Co	10.000	40.000
Cr	10.000	40.000
Cu	10.000	40.000
Fe	250.00	1,000.0
Li	10.000	40.000
Mn	10.000	40.000
Ni	10.000	40.000
Pb	10.000	40.000
Se	10.000	40.000
Th	10.000	40.000
Tl	10.000	40.000
Ü	10.000	40.000
V	10.000	40.000
Zn	10.000	40.000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (Hi		t Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	• •	
<u> </u>	Initial Conc (ug/ml)	Final Conc (ug/L)
Component		
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4318-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 50.000
Parent Std No.: STD1853-09, 1 mg/l Se	Aliquo	t Amount (ml): 0.1000
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Se	1.0000	0.0020
	1.0000	0.0020
STD4319-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 05-01-2010 (None) pipettes: Met 20		Volume (ml): 100.00
Parent Std No.: STD3106-09, ICP-MS LLCCV 1 Parent Date Expires(1): 05-01-2010 Parent Date Expires(2):	•	t Amount (ml): 1.0000
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	0.5000	5.0000
Ag Al	3.0000	30.000
As	0.5000	5.0000
വ	0.3000	3.0000

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TestAmerica 390

Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000
Mn	0.1000	1.0000
Na	5.0000	50.000
Ni	0.2000	2.0000
Pb	0.1000	1.0000
Se	0.5000	5.0000
Th	0.2000	2.0000
Tl	0.1000	1.0000
U	0.1000	1.0000
V	0.5000	5.0000
Zn	1.0000	10.000
Parent Std No.: STD3107-09, ICP-MS LLCCV 2	Aliquot Amount	(ml): 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)	
Mo	0.2000	2.0000	
Sb	0.2000	2.0000	
Sn	1.0000	10.000	

LRD 07/21/2009 Reviewed By:

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Denver

RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File ID: AG072109 Analyst: TEL DF Comment Q Sample ID Lot No. Batch Analyzed Date 2 Cal Blank 1.0 07/21/09 17:25 Cal Blank 1.0 07/21/09 17:28 4 100 ppb 1.0 07/21/09 17:31 ICV 1.0 07/21/09 17:33 RLIV 07/21/09 17:36 6 1.0 07/21/09 17:39 7 **ICB** 1.0 **RL STD** 07/21/09 17:42 8 1.0 AFCEE RL 9 1.0 07/21/09 17:44 10 1.0 07/21/09 17:47 **ALTSe** 11 **ICSA** 1.0 07/21/09 17:50 12 **ICSAB** 1.0 07/21/09 17:53 RINSE 07/21/09 17:55 13 1.0 07/21/09 17:58 14 LR 1.0 15 RINSE 1.0 07/21/09 18:00 16 CCV 1.0 07/21/09 18:03 CCB 07/21/09 18:06 17 1.0 **RLCV** 07/21/09 18:09 18 1.0 LGEE4BF D9G130000 9194274 MD 07/21/09 18:11 19 1.0 07/21/09 18:14 20 LGEE4CF D9G130000 9194274 MD 1.0 07/21/09 18:17 21 LGDJWF 10X D9G110152-2 9194274 MD 10.0 22 LGDJWP50F D9G110152 9194274 50.0 07/21/09 18:20 23 **LGDJWZF** 9194274 1.0 07/21/09 18:22 D9G110152-2 24 LGDJWSF 10 D9G110152-2 9194274 MD 10.0 07/21/09 18:25 LGDJWDF 10 D9G110152-2 07/21/09 18:28 25 9194274 MD 10.0 CCV 26 1.0 07/21/09 18:30 27 CCB 1.0 07/21/09 18:33 28 **RLCV** 1.0 07/21/09 18:36 **LGEERB** D9G130000 07/21/09 18:39 29 9194272 MS 1.0 07/21/09 18:41 30 **LGEERC** D9G130000 9194272 MS 1.0 31 LGCN3 10X D9G100272-1 9194272 MS 10.0 07/21/09 18:44 LGCN3P50 50.0 07/21/09 18:47 32 D9G100272 9194272 07/21/09 18:50 33 LGCN3Z D9G100272-1 9194272 1.0 34 LGCN3S 10X D9G100272-1 9194272 MS 10.0 07/21/09 18:52 35 CCV 1.0 07/21/09 18:55 36 **CCB** 1.0 07/21/09 18:58 37 **RLCV** 1.0 07/21/09 19:01 38 LGCN3D 10X D9G100272-1 9194272 MS 10.0 07/21/09 19:03 39 LGCQK 10X D9G100274-1 9194272 MS 10.0 07/21/09 19:06 40 LGDJV 10X D9G110152-1 9194272 MS 10.0 07/21/09 19:09 41 LGDJ3 10X D9G110155-1 9194272 MS 10.0 07/21/09 19:11 42 LGDKR 10X D9G110159-1 9194272 MS 10.0 07/21/09 19:14 CCV 43 1.0 07/21/09 19:17 44 CCB 1.0 07/21/09 19:20

1.0

1.0

1.0

46

46

07/21/09 19:22

07/21/09 19:25

07/21/09 19:28

RLCV

LGFC2B

LGFC2C

D9G140000

D9G140000

9195077

9195077

45

46

47

Denver

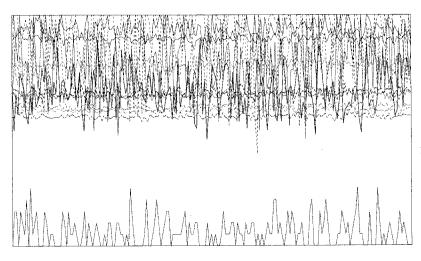
RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File ID): AG072 ⁻	109				Anal	lyst: TEL	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
48	LGEAD	D9G130118-1	9195077	U1	1.0	07/21/09 19:31		
49	LGEAR	D9G130118-2	9195077	U1	1.0	07/21/09 19:33		
50	LGEAX	D9G130118-3	9195077	U1	1.0	07/21/09 19:36		
51	LGEA0	D9G130118-4	9195077	U1	1.0	07/21/09 19:39		
52	LGEA2	D9G130118-5	9195077	U1	1.0	07/21/09 19:42		□
53	LGEA3	D9G130118-6	9195077	U1	1.0	07/21/09 19:44		
54	CCV				1.0	07/21/09 19:47		
55	ССВ				1.0	07/21/09 19:50		
56	RLCV				1.0	07/21/09 19:53		
57	LGEA4	D9G130118-7	9195077	U1	1.0	07/21/09 19:55		
58	LGEFC	D9G130118-8	9195077	U1	1.0	07/21/09 19:58		
59	LGEFF	D9G130118-9	9195077	U1	1.0	07/21/09 20:01		
60	LGEFH	D9G130118-10	9195077	U1	1.0	07/21/09 20:03		
61	LGEFL	D9G130118-11	9195077	U1	1.0	07/21/09 20:06		
62	LGEFLP5	D9G130118	9195077		5.0	07/21/09 20:09		
63	LGEFLZ	D9G130118-11	9195077		1.0	07/21/09 20:11		
64	LGEFLS	D9G130118-11	9195077	U1	1.0	07/21/09 20:14		
65	CCV				1.0	07/21/09 20:17		
66	ССВ				1.0	07/21/09 20:20		
67	RLCV				1.0	07/21/09 20:22		□□
68	LGEFLD	D9G130118-11	9195077	U1	1.0	07/21/09 20:25		
69	LGEFT	D9G130118-12	9195077	U1	1.0	07/21/09 20:28		
70	LGEFX	D9G130118-13	9195077	U1	1.0	07/21/09 20:30		
71	LGEF3	D9G130118-14	9195077	U1	1.0	07/21/09 20:33		
72	LGEF4	D9G130118-15	9195077	U1	1.0	07/21/09 20:36		
73	LGEF6	D9G130118-16	9195077	U1	1.0	07/21/09 20:39		
74	LGEF8	D9G130118-17	9195077	U1	1.0	07/21/09 20:41		
75	CCV				1.0	07/21/09 20:44		
76	CCB				1.0	07/21/09 20:47		
77	RLCV				1.0	07/21/09 20:50		
78	LGKQWBF	D9G160000	9197227	MD	1.0	07/21/09 20:52		
79	LGKQWCF	D9G160000	9197227	MD	1.0	07/21/09 20:55		╛
80	LGH2HF 10X		9197227	MD	10.0	07/21/09 20:58		
81	LGH2HP50F	D9G150224	9197227		50.0	07/21/09 21:01		
82	LGH2HZF	D9G150224-2	9197227		1.0	07/21/09 21:03		
83	LGH2HSF 10		9197227	MD	10.0	07/21/09 21:06		
84	LGH2HDF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:09		
85	CCV				1.0	07/21/09 21:12		
86	ССВ				1.0	07/21/09 21:14		
87	RLCV				1.0	07/21/09 21:17		
88	FCKODB-	D9G160000	9197220	MS	1.0	07/21/09 21:20		
89	LGKQDC	D9G160000	9197220	MS	1.0	07/21/09 21:23	100 4 5 5 5 1	
90	LGH2F 10X	D9G150224-1	9197220	MS	10.0	07/21/09 21:25	DNUX 7/2409	
91	LGH2FP50	D9G150224	9197220	-	50.0	07/21/09 21:28	, , ,	
92	LGH2FZ	D9G150224-1	9197220	+	1.0	07/21/09_21:31		

Tune File : NORM.U

Comment

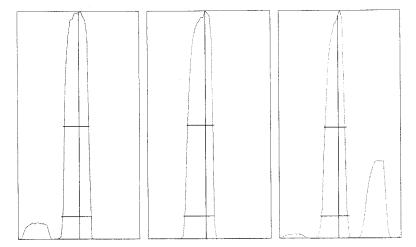


Integration Time: 0.1000 sec 1.5300 sec Sampling Period:

200 n:

1.281% Oxide: 156/140 0.506% Doubly Charged: 70/140

m/z	Range	Count	Mean	RSD%	Background
6	1,000	891.0	940.8	3.63	0.70
7	20,000	13129.0	13059.6	1.91	0.60
59	10,000	7602.0	7856.2	2.40	0.50
63	50	42.0	39.4	16.38	0.30
70	100	78.0	67.2	13.40	0.50
75	20	0.0	1.2	102.35	0.80
78	50	43.0	48.7	14.56	0.50
89	20,000	12125.0	12029.4	1.86	1.00
115	20,000	11842.0	11739.1	1.63	0.80
118	50	34.0	39.7	21.11	1.30
137	2,000	1330.0	1323.1	2.85	1.10
205	20,000	11244.0	11223.5	1.66	1.80
238	20,000	17300.0	17931.0	1.60	2.40
156/140	2	1.192%	1.337%	8.61	
70/140	2	0.664%	0.568%	13.49	



m/z:	7	89	205
Height:	13,051	12,146	11,336
Axis:	7.05	88.95	205.00
₩-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

0.1000 sec Integration Time: Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:30

Tune Report

Tune File : NORM.U

Comment

Tuning Parameters ===Plasma Condition=== ===Q-Pole Parameters=== ===Ion Lenses=== Extract 1 : 0 V AMU Gain : 133 RF Power : 1550 W RF Matching : 1.7 V Extract 2 : -160 V AMU Offset : 1.7 V Extract 2 : -160 V 7.5 mm Omega Bias-ce : -30 V Axis Gain : 1.0005 Smpl Depth : 0 V Axis Offset : -0.02 QP Bias : 0 V Carrier Gas : 0.83 L/min QP Focus : 7 VCell Exit : -30 V ===Detector Parameters=== Makeup Gas : 0.2 L/min Discriminator : 8 mV
Analog HV : 1720 V
Pulse HV : 1390 V ___ % Optional Gas : ===Octopole Parameters=== 0.1 rps Nebulizer Pump : OctP RF : 180 V Sample Pump : --- rps OctP Bias : -18 V 2 degC S/C Temp : ===Reaction Cell=== Reaction Mode : OFF He Gas : 0 mL/min Optional Gas : --- % H2 Gas : 0 mL/min

Page: 2

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:33

P/A Factor Tuning Report

Acquired: Jul 21 2009 04:50 pm

Mass[amu] 6 7 9 45 51	Element Li (Li) Be Sc V	P/A Factor 0.061203 Sensitivity 0.068907 0.083389 0.086007	too	low
52 53 55 59	Cr (Cr) Mn Co	0.088320 Sensitivity 0.090395 0.093203	too	low
60 63	Ni Cu	Sensitivity Sensitivity		
66 72	Zn Ge	0.096924 Sensitivity		
75	As	Sensitivity	too	low
77	(Se)	Sensitivity		
78	Se	Sensitivity		
82	(Se)	Sensitivity		
83	(Se)	Sensitivity	too	low
95	Mo	0.096067		
98	(Mo)	0.096151		_
99	(Mo)	Sensitivity	too	low
106	(Cd)	0.101305		
107	Ag	Sensitivity	too	TOM
108	(Cd)	0.101769		
111	Cd	0.102139		
114	Cd	0.102089		
115	In	0.101222		
118	Sn	0.101067		
121	Sb	0.100944		1
137	Ва	Sensitivity		
165	Но	Sensitivity	too	low
205	Tl	0.109272 0.108216		
206	(Pb)			
207	(Pb) Pb	0.108287 0.107820		
208		0.107620		
232	Th U	0.106481		
238	U	0.100401		

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

- 1 -

396

TestAmerica

200.8 QC Tune Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\001TUNE.D

Date Acquired:

Jul 21 2009 05:22 pm

Acq. Method:

tun_isis.M

Operator:

TEL

Sample Name:

200.8 TUNE

Misc Info:

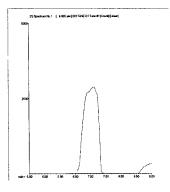
Vial Number:

4

Current Method:

C:\ICPCHEM\1\METHODS\tun_isis.M

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	31515	31705	31773	31422	31500	31173	0.76	5.00	
9 Be	3503	3538	3524	3507	3428	3516	1.23	5.00	
24 Mg	22462	22829	22575	22353	22572	21980	1.41	5.00	
59 Co	93114	93607	93864	90894	94187	93020	1.41	5.00	
115 In	1915406	1918606	1914965	1924578	1915696	1903185	0.41	5.00	
208 Pb	92064	92990	92149	91680	92260	91243	0.71	5.00	
238 U	187429	191379	187170	188068	186178	184351	1.39	5.00	



7 Li

Mass Calib.

Actual: 7.10

Required: 6.90 - 7.10

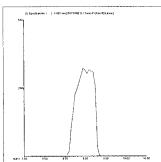
Flag:

Peak Width

Actual: 0.65

Required:0.90

Flag:



9 Be

Mass Calib.

Actual: 9.05

Required:8.90 - 9.10

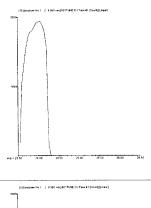
Flag:

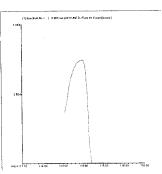
Peak Width

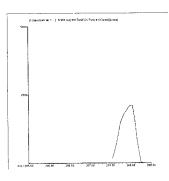
Actual: 0.60

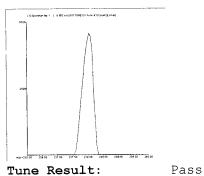
Required: 0.90

Flag:









Mass Calib.

Actual: 24.00
Required: 23.90 - 24.10
Flag:

Peak Width

Actual: 0.60 Required:0.90 Flag:

59 Co

Mass Calib.

Actual: 58.95
Required: 58.90 - 59.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

115 In

Mass Calib.

Actual: 114.95
Required: 114.90 - 115.10
Flag:

Peak Width

Actual: 0.55 Required: 0.90 Flag:

208 Pb

Mass Calib.

Actual: 207.95
Required: 207.90 - 208.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

238 U

Mass Calib.

Actual: 238.05
Required: 237.90 - 238.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

7/21/09 5:23 PM TestAmerica

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\002CALB.D\002CALB.D#

Date Acquired: Jul 21 2009 05:25 pm NormISIS.M

Acq. Method:

Operator: \mathtt{TEL}

Sample Name: Cal Blank

Misc Info:

1101 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

CalBlk Sample Type:

QC Elements

Eleme	nt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	31	3276.40
52	Cr	72	1	2800	9.18
55	Mn	72	1	1283	9.62
59	Со	72	1	87	67.61
60	Ni	72	1	67	17.32
63	Cu	72	1	503	6.39
66	Zn	72	1	251	8.30
75	As	72	1	105	7.67
78	Se	72	1	513	6.26
95	Мо	72	1	73	15.75
107	Ag	115	1	7	86.60
111	Cd	115	1	9	188.13
118	Sn	115	1	2750	17.56
121	Sb	115	1	19	50.94
137	Ва	115	1	49	3.94
205	Tl	165	1	263	12.21
208	Pb	165	1	323	8.05
232	Th	165	1	220	25.31
238	U	165	1	96	8.06

Internal Standard Elements

Eleme	nt	Tune	CPS Mean	RSD(%)
6	Li	1	576535	0.69
45	Sc	1	2595280	0.11
72	Ge	1	1228451	0.87
115	In	1	3471486	1.12
165	Но	1	5707578	1.58

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Date Acquired: Jul 21 2009 05:28 pm

Acq. Method: NormISIS.M

TEL Operator:

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: CalBlk

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	8 4	380.78
52	Cr	72	1	3224	4.61
55	Mn	72	1	1180	18.88
59	Co	72	1	67	31.23
60	Ni	72	1	77	39.85
63	Cu	72	1	673	17.84
66	Zn	72	1	341	12.93
75	As	72	1	105	1.10
78	Se	72	1	570	15.79
95	Mo	72	1	90	19.25
107	Ag	115	1	10	100.00
111	Cd	115	1	6	183.92
118	Sn	115	1	4558	14.33
121	Sb	115	1	23	37.80
137	Ва	115	1	41	44.66
205	Tl	165	1	229	12.72
208	Pb	165	1	279	7.30
232	Th	165	1	273	29.57
238	U	165	1	22	43.30

Internal Standard Elements

Elemer	nt	Tune	CPS Mean	RSD(%)
6	Li	1	581797	1.92
45	Sc	1	2574983	0.83
72	Ge	1	1211627	0.38
115	In	1	3426576	0.51
165	Но	1	5647086	0.49

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\004ICAL.D\0004ICAL.D#

Date Acquired: Jul 21 2009 05:31 pm

Acq. Method: NormISIS.M

Operator: TEL Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:29 pm

Sample Type: ICAL

QC Elements

Elemen	ıt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	59445	1.77
51	V	72	1	1239197	0.92
52	Cr	72	1	1240930	1.80
55	Mn	72	1	1500976	1.14
59	Co	72	1	1532853	1.14
60	Ni	72	1	335568	1.43
63	Cu	72	1	783637	0.77
66	Zn	72	1	184990	0.36
75	As	72	1	150136	1.32
78	Se	72	1	29896	1.27
95	Mo	72	1	401051	0.94
107	Ag	115	1	1170362	0.20
111	Cd	115	1	241527	0.35
118	Sn	115	1	706295	0.47
121	Sb	115	1	813196	0.45
137	Ва	115	1	335210	0.52
205	Tl	165	1	2698247	0.32
208	Pb	165	1	3677704	0.96
232	Th	165	1	3297948	2.01
238	U	165	1	3849572	0.35

ISTD Elements

Eleme	ent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	565258	0.19	581797	97.2	30 - 120	
45	Sc	1	2567639	0.66	2574983	99.7	30 - 120	
72	Ge	1	1211730	1.09	1211627	100.0	30 - 120	
115	In	1	3431729	1.40	3426576	100.2	30 - 120	
165	Но	1	5634252	0.67	5647086	99.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 21 2009 05:33 pm

Operator: TEL QC Summary:

Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC El	ements								
Eleme	nt IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 B	e 6	1	39.64	ppb	0.79	40	99.1	90 - 110	
51 V	72	1	38.95	ppb	0.13	40	97.4	90 - 110	
52 C	r 72	1	39.22	ppb	0.44	40	98.1	90 - 110	
55 M	In 72	1	39.68	ppb	0.45	40	99.2	90 - 110	
59 C	lo 72	1	39.53	ppb	0.70	40	98.8	90 - 110	
60 N	i 72	1	40.23	ppb	0.53	40	100.6	90 - 110	
63 C	tu 72	1	40.61	ppb	0.32	40	101.5	90 - 110	
66 Z	n 72	1	40.51	ppb	1.02	40	101.3	90 - 110	
75 A	.s 72	1	40.08	ppb	0.64	40	100.2	90 - 110	
78 S	Se 72	1	41.67	ppb	1.69	40	104.2	90 - 110	
95 M	Io 72	1	39.87	ppb	0.41	40	99.7	90 - 110	
107 A	ig 115	1	40.34	ppb	1.30	40	100.9	90 - 110	
111 C	d 115	1	41.12	ppb	0.91	40	102.8	90 - 110	
118 S	n 115	1	38.88	ppb	0.90	40	97.2	90 - 110	
121 S	sb 115	1	38.65	ppb	1.11	40	96.6	90 - 110	
137 B	3a 115	1	39.89	ppb	0.94	40	99.7	90 - 110	
205 T	165	1	40.05	ppb	1.21	40	100.1	90 - 110	
208 F	b 165	1	40.43	ppb	0.85	40	101.1	90 - 110	
232 I	h 165	1	44.22	ppb	2.85	40	110.6	90 - 110	Fail MC
238 U	165	1	40.19	ppb	1.06	40	100.5	90 - 110	
ISTD	Elements								
Eleme	nt	Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 I	i	1	561236		0.19	581797	96.5	30 - 120	
45 S	Sc	1	2582771		1.09	2574983	100.3	30 - 120	
72 0	Ge	1	1213066		0.25	1211627	100.1	30 - 120	
115 I	In	1	3417703		1.00	3426576	99.7	30 - 120	
165 H	Ю	1	5664293		1.10	5647086	100.3	30 - 120	
	Tune File#	1	c:\icpchem\1	7500	\he.u				
	Tune File#	2	C:\ICPCHEM\1	7500	\				

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Tune File# 3 C:\ICPCHEM\1\7500\

1 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

C:\ICPCHEM\1\DATA\AG072109.B\006WASH.D\006WASH.D# Data File:

Jul 21 2009 05:36 pm Date Acquired:

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLIV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.123 ppb	10.30	1.30	
51 V	72	1	4.905 ppb	4.36	6,50	
52 Cr	72	1	2.008 ppb	1.94	2.60	
55 Mn	72	1	1.040 ppb	1.71	1.30	
59 Co	72	1	1.042 ppb	3.30	1.30	
60 Ni	72	1	2.082 ppb	1.95	2.60	
63 Cu	72	1	2.043 ppb	4.81	2.60	
66 Zn	72	1	10.290 ppb	0.55	13.00	
75 As	72	1	5.041 ppb	1.23	6.50	
78 Se	72	1	5.606 ppb	11.10	6.50	
95 Mo	72	1	2.125 ppb	3.10	2.60	
107 Ag	115	1	5.269 ppb	0.93	6.50	
111 Cd	115	1	0.985 ppb	1.12	1.30	
118 Sn	115	1	10.060 ppb	1.78	13.00	
121 Sb	115	1	2.181 ppb	4.53	2.60	
137 Ba	115	1	1.073 ppb	3.26	1.30	
205 Tl	165	1	1.130 ppb	0.27	1.30	
208 Pb	165	1	1.039 ppb	0.95	1.30	
232 Th	165	1	2.777 ppb	3.32	2.60	
238 U	165	1	1.064 ppb	0.97	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	561585	0.30	581797	96.5	30 - 120	
45 Sc	1	2567497	0.65	2574983	99.7	30 - 120	
72 Ge	1	1227558	0.55	1211627	101.3	30 - 120	
115 In	1	3427742	1.01	3426576	100.0	30 - 120	
165 Ho	1	5710214	1.06	5647086	101.1	30 - 120	

1 c:\icpchem\1\7500\he.u Tune File# Tune File# 2 C:\ICPCHEM\1\7500\ 3 C:\ICPCHEM\1\7500\ Tune File#

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\007 ICB.D\007 ICB.D#

QC Summary: Date Acquired: Jul 21 2009 05:39 pm

Analytes: Pass Operator: TEL ISTD: Pass Sample Name: ICB

Misc Info:

Vial Number: 2104

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: ICB

Total Dil Factor: 1.00

QC I	Elem	ents
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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.03	ppb	107.86	1.00	
52 Cr	72	1	-0.02	ppb	42.01	1.00	
55 Mn	72	1	0.00	ppb	111.67	1.00	
59 Co	72	1	0.00	ppb	96.89	1.00	
60 Ni	72	1	0.00	ppb	233.62	1.00	
63 Cu	72	1	-0.01	ppb	109.12	1.00	
66 Zn	72	1	0.05	ppb	42.84	1.00	
75 As	72	1	-0.01	ppb	44.09	1.00	
78 Se	72	1	0.34	ppb	46.02	1.00	
95 Mo	72	1	0.01	ppb	40.98	1.00	
107 Ag	115	1	0.01	ppb	15.65	1.00	
111 Cd	115	1	0.00	ppb	432.82	1.00	
118 Sn	115	1	0.13	ppb	28.49	1.00	
121 Sb	115	1	0.08	ppb	2.06	1.00	
137 Ba	115	1	0.00	ppb	38.09	1.00	
205 Tl	165	1	0.03	ppb	5.05	1.00	
208 Pb	165	1	0.00	ppb	1255.10	1.00	
232 Th	165	1	0.16	ppb	5.89	1.00	
238 U	165	1	0.00	ppb	21.84	1.00	

TOTO Flements

ISID Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565985	1.59	581797	97.3	30 - 120	
45 Sc	1	2566622	0.99	2574983	99.7	30 - 120	
72 Ge	1	1225621	1.10	1211627	101.2	30 - 120	
115 In	1	3452773	0.47	3426576	100.8	30 - 120	
165 Ho	1	5650371	0.62	5647086	100.1/	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u	✓		
Tune File#	2	C:\ICPCHEM\	1\7500\		. And the second		

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Tune File# 3 C:\ICPCHEM\1\7500\

0 :Element Failures 0 : Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\008RLST.D\008RLST.D#

Date Acquired: Jul 21 2009 05:42 pm

Operator: TEL QC Summary:

Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: RLSTD Total Dil Factor: 1.00

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	1.05	ppb	12.11	1	104.7	50 - 150	
51	V	72	1	0.93	ppb	7.33	1	93.2	50 - 150	
52	Cr	72	1	0.97	ppb	3.56	1	97.0	50 - 150	
55	Mn	72	1	1.00	ppb	2.49	1	100.4	50 - 150	
59	Со	72	1	1.01	ppb	4.08	1	101.3	50 - 150	
60	Νi	72	1	1.00	ppb	6.56	1	100.0	50 - 150	
63	Cu	72	1	1.04	ppb	7.10	1	104.2	50 - 150	
66	Zn	72	1	10.76	ppb	1.35	10	107.6	50 - 150	
75	As	72	1	1.04	ppb	3.34	1	103.8	50 - 150	
78	Se	72	1	0.82	ppb	33.53	1	81.6	50 - 150	
95	Mo	72	1	1.01	ppb	7.76	1	101.0	50 - 150	
107	Ag	115	1	1.02	ppb	2.10	1	101.5	50 - 150	
111	Cd	115	1	1.10	ppb	3.31	1	109.6	50 - 150	
118	Sn	115	1	10.23	ppb	1.35	10	102.3	50 - 150	
121	Sb	115	1	1.05	ppb	1.23	1	104.8	50 - 150	
137	Ва	115	1	1.05	ppb	4.58	1	104.8	50 - 150	
205	Tl	165	1	1.07	ppb	2.73	1	106.5	50 - 150	
208	Pb	165	1	1.05	ppb	1.07	1	104.7	50 - 150	
232	Th	165	1	1.13	ppb	2.43	1	113.3	50 - 150	
238	U	165	1	1.07	ppb	1.03	1	107.0	50 - 150	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565978	0.78	581797	97.3	30 - 120	
45 Sc	1	2568028	1.20	2574983	99.7	30 - 120	
72 Ge	1	1217338	0.15	1211627	100.5	30 - 120	
115 In	1	3427497	0.45	3426576	100.0	30 - 120	
165 Ho	1	5631637	1.02	5647086	99.7	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

AFCEE RL QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

Date Acquired: Jul 21 2009 05:44 pm

QC Summary: Operator: TEL

Analytes: Pass Sample Name: AFCEE RL ISTD: Pass Misc Info:

Vial Number: 2106

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\Nor Last Cal Update: Jul 21 2009 05:31 pm C:\ICPCHEM\1\CALIB\NormISIS.C

Sample Type: AFCEERL Total Dil Factor: 1.00

QC E	leme	nts								
Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 -	Ве	6	1	0.18	ppb	41.26	0	86.0	80 - 120	
51	V	72	1	0.12	ppb	39.38	0	67.0	80 - 120	
52	Cr	72	1	0.16	ppb	3.72	0	82.2	80 - 120	
55	Mn	72	1	0.20	ppb	3.24	0	98.6	80 - 120	
59	Co	72	1	0.20	P pb	5.85	0	99.3	80 - 120	
60	Ni	72	1	0.18	ppb	6.47	0	90.0	80 - 120	
63	Cu	72	1	0.32	ppb	10.85	0	155.1	80 - 120	
66	Zn	72	1	2.18	ppb	0.89	2	101.4	80 - 120	
75	As	72	1	0.20	ppb	9.34	0	94.3	80 - 120	
78	Se	72	1	0.27	ppb	16.59	0	168.2	80 - 120	
95	Мо	72	1	0.19	ppb	6.24	0	93.4	80 - 120	
107	Ag	115	1	0.20	ppb	4.78	0	99.7	80 - 120	
111	Cd	115	1	0.21	ppb	11.89	0	96.8	80 - 120	
118	Sn	115	1	1.58	ppb	4.76	2	77.3	80 - 120	
121	Sb	115	1	0.21	ppb	4.92	0	99.2	80 - 120	
137	Ва	115	1	0.22	ppb	2.48	0	102.6	80 - 120	
205	Tl	165	1	0.21	√ ppb	5.92	0	97.3	80 - 120	
208	Pb	165	1	0.20	ppb	3.45	0	95.3	80 - 120	
232	Th	165	1	0.24	ppb	4.96	0	106.3	80 - 120	
238	U	165	1	0.20	ppb	2.09	0	95.7	80 - 120	
IST	Ele	ments								
Eler	nent		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	562011		1.45	581797	96.6	30 - 120	
45	Sc		1	2589915		1.12	2574983	100.6	30 - 120	
72	Ge		1	1216544		0.44	1211627	100.4	30 - 120	
115	In		1	3446931		1.30	3426576	100.6	30 - 120	
165	Но		1	5682005		0.45	5647086	100.6	30 - 120	

Eler	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	562011	1.45	581797	96.6	30 - 120	
45	Sc	1	2589915	1.12	2574983	100.6	30 - 120	
72	Ge	1	1216544	0.44	1211627	100.4	30 - 120	
115	In	1	3446931	1.30	3426576	100.6	30 - 120	
165	Но	1	5682005	0.45	5647086	100.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 21 2009 05:47 pm

Acq. Method: QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC	Elements
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Ele	ment	IS Ref	Tune	Corr Conc F	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	dqq	0.00	3600	9
51	$\cdot \Delta$	72	1	-0.04	-0.04	ppb	104.30	3600	
52	Cr	72	1	-0.02	-0.02	ppb	103.76	3600	
55	Mn	72	1	0.02	0.02	ppb	16.79	3600	
59	Со	72	1	0.00	0.00	ppb	621.67	3600	
60	Ni	72	1	0.03	0.03	ppb	16.48	3600	
63	Cu	72	1	0.00	0.00	ppb	932.55	3600	
66	Zn	72	1	0.85	0.85	ppb	6.94	3600	
75	As	72	1	0.00	0.00	ppb	664.54	3600	
78	Se	72	1	2.10 🗸	2.10	ppb	12.34	3600	
	Мо	72	1	-0.01	-0.01	ppb	45.44	3600	
107	Ag	115	1	0.00	0.00	ppb	58.87	3600	
111		115	1	0.01	0.01	ppb	69.14	3600	
118		115	1	0.05	0.05	ppb	347.56	3600	
121		115	1	0.02	0.02	ppb	33.89	3600	
137	Ва	115	1	0.02	0.02	ppb	46.40	3600	
205	Tl	165	1	0.01	0.01	ppb	7.09	3600	
208	Pb	165	1	0.01	0.01	ppb	32.33	3600	
232		165	1	0.02	0.02	ppb	9.94	1000	
238	U	165	1	0.00	0.00	ppb	61.35	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	569704	0.90	581797	97.9	30 - 120	-
45 Sc	1	2578530	1.74	2574983	100.1	30 - 120	
72 Ge	1	1225059	0.62	1211627	101.1	30 - 120	
115 In	1	3458256	0.73	3426576	100.9	30 - 120	
165 Ho	1	5659536	0.49	5647086	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed

0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 21 2009 05:50 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: ICSA ISTD: Pass

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSA Dilution Factor: 1.00

QC Elements

Elei	ment	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.01 ppb	86.57	1.00	
51	V	72	1	-0.32 ppb	45.77	1.00	
52	Cr	72	1	1.09 ppb	1.54	1.00	
55	Mn	72	1	3.02 ppb	2.13	1.00	
59	Co	72	1	0.14 ppb	6.32	1.00	
60	Ni	72	1	1.14 ppb	8.51	1.00	
63	Cu	72	1	0.52 ppb	6.79	1.00	
66	Zn	72	1	4.12 ppb	0.37	10.00	
75	As	72	1	0.41 ppb	6.37	1.00	
78	Se	72	1	0.21 ppb	202.38	1.00	
95	Mo	72	1	2029.00 ppb	1.48	2000.00	
107	Ag	115	1	0.08 ppb	1.65	1.00	
111	Cd	115	1	0.53 ppb	11.29	1.00	
118	Sn	115	1	6.55 ppb	2.38	10.00	
121	Sb	115	1	0.25 ppb	8.83	1.00	
137	Ва	115	1	1.63 ppb	3.16	1.00	
205	Tl	165	1	0.06 ppb	23.67	1.00	
208	Pb	165	1	0.15 ppb	1.74	1.00	
232	Th	165	1	0.06 ppb	7.65	1.00	
238	U	165	1	0.04 ppb	4.73	1.00	

ISTD Elements

Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	541828	0.30	581797	93.1	30 - 120	
45	Sc	1	2271867	1.39	2574983	88.2	30 - 120	
72	Ge	1	1037781	0.72	1211627	85.7	30 - 120	
115	In	1	2905629	2.08	3426576	84.8	30 - 120	
165	Но	1	5091704	1.12	5647086	90.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Nnumber of ISTD Failures Allowed

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 21 2009 05:53 pm

Acq. Method: QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ICSAB ISTD: Pass

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSAB
Dilution Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Ве	6	1	96.29	1.44	100	96.3	80 - 120	
51 V	72	1	99.52	1.77	100	99.5	80 - 120	
52 Cr	72	1	99.40	1.59	100	99.4	80 - 120	
55 Mn	72	1	101.10	1.41	100	101.1	80 - 120	
59 Co	72	1	95.14	1.75	100	95.1	80 - 120	
60 Ni	72	1	91.22	1.02	100	91.2	80 - 120	
63 Cu	72	1	89.55	0.75	100	89.6	80 - 120	
66 Zn	72	1	100.10	0.77	100	100.1	80 - 120	
75 As	72	1	100.30	0.37	100	100.3	80 - 120	
78 Se	72	1	108.70	2.11	100	108.7	80 - 120	
95 Mo	72	1	2124.00	1.34	2100	101.1	80 - 120	
107 Ag	115	1	88.04	3.50	100	88.0	80 - 120	
111 Cd	115	1	97.50	1.62	100	97.5	80 - 120	
118 Sn	115	1	101.00	0.92	100	101.0	80 - 120	
121 Sb	115	1	102.40	1.11	100	102.4	80 - 120	
137 Ba	115	1	103.60	1.08	100	103.6	80 - 120	
205 Tl	165	1	96.79	0.86	100	96.8	80 - 120	
208 Pb	165	1	95.41	1.15	100	95.4	80 - 120	
232 Th	165	1	110.10	0.47	100	110.1	80 - 120	
238 U	165	1	103.00	0.22	100	103.0	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551523	0.54	581797	94.8	30 - 120	
45 Sc	1	2262338	0.74	2574983	87.9	30 - 120	
72 Ge	1	1036947	1.75	1211627	85.6	30 - 120	
115 In	1	2927339	0.38	3426576	85.4	30 - 120	
165 Ho	1	5153065	0.14	5647086	91.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 21 2009 05:55 pm

Acq. Method: Normisis.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.06	-0.06	ppb	105.43	3600	
52 Cr	72	1	-0.03	-0.03	ppb	42.33	3600	
55 Mn	72	1	-0.01	-0.01	ppb	103.23	3600	
59 Co	72	1	0.00	0.00	ppb	103.31	3600	
60 Ni	72	1	0.00	0.00	dqq	490.13	3600	
63 Cu	72	1	-0.01	-0.01	ppb	55.36	3600	
66 Zn	72	1	0.02	0.02	ppb	39.30	3600	
75 As	72	1	0.01	0.01	ppb	237.74	3600	
78 Se	72	1	0.22	0.22	ppb	124.98	3600	
95 Mo	72	1	1.24	1.24	ppb	2.11	3600	
107 Ag	115	1	0.01	0.01	ppb	32.64	3600	
111 Cd	115	1	-0.01	-0.01	ppb	87.55	3600	
118 Sn	115	1	-0.44	-0.44	ppb	9.84	3600	
121 Sb	115	1	0.04	0.04	ppb	10.44	3600	
137 Ba	115	1	0.00	0.00	ppb	198.65	3600	
205 Tl	165	1	0.00	0.00	ppb	32.40	3600	
208 Pb	165	1	0.00	0.00	ppb	60.85	3600	
232 Th	165	1	0.61	0.61	ppb	14.09	1000	
238 U	165	1	0.01	0.01	ppb	16.27	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	617032	1.01	581797	106.1	30 - 120	
45 Sc	1	2571917	0.32	2574983	99.9	30 - 120	
72 Ge	1	1207363	0.62	1211627	99.6	30 - 120	
115 In	1	3468973	0.41	3426576	101.2	30 - 120	
165 Ho	1	5751339	0.52	5647086	101.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\014 LR.D\014 LR.D\#

Date Acquired: Jul 21 2009 05:58 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: LR ISTD: Pass

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LR
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	983.10 ppb	1.47	1000	98.3	90 - 110	
51 V	72	1	931.80 ppb	1.87	1000	93.2	90 - 110	
52 Cr	72	1	958.10 ppb	0.33	1000	95.8	90 - 110	
55 Mn	72	1	959.10 ppb	0.74	1000	95.9	90 - 110	
59 Co	72	1	962.90 ppb	0.81	1000	96.3	90 - 110	
60 Ni	72	1	976.00 ppb	1.67	1000	97.6	90 - 110	
63 Cu	72	1	952.70 ppb	0.56	1000	95.3	90 - 110	
66 Zn	72	1	1036.00 ppb	1.42	1000	103.6	90 - 110	
75 As	72	1	1038.00 ppb	0.83	1000	103.8	90 - 110	
78 Se	72	1	1037.00 ppb	0.75	1000	103.7	90 - 110	
95 Mo	72	1	998.50 ppb	1.19	1000	99.9	90 - 110	
107 Ag	115	1	960.60 ppb	0.36	1000	96.1	90 - 110	
111 Cd	115	1	1018.00 ppb	1.94	1000	101.8	90 - 110	
118 Sn	115	1	980.00 ppb	0.99	1000	98.0	90 - 110	
121 Sb	115	1	975.20 ppb	0.25	1000	97.5	90 - 110	
137 Ba	115	1	1014.00 ppb	0.78	1000	101.4	90 - 110	
205 Tl	165	1	970.30 ppb	1.49	1000	97.0	90 - 110	
208 Pb	165	1	959.70 ppb	1.43	1000	96.0	90 - 110	
232 Th	165	1	1070.00 ppb	0.39	1000	107.0	90 - 110	
238 U	165	1	1001.00 ppb	0.48	1000	100.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	602525	1.07	581797	103.6	30 - 120	
45 Sc	1	2585868	0.95	2574983	100.4	30 - 120	
72 Ge	1	1215769	0.81	1211627	100.3	30 - 120	
115 In	1	3432627	0.12	3426576	100.2	30 - 120	
165 Ho	1	5756427	0.96	5647086	101.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 21 2009 06:00 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.01	0.01	ppb	173.21	3600	
51 V	72	1	0.00	0.00	ppb	1096.50	3600	
52 Cr	72	1	-0.02	-0.02	ppb	214.11	3600	
55 Mn	72	1	-0.01	-0.01	ppb	54.41	3600	
59 Co	72	1	0.02	0.02	ppb	17.45	3600	
60 Ni	72	1	0.02	0.02	ppb	36.35	3600	
63 Cu	72	1	0.00	0.00	ppb	3434.80	3600	
66 Zn	72	1	0.04	0.04	ppb	59.09	3600	
75 As	72	1	0.04	0.04	ppb	18.32	3600	
78 Se	72	1	0.56	0.56	ppb	27.17	3600	
95 Mo	72	1	0.75	0.75	ppb	9.81	3600	
107 Ag	115	1	0.03	0.03	ppb	9.09	3600	
111 Cd	115	1	0.01	0.01	ppb	55.86	3600	
118 Sn	115	1	0.58	0.58	ppb	22.30	3600	
121 Sb	115	1	0.43	0.43	ppb	9.45	3600	
137 Ba	115	1	0.02	0.02	ppb	30.56	3600	
205 Tl	165	1	0.10	0.10	ppb	12.56	3600	
208 Pb	165	1	0.02	0.02	ppb	9.09	3600	
232 Th	165	1	3.70	3.70	ppb	19.86	1000	
238 U	165	1	0.09	0.09	ppb	9.53	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	, Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	604269	1.86	581797	103.9	30 - 120	
45 Sc	1	2589065	0.70	2574983	100.5	30 - 120	
72 Ge	1	1243813	0.46	1211627	102.7	30 - 120	
115 In	1	3483172	1.13	3426576	101.7	30 - 120	
165 Ho	1	5709115	0.24	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 21 2009 06:03 pm

Operator: TEL QC Summary: Sample Name: CCV Analytes: Pass

Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Eleme	nts
Fla	ament	TS

Elemen	t IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	49.34	ppb	0.68	50	98.7	90 - 110	
51 V	72	1	49.10	ppb	0.55	50	98.2	90 - 110	
52 Cr	72	1	49.47	ppb	0.91	50	98.9	90 - 110	
55 Mr	n 72	1	49.47	ppb	1.10	50	98.9	90 - 110	
59 Cc	72	1	49.92	ppb	1.17	50	99.8	90 - 110	
60 Ni	. 72	1	50.75	ppb	0.61	50	101.5	90 - 110	
63 Cu	1 72	1	50.93	ppb	0.27	50	101.9	90 - 110	
66 Zr	72	1	50.31	ppb	0.73	50	100.6	90 - 110	
75 As	72	1	50.24	ppb	1.12	50	100.5	90 - 110	
78 Se	e 72	1	50.24	ppb	0.13	50	100.5	90 - 110	
95 Mc	72	1	50.78	ppb	1.42	50	101.6	90 - 110	
107 Ag	g 115	1	49.22	ppb	2.02	50	98.4	90 - 110	
111 Cc	115	. 1	49.66	ppb	2.34	50	99.3	90 - 110	
118 Sr	n 115	1	49.06	ppb	1.65	50	98.1	90 - 110	
121 Sk	115	1	49.30	ppb	1.60	50	98.6	90 - 110	
137 Ba	a 115	1	49.04	ppb	1.67	50	98.1	90 - 110	
205 TI	165	1	50.73	ppb	1.09	50	101.5	90 - 110	
208 Pk	165	1	49.84	ppb	1.34	50	99.7	90 - 110	
232 Th	n 165	1	52.15	ppb	2.07	50	104.3	90 - 110	
238 U	165	1	49.79	ppb	0.38	50	99.6	90 - 110	

ISTD Elements

Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	588145	2.13	581797	101.1	30 - 120	
45	Sc	1	2623883	0.54	2574983	101.9	30 - 120	
72	Ge	1	1228362	0.50	1211627	101.4	30 - 120	
115	In	1	3530300	1.24	3426576	103.0	30 - 120	
165	Но	1	5768046	0.38	5647086	102.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 21 2009 06:06 pm

Operator: TEL QC Summary: Sample Name: Analytes: Pass CCB

Misc Info:

ISTD: Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.005	ppb	173.19	1.00	
51 V	72	1	-0.062	ppb	129.47	1.00	
52 Cr	72	1	-0.026	ppb	83.65	1.00	
55 Mn	72	1	-0.007	ppb	143.47	1.00	
59 Co	72	1	0.002	ppb	146.67	1.00	
60 Ni	72	1	0.009	ppb	171.37	1.00	
63 Cu	72	1	-0.013	ppb	47.42	1.00	
66 Zn	72	1	0.004	ppb	593.06	1.00	
75 As	72	1	0.008	ppb	83.97	1.00	
78 Se	72	1	0.635	ppb	21.48	1.00	
95 Mo	72	1	0.156	ppb	13.82	1.00	
107 Ag	115	1	0.013	ppb	10.04	1.00	
111 Cd	115	1	0.005	ppb	226.51	1.00	
118 Sn	115	1	0.091	ppb	27.58	1.00	
121 Sb	115	1	0.092	ppb	4.85	1.00	
137 Ba	115	1	0.007	ppb	96.12	1.00	
205 Tl	165	1	0.044	ppb	9.42	1.00	
208 Pb	165	1	0.005	ppb	16.13	1.00	
232 Th	165	1	0.846	ppb	15.54	1.00	
238 U	165	1	0.016	ppb	7.64	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	582937	1.46	581797	100.2	30 - 120	
45 Sc	1	2618279	0.49	2574983	101.7	30 - 120	
72 Ge	1	1228248	0.40	1211627	101.4	30 - 120	
115 In	1	3493471	0.25	3426576	102.0	30 - 120	
165 Ho	1	5729193	0.17	5647086	101.5	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Pass

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\018WASH.D\018WASH.D#

Date Acquired: Jul 21 2009 06:09 pm

Operator: TEL QC Summary: Sample Name: Analytes: RLCV Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: WASH C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: WASH Total Dil Factor: 1.00

O.C.	El	emen	ts
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.506 ppb	66.40	1.30	-
51 V	72	1	5.354 ppb	9.73	6.50	
52 Cr	72	1	2.294 ppb	19.68	2.60	
55 Mn	72	1	1.341 ppb	40.40	1.30	
59 Co	72	1	1.372 ppb	41.06	1.30	
60 Ni	72	1	2.353 ppb	23.65	2.60	
63 Cu	72	1	2.412 ppb	17.43	2.60	
66 Zn	72	1	10.710 ppb	7.57	13.00	
75 As	72	1	5.663 ppb	11.90	6.50	
78 Se	72	1	5.717 ppb	11.15	6.50	
95 Mo	72	1	4.400 ppb	84.36	2.60	
107 Ag	115	1	5.364 ppb	3.44	6.50	
111 Cd	115	1	1.442 ppb	41.34	1.30	
118 Sn	115	1	10.180 ppb	5.67	13.00	
121 Sb	115	1	2.278 ppb	21.30	2.60	
137 Ba	115	1	1.364 ppb	42.96	1.30	
205 Tl	165	1	1.415 ppb	39.27	1.30	
208 Pb	165	1	1.446 ppb	47.86	1.30	
232 Th	165	1	2.676 ppb	20.73	2.60	
238 U	165	1	1.427 ppb	40.32	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	598481	1.35	581797	102.9	30 - 120	
45 Sc	1	2642231	1.82	2574983	102.6	30 - 120	
72 Ge	1	1250188	1.58	1211627	103.2	30 - 120	
115 In	. 1	3540347	1.66	3426576	103.3	30 - 120	
165 Ho	1	5791976	1.24	5647086	102.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\019 BLK.D\019 BLK.D#

Date Acquired: Jul 21 2009 06:11 pm

QC Summary: Operator: \mathtt{TEL} LGEE4BF Analytes: Pass Sample Name:

ISTD: Pass Misc Info: BLANK 9194274 6020

Vial Number: 2201

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.005 ppb	173.21	2.00	
51 V	72	1	-0.022 ppb	250.34	2.00	
52 Cr	72	1	-0.050 ppb	13.43	2.00	
55 Mn	72	1	0.022 ppb	49.21	2.00	
59 Co	72	1	-0.002 ppb	87.57	2.00	
60 Ni	72	1	0.015 ppb	103.26	2.00	
63 Cu	72	1	-0.001 ppb	1037.50	2.00	
66 Zn	72	1	0.300 ppb	5.04	2.00	
75 As	72	1	-0.009 ppb	159.07	2.00	
78 Se	72	1	0.132 ppb	29.18	2.00	
95 Mo	72	1	0.045 ppb	61.58	2.00	
107 Ag	115	1	0.005 ppb	51.31	2.00	
111 Cd	115	1	0.007 ppb	12.78	2.00	
118 Sn	115	1	-0.313 ppb	19.67	2.00	
121 Sb	115	1	0.045 ppb	6.70	2.00	
137 Ba	115	1	0.073 ppb	7.82	2.00	
205 Tl	165	1	0.034 ppb	12.27	2.00	
208 Pb	165	1	0.005 ppb	30.50	2.00	
232 Th	165	1	0.085 ppb	6.54	2.00	
238 U	165	1	0.002 ppb	36.31	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	597793	1.62	581797	102.7	30 - 120	
45 Sc	1	2649024	0.91	2574983	102.9	30 - 120	
72 Ge	1	1233783	1.49	1211627	101.8	30 - 120	
115 In	1	3497489	0.35	3426576	102.1	30 - 120	
165 Ho	1	5732307	0.97	5647086	101.5	30 - 120	

1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\020 LCS.D\020 LCS.D#

Date Acquired: Jul 21 2009 06:14 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass

Operator: TEL Analytes: Pass
Sample Name: LGEE4CF ISTD: Pass

Misc Info: LCS Vial Number: 2202

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Rar	ige (%)	Flag
9 Be	6	1	43.63	1.01	40	109.1	80 -	120	
51 V	72	1	41.90	2.09	40	104.8	80 -	120	
52 Cr	72	1	42.35	1.81	40	105.9	80 -	120	
55 Mn	72	1	42.02	1.19	40	105.1	80 -	120	
59 Co	72	1	42.69	1.61	40	106.7	80 -	120	
60 Ni	72	1	43.78	1.19	40	109.5	80 -	120	
63 Cu	72	1	44.08	0.91	40	110.2	80 -	120	
66 Zn	72	1	44.20	1.11	40	110.5	80 -	120	
75 As	72	1	43.83	1.42	40	109,6	80 -	120	
78 Se	72	1 .	43.26	1.56	40	108.2	80 -	120	
95 Mo	72	1	42.61	1.90	40	106.5	80 -	120	
107 Ag	115	1	43.68	0.45	40	109.2	80 -	120	
111 Cd	115	1	43.87	0.49	40	109.7	80 -	120	
118 Sn	115	1	-0.37	11.30	40	-0.9	80 -	120	
121 Sb	115	1	42.97	0.37	40	107.4	80 -	120	
137 Ba	115	1	43.06	1.36	40	107.7	80 -	120	
205 Tl	165	1	44.09	1.70	40	110.2	80 -	120	
208 Pb	165	1	43.89	0.28	40	109.7	80 -	120	
232 Th	165	1	43.54	3.28	40	108.9	80 -	120	
238 U	165	1	44.37	1.30	40	110.9	80 -	120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	579767	1.74	581797	99.7	30 - 120	
45 Sc	1	2626009	1.26	2574983	102.0	30 - 120	
72 Ge	1	1241912	1.19	1211627	102.5	30 - 120	
115 In	1	3464049	0.75	3426576	101.1	30 - 120	
165 Ho	1	5648231	0.45	5647086	100.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\021AREF.D\021AREF.D#

Date Acquired: Jul 21 2009 06:17 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJWF 10X ISTD: Pass

Misc Info: D9F110152
Vial Number: 2203

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	12.20	1.22	ppb	12.46	3600	
52 Cr	72	1	608.90	60.89	ppb	1.02	3600	
55 Mn	72	1	61.08	6.11	ppb	1.60	3600	
59 Co	72	1	0.54	0.05	ppb	9.65	3600	
60 Ni	72	1	3.44	0.34	ppb	3.47	3600	
63 Cu	72	1	0.00	0.00	ppb	1703.70	3600	
66 Zn	72	1	0.88	0.09	ppb	14.09	3600	
75 As	72	1	102.10	10.21	ppb	2.47	3600	
78 Se	72	1	5.68	0.57	ppb	30.54	3600	
95 Mo	72	1	23.98	2.40	ppb	3.87	3600	
107 Ag	115	1	0.08	0.01	ppb	40.24	3600	
111 Cd	115	1	0.06	0.01	ppb	73.22	3600	
118 Sn	115	1	-4.83	-0.48	ppb	7.02	3600	
121 Sb	115	1	0.71	0.07	ppb	16.54	3600	
137 Ba	115	1	19.40	1.94	ppb	2.30	3600	
205 Tl	165	1	0.64	0.06	ppb	36.27	3600	
208 Pb	165	1	0.07	0.01	ppb	27.12	3600	
232 Th	165	1	8.65	0.87	ppb	20.25	1000	
238 U	165	1	7.56	0.76	ppb	2.55	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	590900	1.18	581797	101.6	30 - 120	
45 Sc	1	2533931	0.43	2574983	98.4	30 - 120	
72 Ge	1	1167278	0.63	1211627	96.3	30 - 120	
115 In	1	3238216	0.65	3426576	94.5	30 - 120	
165 Ho	1	5471501	0.80	5647086	96.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\022SDIL.D\022SDIL.D#

Date Acquired: Jul 21 2009 06:20 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGDJWP50F
Misc Info: SERIAL DILUTION

Vial Number: 2204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\021AREF.D\021AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref Conc.	Actual(%)	QC I	Range(%)	Flag
.9 Be	6	1	0.01	ppb	173.20	0.00	#DIV/0!	90	- 110	
51 V	.72	1	0.25	ppb	23.21	0.24	100.5	90	- 110	
52 Cr	72	1	12.58	ppb	0.44	12.18	103.3	90	- 110	
55 Mn	72	1	1.29	ppb	0.26	1.22	105.2	90	- 110	
59 Co	72	1	0.01	ppb	21.77	0.01	112.0	90	- 110	
60 Ni	72	1	0.27	ppb	12.92	0.07	390.9	90	- 110	
63 Cu	72	1	-0.01	ppb	73.18	0.00	20456.2	90	- 110	
66 Zn	72	1	0.04	ppb	35.83	0.02	254.8	90	- 110	
75 As	72	1	2.03	ppb	4.31	2.04	99.3	90	- 110	
78 Se	72	1	0.07	ppb	105.92	0.11	62.6	90	- 110	
95 Mo	72	1	0.45	ppb	2.12	0.48	92.9	90	- 110	
107 Ag	115	1	0.00	ppb	86.03	0.00	105.5	90	- 110	
111 Cd	115	1	-0.01	ppb	108.09	0.00	-493.7	90	- 110	
118 Sn	115	1	-0.48	ppb	2.92	-0.10	499.9	90	- 110	
121 Sb	115	1	0.03	ppb	5.55	0.01	203.3	90	- 110	
137 Ba	115	1	0.41	ppb	1.67	0.39	104.6	90	- 110	
205 Tl	165	1	0.00	ppb	16.96	0.01	37.5	90	- 110	
208 Pb	165	1	0.01	ppb	20.31	0.00	477.0	90	- 110	
232 Th	165	1	0.16	ppb	12.48	0.17	89.6	90	- 110	
238 U	165	1	0.15	ppb	0.28	0.15	100.9	90	- 110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC F	Range(%)	Flag
6 Li	1	601137	1.51	581797	103.3	30	- 120	
45 Sc	1	2582296	1.17	2574983	100.3	30	- 120	
72 Ge	1	1216323	0.20	1211627	100.4	30	- 120	
115 In	1	3395336	0.16	3426576	99.1	30	- 120	
165 Но	1	5593006	0.76	5647086	99.0	30	- 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

SERIAL DILUTION

Denver					SEKI	AL DI	LUTT	O N
Method: 6020 (ICP/MS)		ICPMS_0	24		Reported	: 07/22/0	9 08:07	′:13
Department: 090 (Metals)						Source:	Spreads	sheet
Sample: LGDJWP50F		Se	rial Dilution:	50.00	Sample i	Dilution:	10.00	
Instrument: Agilent7500		Chanr	nel 272					
File: AG072109 # 22		Method	6020_					
Acquired: 07/21/2009 18:20:00		ICPM	S_024		Matrix	c: AQUE	OUS	
Calibrated: 07/21/2009 17:28:00						nits: ug/L		
CASN Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7 Beryllium	9	3	0.26755	0			*	
7440-62-2 Vanadium	51	3135	12.265	12.200	0.533		*	
7440-47-3 Chromium	52	159548	629.00	608.90	3.30		*	
7439-96-5 Manganese	55	20525	64.250	61.080	5.19		*	
7440-48-4 Cobalt	59	253	0.60600	0.54130	12.0		*	
7440-02-0 Nickel	60	983	13.460	3.4430	291		*	
7440-50-8 Copper	63	587	-0.56950	-0.00278			*	
7440-66-6 Zinc	66	425	2.2325	0.87630	155		*	
7440-38-2 Arsenic	75	3160	101.40	102.10	0.686	0.21	NC	\checkmark
7782-49-2 Selenium	78	593	3.5565	5.6840	37.4	0.70	NC	abla
7439-98-7 Molybdenum	95	1884	22.275	23.980	7.11		*	
7440-22-4 Silver	107	30	0.08660	0.08210	5.48		*	
7440-43-9 Cadmium	111	-8	-0.29115	0.05897	594		*	
7440-31-5 Tin	118	1163	-24.150	-4.8310			*	
7440-36-0 Antimony	121	257	1.4510	0.71360	103		*	
7440-39-3 Barium	137	1387	20.295	19.400	4.61		*	
7440-28-0 Thallium	205	354	0.23865	0.63710	62.5		*	
7439-92-1 Lead	208	521	0.33550	0.07033	377		*	
7440-61-1 Uranium	238	5855	7.6300	7.5630	0.886		*	
7440-29-1 Thorium	232	5345	7.7500	8.6540	10.4		*	
7439-93-2 Lithium	6			0			*	
7440-20-2 Scandium	45			0			*	
7440-74-6 Indium	115			0			*	
7440-56-4 Germanium	72			0			*	
				_				

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E : Difference greater than Limit (10%)

0

165

Reviewed by: Date: 7/209

IDB Reports TestAmerica, Inc. Version: 6.02.068

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7440-60-0 Holmium

ISTD: Pass

Post Digestion Spiked Sample (PDS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\023PDS.D\023PDS.D#

Date Acquired: Jul 21 2009 06:22 pm QC Summary:
Acq. Method: NormISIS.M Analytes: Pass

Operator: TEL
Sample Name: LGDJWZF

Misc Info: POST DIGESTION SPIKE

Vial Number: 2205

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: PDS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Spike Ref. File: ---

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	201.80	0.00	ppb	1.48	200	100.9	75 - 125	
51 V	72	1	203.40	1.22	ppb	1.11	200	101.1	75 - 125	
52 Cr	72	1	258.10	60.89	ppb	0.07	200	98.9	75 - 125	
55 Mn	72	1	206.00	6.11	ppb	0.58	200	99.9	75 - 125	
59 Co	72	1	196.20	0.05	ppb	0.64	200	98.1	75 - 125	
60 Ni	72	1	196.50	0.34	ppb	1.01	200	98.1	75 - 125	
63 Cu	72	1	194.20	0.00	ppb	0.73	200	97.1	75 - 125	
66 Zn	72	1	201.80	0.09	ppb	0.46	200	100.9	75 - 125	
75 As	72	1	214.90	10.21	ppb	0.43	200	102.2	75 - 125	
78 Se	72	1	210.20	0.57	ppb	0.66	200	104.8	75 - 125	
95 Mo	72	1	209.00	2.40	ppb	0.79	200	103.3	75 - 125	
107 Ag	115	1	47.07	0.01	ppb	2.00	50	94.1	75 - 125	
111 Cd	115	1	198.70	0.01	ppb	1.84	200	99.3	75 - 125	
118 Sn	115	1	181.20	-0.48	ppb	1.76	200	90.8	75 - 125	
121 Sb	115	1	200.10	0.07	ppb	1.29	200	100.0	75 - 125	
137 Ba	115	1	200.90	1.94	ppb	2.33	200	99.5	75 - 125	
205 Tl	165	1	190.00	0.06	ppb	1.06	200	95.0	75 - 125	
208 Pb	165	1	190.70	0.01	ppb	1.07	200	95.3	75 - 125	
232 Th	165	1	0.08	0.87	ppb	8.47	200	0.0	75 - 125	
238 U	165	1	201.70	0.76	ppb	0.35	200	100.5	75 - 125	

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	586526	1.18	581797	100.8	30 - 120	
45 Sc	1	2499229	0.22	2574983	97.1	30 - 120	
72 Ge	1	1133351	0.43	1211627	93.5	30 - 120	
115 In	1	3260173	2.11	3426576	95.1	30 - 120	
165 Ho	1	5470210	0.99	5647086	96.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Method: 6020 (ICP/MS) ICPMS_024 Reported: 07/22/09 08:07:18

Department: 090 (Metals) Source: Spreadsheet

Sample: LGDJWZF Spike Dilution: 1.00 Sample Dilution: 10.00

Instrument: Agilent7500 Channel 272
File: AG072109 # 23 Method 6020_

Acquired: 07/21/2009 18:22:00 ICPMS_024 Matrix: AQUEOUS

Calibrated: 07/21/2009 17:28:00 Units: ug/L

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7	Beryllium	9	124440	201.80	0	101	200		
7440-62-2	Vanadium	51	2357450	203.40	1.2200	101	200		
7440-47-3	Chromium	52	2991250	258.10	60.890	98.6	200		
7439-96-5	Manganese	55	2890890	206.00	6.1080	99.9	200		
7440-48-4	Cobalt	59	2813000	196.20	0.05413	98.1	200		
7440-02-0	Nickel	60	616832	196.50	0.34430	98.1	200		
7440-50-8	Copper	63	1423140	194.20	-0.00028	97.1	200		
7440-66-6	Zinc	66	348907	201.80	0.08763	101	200		
7440-38-2	Arsenic	75	301666	214.90	10.210	(102).	200		
7782-49-2	Selenium	78	58189	210.20	0.56840	(105)	200		abla
7439-98-7	Molybdenum	95	784086	209.00	2.3980	103	200		
7440-22-4	Silver	107	523224	47.070	0.00821	94.1	50.0		
7440-43-9	Cadmium	111	455895	198.70	0.00590	99.3	200		
7440-31-5	Tin	118	1212490	181.20	-0.48310	90.6	200		
7440-36-0	Antimony	121	1546000	200.10	0.07136	100	200		
7440-39-3	Barium	137	639587	200.90	1.9400	99.5	200		
7440-28-0	Thallium	205	4978400	190.00	0.06371	95.0	200		
7439-92-1	Lead	208	6809470	190.70	0.00703	95.3	200		
7440-61-1	Uranium	238	7539810	201.70	0.75630	100	200		
7440-29-1	Thorium	232	2897	0.08223	0.86540				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by:

Date: 7 21 0

IDB Reports

TestAmerica, Inc.

Version: 6.02.068

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Spiked Sample (MS) QC Report

C:\ICPCHEM\1\DATA\AG072109.B\024_MS.D\024_MS.D# Data File:

Jul 21 2009 06:25 pm Date Acquired: QC Summary:

Acq. Method: NormISIS.M Analytes: Pass TEL ISTD: Pass

Operator:

LGDJWSF 10X Sample Name: MATRIX SPIKE Misc Info:

2206 Vial Number:

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MS Prep Dil. Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

---Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.35	0.00	ppb	11.89	40	10.9	50 - 150
51 V	72	1	5.71	1.22	dqq	11.05	40	13.9	50 - 150
52 Cr	72	1	64.83	60.89	ppb	0.62	40	64.3	50 - 150
55 Mn	72	1	10.20	6.11	ppb	1.01	40	22.1	50 - 150
59 Co	72	1	4.32	0.05	ppb	2.71	40	10.8	50 - 150
60 Ni	72	1	4.52	0.34	ppb	0.40	40	11.2	50 - 150
63 Cu	72	1	4.22	0.00	ppb	3.29	40	10.6	50 - 150
66 Zn	72	1	4.52	0.09	ppb	1.66	40	11.3	50 - 150
75 As	72	1	14.59	10.21	ppb	0.53	40	29.1	50 - 150
78 Se	72	1	4.28	0.57	ppb	15.35	40	10.5	50 - 150
95 Mo	72	1	6.79	2.40	ppb	1.68	40	16.0	50 - 150
107 Ag	115	1	4.14	0.01	ppb	2.23	40	10.3	50 - 150
111 Cd	115	1	4.40	0.01	ppb	2.44	40	11.0	50 - 150
118 Sn	115	1	-0.26	-0.48	ppb	16.39	40	-0.7	50 - 150
121 Sb	115	1	4.50	0.07	ppb	0.39	40	11.2	50 - 150
137 Ba	115	1	6.37	1.94	ppb	3.54	40	15.2	50 - 150
205 Tl	165	1	4.24	0.06	ppb	0.40	40	10.6	50 - 150
208 Pb	165	1	4.22	0.01	ppb	0.76	40	10.5	50 - 150
232 Th	165	1	4.59	0.87	ppb	2.86	40	11.2	50 - 150
238 U	165	1	5.30	0.76	ppb	0.58	40	13.0	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	586499	1.28	581797	100.8	30 - 120
45 Sc	1	2529836	0.34	2574983	98.2	30 - 120
72 Ge	1	1157511	0.91	1211627	95.5	30 - 120
115 In	1	3237120	0.67	3426576	94.5	30 - 120
165 Ho	1	5514160	0.72	5647086	97.6	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\ICPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\025 MSD.D\025 MSD.D\#

Date Acquired: Jul 21 2009 06:28 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGDJWDF 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2207

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\024 MS.D\024 MS.D#

QC Elements

Eler	ment	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9	Ве	6	1	4.40	ppb	7.25	4.35	1.21	20	
51	V	72	1	5.38	ppb	4.90	5.71	5.97	20	
52	Cr	72	1	63.95	ppb	1.12	64.83	1.37	20	
55	Mn	72	1	10.07	ppb	0.75	10.20	1.28	20	
59	Co	72	. 1	4.15	ppb	1.88	4.32	4.01	20	
60	Ni	72	1	4.42	ppb	3.77	4.52	2.21	20	
63	Cu	72	1	4.15	ppb	0.42	4.22	1.82	20	
66	Zn	72	1	4.32	ppb	0.38	4.52	4.39	20	
75	As	72	1	14.32	ppb	1.11	14.59	1.87	20	
78	Se	72	1	5.00	ppb	11.82	4.28	15.57	20	
95	Mo	72	1	6.57	ppb	2.93	6.79	3.28	20	
107	Ag	115	1	4.02	ppb	0.03	4.14	2.80	20	
111	Cd	115	1	4.32	ppb	2.18	4.40	1.72	20	
118	Sn	115	1	-0.45	ppb	1.69	-0.26	-51.74	20	
121	Sb	115	1	4.36	ppb	2.25	4.49	3.12	20	
137	Ва	115	1	6.19	ppb	1.35	6.37	2.85	20	
205	Tl	165	1	4.26	ppb	0.30	4.24	0.47	20	
208	Pb	165	1	4.21	ppb	1.16	4.22	0.24	20	
232	Th	165	1	4.66	ppb	1.01	4.59	1.64	20 .	
238	U	165	1	5.31	ppb	0.66	5.30	0.04	20	
	9 51 52 55 59 60 63 66 75 78 95 107 111 137 205 208 232	51 V 52 Cr 55 Mn 59 Co 60 Ni 63 Cu 66 Zn 75 As 78 Se	9 Be 6 51 V 72 52 Cr 72 55 Mn 72 59 Co 72 60 Ni 72 63 Cu 72 66 Zn 72 75 As 72 78 Se 72 95 Mo 72 107 Ag 115 111 Cd 115 118 Sn 115 121 Sb 115 137 Ba 115 205 Tl 165 208 Pb 165 232 Th 165	9 Be 6 1 51 V 72 1 52 Cr 72 1 55 Mn 72 1 59 Co 72 1 60 Ni 72 1 63 Cu 72 1 66 Zn 72 1 75 As 72 1 75 As 72 1 77 Ag 115 1 111 Cd 115 1 118 Sn 115 1 118 Sn 115 1 121 Sb 115 1 137 Ba 115 1 205 T1 165 1 208 Pb 165 1 232 Th 165 1	9 Be 6 1 4.40 51 V 72 1 5.38 52 Cr 72 1 63.95 55 Mn 72 1 10.07 59 Co 72 1 4.15 60 Ni 72 1 4.42 63 Cu 72 1 4.32 66 Zn 72 1 4.32 75 As 72 1 14.32 75 As 72 1 5.00 95 Mo 72 1 6.57 107 Ag 115 1 4.02 111 Cd 115 1 4.32 118 Sn 115 1 4.36 137 Ba 115 1 4.26 205 T1 165 1 4.26 208 Pb 165 1 4.66	9 Be 6 1 4.40 ppb 51 V 72 1 5.38 ppb 52 Cr 72 1 63.95 ppb 55 Mn 72 1 10.07 ppb 59 Co 72 1 4.15 ppb 60 Ni 72 1 4.42 ppb 63 Cu 72 1 4.32 ppb 66 Zn 72 1 4.32 ppb 75 As 72 1 14.32 ppb 78 Se 72 1 5.00 ppb 95 Mo 72 1 6.57 ppb 107 Ag 115 1 4.02 ppb 111 Cd 115 1 4.32 ppb 121 Sb 115 1 4.36 ppb 123 Ba 115 1 4.26 ppb 137 Ba 115 1 <td< td=""><td>9 Be 6 1 4.40 ppb 7.25 51 V 72 1 5.38 ppb 4.90 52 Cr 72 1 63.95 ppb 1.12 55 Mn 72 1 10.07 ppb 0.75 59 Co 72 1 4.15 ppb 1.88 60 Ni 72 1 4.42 ppb 3.77 63 Cu 72 1 4.15 ppb 0.42 66 Zn 72 1 4.32 ppb 0.38 75 As 72 1 4.32 ppb 1.11 78 Se 72 1 5.00 ppb 11.82 95 Mo 72 1 6.57 ppb 2.93 107 Ag 115 1 4.02 ppb 0.03 111 Cd 115 1 4.32 ppb 1.69 121 Sb 115 1 4</td><td>9 Be 6 1 4.40 ppb 7.25 4.35 51 V 72 1 5.38 ppb 4.90 5.71 52 Cr 72 1 63.95 ppb 1.12 64.83 55 Mn 72 1 10.07 ppb 0.75 10.20 59 Co 72 1 4.15 ppb 1.88 4.32 60 Ni 72 1 4.42 ppb 3.77 4.52 63 Cu 72 1 4.15 ppb 0.42 4.22 66 Zn 72 1 4.32 ppb 0.38 4.52 75 As 72 1 14.32 ppb 1.11 14.59 78 Se 72 1 5.00 ppb 11.82 4.28 95 Mo 72 1 6.57 ppb 2.93 6.79 107 Ag 115 1 4.02 ppb 0.03 4.14 111 Cd 115 1 4.32 ppb 1.69 -0.26 121 Sb 115 1 4.36 ppb 2.25 4.49 137 Ba 115 1 4.36 ppb 0.30 4.24 208 Pb 165 1 4.26 ppb 0.30 4.24 222 232 Th 165 1 4.66 ppb 1.16</td><td>9 Be 6 1 4.40 ppb 7.25 4.35 1.21 51 V 72 1 5.38 ppb 4.90 5.71 5.97 52 Cr 72 1 63.95 ppb 1.12 64.83 1.37 55 Mn 72 1 10.07 ppb 0.75 10.20 1.28 59 Co 72 1 4.15 ppb 1.88 4.32 4.01 60 Ni 72 1 4.42 ppb 3.77 4.52 2.21 63 Cu 72 1 4.15 ppb 0.42 4.22 1.82 66 Zn 72 1 4.32 ppb 0.38 4.52 4.39 75 As 72 1 14.32 ppb 1.11 14.59 1.87 78 Se 72 1 6.57 ppb 2.93 6.79</td><td>9 Be 6 1 4.40 ppb 7.25 4.35 1.21 20 51 V 72 1 5.38 ppb 4.90 5.71 5.97 20 52 Cr 72 1 63.95 ppb 1.12 64.83 1.37 20 55 Mn 72 1 10.07 ppb 0.75 10.20 1.28 20 59 Co 72 1 4.15 ppb 1.88 4.32 4.01 20 60 Ni 72 1 4.42 ppb 3.77 4.52 2.21 20 63 Cu 72 1 4.15 ppb 0.42 4.22 1.82 20 66 Zn 72 1 4.32 ppb 1.11 14.59 1.87 20 78 Se 72 1 5.00 ppb 11.82 4.28 15.57 20 </td></td<>	9 Be 6 1 4.40 ppb 7.25 51 V 72 1 5.38 ppb 4.90 52 Cr 72 1 63.95 ppb 1.12 55 Mn 72 1 10.07 ppb 0.75 59 Co 72 1 4.15 ppb 1.88 60 Ni 72 1 4.42 ppb 3.77 63 Cu 72 1 4.15 ppb 0.42 66 Zn 72 1 4.32 ppb 0.38 75 As 72 1 4.32 ppb 1.11 78 Se 72 1 5.00 ppb 11.82 95 Mo 72 1 6.57 ppb 2.93 107 Ag 115 1 4.02 ppb 0.03 111 Cd 115 1 4.32 ppb 1.69 121 Sb 115 1 4	9 Be 6 1 4.40 ppb 7.25 4.35 51 V 72 1 5.38 ppb 4.90 5.71 52 Cr 72 1 63.95 ppb 1.12 64.83 55 Mn 72 1 10.07 ppb 0.75 10.20 59 Co 72 1 4.15 ppb 1.88 4.32 60 Ni 72 1 4.42 ppb 3.77 4.52 63 Cu 72 1 4.15 ppb 0.42 4.22 66 Zn 72 1 4.32 ppb 0.38 4.52 75 As 72 1 14.32 ppb 1.11 14.59 78 Se 72 1 5.00 ppb 11.82 4.28 95 Mo 72 1 6.57 ppb 2.93 6.79 107 Ag 115 1 4.02 ppb 0.03 4.14 111 Cd 115 1 4.32 ppb 1.69 -0.26 121 Sb 115 1 4.36 ppb 2.25 4.49 137 Ba 115 1 4.36 ppb 0.30 4.24 208 Pb 165 1 4.26 ppb 0.30 4.24 222 232 Th 165 1 4.66 ppb 1.16	9 Be 6 1 4.40 ppb 7.25 4.35 1.21 51 V 72 1 5.38 ppb 4.90 5.71 5.97 52 Cr 72 1 63.95 ppb 1.12 64.83 1.37 55 Mn 72 1 10.07 ppb 0.75 10.20 1.28 59 Co 72 1 4.15 ppb 1.88 4.32 4.01 60 Ni 72 1 4.42 ppb 3.77 4.52 2.21 63 Cu 72 1 4.15 ppb 0.42 4.22 1.82 66 Zn 72 1 4.32 ppb 0.38 4.52 4.39 75 As 72 1 14.32 ppb 1.11 14.59 1.87 78 Se 72 1 6.57 ppb 2.93 6.79	9 Be 6 1 4.40 ppb 7.25 4.35 1.21 20 51 V 72 1 5.38 ppb 4.90 5.71 5.97 20 52 Cr 72 1 63.95 ppb 1.12 64.83 1.37 20 55 Mn 72 1 10.07 ppb 0.75 10.20 1.28 20 59 Co 72 1 4.15 ppb 1.88 4.32 4.01 20 60 Ni 72 1 4.42 ppb 3.77 4.52 2.21 20 63 Cu 72 1 4.15 ppb 0.42 4.22 1.82 20 66 Zn 72 1 4.32 ppb 1.11 14.59 1.87 20 78 Se 72 1 5.00 ppb 11.82 4.28 15.57 20

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	587799	1.17	581797	101.0	30 - 120	
45 Sc	1	2522948	0.71	2574983	98.0	30 - 120	
72 Ge	1	1171083	0.71	1211627	96.7	30 - 120	
115 In	1	3269570	1.14	3426576	95.4	30 - 120	
165 Ho	1	5497291	0.55	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\026 CCV.D\026 CCV.D#

Date Acquired: Jul 21 2009 06:30 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

OC Elements

ÕC I	rteme	nts								
Eler	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.60	ppb	3.76	50	99.2	90 - 110	
51	V	72	1	47.46	ppb	0.73	50	94.9	90 - 110	
52	Cr	72	1	48.46	ppb	1.90	50	96.9	90 - 110	
55	Mn	72	1	48.48	ppb	1.62	50	97.0	90 - 110	
59	Со	72	1	48.65	ppb	0.70	50	97.3	90 - 110	
60	Ni	72	1	49.63	ppb	1.26	50	99.3	90 - 110	
63	Cu	72	1	49.48	ppb	1.11	50	99.0	90 - 110	
66	Zn	72	1	49.17	ppb	0.85	50	98.3	90 - 110	
75	As	72	1	49.33	ppb	1.83	50	98.7	90 - 110	
78	Se	72	1	49.43	ppb	3.65	50	98.9	90 - 110	
95	Mo	72	1	49.52	ppb	1.74	50	99.0	90 - 110	
107	Ag	115	1	49.84	ppb	0.95	50	99.7	90 - 110	
111	Cd	115	1	49.79	ppb	0.88	50	99.6	90 - 110	
118	Sn	115	1	49.36	ppb	1.63	50	98.7	90 - 110	
121	Sb	115	1	49.58	ppb	0.60	50	99.2	90 - 110	
137	Ва	115	1	49.59	ppb	0.66	50	99.2	90 - 110	
205	Tl	165	1	50.54	ppb	0.83	50	101.1	90 - 110	
208	Pb	165	1	50.49	ppb	0.37	50	101.0	90 - 110	
232	Th	165	1	51.99	ppb	2.44	50	104.0	90 - 110	
238	U	165	1	51.90	ppb	0.76	50	103.8	90 - 110	
IST	D Ele	ments								
Eler	ment		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	571014		0.79	581797	98.1	30 - 120	
45	Sc		1	2538915		1.25	2574983	98.6	30 - 120	
72	Ge		1	1213633		1.83	1211627	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

1

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

3399341

5600207

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

0.53

115 In

165 Ho

0.85 3426576

5647086

99.2

99.2

30 - 120

30 - 120

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\027 CCB.D\027 CCB.D#

Date Acquired: Jul 21 2009 06:33 pm

TEL QC Summary: Operator: Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.006	ppb	173.20	1.00	
51 V	72	1	-0.006	ppb	515.80	1.00	
52 Cr	72	1	-0.037	ppb	49.31	1.00	
55 Mn	72	1	-0.018	ppb	70.24	1.00	
59 Co	72	1	0.002	ppb	18.76	1.00	
60 Ni	72	1	0.005	ppb	28.03	1.00	
63 Cu	72	1	-0.039	ppb	12.85	1.00	
66 Zn	72	1	0.010	ppb	155.67	1.00	
75 As	72	1	-0.008	ppb	188.46	1.00	
78 Se	72	1	0.001	ppb	63037.00	1.00	
95 Mo	72	1	0.038	ppb	19.24	1.00	
107 Ag	115	1	0.006	ppb	44.60	1.00	
111 Cd	115	1	0.007	ppb	37.32	1.00	
118 Sn	115	1	-0.057	ppb	99.88	1.00	
121 Sb	115	1	0.059	ppb	8.11	1.00	
137 Ba	115	1	0.003	ppb	62.71	1.00	
205 Tl	165	1	0.021	ppb	14.15	1.00	
208 Pb	165	1	0.004	ppb	24.01	1.00	
232 Th	165	1	0.775	ppb	18.32	1.00	
238 U	165	1	0.010	ppb	13.56	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	568757	0.26	581797	97.8	30 - 120	
45 Sc	1	2523515	0.52	2574983	98.0	30 - 120	
72 Ge	1	1190357	0.87	1211627	98.2	30 - 120	
115 In	1	3393018	0.90	3426576	99.0	30 - 120	
165 Ho	1	5546048	0.69	5647086	98.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 : Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

ISTD: Pass

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\028WASH.D\028WASH.D\0

Date Acquired: Jul 21 2009 06:36 pm

Operator: TEL QC Summary: Sample Name: RLCV Analytes: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.945 ppb	17.37	1.30	
51 V	72	1	5.047 ppb	0.91	6.50	
52 Cr	72	1	2.021 ppb	3.49	2.60	
55 Mn	72	1	1.010 ppb	5.40	1.30	
59 Co	72	1	1.024 ppb	2.85	1.30	
60 Ni	72	1	2.156 ppb	3.13	2.60	
63 Cu	72	1	2.053 ppb	0.90	2.60	
66 Zn	72	1	10.450 ppb	1.17	13.00	
75 As	72	1	5.192 ppb	1.28	6.50	
78 Se	72	1	5.235 ppb	5.22	6.50	
95 Mo	72	1	2.123 ppb	6.02	2.60	
107 Ag	115	. 1	5.226 ppb	1.25	6.50	
111 Cd	115	1	1.069 ppb	5.99	1.30	
118 Sn	115	1	9.851 ppb	1.45	13.00	
121 Sb	115	1	1.944 ppb	1.32	2.60	
137 Ba	115	1	1.079 ppb	5.58	1.30	
205 Tl	165	1	1.091 ppb	0.56	1.30	
208 Pb	165	1	1.065 ppb	1.02	1.30	
232 Th	165	1	2.329 ppb	1.74	2.60	
238 U	165	1	1.101 ppb	0.77	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	563752	0.35	581797	96.9	30 - 120	
45 Sc	1	2522070	0.50	2574983	97.9	30 - 120	
72 Ge	1	1195071	0.30	1211627	98.6	30 - 120	
115 In	1	3409514	0.82	3426576	99.5	30 - 120	
165 Ho	1	5555873	0.54	5647086	98.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\029 BLK.D\029 BLK.D#

Date Acquired: Jul 21 2009 06:39 pm

QC Summary: Operator: TEL LGEERB Analytes: Sample Name: Pass

ISTD: Misc Info: Pass BLANK 9194272 6020

Vial Number: 2208

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal Update: Jul 21 2009 05:31 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	0.000 ppb	0.00	2.00	
51 V	72	1	-0.023 ppb	197.29	2.00	
52 Cr	72	1	0.079 ppb	10.06	2.00	
55 Mn	72.	1	0.108 ppb	12.70	2.00	
59 Co	72	1	0.000 ppb	501.93	2.00	
60 Ni	72	1	0.025 ppb	81.97	2.00	
63 Cu	72	1	0.077 ppb	14.50	2.00	
66 Zn	72	1	0.692 ppb	2.78	2.00	
75 As	72	1	-0.001 ppb	1570.10	2.00	
78 Se	72	1	0.138 ppb	271.86	2.00	
95 Mo	72	1	0.012 ppb	30.51	2.00	
107 Ag	115	1	0.005 ppb	43.98	2.00	
111 Cd	115	1	0.003 ppb	153.49	2.00	
118 Sn	115	1	-0.388 ppb	3.06	2.00	
121 Sb	115	1	0.032 ppb	4.02	2.00	
137 Ba	115	1	0.024 ppb	41.42	2.00	
205 Tl	165	1	0.024 ppb	33.52	2.00	
208 Pb	165	1	0.010 ppb	10.00	2.00	
232 Th	165	1	0.149 ppb	18.82	2.00	
238 U	165	1	0.003 ppb	8.64	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567901	0.49	581797	97.6	30 - 120	
45 Sc	1	2536930	0.98	2574983	98.5	30 - 120	
72 Ge	1	1190052	0.57	1211627	98.2	30 - 120	
115 In	1	3404908	0.81	3426576	99.4	30 - 120	
165 Ho	1	5537384	1.21	5647086	98.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

ISTD:

Pass

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\030 LCS.D\030 LCS.D#

Date Acquired: Jul 21 2009 06:41 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass

Sample Name: LGEERC
Misc Info: LCS
Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte	Elements
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Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Rar	nge (%)	Flag
9 Be	6	1	40.84	2.97	40	102.1	80 -	- 120	
51 V	72	1	41.46	0.89	40	103.7	80 -	- 120	
52 Cr	72	1	42.08	1.02	40	105.2	80 -	- 120	
55 Mn	72	1	42.07	2.68	40	105.2	80 -	- 120	
59 Co	72	1	42.43	1.84	40	106.1	80 -	- 120	
60 Ni	72	1	43.29	2.68	40	108.2	80 -	- 120	
63 Cu	72	1	43.58	2.40	40	109.0	80 -	- 120	
66 Zn	72	1	41.11	1.13	40	102.8	80 -	- 120	
75 As	72	1	41.33	1.55	40	103.3	80 -	- 120	
78 Se	72	1	40.24	3.32	40	100.6	80 -	- 120	
95 Mo	72	1	43.74	5.12	40	109.4	80 -	- 120	
107 Ag	115	1	42.07	1.97	40	105.2	80 -	- 120	
111 Cd	115	1	41.62	1.54	40	104.1	80 -	- 120	
118 Sn	115	1	-0.06	879.10	40	-0.2	80 -	- 120	
121 Sb	115	1	40.67	1.75	40	101.7	80 -	- 120	
137 Ba	115	1	42.32	1.65	40	105.8	80 -	- 120	
205 Tl	165	1	43.38	1.33	40	108.5	80 -	- 120	
208 Pb	165	1	43.18	0.66	40	108.0	80 -	- 120	
232 Th	165	1	46.22	3.01	40	115.6	80 -	- 120	
238 U	165	1	44.22	0.28	40	110.6	80 -	- 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	572827	4.47	581797	98.5	30 - 120	
45 Sc	1	2536116	1.65	2574983	98.5	30 - 120	
72 Ge	1	1194379	2.43	1211627	98.6	30 - 120	
115 In	1	3408702	2.96	3426576	99.5	30 - 120	
165 Ho	1	5609006	1.65	5647086	99.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

Date Acquired: Jul 21 2009 06:44 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: TEL ISTD: **Pass** Sample Name: LGCN3 10X

Misc Info: D9G100272 Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.11	0.01	ppb	86.58	3600	
51 V	72	1	21.63	2.16	ppb	7.43	3600	
52 Cr	72	1	6.32	0.63	ppb	7.96	3600	
55 Mn	72	1	5.24	0.52	ppb	6.66	3600	
59 Co	72	1	0.39	0.04	ppb	16.50	3600	
60 Ni	72	1	4.15	0.41	ppb	14.15	3600	
63 Cu	72	1	0.17	0.02	ppb	16.19	3600	
66 Zn	72	1	3.05	0.31	ppb	11.24	3600	
75 As	72	1	198.10	19.81	ppb	2.87	3600	
78 Se	72	1	4.94	0.49	ppb	39.09	3600	
95 Mo	72	1	16.44	1.64	ppb	4.40	3600	
107 Ag	115	1	0.09	0.01	ppb	63.79	3600	
111 Cd	115	1	0.13	0.01	ppb	29.31	3600	
118 Sn	115	1	-5.34	-0.53	ppb	1.82	3600	
121 Sb	115	1	0.48	0.05	ppb	8.21	3600	
137 Ba	115	1	33.07	3.31	ppb	2.19	3600	
205 Tl	165	1	0.27	0.03	ppb	15.00	3600	
208 Pb	165	1	0.16	0.02	ppb	10.80	3600	
232 Th	165	1	6.24	0.62	ppb	18.22	1000	
238 U	165	1	55.05	5.51	ppb	1.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567824	0.66	581797	97.6	30 - 120	
45 Sc	1	2404508	0.72	2574983	93.4	30 - 120	
72 Ge	1	1124528	1.16	1211627	92.8	30 - 120	
115 In	1	3208719	1.35	3426576	93.6	30 - 120	
165 Ho	1	5383143	1.62	5647086	95.3	30 - 120	

Tune File# c:\icpchem\1\7500\he.u 1 Tune File# C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\032SDIL.D\032SDIL.D#

Date Acquired: Jul 21 2009 06:47 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3P50

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref Conc.	Actual(%)	QC F	Range	: (웅)	Flag
9 Be	6	1	0.00	ppb	0.00	0.00	0.0	90	-	110	
51 V	72	1	0.43	ppb	23.28	0.43	99.3	90	-	110	
52 Cr	72	1	0.29	ppb	4.37	0.13	229.3	90	-	110	
55 Mn	72	1	0.15	ppb	6.68	0.10	144.4	90	-	110	
59 Co	72	1	0.01	ppb	66.01	0.01	130.9	90	-	110	
60 Ni	72	1	0.26	ppb	15.21	0.08	310.4	90	-	110	
63 Cu	72	1	-0.01	ppb	106.68	0.00	-353.0	90	-	110	
66 Zn	72	1	0.09	ppb	22.23	0.06	148.6	90	-	110	
75 As	72	1	3.90	ppb	0.41	3.96	98.4	90	_	110	
78 Se	72	1	0.05	ppb	1070.40	0.10	46.0	90	-	110	
95 Mo	72	1	0.31	ppb	1.89	0.33	95.3	90	-	110	
107 Ag	115	1	0.00	ppb	66.72	0.00	156.3	90	-	110	
111 Cd	115	1	0.00	ppb	175.62	0.00	145.6	90	-	110	
118 Sn	115	1	-0.53	ppb	3.47	-0.11	493.3	90	_	110	
121 Sb	115	1	0.02	ppb	16.35	0.01	181.6	90	-	110	
137 Ba	115	1	0.66	ppb	2.72	0.66	99.8	90	-	110	
205 Tl	165	1	0.00	ppb	195.50	0.01	21.4	90	_	110	
208 Pb	165	1	0.01	ppb	27.48	0.00	185.7	90	-	110	
232 Th	165	1	0.09	ppb	13.71	0.12	75.2	90	-	110	
238 U	165	1	1.10	ppb	1.87	1.10	100.1	90	-	110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range	e(%) Flag
6 Li	1	565608	0.94	581797	97.2	30 -	120
45 Sc	1	2460020	0.58	2574983	95.5	30 -	120
72 Ge	1	1155387	1.16	1211627	95.4	30 -	120
115 In	1	3303714	1.14	3426576	96.4	30 -	120
165 Ho	1	5431207	0.86	5647086	96.2	30 -	120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

7440-56-4 Germanium

7440-60-0 Holmium

SERIAL DILUTION

Denvei						SERI	AL DI	LUTI	ON
Method: 6	6020 (ICP/MS)		ICPMS_0	24		Reported	: 07/22/0	9 08:07	': 22
Departmer	nt: 090 (Metals)						Source:	Spreads	sheet
Sample:	LGCN3P50		Se	Serial Dilution: 50.00			Dilution:	10.00	
Instrumer	nt: Agilent7500		Chanr	Channel 272					
File: AG0	72109 # 32			d 6020					
	Acquired: 07/21/2009 18:47:00			S_024		Matrix	c AQUE	าบร	
Calibrated: 07/21/2009 17:28:00			101 101	0_024			nits: ug/L		
CASN	Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7	Beryllium	9		0	0.11200	100		*	
7440-62-2	Vanadium	51	5166	21.480	21.630	0.693		*	
7440-47-3	Chromium	52	6495	14.490	6.3200	129		*	
7439-96-5	Manganese	55	3291	7.5700	5.2420	44.4		*	
7440-48-4	Cobalt	59	213	0.51000	0.38970	30.9		*	
7440-02-0	Nickel	60	897	12.880	4.1490	210		*	
7440-50-8	Copper	63	553	-0.59100	0.16740	453		*	
7440-66-6	Zinc	66	485	4.5335	3.0510	48.6		*	
7440-38-2	Arsenic	75	5677	194.90	198.10	1.62	0.21	NC	
7782-49-2	Selenium	78	557	2.2740	4.9420	54.0	0.70	NC	abla
7439-98-7	Molybdenum	95	1283	15.660	16.440	4.74		*	
7440-22-4	Silver	107	40	0.13490	0.08632	56.3		*	
7440-43-9	Cadmium	111	15	0.19425	0.13340	45.6		*	
7440-31-5	Tin	118	837	-26.330	-5.3380			*	
7440-36-0	Antimony	121	160	0.87700	0.48280	81.6		*	
7440-39-3	Barium	137	2169	32.995	33.070	0.227		*	
7440-28-0	Thallium	205	250	0.05780	0.26950	78.6		*	
7439-92-1	Lead	208	484	0.30480	0.16410	85.7		*	
7440-61-1	Uranium	238	40915	55.100	55.050	0.0908		*	
7440-29-1	Thorium	232	3247	4.6955	6.2410	24.8		*	
7439-93-2	Lithium	6			0			*	
7440-20-2	Scandium	45			0			*	
7440-74-6	Indium	115			0			*	
7440 50 4	•				_				

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E : Difference greater than Limit (10%)

0

72

165

Reviewed by:

Date: 72Wg

IDB Reports

TestAmerica, Inc.

Version: 6.02.068

1000 41101100, 111

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Post Digestion Spiked Sample (PDS) QC Report

C:\ICPCHEM\1\DATA\AG072109.B\033PDS.D\033PDS.D# Data File:

Jul 21 2009 06:50 pm Date Acquired: QC Summary:

NormISIS.M Acq. Method: Analytes: Pass Operator: TEL ISTD: Pass

LGCN3Z Sample Name:

POST DIGESTION SPIKE Misc Info:

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type:

PDS

Sample Type: PDS 1.00 Undiluted 1.00 Prep Dil. Factor: Autodil Factor: Final Dil Factor:

Spike Ref. File; ___

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	200.50	0.01	ppb	2.01	200	100.2	75 - 125	
51 V	72	1	199.90	2.16	ppb	1.11	200	98.9	75 - 125	
52 Cr	72	1	201.70	0.63	ppb	1.61	200	100.5	75 - 125	
55 Mn	72	1	198.30	0.52	ppb	1.60	200	98.9	75 - 125	
59 Co	72	1	195.50	0.04	ppb	2.21	200	97.7	75 - 125	
60 Ni	72	1	195.10	0.41	ppb	0.98	200	97.3	75 - 125	
63 Cu	72	1	195.80	0.02	ppb	0.06	200	97.9	75 - 125	
66 Zn	72	1	201.20	0.31	ppb	1.52	200	100.4	75 - 125	
75 As	72	1	221.60	19.81	ppb	1.14	200	100.8	75 - 125	
78 Se	72	1	205.80	0.49	ppb	1.72	200	102.6	75 - 125	
95 Mo	72	1	206.50	1.64	ppb	1.30	200	102.4	75 - 125	
107 Ag	115	1	48.42	0.01	ppb	1.14	50	96.8	75 - 125	
111 Cd	115	1	199.60	0.01	ppb	0.85	200	99.8	75 - 125	
118 Sn	115	1	182.90	-0.53	ppb	0.64	200	91.7	75 - 125	
121 Sb	115	1	200.40	0.05	ppb	0.62	200	100.2	75 - 125	
137 Ba	115	1	204.10	3.31	ppb	0.79	200	100.4	75 - 125	
205 Tl	165	1	196.40	0.03	ppb	0.92	200	98.2	75 - 125	
208 Pb	165	1	194.00	0.02	ppb	0.57	200	97.0	75 - 125	
232 Th	1.65	1	0.06	0.62	ppb	5.86	200	0.0	75 - 125	
238 U	165	1	208.90	5.51	ppb	1.19	200	101.7	75 - 125	
TOWN DIA										

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	552017	0.97	581797	94.9	30 - 120	
45 Sc	1	2393086	1.79	2574983	92.9	30 - 120	
72 Ge	1	1113187	1.37	1211627	91.9	30 - 120	
115 In	1	3182521	0.72	3426576	92.9	30 - 120	
165 Ho	1	5376631	0.55	5647086	95.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\ICPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Denver

SAMPLE SPIKE

Method: 6020 (ICP/MS)	ICPMS_024	Reported: 07/22/09 08:07:27		
Department: 090 (Metals)			Source: Spreadsheet	
Sample: LGCN3Z	Spike Dilution:	1.00	Sample Dilution: 10.00	
Instrument: Agilent7500	Channel 272			
File: AG072109 #33	Method 6020_			
Acquired: 07/21/2009 18:50:00	ICPMS 024	Matrix: AQUEOUS		

Acquired: 07/21/2009 18:50:00 (Calibrated: 07/21/2009 17:28:00

Matrix: AQUEOUS Units: ug/L

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7	Beryllium	9	116367	200.50	0.01120	100	200		
7440-62-2	Vanadium	51	2276200	199.90	2.1630	98.9	200		
7440-47-3	Chromium	52	2295910	201.70	0.63200	101	200		
7439-96-5	Manganese	55	2733570	198.30	0.52420	98.9	200		
7440-48-4	Cobalt	59	2753080	195.50	0.03897	97.7	200		
7440-02-0	Nickel	60	601491	195.10	0.41490	97.3	200		
7440-50-8	Copper	63	1409320	195.80	0.01674	97.9	200		
7440-66-6	Zinc	66	341573	201.20	0.30510	100	200		
7440-38-2	Arsenic	75	305470	221.60	19.810	(10)	200		abla
7782-49-2	Selenium	78	55960	205.80	0.49420	(103)	200		
7439-98-7	Molybdenum	95	760715	206.50	1.6440	102	200		
7440-22-4	Silver	107	525638	48.420	0.00863	96.8	50.0		
7440-43-9	Cadmium	111	447213	199.60	0.01334	99.8	200		
7440-31-5	Tin	118	1194630	182.90	-0.53380	91.4	200		
7440-36-0	Antimony	121	1511700	200.40	0.04828	100	200		
7440-39-3	Barium	137	634553	204.10	3.3070	100	200		
7440-28-0	Thallium	205	5056800	196.40	0.02695	98.2	200		
7439-92-1	Lead	208	6807220	194.00	0.01641	97.0	200		
7440-61-1	Uranium	238	7672550	208.90	5.5050	102	200		
7440-29-1	Thorium	232	2147	0.05994	0.62410				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by: Date: 7/21/1

IDB Reports TestAmerica, Inc. Version: 6.02.068

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ISTD: Pass

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\034_MS.D\034_MS.D#

Jul 21 2009 06:52 pm Date Acquired: QC Summary: NormISIS.M Acq. Method: Analytes: Pass

 \mathtt{TEL} Operator:

LGCN3S 10X Sample Name: MATRIX SPIKE Misc Info:

2301 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

MS Sample Type: Prep Dil. Factor: 10.00 Undiluted Autodil Factor: 10.00 Final Dil Factor:

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.28	0.01	ppb	3.84	40	10.7	50 - 150
51 V	72	1	6.27	2.16	ppb	1.52	40	14.9	50 - 150
52 Cr	72	1	4.83	0.63	ppb	4.02	40	11.9	50 - 150
55 Mn	72	1	4.67	0.52	ppb	0.82	40	11.5	50 - 150
59 Co	72	1	4.21	0.04	ppb	1.66	40	10.5	50 - 150
60 Ni	72	1	4.58	0.41	ppb	2.25	40	11.3	50 - 150
63 Cu	72	1	4.24	0.02	ppb	2.92	40	10.6	50 - 150
66 Zn	72	1	4.53	0.31	ppb	4.27	40	11.2	50 - 150
75 As	72	1	23.45	19.81	ppb	0.47	40	39.2	50 - 150
78 Se	72	1	4.43	0.49	ppb	4.58	40	10.9	50 - 150
95 Mo	72	1	6.07	1.64	ppb	2.05	40	14.6	50 - 150
107 Ag	115	1	4.06	0.01	ppb	2.34	40	10.2	50 - 150
111 Cd	115	1	4.28	0.01	ppb	1.30	40	10.7	50 - 150
118 Sn	115	1	-0.29	-0.53	ppb	8.52	40	-0.7	50 - 150
121 Sb	115	1	4.37	0.05	ppb	0.90	40	10.9	50 - 150
137 Ba	115	1	7.57	3.31	ppb	1.41	40	17.5	50 - 150
205 Tl	165	1	4.37	0.03	ppb	0.09	40	10.9	50 - 150
208 Pb	165	1	4.34	0.02	ppb	0.98	40	10.9	50 - 150
232 Th	165	1	4.70	0.62	ppb	2.44	40	11.6	50 - 150
238 U	165	1	10.08	5.51	ppb	0.80	40	22.2	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	556944	0.45	581797	95.7	30 - 120
45 Sc	1	2377843	1.11	2574983	92.3	30 - 120
72 Ge	1	1122514	1.35	1211627	92.6	30 - 120
115 In	1	3221254	0.75	3426576	94.0	30 - 120
165 Но	1	5362470	0.23	5647086	95.0	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\035 CCV.D\035 CCV.D#

Date Acquired: Jul 21 2009 06:55 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Ele	ment	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	
9	Ве	6	1	49.42 ppb	1.97	50	98.8	90 - 110	

Ĉ	9	Ве	6	1	49.42	ppb	1.97	50	98.8	90 - 110
5	51	V	72	1	48.32	ppb	0.92	50	96.6	90 - 110
5	52	Cr	72	1	48.98	ppb	0.92	50	98.0	90 - 110
Ę	55	Mn	72	1	48.41	ppb	0.46	50	96.8	90 - 110
Ç	59	Co	72	1	49.42	ppb	0.37	50	98.8	90 - 110
6	60	Ni	72	1	49.85	ppb	0.52	50	99.7	90 - 110
6	63	Cu	72	1	50.16	ppb	0.84	50	100.3	90 - 110
6	66	Zn	72	1	49.95	ppb	0.90	50	99.9	90 - 110
7	75	As	72	1	50.23	ppb	0.25	50	100.5	90 - 110
-	78	Se	72	1	50.22	ppb	2.05	50	100.4	90 - 110
Ç	95	Мо	72	1	50.05	ppb	0.52	50	100.1	90 - 110
1	107	Ag	115	1	49.31	ppb	0.59	50	98.6	90 - 110
1	111	Cd	115	1	49.60	ppb	0.17	50	99.2	90 - 110
1	118	Sn	115	1	49.20	ppb	0.37	50	98.4	90 - 110
1	121	Sb	115	1	49.37	ppb	0.88	50	98.7	90 - 110
1	137	Ва	115	1	49.60	ppb	0.50	50	99.2	90 - 110
2	205	Tl	165	1	50.85	ppb	1.38	50	101.7	90 - 110
2	208	Pb	165	1	50.56	ppb	0.82	50	101.1	90 - 110
2	232	Th	165	1	52.19	ppb	3.26	50	104.4	90 - 110
2	238	U	165	1	51.93	daa	1.69	50	103.9	90 - 110

238 0	165	1	51.93	ppb	1.69	50	103.9	90 - 110

ISTD Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540158	0.94	581797	92.8	30 - 120	

•		-	010100	0.5.	001.01		
45	Sc	1	2438139	1.30	2574983	94.7	30 - 120
72	Ge	1	1153755	0.36	1211627	95.2	30 - 120
115	In	1	3309113	0.86	3426576	96.6	30 - 120
165	Но	1	5464053	0.74	5647086	96.8	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures Allowed 0 :ISTD Failures Allowed

Flag

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\036 CCB.D\036 CCB.D#

Date Acquired: Jul 21 2009 06:58 pm

QC Summary: Operator: TELAnalytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Current medical
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC E	Lemen	ts
------	-------	----

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	-0.003	ppb	487.71	1.00	
52 Cr	72	1	-0.001	ppb	1245.80	1.00	
55 Mn	72	1	-0.013	ppb	48.53	1.00	
59 Co	72	1	0.000	ppb	382.88	1.00	
60 Ni	72	1	-0.006	ppb	152.58	1.00	
63 Cu	72	1	-0.033	ppb	14.97	1.00	
66 Zn	72	1	0.013	ppb	162.14	1.00	
75 As	72	1	-0.001	ppb	1279.80	1.00	
78 Se	72	1	0.044	ppb	96.85	1.00	
95 Mo	72	1	0.048	ppb	21.21	1.00	
107 Ag	115	1	0.007	ppb	13.19	1.00	
111 Cd	115	1	0.004	ppb	36.72	1.00	
118 Sn	115	1	-0.066	ppb	28.84	1.00	
121 Sb	115	1	0.060	ppb	6.65	1.00	
137 Ba	115	1	0.010	ppb	78.17	1.00	
205 Tl	165	1	0.019	ppb	11.00	1.00	
208 Pb	165	1	0.004	ppb	45.34	1.00	
232 Th	165	1	0.795	ppb	15.81	1.00	
238 U	165	1	0.011	ppb	4.95	1.00	

ISTD Elements

*D** #*******							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	552374	0.81	581797	94.9	30 - 120	
45 Sc	1	2446795	1.11	2574983	95.0	30 - 120	
72 Ge	1	1178029	1.15	1211627	97.2	30 - 120	
115 In	1	3329395	0.66	3426576	97.2	/ 30 - 120	
165 Ho	1	5475567	0.43	5647086	97.0 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\				
Tune File#	3	C:\ICPCHEM\	1\7500\		•		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Wash QC Report

Data File:

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Date Acquired:

Jul 21 2009 07:01 pm

Operator:

TEL

QC Summary:

Sample Name:

RLCV

Analytes: Pass

ISTD: Pass

Misc Info:

Vial Number:

1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type:

WASH

Total Dil Factor:

1.00

QC Elements

Sc preme	1103					
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.001 ppb	9.18	1.30	
51 V	72	1	5.141 ppb	2.55	6.50	
52 Cr	72	1	2.091 ppb	2.49	2.60	
55 Mn	72	1	1.005 ppb	1.26	1.30	
59 Co	72	1	1.028 ppb	5.10	1.30	
60 Ni	72	1	2.103 ppb	0.94	2.60	
63 Cu	72	1	2.128 ppb	2.55	2.60	
66 Zn	72	1	10.560 ppb	2.59	13.00	
75 As	72	1	5.192 ppb	0.09	6.50	
78 Se	72	1	6.309 ppb	1.74	6.50	
95 Mo	72	1	2.070 ppb	2.44	2.60	
107 Ag	115	1	5.185 ppb	1.03	6.50	
111 Cd	115	1	1.087 ppb	10.27	1.30	
118 Sn	115	1	9.916 ppb	0.55	13.00	
121 Sb	115	1	1.957 ppb	2.80	2.60	
137 Ba	115	1	1.051 ppb	2.71	1.30	
205 Tl	165	1	1.091 ppb	2.87	1.30	
208 Pb	165	1	1.075 ppb	0.84	1.30	
232 Th	165	1	2.350 ppb	2.29	2.60	
238 U	165	1	1.116 ppb	0.75	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	550628	0.54	581797	94.6	30 - 120	
45 Sc	1	2456537	0.83	2574983	95.4	30 - 120	
72 Ge	1	1156394	1.08	1211627	95.4	30 - 120	
115 In	1	3321593	0.50	3426576	96.9	30 - 120	
165 Ho	1	5496023	1.28	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :ISTD Failures

0 :Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\038 MSD.D\038 MSD.D#

Date Acquired: Jul 21 2009 07:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3D 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\034 MS.D\034 MS.D\#

QC Elements

-									
Element	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	6	1	4.06	ppb	5.70	4.28	5.18	20	
51 V	72	1	6.38	ppb	1.64	6.27	1.79	20	
52 Cr	72	1	4.79	ppb	0.59	4.83	0.85	20	
55 Mn	72	1	4.66	ppb	1.04	4.67	0.34	20	
59 Co	72	1	4.26	ppb	3.02	4.21	1.11	20	
60 Ni	72	1	4.59	ppb	3.03	4.58	0.15	20	
63 Cu	72	1	4.29	ppb	0.78	4.24	1.17	20	
66 Zn	72	1	4.59	ppb	2.90	4.53	1.23	20	
75 As	72	1	23.78	ppb	1.59	23.45	1.40	20	
78 Se	72	1	4.84	ppb	10.22	4.43	8.78	20	
95 Mo	72	1	5.96	ppb	2.88	6.07	1,73	20	
107 Ag	115	1	4.19	ppb	3,60	4.06	2.98	20	
111 Cd	115	1	4.27	ppb	1.75	4.28	0.12	20	
118 Sn	115	1	-0.49	ppb	0.60	-0.29	-50.16	20	
121 Sb	115	1	4.30	ppb	1.48	4.37	1.66	20	
137 Ba	115	1	7.66	ppb	3.26	7.57	1.09	20	
205 Tl	165	1	4.33	ppb	1.08	4.37	0.87	20	
208 Pb	165	1	4.32	ppb	0.78	4.34	0.44	20	
232 Th	165	1	4.77	ppb	2.43	4.70	1.33	20	
238 U	165	1	9.96	ppb	0.82	10.08	1.22	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	546064	0.27	581797	93.9	30 - 120	
45 Sc	1	2359431	0.90	2574983	91.6	30 - 120	
72 Ge	1	1104590	0.97	1211627	91.2	30 - 120	
115 In	1	3149159	0.41	3426576	91.9	30 - 120	
165 Ho	1	5369723	0.97	5647086	95.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\039SMPL.D\039SMPL.D#

Date Acquired: Jul 21 2009 07:06 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGCQK 10X ISTD: Pass

Misc Info: D9G100274
Vial Number: 2303

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	23.68	2.37	ppb	1.85	3600	
52 Cr	72	1	12.40	1.24	ppb	2.95	3600	
55 Mn	72	1	2.12	0.21	ppb	8.12	3600	
59 Co	72	1	0.30	0.03	ppb	7.53	3600	
60 Ni	72	1	3.33	0.33	ppb	5.22	3600	
63 Cu	72	1	-0.20	-0.02	ppb	5.61	3600	
66 Zn	72	1	2.60	0.26	ppb	8.14	3600	
75 As	72	1	114.20	11.42	ppb	1.08	3600	
78 Se	72	1	2.84	0.28	ppb	68.00	3600	
95 Mo	72	1	42.30	4.23	ppb	2.35	3600	
107 Ag	115	1	0.07	0.01	ppb	37.85	3600	
111 Cd	115	1	0.07	0.01	ppb	133.86	3600	
118 Sn	115	1	-5.30	-0.53	ppb	2.37	3600	
121 Sb	115	1	0.28	0.03	ppb	5.21	3600	
137 Ba	115	1	34.03	3.40	ppb	4.11	3600	
205 Tl	165	1	0.11	0.01	ppb	30.92	3600	
208 Pb	165	1	0.09	0.01	ppb	19.12	3600	
232 Th	165	1	1.32	0.13	ppb	13.37	1000	
238 U	165	1	6.45	0.64	ppb	0.89	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551022	0.60	581797	94.7	30 - 120	
45 Sc	1	2336691	0.75	2574983	90.7	30 - 120	
72 Ge	1	1100169	0.92	1211627	90.8	30 - 120	
115 In	1	3126709	0.78	3426576	91.2	30 - 120	
165 Ho	1	5251243	0.64	5647086	93.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\040SMPL.D\040SMPL.D#

Date Acquired: Jul 21 2009 07:09 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJV 10X ISTD: Pass

Misc Info: D9G110152
Vial Number: 2304

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.12	0.01	ppb	86.63	3600	
51 V	72	1	16.34	1.63	ppb	14.05	3600	
52 Cr	72	1	858.20	85.82	ppb	0.42	3600	
55 Mn	72	1	62.25	6.23	ppb	0.82	3600	
59 Co	72	1	0.35	0.04	ppb	4.83	3600	
60 Ni	72	1	3.24	0.32	ppb	5.41	3600	
63 Cu	72	1	-0.11	-0.01	ppb	134.88	3600	
66 Zn	72	1	0.97	0.10	ppb	20.21	3600	
75 As	72	1	137.30	13.73	ppb	1.37	3600	
78 Se	72	1	1.53	0.15	ppb	126.27	3600	
95 Mo	72	1	23.17	2.32	ppb	1.07	3600	
107 Ag	115	1	0.03	0.00	ppb	74.34	3600	
111 Cd	115	1	0.05	0.00	ppb	97.57	3600	
118 Sn	115	1	-5.16	-0.52	ppb	3.23	3600	
121 Sb	115	1	0.22	0.02	ppb	2.16	3600	
137 Ba	115	1	20.27	2.03	ppb	4.70	3600	
205 Tl	165	1	0.11	0.01	ppb	13.97	3600	
208 Pb	165	1	0.08	0.01	ppb	23.24	3600	
232 Th	165	1	0.36	0.04	ppb	9.36	1000	
238 U	165	1	7.67	0.77	ppb	2.40	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	549478	0.91	581797	94.4	30 - 120	
45 Sc	1	2376723	1.71	2574983	92.3	30 - 120	
72 Ge	1	1096432	0.47	1211627	90.5	30 - 120	
115 In	1	3124200	0.99	3426576	91.2	30 - 120	
165 Ho	1	5324718	1.58	5647086	94.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\041SMPL.D\041SMPL.D#

Date Acquired: Jul 21 2009 07:11 pm

Acq. Method: NormISIS.M QC Summary:

Analytes: Operator: TEL **Pass** ISTD: Sample Name: LGDJ3 10X **Pass**

Misc Info: D9G110155 Vial Number: 2305

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.06	0.01	ppb	173.23	3600	
51 V	72	1	25.99	2.60	ppb	1.41	3600	
52 Cr	72	1	90.81	9.08	ppb	1.84	3600	
55 Mn	72	1	2.28	0.23	ppb	3.91	3600	
59 Co	72	1	0.28	0.03	ppb	8.82	3600	
60 Ni	72	1	3.42	0.34	ppb	10.30	3600	
63 Cu	72	1	-0.03	0.00	ppb	414.27	3600	
66 Zn	72	1	9.09	0.91	ppb	0.15	3600	
75 As	72	1	86.50	8.65	ppb	2.13	3600	
78 Se	72	1	1.59	0.16	ppb	168.68	3600	
95 Mo	72	1	35.52	3.55	ppb	3.38	3600	
107 Ag	115	1	0.02	0.00	ppb	63.47	3600	
111 Cd	115	1	0.11	0.01	ppb	91.74	3600	
118 Sn	115	1	-5.25	-0.52	ppb	1.50	3600	
121 Sb	115	1	0.16	0.02	ppb	27.09	3600	
137 Ba	115	1	26.05	2.61	ppb	2.24	3600	
205 Tl	165	1	0.06	0.01	ppb	15.71	3600	
208 Pb	165	1	0.10	0.01	ppb	12.74	3600	
232 Th	165	1	0.18	0.02	ppb	32.01	1000	
238 U	165	1	8.01	0.80	ppb	0.86	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	558798	0.28	581797	96.0	30 - 120	
45 Sc	1	2360484	0.64	2574983	91.7	30 - 120	
72 Ge	1	1106065	0.59	1211627	91.3	30 - 120	
115 In	1	3160658	0.73	3426576	92.2	30 - 120	
165 Ho	1	5332925	0.28	5647086	94.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u 2 C:\ICPCHEM\1\7500\ Tune File# Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\042SMPL.D\042SMPL.D#

Date Acquired: Jul 21 2009 07:14 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDKR 10X ISTD: Pass

Misc Info: D9G110159
Vial Number: 2306

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	30.44	3.04	ppb	4.27	3600	
52 Cr	72	1	17.70	1.77	ppb	1.53	3600	
55 Mn	72	1	3.41	0.34	ppb	1.05	3600	
59 Co	72	1	0.10	0.01	ppb	35.67	3600	
60 Ni	72	1	2.63	0.26	ppb	23.26	3600	
63 Cu	72	1	-0.14	-0.01	ppb	158.27	3600	
66 Zn	72	1	1.23	0.12	ppb	9.20	3600	
75 As	72	1	57.13	5.71	ppb	1.32	3600	
78 Se	72	1	2.47	0.25	ppb	139.38	3600	
95 Mo	72	1	7.30	0.73	ppb	2.20	3600	
107 Ag	115	1	0.01	0.00	ppb	150.52	3600	
111 Cd	115	1	0.05	0.00	ppb	86.56	3600	
118 Sn	115	1	-5.31	-0.53	ppb	1.46	3600	
121 Sb	115	1	0.12	0.01	ppb	36.48	3600	
137 Ba	115	1 .	22.02	2.20	ppb	2.09	3600	
205 Tl	165	1	0.03	0.00	ppb	69.45	3600	
208 Pb	165	1	0.07	0.01	ppb	7.65	3600	
232 Th	165	1	0.10	0.01	ppb	23.71	1000	
238 U	165	1	2.22	0.22	ppb	2.65	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	564989	0.50	581797	97.1	30 - 120	
45 Sc	1	2392180	0.44	2574983	92.9	30 - 120	
72 Ge	1	1130770	0.41	1211627	93.3	30 - 120	
115 In	1	3228355	1.24	3426576	94.2	30 - 120	
165 Ho	1	5420266	0.22	5647086	96.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\043 CCV.D\043 CCV.D#

Date Acquired: Jul 21 2009 07:17 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

OC Elements

QC E	t eme	11 C2								
Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.65	ppb	2.08	50	99.3	90 - 110	
51	V	72	1	48.04	ppb	1.47	50	96.1	90 - 110	
52	Cr	72	1	48.72	ppb	2.23	50	97.4	90 - 110	
55	Mn	72	1	48.53	ppb	1.91	50	97.1	90 - 110	
59	Со	72	1	49.19	ppb	1.05	50	98.4	90 - 110	
60	Ni	72	1	50.51	ppb	2.15	50	101.0	90 - 110	
63	Cu	72	1	50.79	ppb	1.69	50	101.6	90 - 110	
66	Zn	72	1	49.91	ppb	2.28	50	99.8	90 - 110	
75	As	72	1	50.09	ppb	1.74	50	100.2	90 - 110	
78	Se	72	1	50.55	ppb	0.24	50	101.1	90 - 110	
95	Mo	72	1	50.44	ppb	2.04	50	100.9	90 - 110	
107	Ag	115	1	49.47	ppb	1.12	50	98.9	90 - 110	
111	Cd	115	1	49.64	ppb	0.86	50	99.3	90 - 110	
118	Sn	115	1	49.52	ppb	0.62	50	99.0	90 - 110	
121	Sb	115	1	49.46	ppb	1.50	50	98.9	90 - 110	
137	Ва	115	1	49.75	ppb	0.64	50	99.5	90 - 110	
205	Tl	165	1	52.25	ppb	1.18	50	104.5	90 - 110	
208	Pb	165	1	51.38	ppb	1.02	50	102.8	90 - 110	
232	Th	165	1	53.11	ppb	2.44	50	106.2	90 - 110	
238	U	165	1	53.01	ppb	0.71	50	106.0	90 - 110	
ISTI	Ele	ments								
Eler	ment		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)		Flag
6	Li		1	536974		0.53	581797	92.3	30 - 120	

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	536974	0.53	581797	92.3	30 - 120	
45 Sc	1	2404825	0.90	2574983	93.4	30 - 120	
72 Ge	1	1144216	1.59	1211627	94.4	30 - 120	
115 In	1	3295604	0.45	3426576	96.2	30 - 120	
165 Ho	1	5413800	0.49	5647086	95.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0:Element Failures 0:Max. Number of Failures Allowed 0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\044 CCB.D\044 CCB.D#

Date Acquired: Jul 21 2009 07:20 pm

Operator: TEL QC Summary:
Sample Name: CCB Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Calibration File. Undate: Jul 21 2009 05:31 pm

Sample Type: CCB
Total Dil Factor: 1.00

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	0.012	ppb	188.91	1.00	
52 Cr	72	1	-0.022	ppb	45.87	1.00	
55 Mn	72	1	-0.011	ppb	53.82	1.00	
59 Co	72	1	0.002	ppb	121.88	1.00	
60 Ni	72	1	0.007	ppb	120.83	1.00	
63 Cu	72	1	-0.039	ppb	12.93	1.00	
66 Zn	72	1	0.001	ppb	1830.70	1.00	
75 As	72	1	-0.015	ppb	100.54	1.00	
78 Se	72	1	0.063	ppb	454.20	1.00	
95 Mo	72	1	0.016	ppb	20.60	1.00	
107 Ag	115	1	0.010	ppb	21.43	1.00	
111 Cd	115	1	0.005	ppb	76.54	1.00	
118 Sn	115	1	-0.106	ppb	36.09	1.00	
121 Sb	115	1	0.051	ppb	15.99	1.00	
137 Ba	115	1	0.010	ppb	31.85	1.00	
205 Tl	165	1	0.020	ppb	11.21	1.00	
208 Pb	165	1	0.003	ppb	16.50	1.00	
232 Th	165	1	0.824	ppb	16.14	1.00	
238 U	165	1	0.009	ppb	11.26	1.00	

ISTD Elements

ISTD Ref File :

ISID Elements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540872	0.73	581797	93.0	30 - 120	
45 Sc	1	2418946	1.22	2574983	93.9	30 - 120	
72 Ge	1	1139717	0.72	1211627	94.1	30 - 120	
115 In	1	3281751	0.37	3426576	95.8	30 - 120	
165 Ho	1	5438318	1.15	5647086	96.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\				
Tune File#	3	C:\ICPCHEM\	1\7500\				

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\045WASH.D\045WASH.D#

Date Acquired: Jul 21 2009 07:22 pm

Operator: TEL QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Ele	ment	s
----	-----	------	---

Ac Preme	incs					
Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.045 ppb	12.08	1.30	
51 V	72	1	5.035 ppb	1.01	6.50	
52 Cr	72	1	2.023 ppb	2.27	2.60	
55 Mn	72	1	1.007 ppb	2.81	1.30	
59 Co	72	1	1.000 ppb	4.78	1.30	
60 Ni	72	1	2.095 ppb	4.44	2.60	
63 Cu	72	1	2.025 ppb	2.63	2,60	
66 Zn	72	1	10.370 ppb	2.29	13.00	
75 As	72	1	5.157 ppb	1.05	6.50	
78 Se	72	1	4.848 ppb	12.40	6.50	
95 Mo	72	1	2.162 ppb	0.74	2.60	
107 Ag	115	. 1	5.141 ppb	1.03	6.50	
111 Cd	115	1	1.004 ppb	4.06	1.30	
118 Sn	115	1	9.907 ppb	0.76	13.00	
121 Sb	115	1	1.942 ppb	1.51	2.60	
137 Ba	115	1	1.047 ppb	5.14	1.30	
205 Tl	165	1	1.098 ppb	0.61	1.30	
208 Pb	165	1	1.094 ppb	0.45	1.30	
232 Th	165	1	2.411 ppb	1.64	2.60	
238 U	165	1	1.121 ppb	1.49	1.30	
			• •			

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	539872	0.98	581797	92.8	30 - 120	
45 Sc	1	2370772	1.41	2574983	92.1	30 - 120	
72 Ge	1	1136181	1.05	1211627	93.8	30 - 120	
115 In	1	3268605	0.72	3426576	95.4	30 - 120	
165 Ho	1	5404596	1.26	5647086	95.7	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Lot ID:	D9611			
Client:	Northgate	Environm	ental	
Batch(es) #:_	919	4272		
Associated Samples:				
I certify that, to represents a co	o the best of my know complete and accurate	vledge, the attac e copy of the orig	hed package ginal data.	

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr	
D9G110155	1	SE	LGDJ31AC	20090721	6020TOTA	9194272	AG072109	024	
D9G110155	1	AS	LGDJ31AA	20090721	6020TOTA	9194272	AG072109	024	

METALS PREPARATION LOGS ICP-MS



THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 449

Batch Number: 9194272

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
Snw	

Prep Date: Due Date: 77/13/09 Syn

Lot	Work Order		<u>- w</u>	Initial Weight/Volume
D9G130000 Water	LGEER	В	Due Date: SDG:	<u>50 mL</u>
D9G130000 Water	LGEER	С	Due Date: SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total		Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total	S	Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100272 Water	LGCN3 Total	D	Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G100274 Water	LGCQK Total		Due Date: 07/22/09 SDG:	<u>50 mL</u>
D9G110152 Water	LGDJV Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>
D9G110155 Water	LGDJ3 Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>
D9G110159 Water	LGDKR Total		Due Date: 07/23/09 SDG:	<u>50 mL</u>

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

J 2/2/109

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	9194272	ALLIQ	JKH	
PREP DATE:	7/14/2009	DIGES	JRW	
CONSUMABLES	USED			
Digestion Cups:	Manufacturer:	Environmental Express	Lot #:	A901LS267
One or more samples	s were filtered prior to ar	nalysis at the instrume	nt. Yes	☐ No
If "yes", then the metho	od blank and the LCS were	e also filtered in the sam	e manner using the san Analyst(s) Initials:	
STANDARDS USI	ED			
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID
2008Cal-1	STD-2636-09	7/1/10	100uL	15
2008Cal-2	STD-2635-09	7/1/10	100uL	15
		The second secon		Andrews (1995)
REAGENTS USEL	<u> </u>	· · · · · · · · · · · · · · · · · · ·		
Reagent	Manufacturer	Lot #	Volume Used (mL)	
HNO₃	JT Baker	H12022	3	
TEMPERATURE (CYCLES			
Thermometer ID	: 2884	Block 8	k Cup # : 🔾 🕞 э	
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)
HNO3	1200	43	1615	42
HNO3	1630	92	1700	
HNO3				
Samples and QC re	evolumed to:	50mL	Analyst's Initials	JRW
COMMENTS: I certify that all inforr	nation above is correct a	and complete.		
Signature: $\int_{\mathbb{R}^n} \mathbb{I}_{\mathcal{U}} \hat{\psi}$		·	Date : 7/14/	59

TestAmerica 451

METALS SAMPLE DATA ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica 452

G:\Metals\Hidden\Forms\MassSpec\ICP-MS Std and Spike True Values.doc

453

ICP-MS Standard and Spike True Values

TestAmerica

Post Digestion Spike	200	700	200	200	200	200	200	200	200	200	200	200	200	200	20	200	200	200	200	200	
Matrix Spike Sample and Duplicate	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ry for the ICSAB.
Laboratory Control Sample and Duplicate	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ution, the % recove the ICSA from the
Interference Check Sample AB	1	100	100	100	100	100	100	100	100	100	1	100	100	100	100	100	100	100	100	100	in the ICSA soling the levels in
Interference Check Sample A	100,000 Aluminum	100,000 Calcium	100,000 Iron	100,000 Magnesium	100,000 Sodium	100,000 Phosphorus	100,000 Potassium	100,000 Sulfur	200,000 Carbon	1,000,000 Chloride	2000 Molybdenum	2000 Titanium									Due to the presence of trace contaminants in the ICSA solution, the % recovery for the ICSAB solution is calculated by subtracting the levels in the ICSA from the ICSAB.
Continuing Calibration Standard	20	20	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	to the presence SAB solution is
Initial Calibration Standard	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Cal. Std. 100 ppb	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All units are ug/L.
Element	Aluminum	Antimony	Arsenic	Barium	Bervllium	Cadmium	Chromium	Cobalt	Conner	Lead	Manganese	Molvbdenum	Nickel	Selenium	Silver	Thallium	Tin	Uranium	Vanadium	Zinc	

Quality Control Standards

CCB = Continuing Calibration Blank ICB = Initial Calibration Blank ICV = Initial Calibration Verification (Second Source)

CCV = Continuing Calibration Verification

TestAmerica Denver

Standards Preparation Logbook Record

Jul-21-2009

Logbook: \\Densvr06\StdsLog\metals.	std		
STD4841-08, 1000 Zn (Inorganic	Ventures)		Analyst: trudelll
Vendor: Inorganic Ventures Solvent: 2% HNO3	Lot No.: B2-ZN02045	Vendor's Expira	tion Date: 10-01-2009
Date Prep./Opened: 09-04-2008 Date Expires(1): 10-01-2009 (None Date Expires(2): 10-01-2009 (None (METALS)-Inventory ID: 779	,	08	
Component		Initial Conc (mg/L)	Final Conc (mg/L)
1000 Zn		1,000.0	1,000.0
STD6653-08, 1000 Se			Analyst: trudelll
Vendor: Inorganic Ventures	Lot No.: B2-SE02003	Vendor's Expira	tion Date: 12-01-2009
Solvent: 2% HNO3 Date Prep./Opened: 11-25-2008	Date Received: 11-25-20	08	
Date Expires(1): 12-01-2009 (None) /		
Date Expires(2): 12-01-2009 (None (METALS)-Inventory ID: 803) /		
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Se		1,000.0	1,000.0
STD1198-09, 1000 mg/L Sn			Analyst: trudelll
Vendor: Inorganic Ventures Solvent: 1% HNO3	Lot No.: B2-SN02016	Vendor's Expira	tion Date: 03-01-2010
Date Prep./Opened: 03-02-2009	Date Received: 03-02-20	009	
Date Expires(1): 03-01-2010 (None	' /		
Date Expires(2): 03-01-2010 (None (METALS)-Inventory ID: 833			
Component		Initial Conc (mg/L)	Final Conc (mg/L)
Sn		1,000.0	1,000.0
STD1853-09, 1 mg/l Se	7		Analyst: DIAZL
Solvent: 5% HN03	Lot No.: H02026		Volume (ml): 100.00
Date Prep./Opened: 04-01-2009 Date Expires(1): 12-01-2009 (1 Yes pipette: Met 21	ar)		

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TestAmerica 454

Parent Std No.: STD6653-08, 1000 Se		t Amount (ml): 0.1000
Parent Date Expires(1): 12-01-2009 Parent Date Expires(2): Component	Illitial Colle (Hight)	Final Conc (mg/L)
Se	1,000.0	1.0000
GED 2611 00 ICD MC 1 nnm Sn/7n		Analyst: DIAZL
STD3611-09, ICP-MS 1ppm Sn/Zn Solvent: 5% HNO3 Lot No.:/H12022		Volume (ml): 10.000
Solvent: 5% HNO3 Lot No.:/H12022 Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)		
Parent Std No.: STD3609-09, ICP-MS 10 ppm Zn		ot Amount (ml): 1.0000
Parent Date Expires(1): 10-01-2009 Parent Date Expires(2): Component	10-01-2009 <u>Initial Conc (mg/L)</u> 10.000	Final Conc (mg/L) 1.0000
1000 Zn		ot Amount (ml): 1.0000
Parent Std No.: STD3610-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 03-01-2010 Parent Date Expires(2):		0(1 mio mio ()
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	10.000	1.0000
AND ASSESSED AND COMMITTED AND HIGH		Analyst: LILLT
STD4008-09, ICP-MS (024) INT STD BRC-HIGH Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 250.00
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		
Parent Std No.: STD1469-09, Germanium Stock	_	ot Amount (ml): 1.2000
Parent Date Expires(1): 03-16-2010 Parent Date Expires(2)	: 04-01-2010	Final Conc (ug/L)
Component	Initial Conc (mg/L) 1,000.0	4,800.0
Ge	•	uot Amount (ml): 1.5000
Parent Std No.: STD1972-09, Lithium 6 Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2) Component): 05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L) 6,000.0
Lithium6	1,000.0	uot Amount (ml): 0.4000
Parent Std No.: STD1973-09, Indium Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2 Component): 05-01-2010 Initial Conc (mg/L)	Final Conc (ug/L) 1,600.0
In	1,000.0	
Parent Std No.: STD6317-08, Scandium Stock		uot Amount (ml): 0.4000
Parent Date Expires(1): 11-10-2009 Parent Date Expires(2 Component	Initial Conc (mg/L)	4 600 0
Sc	1,000.0	1,000.0

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Aliquot Amount (ml): 0.4000 Parent Std No.: STD6318-08, Holmium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2): 12-01-2009 Initial Conc (mg/L) Final Conc (ug/L) Component 1,600.0 1,000.0 Но STD4289-09, ICP-MS ICSA Analyst: DIAZL Volume (ml): 50.000 Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-20-2009 Date Expires(1): 08-20-2009 (1 Month) Date Expires(2): 02-01-2010 (None) pipettes: Met 8 Aliquot Amount (ml): 5.0000 Parent Std No.: STD0664-09, ICPMS Interferent Check Standard Parent Date Expires(1): 02-01-2010 Parent Date Expires(2): 02-01-2010 Final Conc (ug/L) Component Initial Conc (ug/ml) Αl 1,000.0 100,000 C 2,000.0 200,000 1,000.0 100,000 Ca Cl 10,000 1,000,000 1,000.0 100,000 Fe K 1,000.0 100,000 1.000.0 100,000 Mg 20.000 2,000.0 Mo Na 1,000.0 100,000 P 100,000 1,000.0 S 1,000.0 100,000 Ti 2,000.0 20.000 STD4309-09, ICP-MS BLANK Analyst: DIAZL Solvent: Water Volume (ml): 1,000.0 Date Prep./Opened: 07-21-2009 Date Expires(1): 08-21-2009 (1 Month) Date Verified: 12-31--4714 by - (Verification ID: 0)

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Component

HNO3

Parent Std No.: STD4308-09, NITRIC ACID

Aliquot Amount (ml): 50.000

Final Conc (%)

5.0000

Initial Conc (%)

100.00

STD4310-09, ICP-MS 10 ppm Sn

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 03-01-2010 (None)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21 and Met 8

Parent Std No.: STD1198-09, 1000 mg/L Sn Aliquot Amount (ml): 0.1000

Analyst: DIAZL

Analyst: DIAZL

Volume (ml): 10.000

Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): 03-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (mg/L)}} \\ \underline{\text{Sn}} & \underline{1,000.0} & \underline{10.000} \end{array}$

STD4311-09, ICP-MS 100 ppb cal

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 50.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 20

Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures Aliquot Amount (ml): 0.2500

Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010

Component	Initial Conc (mg/L)	Final Conc (ug/L)
V	20.000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
Tl	20.000	100.00
U	20.000	100.00

Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures Aliquot Amount (ml): 0.2500 Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (ug/L)}} \\ \underline{\text{Mo}} & \underline{20.000} & \underline{100.00} \end{array}$

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Sb	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquo	t Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Fe	1,000.0	5,000.0
Depart Std No. STD4210 00 ICD MS 10 nnm Sn	Alique	t Amount (ml): 0.5000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	pires(2): 03-01-2010	t Amount (mr). 0.3000
	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
Sn	10.000	100.00
ГD4312-09, ICP-MS CCV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H1202	22	Volume (ml): 100.00
Date Prep./Opened: 07-21-2009		, ,
Date Expires(1): 07-22-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inc	arganic Ventures Alique	ot Amount (ml): 0.2500
	pires(2): 05-01-2010	it Amount (mr). 0.2500
1 \ \ /	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
V -	20.000	50.000
Zn	20.000	50.000
Ag	20.000	50.000
Al	20.000	50.000
As	20.000	50.000
Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000 50.000
Mn Ni	20.000 20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inc		ot Amount (ml): 0.2500
• • • • • • • • • • • • • • • • • • • •	oires(2): 07-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	20.000	50.000
Sb	20.000	50.000
Parent Std No.: STD3862-09, Iron Stock	Aliquo	ot Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Component	minai Colic (liig/L)	mai Conc (ug/L)

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Fe	1,000.0	2,500.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Alique	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	, ,
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	10.000	50.000
Sn	10.000	30.000
STD4313-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 07-21-2009		, ,
Date Expires(1): 07-22-2009 (1 Day)		
pipettes: Met 21 and Met 8		
F-F		
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Alique	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	1,0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4311-09, ICP-MS 100 ppb cal	Alique	ot Amount (ml): 0.1000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	ot Amount (m). 0.1000
Component	Initial Conc (ug/L)	Final Conc (mg/L)
V	100.00 100.00	0.0010 0.0010
Zn	100.00	0.0010
Ag Al	100.00	0.0010
As	100.00	0.0010
Ba	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010
Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010
Ni	100.00	0.0010
Pb	100.00	0.0010
Se	100.00	0.0010
Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
M.	100.00	0.0010

100.00

100.00

5,000.0 100.00

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Mo

Sb

Fe Sn $0.0010 \\ 0.0010$

0.0500 0.0010

STD4314-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Analyst: DIAZL

Analyst: DIAZL

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4313-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Tì	0.0010	0.0002
U	0.0010	0.0002
Mo	0.0010	0.0002
Sb	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

STD4315-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 1.0000

Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000

Page 7 of 11

10,000 1,000.0	1,000,000 100,000
	1ሰስ ሰበር
1 000 0	
1,000.0	100,000
1,000.0	100,000
20.000	2,000.0
1,000.0	100,000
1,000.0	100,000
1,000.0	100,000
20.000	2,000.0
-	ot Amount (ml): 0.050
Initial Conc (mg/L)	Final Conc (ug/L
20.000	100.0
20.000	100.0
20.000	100.0
20.000	100.0
20.000	100.0
20.000	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
	100.0
20.000	100.0
entures Alique	ot Amount (ml): 0.050
07-01-2010	
Initial Conc (mg/L)	Final Conc (ug/L
	100.0
	100.0
-	ot Amount (ml): 0.100
03-01-2010	
Initial Conc (mg/L)	Final Conc (ug/L
10.000	100.0
	Analyst: DIAZI
	Volume (ml): 10.00
	volume (mr). 10.00
	1,000.0 1,000.0 1,000.0 1,000.0 20.000 entures Alique 05-01-2010 Initial Conc (mg/L) 20.000 Alique 03-01-2010 Initial Conc (mg/L) Initial Conc (mg/L)

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Parent Date Expires(1): 05-01-2010 Parent Date Expires(2) Component	Initial Conc (mg/L)	Final Conc (ug/
V	20.000	
Zn	20.000	1,000
		1,000
Ag Al	20.000	1,000
	20.000	1,000
As	20.000	1,000
Ba	20.000	1,000
Be	20.000	1,000
Cd	20.000	1,000
Co	20.000	1,000
Cr	20.000	1,000
Cu	20.000	1,00
Mn	20.000	1,00
Ni	20.000	1,00
Pb	20.000	1,00
Se	20.000	1,00
Th	20.000	1,00
Tl	20.000	1,00
U	20.000	1,00
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Parent Date Expires(1): 06-23-2010 Parent Date Expires(2)	: 07-01-2010	ot Amount (ml): 0.50
Component	Initial Conc (mg/L)	Final Conc (uga
Mo	20.000	
	20.000	1,000
Sb	20.000	
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Aliqu	1,00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2)	20.000 Alique: 03-01-2010	1,000 ot Amount (ml): 1.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component	20.000 Aliqu	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0)	20.000 Alique : 03-01-2010 Initial Conc (mg/L)	1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIA2
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) Alique	1,000 ot Amount (ml): 1.00 Final Conc (ug.
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.00 ot Amount (ml): 0.04
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L)	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000 10.000	ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.0 Final Conc (ug/ 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2) Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (H Parent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 Alique : 03-01-2010 Initial Conc (mg/L) 10.000 igh Purity) : 02-27-2010 Initial Conc (mg/L) 10.000	ot Amount (ml): 1.00 Final Conc (ug 1,000 Analyst: DIA2 Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/40.00

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Co	10.000	40.000
Cr	10.000	40.000
Cu	10.000	40.000
Fe	250.00	1,000.0
Li	10.000	40.000
Mn	10.000	40.000
Ni	10.000	40.000
Pb	10.000	40.000
Se	10.000	40.000
Th	10.000	40.000
Tl	10.000	40.000
U	10.000	40.000
V	10.000	40.000
Zn	10.000	40.000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (H	•	ot Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2)		
Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4318-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 50.000
Parent Std No.: STD1853-09, 1 mg/l Se	Aliquo	ot Amount (ml): 0.1000
Component	Initial Conc (mg/L)	Final Conc (mg/L)
		0.0020
Se	1.0000	0.0020
STD4319-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 05-01-2010 (None) pipettes: Met 20		Volume (ml): 100.00
Parent Std No.: STD3106-09, ICP-MS LLCCV 1	-	ot Amount (ml): 1.0000
Parent Date Expires(1): 05-01-2010 Parent Date Expires(2)		Election (7)
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Ag	0.5000	5.0000
Al	3.0000	30.000
As	0.5000	5.0000

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TestAmerica 463

Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000
Mn	0.1000	1.0000
Na	5.0000	50.000
Ni	0.2000	2.0000
Pb	0.1000	1.0000
Se	0.5000	5.0000
Th	0.2000	2.0000
Tl	0.1000	1.0000
U	0.1000	1.0000
V	0.5000	5.0000
Zn	1.0000	10.000
Parent Std No.: STD3107-09, ICP-MS LLCCV 2	Aliquot Amount ((ml): 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	0.2000	2.0000
Sb	0.2000	2.0000
Sn	1.0000	10.000

LRD 07/21/2009 Reviewed By:

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Denver

RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File II	D: AG072	109				Analyst:	TEL	
#	Sample ID	Lot No.	Batch	V-14-1-1-1	DF	Analyzed Date	Comment	Q
2	Cal Blank				1.0	07/21/09 17:25	***************************************	
3	Cal Blank				1.0	07/21/09 17:28		
4	100 ppb				1.0	07/21/09 17:31		
5	ICV				1.0	07/21/09 17:33		
6	RLIV				1.0	07/21/09 17:36		
7	ICB				1.0	07/21/09 17:39		
8	RL STD				1.0	07/21/09 17:42		
9	AFCEE RL				1.0	07/21/09 17:44		
10	ALTSe				1.0	07/21/09 17:47		
11	ICSA				1.0	07/21/09 17:50		
12	ICSAB				1.0	07/21/09 17:53		
13	RINSE				1.0	07/21/09 17:55		
14	LR				1.0	07/21/09 17:58		
15	RINSE				1.0	07/21/09 18:00		
16	CCV				1.0	07/21/09 18:03		
17	ССВ				1.0	07/21/09 18:06		
18	RLCV				1.0	07/21/09 18:09		
19	LGEE4BF	D9G130000	9194274	MD	1.0	07/21/09 18:11		
20	LGEE4CF	D9G130000	9194274	MD	1.0	07/21/09 18:14		□□
21	LGDJWF 10X	D9G110152-2	9194274	MD	10.0	07/21/09 18:17		
22	LGDJWP50F	D9G110152	9194274		50.0	07/21/09 18:20		
23	LGDJWZF	D9G110152-2	9194274		1.0	07/21/09 18:22		
24	LGDJWSF 10		9194274	MD	10.0	07/21/09 18:25		
25	LGDJWDF 10		9194274	MD	10.0	07/21/09 18:28		
26	CCV				1.0	07/21/09 18:30		
27	ССВ				1.0	07/21/09 18:33		
28	RLCV			++	1.0	07/21/09 18:36		
29	LGEERB	D9G130000	9194272	мѕ	1.0	07/21/09 18:39		
30	LGEERC	D9G130000	9194272	MS	1.0	07/21/09 18:41		
31	LGCN3 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:44		
32	LGCN3P50	D9G100272	9194272	1	50.0	07/21/09 18:47		
33	LGCN3Z	D9G100272-1	9194272		1.0	07/21/09 18:50		
34	LGCN3S 10X		9194272	мѕ	10.0	07/21/09 18:52		
35	CCV				1.0	07/21/09 18:55		
36	ССВ				1.0	07/21/09 18:58		
37	RLCV				1.0	07/21/09 19:01		
38		D9G100272-1	9194272	MS	10.0	07/21/09 19:03		
39	LGCQK 10X	D9G100274-1	9194272	MS	10.0	07/21/09 19:06	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
40	LGDJV 10X	D9G110152-1	9194272	MS	10.0	07/21/09 19:09		
	LGDJ3 10X	D9G110155-1	9194272	MS	10.0	07/21/09 19:11		
	LGDKR 10X	D9G110159-1	9194272	MS	10.0	07/21/09 19:14		
43	CCV				1.0	07/21/09 19:17		
44	ССВ				1.0	07/21/09 19:20		
45	RLCV			1	1.0	07/21/09 19:22		
46	LGFC2B	D9G140000	9195077	46	1.0	07/21/09 19:25		
47	LGFC2C	D9G140000	9195077	46	1.0	07/21/09 19:28		

Denver

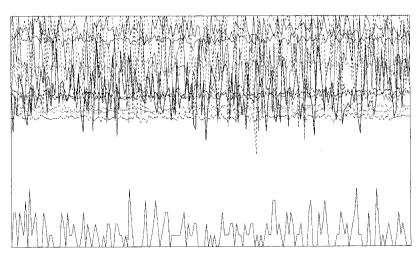
RUN SUMMARY

Francisco - State Service Commercial Commerc						Market Committee	TALL STREET, SAME
THE STATE OF THE S			A CONTRACTOR OF THE PROPERTY O		and the American and the Committee of th		The production of the producti
\$15,000 per 11 per 25,000 pt. 11 per 2000 11 11 11 11 11 11 11 11 11 11 11 11		A COMPANIE OF THE STATE OF THE			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		CONTRACTOR CONTRACTOR ASSESSMENT !
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Method: 6020	\	Constitution to the second of	ICPMS_024 (02	• A \	77 / WORLD SWINGS (WALLEST ASSESSMENT)	コムのんけんべ・(17/1)	2/09 11:30:44
INDERFIGE DUZE	1 (II , P/IVI) I	TO THE SERVICE REPORT AND AND AND AND AND AND AND AND AND AND	H. PIVIN 11/4 11/2	41	The second control of the second control of	TELLUICU, ULIZ	2/U3 11.UU. TT
THIOTHOU, COLL				ACCURATION AND DESCRIPTION			
 COSTANT AND CONTRACT SUCCESSARY CONTRACT 	Control of additional and	 And a part of the state of the properties of the state of		Of Mark the same			to the second to

File II	D: AG072	109				Anai	lyst: TEL	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
48	LGEAD	D9G130118-1	9195077	U1	1.0	07/21/09 19:31		
49	LGEAR	D9G130118-2	9195077	U1	1.0	07/21/09 19:33		
50	LGEAX	D9G130118-3	9195077	U1	1.0	07/21/09 19:36		
51	LGEA0	D9G130118-4	9195077	U1	1.0	07/21/09 19:39		
52	LGEA2	D9G130118-5	9195077	U1	1.0	07/21/09 19:42		
53	LGEA3	D9G130118-6	9195077	U1	1.0	07/21/09 19:44		
54	CCV				1.0	07/21/09 19:47		
55	ССВ				1.0	07/21/09 19:50		
56	RLCV				1.0	07/21/09 19:53		
57	LGEA4	D9G130118-7	9195077	U1	1.0	07/21/09 19:55		
58	LGEFC	D9G130118-8	9195077	U1	1.0	07/21/09 19:58		
59	LGEFF	D9G130118-9	9195077	U1	1.0	07/21/09 20:01		
60	LGEFH	D9G130118-10	9195077	U1	1.0	07/21/09 20:03		
61	LGEFL	D9G130118-11	9195077	U1	1.0	07/21/09 20:06		
62	LGEFLP5	D9G130118	9195077		5.0	07/21/09 20:09		
63	LGEFLZ	D9G130118-11	9195077		1.0	07/21/09 20:11		
64	LGEFLS	D9G130118-11	9195077	U1	1.0	07/21/09 20:14		
65	CCV				1.0	07/21/09 20:17		
66	ССВ				1.0	07/21/09 20:20		
67	RLCV				1.0	07/21/09 20:22		
68	LGEFLD	D9G130118-11	9195077	U1	1.0	07/21/09 20:25		
69	LGEFT	D9G130118-12	9195077	U1	1.0	07/21/09 20:28		
70	LGEFX	D9G130118-13	9195077	U1	1.0	07/21/09 20:30		
71	LGEF3	D9G130118-14	9195077	U1	1.0	07/21/09 20:33		
72	LGEF4	D9G130118-15	9195077	U1	1.0	07/21/09 20:36		
73	LGEF6	D9G130118-16	9195077	U1	1.0	07/21/09 20:39		
74	LGEF8	D9G130118-17	9195077	U1	1.0	07/21/09 20:41		
75	CCV				1.0	07/21/09 20:44		
76	CCB				1.0	07/21/09 20:47		
77	RLCV				1.0	07/21/09 20:50		
78	LGKQWBF	D9G160000	9197227	MD	1.0	07/21/09 20:52		
79	LGKQWCF	D9G160000	9197227	MD	1.0	07/21/09 20:55		
80	LGH2HF 10X	D9G150224-2	9197227	MD	10.0	07/21/09 20:58		
81	LGH2HP50F	D9G150224	9197227		50.0	07/21/09 21:01		
82	LGH2HZF	D9G150224-2	9197227		1.0	07/21/09 21:03		
83	LGH2HSF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:06		
84	LGH2HDF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:09		
85	CCV				1.0	07/21/09 21:12		
86	ССВ				1.0	07/21/09 21:14		
87	RLCV				1.0	07/21/09 21:17		
88	FCKODB	D9G160000	9197220	MS	1.0	07/21/09 21:20		
89	LGKQDC	D9G160000	9197220	MS	1.0	07/21/09 21:23		
90	LGH2F 10X	D9G150224-1	9197220	MS	10.0	07/21/09 21:25	DNNZ 7/2409	
91	LGH2FP50	D9G150224	9197220	1	50.0	07/21/09 21:28	, , , ,	
92	LGH2FZ	D9G150224-1	9197220	-	1.0	07/21/09_21:31		

Tune File : NORM.U

Comment

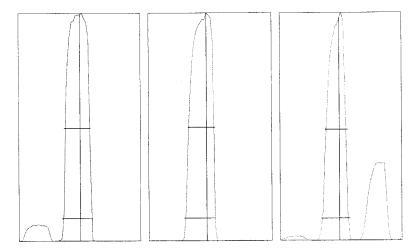


Integration Time: 0.1000 sec 1.5300 sec Sampling Period:

200 n:

Oxide: 156/140 1.281% 0.506% Doubly Charged: 70/140

m/z	Range	Count	Mean	RSD%	Background
6	1,000	891.0	940.8	3.63	0.70
7	20,000	13129.0	13059.6	1.91	0.60
59	10,000	7602.0	7856.2	2.40	0.50
63	50	42.0	39.4	16.38	0.30
70	100	78.0	67.2	13.40	0.50
75	20	0.0	1.2	102.35	0.80
78	50	43.0	48.7	14.56	0.50
89	20,000	12125.0	12029.4	1.86	1.00
115	20,000	11842.0	11739.1	1.63	0.80
118	50	34.0	39.7	21.11	1.30
137	2,000	1330.0	1323.1	2.85	1.10
205	20,000	11244.0	11223.5	1.66	1.80
238	20,000	17300.0	17931.0	1.60	2.40
156/140	2	1.192%	1.337%	8.61	
70/140	2	0.664%	0.568%	13.49	



m/z:	7	89	205
Height:	13,051	12,146	11,336
Axis:	7.05	88.95	205.00
₩-50%:	0.65	0.65	0.55
₩-10%:	0.7500	0.7500	0.700

Integration Time: 0.1000 sec Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:30

Tune Report

Tune File : NORM.U Comment :

Tuning Paramet	erg									
===Plasma Condition===				===Ion Lenses===			===Q-Pole Parameters===			
RF Power	:	1550	W	Extract 1	:	0 V	AMU Gain	:	133	
RF Matching	:	1.7	V	Extract 2	:	-160 V	AMU Offset	:	122	
Smpl Depth	:	7.5	mm	Omega Bias-ce	:	-30 V	Axis Gain	:	1.0005	
Torch-H	:	-0.8	mm	Omega Lens-ce	:	0 V	Axis Offset	:	-0.02	
Torch-V	:	-0.3	mm	Cell Entrance	:	-30 V	QP Bias	:	V 0	
Carrier Gas	:	0.83	L/min	QP Focus	:	7 V				
Makeup Gas	:	0.2	L/min	Cell Exit	:	-30 V	===Detector Par	ame	eters===	
Optional Gas	:		ojo				Discriminator	:	8 mV	
Nebulizer Pump	:	0.1	rps	===Octopole Par	ame	ters===	Analog HV	:	1720 V	
Sample Pump	:		rps	OctP RF	:	180 V	Pulse HV	:	1390 V	
S/C Temp	:	2	degC	OctP Bias	:	-18 V				
===Reaction Cel	1===	:								
Reaction Mode	:	OFF								
H2 Gas	:	0	mL/min	He Gas	:	0 mL/mir	Optional Gas	;	- %	

Page: 2

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:33

P/A Factor Tuning Report

Acquired: Jul 21 2009 04:50 pm

Mass[amu]	Element	P/A Factor		
6	Li	0.061203		
7	(Li)	Sensitivity	too	low
9	Be	0.068907		
45	Sc	0.083389		
51	V	0.086007		
52	Cr	0.088320		
53	(Cr)	Sensitivity	too	low
55	Mn	0.090395		
59	Co	0.093203		
60	Ni	Sensitivity	too	low
63	Cu	Sensitivity	too	low
66	Zn	0.096924		
72	Ge	Sensitivity	too	low
75	As	Sensitivity	too	low
77	(Se)	Sensitivity	too	low
78	Se	Sensitivity	too	low
82	(Se)	Sensitivity	too	low
83	(Se)	Sensitivity	too	low
95	Mo	0.096067		
98	(Mo)	0.096151		
99	(Mo)	Sensitivity	too	low
106	(Cd)	0.101305		
107	Ag	Sensitivity	too	low
108	(Cd)	0.101769		
111	Cd	0.102139		
114	Cd	0.102089		
115	In	0.101222		
118	Sn	0.101067		
121	Sb	0.100944		_
137	Ва	Sensitivity		low
165	Но	Sensitivity	too	low
205	Tl	0.109272		
206	(Pb)	0.108216		
207	(Pb)	0.108287		
208	Pb	0.107820		
232	Th	0.106452		
238	Ü	0.106481		

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

- 1 -

200.8 QC Tune Report

C:\ICPCHEM\1\DATA\AG072109.B\001TUNE.D Data File:

Date Acquired: Jul 21 2009 05:22 pm

Acq. Method: tun isis.M

Operator:

Sample Name: 200.8 TUNE

187429

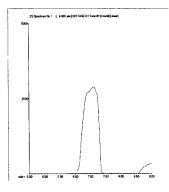
Misc Info:

Vial Number:

Current Method:

C:\ICPCHEM\1\METHODS\tun_isis.M

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	31515	31705	31773	31422	31500	31173	0.76	5.00	
9 Be	3503	3538	3524	3507	3428	3516	1.23	5.00	
24 Mg	22462	22829	22575	22353	22572	21980	1.41	5.00	
59 Co	93114	93607	93864	90894	94187	93020	1.41	5.00	
115 In	1915406	1918606	1914965	1924578	1915696	1903185	0.41	5.00	
208 Pb	92064	92990	92149	91680	92260	91243	0.71	5.00	
238 U	187429	191379	187170	188068	186178	184351	1.39	5.00	



7 Li

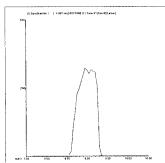
Mass Calib.

Actual: 7.10 7.10 Required: 6.90

Flag:

Peak Width

Actual: 0.65 Required: 0.90 Flag:



9 Be

Mass Calib.

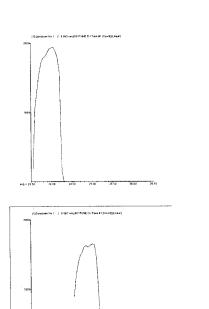
Actual: 9.05 9.10 Required:8.90

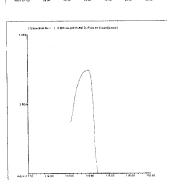
Flag:

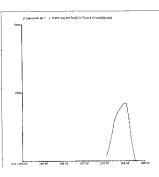
Peak Width

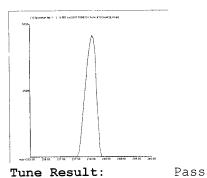
Actual: 0.60 Required: 0.90

Flag:









24 Mg

Mass Calib.

Actual: 24.00
Required:23.90 - 24.10
Flag:

Peak Width

Actual: 0.60 Required:0.90 Flag:

59 Co

Mass Calib.

Actual: 58.95
Required: 58.90 - 59.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

115 In

Mass Calib.

Actual: 114.95
Required: 114.90 - 115.10
Flag:

Peak Width

Actual: 0.55 Required: 0.90 Flag:

208 Pb

Mass Calib.

Actual: 207.95 Required: 207.90 - 208.10

Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

238 U

Mass Calib.

Actual: 238.05
Required: 237.90 - 238.10
Flag:

Peak Width

Actual: 0.60 Required: 0.90 Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\002CALB.D\002CALB.D#

Date Acquired: Jul 21 2009 05:25 pm

NormISIS.M Acq. Method:

Operator: TEL

Sample Name: Cal Blank

Misc Info:

1101 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

CalBlk Sample Type:

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	31	3276.40
52	Cr	72	1	2800	9.18
55	Mn	72	1	1283	9.62
59	Со	72	1	87	67.61
60	Ni	72	1	67	17.32
63	Cu	72	1	503	6.39
66	Zn	72	1	251	8.30
75	As	72	1	105	7.67
78	Se	72	1	513	6.26
95	Mo	72	1	73	15.75
107	Ag	115	1	7	86.60
111	Cd	115	1	9	188.13
118	Sn	115	1	2750	17.56
121	Sb	115	1	19	50.94
137	Ва	115	1	49	3.94
205	Tl	165	1	263	12.21
208	Pb	165	1	323	8.05
232	Th	165	1	220	25.31
238	U	165	1	96	8.06

Internal Standard Elements

Eleme	Element		CPS Mean	RSD(%)
6	Li	1	576535	0.69
45	Sc	1	2595280	0.11
72	Ge	1	1228451	0.87
115	In	1	3471486	1.12
165	Но	1	5707578	1.58

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Date Acquired: Jul 21 2009 05:28 pm

Acq. Method: NormISIS.M

TEL Operator:

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: CalBlk

QC Elements

Eleme	nt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	84	380.78
52	Cr	72	1	3224	4.61
55	Mn	72	1	1180	18.88
59	Со	72	1	67	31.23
60	Ni	72	1	77	39.85
63	Cu	72	1	673	17.84
66	Zn	72	1	341	12.93
75	As	72	1	105	1.10
78	Se	72	1	570	15.79
95	Mo	72	1	90	19.25
107	Ag	115	1	10	100.00
111	Cd	115	1	6	183.92
118	Sn	115	1	4558	14.33
121	Sb	115	1	23	37.80
137	Ва	115	1	41	44.66
205	Tl	165	1	229	12.72
208	Pb	165	1	279	7.30
232	Th	165	1	273	29.57
238	U	165	1	22	43.30

Internal Standard Elements

Eleme	Element		CPS Mean	RSD(%)
6	Li	1	581797	1.92
45	Sc	1	2574983	0.83
72	Ge	1	1211627	0.38
115	In	1	3426576	0.51
165	Но	1	5647086	0.49

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\004ICAL.D\0004ICAL.D#

Date Acquired: Jul 21 2009 05:31 pm

Acq. Method: NormISIS.M

Operator: TEL Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:29 pm

Sample Type: ICAL

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	59445	1.77
51	V	72	1	1239197	0.92
52	Cr	72	1	1240930	1.80
55	Mn	72	1	1500976	1.14
59	Co	72	1	1532853	1.14
60	Ni	72	1	335568	1.43
63	Cu	72	1	783637	0.77
66	Zn	72	1	184990	0.36
75	As	72	1	150136	1.32
78	Se	72	1	29896	1.27
95	Mo	72	1	401051	0.94
107	Ag	115	1	1170362	0.20
111	Cd	115	1	241527	0.35
118	Sn	115	1	706295	0.47
121	Sb	115	1	813196	0.45
137	Ва	115	1	335210	0.52
205	Tl	165	1	2698247	0.32
208	Pb	165	1	3677704	0.96
232	Th	165	1	3297948	2.01
238	U	165	1	3849572	0.35

ISTD Elements

Eleme	ent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	565258	0.19	581797	97.2	30 - 120	
45	Sc	1	2567639	0.66	2574983	99.7	30 - 120	
72	Ge	1	1211730	1.09	1211627	100.0	30 - 120	
115	In	1	3431729	1.40	3426576	100.2	30 - 120	
165	Но	1	5634252	0.67	5647086	99.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures
0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 21 2009 05:33 pm

Operator: TEL QC Summary:

Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC	Eleme	nts								
Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	39.64	ppb	0.79	40	99.1	90 - 110	
51	V	72	1	38.95	ppb	0.13	40	97.4	90 - 110	
52	Cr	72	1	39.22	ppb	0.44	40	98.1	90 - 110	
55	Mn	72	1	39.68	ppb	0.45	40	99.2	90 - 110	
59	Со	72	1	39.53	ppb	0.70	40	98.8	90 - 110	
60	Νi	72	1	40.23	ppb	0.53	40	100.6	90 - 110	
63	Cu	72	1	40.61	ppb	0.32	40	101.5	90 - 110	
66	Zn	72	1	40.51	ppb	1.02	40	101.3	90 - 110	
75	As	72	1	40.08	ppb	0.64	40	100.2	90 - 110	
78	Se	72	1	41.67	ppb	1.69	40	104.2	90 - 110	
95	Mo	72	1	39.87	ppb	0.41	40	99.7	90 - 110	
107	Ag	115	1	40.34	ppb	1.30	40	100.9	90 - 110	
111	Cd	115	1	41.12	ppb	0.91	40	102.8	90 - 110	
118	Sn	115	1	38.88	ppb	0.90	40	97.2	90 - 110	
121	Sb	115	1	38.65	ppb	1.11	40	96.6	90 - 110	
137	Ва	115	1	39.89	ppb	0.94	40	99.7	90 - 110	
205	Tl	165	1	40.05	ppb	1.21	40	100.1	90 - 110	
208	Pb	165	1	40.43	ppb	0.85	40	101.1	90 - 110	
232	Th	165	1	44.22	ppb	2.85	40	110.6	90 - 110	Fail M
238	U	165	1	40.19	ppb	1.06	40	100.5	90 - 110	
IST	D Ele	ments								
$El\epsilon$	ement		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	561236		0.19	581797	96.5	30 - 120	
45	Sc		1	2582771		1.09	2574983	100.3	30 - 120	
72	Ge		1	1213066		0.25	1211627	100.1	30 - 120	
115	i In		1	3417703		1.00	3426576	99.7	30 - 120	
165	Но		1	5664293		1.10	5647086	100.3	30 - 120	
	Tu	ne File#	1	c:\icpchem\1	7500	\he.u				
		ne File#	2	C:\ICPCHEM\1\						
		ne File#	3	C:\ICPCHEM\1'						

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

1 : Element Failures 0 : Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Wash QC Report

C:\ICPCHEM\1\DATA\AG072109.B\006WASH.D\006WASH.D# Data File:

Jul 21 2009 05:36 pm Date Acquired:

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLIV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.123 ppb	10.30	1.30	
51 V	72	1	4.905 ppb	4.36	6,50	
52 Cr	72	1	2.008 ppb	1.94	2.60	
55 Mn	72	1	1.040 ppb	1.71	1.30	
59 Co	72	1	1.042 ppb	3.30	1.30	
60 Ni	72	1	2.082 ppb	1.95	2.60	
63 Cu	72	1	2.043 ppb	4.81	2.60	
66 Zn	72	1	10.290 ppb	0.55	13.00	
75 As	72	1	5.041 ppb	1.23	6.50	
78 Se	72	1	5.606 ppb	11.10	6.50	
95 Mo	72	1	2.125 ppb	3.10	2.60	
107 Ag	115	1	5.269 ppb	0.93	6.50	
111 Cd	115	1	0.985 ppb	1.12	1.30	
118 Sn	115	1	10.060 ppb	1.78	13.00	
121 Sb	115	1	2.181 ppb	4.53	2.60	
137 Ba	115	1	1.073 ppb	3.26	1.30	
205 Tl	165	1	1.130 ppb	0.27	1.30	
208 Pb	165	1	1.039 ppb	0.95	1.30	
232 Th	165	1	2.777 ppb	3.32	2.60	
238 U	165	1	1.064 ppb	0.97	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	561585	0.30	581797	96.5	30 - 120	
45 Sc	1	2567497	0.65	2574983	99.7	30 - 120	
72 Ge	1	1227558	0.55	1211627	101.3	30 - 120	
115 In	1	3427742	1.01	3426576	100.0	30 - 120	
165 Ho	1	5710214	1.06	5647086	101.1	30 - 120	

1 c:\icpchem\1\7500\he.u Tune File# Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\007 ICB.D\007 ICB.D#

QC Summary: Date Acquired: Jul 21 2009 05:39 pm

Analytes: Pass Operator: TEL ISTD: Pass Sample Name: ICB

Misc Info:

Vial Number: 2104

C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: ICB

ICB Sample Type: Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.03	ppb	107.86	1.00	
52 Cr	72	1	-0.02	ppb	42.01	1.00	
55 Mn	72	1	0.00	ppb	111.67	1.00	
59 Co	72	1	0.00	ppb	96.89	1.00	
60 Ni	72	1	0.00	ppb	233.62	1.00	
63 Cu	72	1	-0.01	ppb	109.12	1.00	
66 Zn	72	1	0.05	ppb	42.84	1.00	
75 As	72	1	-0.01	ppb	44.09	1.00	
78 Se	72	1	0.34	ppb	46.02	1.00	
95 Mo	72	1	0.01	ppb	40.98	1.00	
107 Ag	115	1	0.01	ppb	15.65	1.00	
111 Cd	115	1	0.00	ppb	432.82	1.00	
118 Sn	115	1	0.13	ppb	28.49	1.00	
121 Sb	115	1	0.08	ppb	2.06	1.00	
137 Ba	115	1	0.00	ppb	38.09	1.00	
205 Tl	165	1	0.03	ppb	5.05	1.00	
208 Pb	165	1	0.00	ppb	1255.10	1.00	
232 Th	165	1	0.16	ppb	5.89	1.00	
238 U	165	1	0.00	ppb	21.84	1.00	

ISTD Elements

TOID LICECTICS							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565985	1.59	581797	97.3	30 - 120	
45 Sc	1	2566622	0.99	2574983	99.7	30 - 120	
72 Ge	1	1225621	1.10	1211627	101.2	30 - 120	
115 In	1	3452773	0.47	3426576	100.8	30 - 120	
165 Ho	1	5650371	0.62	5647086	100.1	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u	✓		
Tune File#	2	C:\ICPCHEM\	1\7500\		X .		

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Tune File# 3 C:\ICPCHEM\1\7500\

0 :Element Failures 0 : Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\008RLST.D\008RLST.D#

Date Acquired: Jul 21 2009 05:42 pm

Operator: TEL QC Summary:

Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: RLSTD Total Dil Factor: 1.00

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	1.05	ppb	12.11	1	104.7	50 - 150	
51	V	72	1	0.93	ppb	7.33	1	93.2	50 - 150	
52	Cr	72	1	0.97	ppb	3.56	1	97.0	50 - 150	
55	Mn	72	1	1.00	ppb	2.49	1	100.4	50 - 150	
59	Со	72	1	1.01	ppb	4.08	1	101.3	50 - 150	
60	Ni	72	1	1.00	ppb	6.56	1	100.0	50 - 150	
63	Cu	72	1	1.04	ppb	7.10	1	104.2	50 - 150	
66	Zn	72	1	10.76	ppb	1.35	10	107.6	50 - 150	
75	As	72	1	1.04	ppb	3.34	1	103.8	50 - 150	
78	Se	72	1	0.82	ppb	33.53	1	81.6	50 - 150	
95	Mo	72	1	1.01	ppb	7.76	1	101.0	50 - 150	
107	Ag	115	1	1.02	ppb	2.10	1	101.5	50 - 150	
111	Cd	115	1	1.10	ppb	3.31	1	109.6	50 - 150	
118	Sn	115	1	10.23	ppb	1.35	10	102.3	50 - 150	
121	Sb	115	1	1.05	ppb	1.23	1	104.8	50 - 150	
137	Ва	115	1	1.05	ppb	4.58	1	104.8	50 - 150	
205	Tl	165	1	1.07	ppb	2.73	1	106.5	50 - 150	
208	Pb	165	1	1.05	ppb	1.07	1	104.7	50 - 150	
232	Th	165	1	1.13	ppb	2.43	1	113.3	50 - 150	
238	U	165	1	1.07	ppb	1.03	1	107.0	50 - 150	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565978	0.78	581797	97.3	30 - 120	
45 Sc	1	2568028	1.20	2574983	99.7	30 - 120	
72 Ge	1	1217338	0.15	1211627	100.5	30 - 120	
115 In	1	3427497	0.45	3426576	100.0	30 - 120	
165 Ho	1	5631637	1.02	5647086	99.7	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

AFCEE RL QC Report

QC Elements

Data File: C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

Date Acquired: Jul 21 2009 05:44 pm

QC Summary: Operator: \mathtt{TEL}

Analytes: Pass Sample Name: AFCEE RL ISTD: Pass

Misc Info: Vial Number: 2106

Conc.

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C

Calibration File: C:\ICPCHEM\1\CALIB\Non
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: AFCEERL Total Dil Factor: 1.00

Element IS Ref Tune

9 -	Ве	6	1	0.18	ppb	41.26	0	86.0	80 - 120
51	V	72	1	0.12	ppb	39.38	0	67.0	80 - 120
52	Cr	72	1	0.16	ppb	3.72	0	82.2	80 - 120
55	Mn	72	1	0.20	ppb	3.24	0	98.6	80 - 120
59	Co	72	1	0.20	ppb	5.85	0	99.3	80 - 120
60	Ni	72	1	0.18	ppb	6.47	0	90.0	80 - 120
63	Cu	72	1	0.32	ppb	10.85	0	155.1	80 - 120
66	Zn	72	1	2.18	ppb	0.89	2	101.4	80 - 120
75	As	72	1	0.20	ppb	9.34	0	94.3	80 - 120
78	Se	72	1	0.27	ppb	16.59	0	168.2	80 - 120
95	Мо	72	1	0.19	ppb	6.24	0	93.4	80 - 120
107	Ag	115	1	0.20	ppb	4.78	0	99.7	80 - 120
	~ 1	445	4	0 01	1	11 00	^	0.0	0.0 1.2.0

RSD(%) Expected Rec(%) QC Range(%)

66	Zn	72	1	2.18 ppb	0.89	2	101.4	80 - 120
75	As	72	1	0.20 ppb	9.34	0	94.3	80 - 120
78	Se	72	1	0.27 ppb	16.59	0	168.2	80 - 120
95	Мо	72	1	0.19 ppb	6.24	0	93.4	80 - 120
107	Ag	115	1	0.20 ppb	4.78	0	99.7	80 - 120
111	Cd	115	1	0.21 ppb	11.89	0	96.8	80 - 120
118	Sn	115	1	1.58 ppb	4.76	2	77.3	80 - 120
121	Sb	115	1	0.21 ppb	4.92	0	99.2	80 - 120
137	Ва	115	1	0.22 ppb	2.48	0	102.6	80 - 120
205	Tl	165	1	0.21 √ ppb	5.92	0	97.3	80 - 120
208	Pb	165	1	0.20 ppb	3.45	0	95.3	80 - 120
232	Th	165	1	0.24 ppb	4.96	0	106.3	80 - 120
238	U	165	1	0.20 ppb	2.09	0	95.7	80 - 120

IST) Elements							
Eler	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	562011	1.45	581797	96.6	30 - 120	
45	Sc	1	2589915	1.12	2574983	100.6	30 - 120	
72	Ge	1	1216544	0.44	1211627	100.4	30 - 120	
115	In	1	3446931	1.30	3426576	100.6	30 - 120	
165	Но	1	5682005	0.45	5647086	100.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ C:\ICPCHEM\1\7500\ Tune File# 3

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Flag

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 21 2009 05:47 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 1.00 Autodil Factor: Undiluted Final Dil Factor: 1.00

QC	Elements	
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Ele	ment	IS Ref	Tune	Corr Conc F	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	dqq	0.00	3600	9
51	$\cdot \Delta$	72	1	-0.04	-0.04	ppb	104.30	3600	
52	Cr	72	1	-0.02	-0.02	ppb	103.76	3600	
55	Mn	72	1	0.02	0.02	ppb	16.79	3600	
59	Со	72	1	0.00	0.00	ppb	621.67	3600	
60	Ni	72	1	0.03	0.03	ppb	16.48	3600	
63	Cu	72	1	0.00	0.00	ppb	932.55	3600	
66	Zn	72	1	0.85	0.85	ppb	6.94	3600	
75	As	72	1	0.00	0.00	ppb	664.54	3600	
78	Se	72	1	2.10 🗸	2.10	ppb	12.34	3600	
	Мо	72	1	-0.01	-0.01	ppb	45.44	3600	
107	Ag	115	1	0.00	0.00	ppb	58.87	3600	
111		115	1	0.01	0.01	ppb	69.14	3600	
118		115	1	0.05	0.05	ppb	347.56	3600	
121		115	1	0.02	0.02	ppb	33.89	3600	
137	Ва	115	1	0.02	0.02	ppb	46.40	3600	
205	Tl	165	1	0.01	0.01	ppb	7.09	3600	
208	Pb	165	1	0.01	0.01	ppb	32.33	3600	
232		165	1	0.02	0.02	ppb	9.94	1000	
238	U	165	1	0.00	0.00	ppb	61.35	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	569704	0.90	581797	97.9	30 - 120	-
45 Sc	1	2578530	1.74	2574983	100.1	30 - 120	
72 Ge	1	1225059	0.62	1211627	101.1	30 - 120	
115 In	1	3458256	0.73	3426576	100.9	30 - 120	
165 Ho	1	5659536	0.49	5647086	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\CPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed 0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 21 2009 05:50 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: ICSA ISTD: Pass

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSA Dilution Factor: 1.00

QC Elements

Elei	ment	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.01 ppb	86.57	1.00	
51	V	72	1	-0.32 ppb	45.77	1.00	
52	Cr	72	1	1.09 ppb	1.54	1.00	
55	Mn	72	1	3.02 ppb	2.13	1.00	
59	Co	72	1	0.14 ppb	6.32	1.00	
60	Ni	72	1	1.14 ppb	8.51	1.00	
63	Cu	72	1	0.52 ppb	6.79	1.00	
66	Zn	72	1	4.12 ppb	0.37	10.00	
75	As	72	1	0.41 ppb	6.37	1.00	
78	Se	72	1	0.21 ppb	202.38	1.00	
95	Mo	72	1	2029.00 ppb	1.48	2000.00	
107	Ag	115	1	0.08 ppb	1.65	1.00	
111	Cd	115	1	0.53 ppb	11.29	1.00	
118	Sn	115	1	6.55 ppb	2.38	10.00	
121	Sb	115	1	0.25 ppb	8.83	1.00	
137	Ва	115	1	1.63 ppb	3.16	1.00	
205	Tl	165	1	0.06 ppb	23.67	1.00	
208	Pb	165	1	0.15 ppb	1.74	1.00	
232	Th	165	1	0.06 ppb	7.65	1.00	
238	U	165	1	0.04 ppb	4.73	1.00	

ISTD Elements

Elen	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	541828	0.30	581797	93.1	30 - 120	
45	Sc	1	2271867	1.39	2574983	88.2	30 - 120	
72	Ge	1	1037781	0.72	1211627	85.7	30 - 120	
115	In	1	2905629	2.08	3426576	84.8	30 - 120	
165	Но	1	5091704	1.12	5647086	90.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Nnumber of ISTD Failures Allowed

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 21 2009 05:53 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ICSAB ISTD: Pass

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSAB
Dilution Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	1	96.29	1.44	100	96.3	80 - 120	
51 V	72	1	99.52	1.77	100	99.5	80 - 120	
52 Cr	72	1	99.40	1.59	100	99.4	80 - 120	
55 Mn	72	1	101.10	1.41	100	101.1	80 - 120	
59 Co	72	1	95.14	1.75	100	95.1	80 - 120	
60 Ni	72	1	91.22	1.02	100	91.2	80 - 120	
63 Cu	72	1	89.55	0.75	100	89.6	80 - 120	
66 Zn	72	1	100.10	0.77	100	100.1	80 - 120	
75 As	72	1	100.30	0.37	100	100.3	80 - 120	
78 Se	72	1	108.70	2.11	100	108.7	80 - 120	
95 Mo	72	1	2124.00	1.34	2100	101.1	80 - 120	
107 Ag	115	1	88.04	3.50	100	88.0	80 - 120	
111 Cd	115	1	97.50	1.62	100	97.5	80 - 120	
118 Sn	115	1	101.00	0.92	100	101.0	80 - 120	
121 Sb	115	1	102.40	1.11	100	102.4	80 - 120	
137 Ba	115	1	103.60	1.08	100	103.6	80 - 120	
205 Tl	165	1	96.79	0.86	100	96.8	80 - 120	
208 Pb	165	1	95.41	1.15	100	95.4	80 - 120	
232 Th	165	1	110.10	0.47	100	110.1	80 - 120	
238 U	165	1	103.00	0.22	100	103.0	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551523	0.54	581797	94.8	30 - 120	
45 Sc	1	2262338	0.74	2574983	87.9	30 - 120	
72 Ge	1	1036947	1.75	1211627	85.6	30 - 120	
115 In	1	2927339	0.38	3426576	85.4	30 - 120	
165 Ho	1	5153065	0.14	5647086	91.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 21 2009 05:55 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.06	-0.06	ppb	105.43	3600	
52 Cr	72	1	-0.03	-0.03	ppb	42.33	3600	
55 Mn	72	1	-0.01	-0.01	ppb	103.23	3600	
59 Co	72	1	0.00	0.00	ppb	103.31	3600	
60 Ni	72	1	0.00	0.00	dqq	490.13	3600	
63 Cu	72	1	-0.01	-0.01	ppb	55.36	3600	
66 Zn	72	1	0.02	0.02	ppb	39.30	3600	
75 As	72	1	0.01	0.01	ppb	237.74	3600	
78 Se	72	1	0.22	0.22	ppb	124.98	3600	
95 Mo	72	1	1.24	1.24	ppb	2.11	3600	
107 Ag	115	1	0.01	0.01	ppb	32.64	3600	
111 Cd	115	1	-0.01	-0.01	ppb	87.55	3600	
118 Sn	115	1	-0.44	-0.44	ppb	9.84	3600	
121 Sb	115	1	0.04	0.04	ppb	10.44	3600	
137 Ba	115	1	0.00	0.00	ppb	198.65	3600	
205 Tl	165	1	0.00	0.00	ppb	32.40	3600	
208 Pb	165	1	0.00	0.00	ppb	60.85	3600	
232 Th	165	1	0.61	0.61	ppb	14.09	1000	
238 U	165	1	0.01	0.01	ppb	16.27	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	617032	1.01	581797	106.1	30 - 120	
45 Sc	1	2571917	0.32	2574983	99.9	30 - 120	
72 Ge	1	1207363	0.62	1211627	99.6	30 - 120	
115 In	1	3468973	0.41	3426576	101.2	30 - 120	
165 Ho	1	5751339	0.52	5647086	101.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\014 LR.D\014 LR.D#

Date Acquired: Jul 21 2009 05:58 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: LR ISTD: Pass

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LR
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Element	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	983.10 ppb	1.47	1000	98.3	90 - 110	
51 V	72	1	931.80 ppb	1.87	1000	93.2	90 - 110	
52 Cr	72	1	958.10 ppb	0.33	1000	95.8	90 - 110	
55 Mn	72	1	959.10 ppb	0.74	1000	95.9	90 - 110	
59 Co	72	1	962.90 ppb	0.81	1000	96.3	90 - 110	
60 Ni	72	1	976.00 ppb	1.67	1000	97.6	90 - 110	
63 Cu	72	1	952.70 ppb	0.56	1000	95.3	90 - 110	
66 Zn	72	1	1036.00 ppb	1.42	1000	103.6	90 - 110	
75 As	72	1	1038.00 ppb	0.83	1000	103.8	90 - 110	
78 Se	72	1	1037.00 ppb	0.75	1000	103.7	90 - 110	
95 Mo	72	1	998.50 ppb	1.19	1000	99.9	90 - 110	
107 Ag	115	1	960.60 ppb	0.36	1000	96.1	90 - 110	
111 Cd	115	1	1018.00 ppb	1.94	1000	101.8	90 - 110	
118 Sn	115	1	980.00 ppb	0.99	1000	98.0	90 - 110	
121 Sb	115	1	975.20 ppb	0.25	1000	97.5	90 - 110	
137 Ba	115	1	1014.00 ppb	0.78	1000	101.4	90 - 110	
205 Tl	165	1	970.30 ppb	1.49	1000	97.0	90 - 110	
208 Pb	165	1	959.70 ppb	1.43	1000	96.0	90 - 110	
232 Th	165	1	1070.00 ppb	0.39	1000	107.0	90 - 110	
238 U	165	1	1001.00 ppb	0.48	1000	100.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	602525	1.07	581797	103.6	30 - 120	
45 Sc	1	2585868	0.95	2574983	100.4	30 - 120	
72 Ge	1	1215769	0.81	1211627	100.3	30 - 120	
115 In	1	3432627	0.12	3426576	100.2	30 - 120	
165 Ho	1	5756427	0.96	5647086	101.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 21 2009 06:00 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.01	0.01	ppb	173.21	3600	
51 V	72	1	0.00	0.00	ppb	1096.50	3600	
52 Cr	72	1	-0.02	-0.02	ppb	214.11	3600	
55 Mn	72	1	-0.01	-0.01	ppb	54.41	3600	
59 Co	72	1	0.02	0.02	ppb	17.45	3600	
60 Ni	72	1	0.02	0.02	ppb	36.35	3600	
63 Cu	72	1	0.00	0.00	ppb	3434.80	3600	
66 Zn	72	1	0.04	0.04	ppb	59.09	3600	
75 As	72	1	0.04	0.04	ppb	18.32	3600	
78 Se	72	1	0.56	0.56	ppb	27.17	3600	
95 Mo	72	1	0.75	0.75	ppb	9.81	3600	
107 Ag	115	1	0.03	0.03	ppb	9.09	3600	
111 Cd	115	1	0.01	0.01	ppb	55.86	3600	
118 Sn	115	1	0.58	0.58	ppb	22.30	3600	
121 Sb	115	1	0.43	0.43	ppb	9.45	3600	
137 Ba	115	1	0.02	0.02	ppb	30.56	3600	
205 Tl	165	1	0.10	0.10	ppb	12.56	3600	
208 Pb	165	1	0.02	0.02	ppb	9.09	3600	
232 Th	165	1	3.70	3.70	ppb	19.86	1000	
238 U	165	1	0.09	0.09	ppb	9.53	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	, Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	604269	1.86	581797	103.9	30 - 120	
45 Sc	1	2589065	0.70	2574983	100.5	30 - 120	
72 Ge	1	1243813	0.46	1211627	102.7	30 - 120	
115 In	1	3483172	1.13	3426576	101.7	30 - 120	
165 Ho	1	5709115	0.24	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 21 2009 06:03 pm

Operator: TEL QC Summary: Sample Name: CCV Analytes: Pass

Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	E)	eme	nts
77.7			т.

9 Be 6 1 49.34 ppb 0.68 50 98.7 90 - 110 51 V 72 1 49.10 ppb 0.55 50 98.2 90 - 110 52 Cr 72 1 49.47 ppb 0.91 50 98.9 90 - 110 55 Mn 72 1 49.47 ppb 1.10 50 98.9 90 - 110 59 Co 72 1 49.92 ppb 1.17 50 99.8 90 - 110 60 Ni 72 1 50.75 ppb 0.61 50 101.5 90 - 110 63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	lag
52 Cr 72 1 49.47 ppb 0.91 50 98.9 90 - 110 55 Mn 72 1 49.47 ppb 1.10 50 98.9 90 - 110 59 Co 72 1 49.92 ppb 1.17 50 99.8 90 - 110 60 Ni 72 1 50.75 ppb 0.61 50 101.5 90 - 110 63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	
55 Mn 72 1 49.47 ppb 1.10 50 98.9 90 - 110 59 Co 72 1 49.92 ppb 1.17 50 99.8 90 - 110 60 Ni 72 1 50.75 ppb 0.61 50 101.5 90 - 110 63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	
59 Co 72 1 49.92 ppb 1.17 50 99.8 90 - 110 60 Ni 72 1 50.75 ppb 0.61 50 101.5 90 - 110 63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	
60 Ni 72 1 50.75 ppb 0.61 50 101.5 90 - 110 63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	
63 Cu 72 1 50.93 ppb 0.27 50 101.9 90 - 110	
**	
66 8 80 4 50 04 1 0 80 50 400 6 00 440	
66 Zn 72 1 50.31 ppb 0.73 50 100.6 90 - 110	
75 As 72 1 50.24 ppb 1.12 50 100.5 90 - 110	
78 Se 72 1 50.24 ppb 0.13 50 100.5 90 - 110	
95 Mo 72 1 50.78 ppb 1.42 50 101.6 90 - 110	
107 Ag 115 1 49.22 ppb 2.02 50 98.4 90 - 110	
111 Cd 115 1 49.66 ppb 2.34 50 99.3 90 - 110	
118 Sn 115 1 49.06 ppb 1.65 50 98.1 90 - 110	
121 Sb 115 1 49.30 ppb 1.60 50 98.6 90 - 110	
137 Ba 115 1 49.04 ppb 1.67 50 98.1 90 - 110	
205 Tl 165 1 50.73 ppb 1.09 50 101.5 90 - 110	
208 Pb 165 1 49.84 ppb 1.34 50 99.7 90 - 110	
232 Th 165 1 52.15 ppb 2.07 50 104.3 90 - 110	
238 U 165 1 49.79 ppb 0.38 50 99.6 90 - 110	

ISTD Elements

Elen	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	588145	2.13	581797	101.1	30 - 120	
45	Sc	1	2623883	0.54	2574983	101.9	30 - 120	
72	Ge	1	1228362	0.50	1211627	101.4	30 - 120	
115	In	1	3530300	1.24	3426576	103.0	30 - 120	
165	Но	1	5768046	0.38	5647086	102.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

ISTD:

Pass

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 21 2009 06:06 pm

Operator: TEL QC Summary:
Sample Name: CCB Analytes: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB
Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.005	ppb	173.19	1.00	
51 V	72	1	-0.062	ppb	129.47	1.00	
52 Cr	72	1	-0.026	ppb	83.65	1.00	
55 Mn	72	1	-0.007	ppb	143.47	1.00	
59 Co	72	1	0.002	ppb	146.67	1.00	
60 Ni	72	1	0.009	ppb	171.37	1.00	
63 Cu	72	1	-0.013	ppb	47.42	1.00	
66 Zn	72	1	0.004	ppb	593.06	1.00	
75 As	72	1	0.008	ppb	83.97	1.00	
78 Se	72	1	0.635	ppb	21.48	1.00	
95 Mo	72	1	0.156	ppb	13.82	1.00	
107 Ag	115	1	0.013	ppb	10.04	1.00	
111 Cd	115	1	0.005	ppb	226.51	1.00	
118 Sn	115	1	0.091	ppb	27.58	1.00	
121 Sb	115	1	0.092	ppb	4.85	1.00	
137 Ba	115	1	0.007	ppb	96.12	1.00	
205 Tl	165	1	0.044	ppb	9.42	1.00	
208 Pb	165	1	0.005	ppb	16.13	1.00	
232 Th	165	1	0.846	ppb	15.54	1.00	
238 U	165	1	0.016	ppb	7.64	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	582937	1.46	581797	100.2	30 - 120	
45 Sc	1	2618279	0.49	2574983	101.7	30 - 120	
72 Ge	1	1228248	0.40	1211627	101.4	30 - 120	
115 In	1	3493471	0.25	3426576	102.0	30 - 120	
165 Ho	1	5729193	0.17	5647086	101.5	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\018WASH.D\018WASH.D#

Date Acquired: Jul 21 2009 06:09 pm

Operator: TEL QC Summary: Sample Name: Analytes: RLCV Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: WASH C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: WASH Total Dil Factor: 1.00

O.C.	El	emen	ts
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.506 ppb	66.40	1.30	-
51 V	72	1	5.354 ppb	9.73	6.50	
52 Cr	72	1	2.294 ppb	19.68	2.60	
55 Mn	72	1	1.341 ppb	40.40	1.30	
59 Co	72	1	1.372 ppb	41.06	1.30	
60 Ni	72	1	2.353 ppb	23.65	2.60	
63 Cu	72	1	2.412 ppb	17.43	2.60	
66 Zn	72	1	10.710 ppb	7.57	13.00	
75 As	72	1	5.663 ppb	11.90	6.50	
78 Se	72	1	5.717 ppb	11.15	6.50	
95 Mo	72	1	4.400 ppb	84.36	2.60	
107 Ag	115	1	5.364 ppb	3,44	6.50	
111 Cd	115	1	1.442 ppb	41.34	1.30	
118 Sn	115	1	10.180 ppb	5.67	13.00	
121 Sb	115	1	2.278 ppb	21.30	2.60	
137 Ba	115	1	1.364 ppb	42.96	1.30	
205 Tl	165	1	1.415 ppb	39.27	1.30	
208 Pb	165	1	1.446 ppb	47.86	1.30	
232 Th	165	1	2.676 ppb	20.73	2.60	
238 U	165	1	1.427 ppb	40.32	1.30	

ISTD Elements

Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
1	598481	1.35	581797	102.9	30 - 120	
1	2642231	1.82	2574983	102.6	30 - 120	
1	1250188	1.58	1211627	103.2	30 - 120	
. 1	3540347	1.66	3426576	103.3	30 - 120	
1	5791976	1.24	5647086	102.6	30 - 120	
	Tune 1 1 1 1 1	1 598481 1 2642231 1 1250188 1 3540347	1 598481 1.35 1 2642231 1.82 1 1250188 1.58 1 3540347 1.66	1 598481 1.35 581797 1 2642231 1.82 2574983 1 1250188 1.58 1211627 1 3540347 1.66 3426576	1 598481 1.35 581797 102.9 1 2642231 1.82 2574983 102.6 1 1250188 1.58 1211627 103.2 1 3540347 1.66 3426576 103.3	1 598481 1.35 581797 102.9 30 - 120 1 2642231 1.82 2574983 102.6 30 - 120 1 1250188 1.58 1211627 103.2 30 - 120 1 3540347 1.66 3426576 103.3 30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\026 CCV.D\026 CCV.D#

Date Acquired: Jul 21 2009 06:30 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

 $\begin{tabular}{ll} $\text{Current Method:} & C:\ICPCHEM_1 & $\text{Calibration File:} & C:\ICPCHEM_1 & Calib_n & $\text{$

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Eleme	nts								
Element	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	49.60	ppb	3.76	50	99.2	90 - 110	
51 V	72	1	47.46	ppb	0.73	50	94.9	90 - 110	
52 Cr	72	1	48.46	ppb	1.90	50	96.9	90 - 110	
55 Mn	72	1	48.48	ppb	1.62	50	97.0	90 - 110	
59 Co	72	1	48.65	ppb	0.70	50	97.3	90 - 110	
60 Ni	72	1	49.63	ppb	1.26	50	99.3	90 - 110	
63 Cu	72	1	49.48	ppb	1.11	50	99.0	90 - 110	
66 Zn	72	1	49.17	ppb	0.85	50	98.3	90 - 110	
75 As	72	1	49.33	ppb	1.83	50	98.7	90 - 110	
78 Se	72	1	49.43	ppb	3.65	50	98.9	90 - 110	
95 Mo	72	1	49.52	ppb	1.74	50	99.0	90 - 110	
107 Ag	115	1	49.84	ppb	0.95	50	99.7	90 - 110	
111 Cd	115	1	49.79	ppb	0.88	50	99.6	90 - 110	
118 Sn	115	1	49.36	ppb	1.63	50	98.7	90 - 110	
121 Sb	115	1	49.58	ppb	0.60	50	99.2	90 - 110	
137 Ba	115	1	49.59	ppb	0.66	50	99.2	90 - 110	
205 Tl	165	1	50.54	ppb	0.83	50	101.1	90 - 110	
208 Pb	165	1	50.49	ppb	0.37	50	101.0	90 - 110	
232 Th	165	1	51.99	ppb	2.44	50	104.0	90 - 110	
238 U	165	1	51.90	ppb	0.76	50	103.8	90 - 110	
ISTD Ele	ments								
Element		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li		1	571014		0.79	581797	98.1	30 - 120	
45 Sc		1	2538915		1.25	2574983	98.6	30 - 120	
72 Ge		1	1213633		1.83	1211627	100.2	30 - 120	
115 In		1	3399341		0.85	3426576	99.2	30 - 120	
165 Ho		1	5600207		0.53	5647086	99.2	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

3 C:\ICPCHEM\1\7500\

C:\ICPCHEM\1\7500\

Tune File# 1 c:\icpchem\1\7500\he.u

2

Tune File#

Tune File#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\027 CCB.D\027 CCB.D#

Date Acquired: Jul 21 2009 06:33 pm

TEL QC Summary: Operator: Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.006	ppb	173.20	1.00	
51 V	72	1	-0.006	ppb	515.80	1.00	
52 Cr	72	1	-0.037	ppb	49.31	1.00	
55 Mn	72	1	-0.018	ppb	70.24	1.00	
59 Co	72	1	0.002	ppb	18.76	1.00	
60 Ni	72	1	0.005	ppb	28.03	1.00	
63 Cu	72	1	-0.039	ppb	12.85	1.00	
66 Zn	72	1	0.010	ppb	155.67	1.00	
75 As	72	1	-0.008	ppb	188.46	1.00	
78 Se	72	1	0.001	ppb	63037.00	1.00	
95 Mo	72	1	0.038	ppb	19.24	1.00	
107 Ag	115	1	0.006	ppb	44.60	1.00	
111 Cd	115	1	0.007	ppb	37.32	1.00	
118 Sn	115	1	-0.057	ppb	99.88	1.00	
121 Sb	115	1	0.059	ppb	8.11	1.00	
137 Ba	115	1	0.003	ppb	62.71	1.00	
205 Tl	165	1	0.021	ppb	14.15	1.00	
208 Pb	165	1	0.004	ppb	24.01	1.00	
232 Th	165	1	0.775	ppb	18.32	1.00	
238 U	165	1	0.010	ppb	13.56	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	568757	0.26	581797	97.8	30 - 120	
45 Sc	1	2523515	0.52	2574983	98.0	30 - 120	
72 Ge	1	1190357	0.87	1211627	98.2	30 - 120	
115 In	1	3393018	0.90	3426576	99.0	30 - 120	
165 Ho	1	5546048	0.69	5647086	98.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 : Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\028WASH.D\028WASH.D#

Date Acquired: Jul 21 2009 06:36 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLCV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.945 ppb	17.37	1.30	
51 V	72	1	5.047 ppb	0.91	6.50	
52 Cr	72	1	2.021 ppb	3.49	2.60	
55 Mn	72	1	1.010 ppb	5.40	1.30	
59 Co	72	1	1.024 ppb	2.85	1.30	
60 Ni	72	1	2.156 ppb	3.13	2.60	
63 Cu	72	1	2.053 ppb	0.90	2.60	
66 Zn	72	1	10.450 ppb	1.17	13.00	
75 As	72	1	5.192 ppb	1.28	6.50	
78 Se	72	1	5.235 ppb	5.22	6.50	
95 Mo	72	1	2.123 ppb	6.02	2.60	
107 Ag	115	. 1	5.226 ppb	1.25	6.50	
111 Cd	115	1	1.069 ppb	5.99	1.30	
118 Sn	115	1	9.851 ppb	1.45	13.00	
121 Sb	115	1	1.944 ppb	1.32	2.60	
137 Ba	115	1	1.079 ppb	5.58	1.30	
205 Tl	165	1	1.091 ppb	0.56	1.30	
208 Pb	165	1	1.065 ppb	1.02	1.30	
232 Th	165	1	2.329 ppb	1.74	2.60	
238 U	165	1	1.101 ppb	0.77	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	563752	0.35	581797	96.9	30 - 120	
45 Sc	1	2522070	0.50	2574983	97.9	30 - 120	
72 Ge	1	1195071	0.30	1211627	98.6	30 - 120	
115 In	1	3409514	0.82	3426576	99.5	30 - 120	
165 Ho	1	5555873	0.54	5647086	98.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\029 BLK.D\029 BLK.D#

Date Acquired: Jul 21 2009 06:39 pm

QC Summary: Operator: TEL

LGEERB Analytes: Sample Name: Pass ISTD: Misc Info: Pass BLANK 9194272 6020

Vial Number: 2208

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C Last Cal Update: Jul 21 2009 05:31 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.000 ppb	0.00	2.00	
51 V	72	1	-0.023 ppb	197.29	2.00	
52 Cr	72	1	0.079 ppb	10.06	2.00	
55 Mn	72.	1	0.108 ppb	12.70	2.00	
59 Co	72	1	0.000 ppb	501.93	2.00	
60 Ni	72	1	0.025 ppb	81.97	2.00	
63 Cu	72	1	0.077 ppb	14.50	2.00	
66 Zn	72	1	0.692 ppb	2.78	2.00	
75 As	72	1	-0.001 ppb	1570.10	2.00	
78 Se	72	1	0.138 ppb	271.86	2.00	
95 Mo	72	1	0.012 ppb	30.51	2.00	
107 Ag	115	1	0.005 ppb	43,98	2.00	
111 Cd	115	1	0.003 ppb	153.49	2.00	
118 Sn	115	1	-0.388 ppb	3.06	2.00	
121 Sb	115	1	0.032 ppb	4.02	2.00	
137 Ba	115	1	0.024 ppb	41.42	2.00	
205 Tl	165	1	0.024 ppb	33.52	2.00	
208 Pb	165	1	0.010 ppb	10.00	2.00	
232 Th	165	1	0.149 ppb	18.82	2.00	
238 U	165	1	0.003 ppb	8.64	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567901	0.49	581797	97.6	30 - 120	
45 Sc	1	2536930	0.98	2574983	98.5	30 - 120	
72 Ge	1	1190052	0.57	1211627	98.2	30 - 120	
115 In	1	3404908	0.81	3426576	99.4	30 - 120	
165 Ho	1	5537384	1.21	5647086	98.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

ISTD:

Pass

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\030 LCS.D\030 LCS.D#

Date Acquired: Jul 21 2009 06:41 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass

Sample Name: LGEERC
Misc Info: LCS
Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Ra	.nge (%)	Flag
9 Be	6	1	40.84	2.97	40	102.1	80	- 120	
51 V	72	1	41.46	0.89	40	103.7	80	- 120	
52 Cr	72	1	42.08	1.02	40	105.2	80	- 120	
55 Mn	72	1	42.07	2.68	40	105.2	80	- 120	
59 Co	72	1	42.43	1.84	40	106.1	80	- 120	
60 Ni	72	1	43.29	2.68	40	108.2	80	- 120	
63 Cu	72	1	43.58	2.40	40	109.0	80	- 120	
66 Zn	72	1	41.11	1.13	40	102.8	80	- 120	
75 As	72	1	41.33	1.55	40	103.3	80	- 120	
78 Se	72	1	40.24	3.32	40	100.6	80	- 120	
95 Mo	72	1	43.74	5.12	40	109.4	80	- 120	
107 Ag	115	1	42.07	1.97	40	105.2	80	- 120	
111 Cd	115	1	41.62	1.54	40	104.1	80	- 120	
118 Sn	115	1	-0.06	879.10	40	-0.2	80	- 120	
121 Sb	115	1	40.67	1.75	40	101.7	80	- 120	
137 Ba	115	1	42.32	1.65	40	105.8	80	- 120	
205 Tl	165	1	43.38	1.33	40	108.5	80	- 120	
208 Pb	165	1	43.18	0.66	40	108.0	80	- 120	
232 Th	165	1	46.22	3.01	40	115.6	80	- 120	
238 U	165	1	44.22	0.28	40	110.6	80	- 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	572827	4.47	581797	98.5	30 - 120	
45 Sc	1	2536116	1.65	2574983	98.5	30 - 120	
72 Ge	1	1194379	2.43	1211627	98.6	30 - 120	
115 In	1	3408702	2.96	3426576	99.5	30 - 120	
165 Ho	1	5609006	1.65	5647086	99.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

Date Acquired: Jul 21 2009 06:44 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: TEL ISTD: **Pass** Sample Name: LGCN3 10X

Misc Info: D9G100272 Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.11	0.01	ppb	86.58	3600	
51 V	72	1	21.63	2.16	ppb	7.43	3600	
52 Cr	72	1	6.32	0.63	ppb	7.96	3600	
55 Mn	72	1	5.24	0.52	ppb	6.66	3600	
59 Co	72	1	0.39	0.04	ppb	16.50	3600	
60 Ni	72	1	4.15	0.41	ppb	14.15	3600	
63 Cu	72	1	0.17	0.02	ppb	16.19	3600	
66 Zn	72	1	3.05	0.31	ppb	11.24	3600	
75 As	72	1	198.10	19.81	ppb	2.87	3600	
78 Se	72	1	4.94	0.49	ppb	39.09	3600	
95 Mo	72	1	16.44	1.64	ppb	4.40	3600	
107 Ag	115	1	0.09	0.01	ppb	63.79	3600	
111 Cd	115	1	0.13	0.01	ppb	29.31	3600	
118 Sn	115	1	-5.34	-0.53	ppb	1.82	3600	
121 Sb	115	1	0.48	0.05	ppb	8.21	3600	
137 Ba	115	1	33.07	3.31	ppb	2.19	3600	
205 Tl	165	1	0.27	0.03	ppb	15.00	3600	
208 Pb	165	1	0.16	0.02	ppb	10.80	3600	
232 Th	165	1	6.24	0.62	ppb	18.22	1000	
238 U	165	1	55.05	5.51	ppb	1.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567824	0.66	581797	97.6	30 - 120	
45 Sc	1	2404508	0.72	2574983	93.4	30 - 120	
72 Ge	1	1124528	1.16	1211627	92.8	30 - 120	
115 In	1	3208719	1.35	3426576	93.6	30 - 120	
165 Ho	1	5383143	1.62	5647086	95.3	30 - 120	

Tune File# c:\icpchem\1\7500\he.u 1 Tune File# C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\032SDIL.D\032SDIL.D#

Date Acquired: Jul 21 2009 06:47 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3P50

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref	Conc.	Actual(%)	QC	Rang	e(%)	Flag
9 Be	6	1	0.00	ppb	0.00		0.00	0.0	90	-	110	
51 V	72	1	0.43	ppb	23.28		0.43	99.3	90	-	110	
52 Cr	72	1	0.29	ppb	4.37		0.13	229.3	90	-	110	
55 Mn	72	1	0.15	ppb	6.68		0.10	144.4	90	_	110	
59 Co	72	1	0.01	ppb	66.01		0.01	130.9	90	_	110	
60 Ni	72	1	0.26	ppb	15.21		0.08	310.4	90	-	110	
63 Cu	72	1	-0.01	ppb	106.68		0.00	-353.0	90	-	110	
66 Zn	72	1	0.09	ppb	22.23		0.06	148.6	90	-	110	
75 As	72	1	3.90	ppb	0.41		3.96	98.4	90	_	110	
78 Se	72	1	0.05	ppb	1070.40		0.10	46.0	90	-	110	
95 Mo	72	1	0.31	ppb	1.89		0.33	95.3	90	-	110	
107 Ag	115	1	0.00	ppb	66.72		0.00	156.3	90	-	110	
111 Cd	115	1	0.00	ppb	175.62		0.00	145.6	90	-	110	
118 Sn	115	1	-0.53	ppb	3.47		-0.11	493.3	90	_	110	
121 Sb	115	1	0.02	ppb	16.35		0.01	181.6	90	-	110	
137 Ba	115	1	0.66	ppb	2.72		0.66	99.8	90	-	110	
205 Tl	165	1	0.00	ppb	195.50		0.01	21.4	90		110	
208 Pb	165	1	0.01	ppb	27.48		0.00	185.7	90	-	110	
232 Th	165	1	0.09	ppb	13.71		0.12	75.2	90	-	110	
238 U	165	1	1.10	ppb	1.87		1.10	100.1	90	-	110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range	e(%) Flag
6 Li	1	565608	0.94	581797	97.2	30 -	120
45 Sc	1	2460020	0.58	2574983	95.5	30 -	120
72 Ge	1	1155387	1.16	1211627	95.4	30 -	120
115 In	1	3303714	1.14	3426576	96.4	30 -	120
165 Ho	1	5431207	0.86	5647086	96.2	30 -	120

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

SERIAL DILUTION

Denver					SERI	AL D	ILUTI	\overline{ON}
Method: 6020 (ICP/MS)		ICPMS_0	24		Reported	: 07/22/0	9 08:07	':22
Department: 090 (Metals)						Source:	Spreads	sheet
Sample: LGCN3P50		Se	Serial Dilution: 50.00			Dilution:	10.00	
Instrument: Agilent7500		Chanr	nel 272					
File: AG072109 # 32		Method	d 6020					
Acquired: 07/21/2009 18:47:00			S 024		Matrix	: AQUE	OUS	
Calibrated: 07/21/2009 17:28:00			0_024			nits: ug/l		
CASN Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7 Beryllium	9		0	0.11200	100		*	
7440-62-2 Vanadium	51	5166	21.480	21.630	0.693		*	
7440-47-3 Chromium	52	6495	14.490	6.3200	129		*	
7439-96-5 Manganese	55	3291	7.5700	5.2420	44.4		*	
7440-48-4 Cobalt	59	213	0.51000	0.38970	30.9		*	
7440-02-0 Nickel	60	897	12.880	4.1490	210		*	
7440-50-8 Copper	63	553	-0.59100	0.16740	453		*	
7440-66-6 Zinc	66	485	4.5335	3.0510	48.6		*	
7440-38-2 Arsenic	75	5677	194.90	198.10	1.62	0.21	NC	
7782-49-2 Selenium	78	557	2.2740	4.9420	54.0	0.70	NC	abla
7439-98-7 Molybdenum	95	1283	15.660	16.440	4.74		*	
7440-22-4 Silver	107	40	0.13490	0.08632	56.3		*	
7440-43-9 Cadmium	111	15	0.19425	0.13340	45.6		*	
7440-31-5 Tin	118	837	-26.330	-5.3380			*	
7440-36-0 Antimony	121	160	0.87700	0.48280	81.6		*	
7440-39-3 Barium	137	2169	32.995	33.070	0.227		*	
7440-28-0 Thallium	205	250	0.05780	0.26950	78.6		*	
7439-92-1 Lead	208	484	0.30480	0.16410	85.7		*	
7440-61-1 Uranium	238	40915	55.100	55.050	0.0908		*	
7440-29-1 Thorium	232	3247	4.6955	6.2410	24.8		*	
7439-93-2 Lithium	6			0			*	
7440-20-2 Scandium	45			0			*	
7440-74-6 Indium	115			0			*	
7440-56-4 Germanium	72			0			*	
7440.00.0.11-1-1-1	4			_			_	

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E : Difference greater than Limit (10%)

0

165

Reviewed by:

Date: 7/27/

Date: 7/27/

TestAmerica, Inc.

Version: 6.02.068

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7440-60-0 Holmium

Post Digestion Spiked Sample (PDS) QC Report

C:\ICPCHEM\1\DATA\AG072109.B\033PDS.D\033PDS.D# Data File:

Jul 21 2009 06:50 pm Date Acquired: QC Summary:

NormISIS.M Acq. Method: Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3Z

POST DIGESTION SPIKE Misc Info:

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: PDS Prep Dil. Factor: 1.00 Undiluted Autodil Factor: Final Dil Factor: 1.00

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	200.50	0.01	ppb	2.01	200	100.2	75 - 125	
51 V	72	1	199.90	2.16	ppb	1.11	200	98.9	75 - 125	
52 Cr	72	1	201.70	0.63	ppb	1.61	200	100.5	75 - 125	
55 Mn	72	1	198.30	0.52	ppb	1.60	200	98.9	75 - 125	
59 Co	72	1	195.50	0.04	ppb	2.21	200	97.7	75 - 125	
60 Ni	72	1	195.10	0.41	ppb	0.98	200	97.3	75 - 125	
63 Cu	72	1	195.80	0.02	ppb	0.06	200	97.9	75 - 125	
66 Zn	72	1	201.20	0.31	ppb	1.52	200	100.4	75 - 125	
75 As	72	1	221.60	19.81	ppb	1.14	200	100.8	75 - 125	
78 Se	72	1	205.80	0.49	ppb	1.72	200	102.6	75 - 125	
95 Mo	72	1	206.50	1.64	ppb	1.30	200	102.4	75 - 125	
107 Ag	115	1	48.42	0.01	ppb	1.14	50	96.8	75 - 125	
111 Cd	115	1	199.60	0.01	ppb	0.85	200	99.8	75 - 125	
118 Sn	115	1	182.90	-0.53	ppb	0.64	200	91.7	75 - 125	
121 Sb	115	1	200.40	0.05	ppb	0.62	200	100.2	75 - 125	
137 Ba	115	1	204.10	3.31	ppb	0.79	200	100.4	75 - 125	
205 Tl	165	1	196.40	0.03	ppb	0.92	200	98.2	75 - 125	
208 Pb	165	1	194.00	0.02	ppb	0.57	200	97.0	75 - 125	
232 Th	1.65	1	0.06	0.62	ppb	5.86	200	0.0	75 - 125	
238 U	165	1	208.90	5.51	ppb	1.19	200	101.7	75 - 125	
ISTD Ele	ments									

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	552017	0.97	581797	94.9	30 - 120	
45 Sc	1	2393086	1.79	2574983	92.9	30 - 120	
72 Ge	1	1113187	1.37	1211627	91.9	30 - 120	
115 In	1	3182521	0.72	3426576	92.9	30 - 120	
165 Ho	1	5376631	0.55	5647086	95.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\ICPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

SAMPLE SPIKE

Method: 6020 (ICP/MS)	ICPMS_024		Reported: 07/22/0	9 08:07:27
Department: 090 (Metals)			Source:	Spreadsheet
Sample: LGCN3Z	Spike Dilution:	1.00	Sample Dilution:	10.00
Instrument: Agilent7500	Channel 272			

Instrument: Agilent7500 File: AG072109 # 33	Channel 272 Method 6020	
Acquired: 07/21/2009 18:50:00 Calibrated: 07/21/2009 17:28:00	ICPMS_024	Matrix: AQUEOUS Units: ug/L

CASN	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7	Beryllium	9	116367	200.50	0.01120	100	200		
7440-62-2	Vanadium	51	2276200	199.90	2.1630	98.9	200		
7440-47-3	Chromium	52	2295910	201.70	0.63200	101	200		
7439-96-5	Manganese	55	2733570	198.30	0.52420	98.9	200		
7440-48-4	-	59	2753080	195.50	0.03897	97.7	200		
7440-02-0	Nickel	60	601491	195.10	0.41490	97.3	200		
7440-50-8	Copper	63	1409320	195.80	0.01674	97.9	200		
7440-66-6	• •	66	341573	201.20	0.30510	100	200		
7440-38-2	Arsenic	75	305470	221.60	19.810	102	200		
7782-49-2	Selenium	78	55960	205.80	0.49420	(103)	200		
7439-98-7	Molybdenum	95	760715	206.50	1.6440	102	200		
7440-22-4		107	525638	48.420	0.00863	96.8	50.0		
7440-43-9	Cadmium	111	447213	199.60	0.01334	99.8	200		
7440-31-5	Tin	118	1194630	182.90	-0.53380	91.4	200		
7440-36-0	Antimony	121	1511700	200.40	0.04828	100	200		
7440-39-3	Barium	137	634553	204.10	3.3070	100	200		
7440-28-0	Thallium	205	5056800	196.40	0.02695	98.2	200		
7439-92-1	Lead	208	6807220	194.00	0.01641	97.0	200		
7440-61-1	Uranium	238	7672550	208.90	5.5050	102	200		
7440-29-1	Thorium	232	2147	0.05994	0.62410				
7439-93-2	Lithium	6			0				
7440-20-2	Scandium	45			0				
7440-74-6	Indium	115			0				
7440-56-4	Germanium	72			0				
7440-60-0	Holmium	165			0				

Reviewed by: Date: 7/21/01

IDB Reports TestAmerica, Inc. Version: 6.02.068

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ISTD: Pass

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\034_MS.D\034_MS.D#

Jul 21 2009 06:52 pm Date Acquired: QC Summary: NormISIS.M Acq. Method: Analytes: Pass

TELOperator:

LGCN3S 10X Sample Name: MATRIX SPIKE Misc Info:

2301 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm
Sample Type: MS

Prep Dil. Factor: 10.00 Undiluted Autodil Factor: 10.00 Final Dil Factor:

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.28	0.01	ppb	3.84	40	10.7	50 - 150
51 V	72	1	6.27	2.16	ppb	1.52	40	14.9	50 - 150
52 Cr	72	1	4.83	0.63	ppb	4.02	40	11.9	50 - 150
55 Mn	72	1	4.67	0.52	ppb	0.82	40	11.5	50 - 150
59 Co	72	1	4.21	0.04	ppb	1.66	40	10.5	50 - 150
60 Ni	72	1	4.58	0.41	ppb	2.25	40	11.3	50 - 150
63 Cu	72	1	4.24	0.02	ppb	2.92	40	10.6	50 - 150
66 Zn	72	1	4.53	0.31	ppb	4.27	40	11.2	50 - 150
75 As	72	1	23.45	19.81	ppb	0.47	40	39.2	50 - 150
78 Se	72	1	4.43	0.49	ppb	4.58	40	10.9	50 - 150
95 Mo	72	1	6.07	1.64	ppb	2.05	40	14.6	50 - 150
107 Ag	115	1	4.06	0.01	ppb	2.34	40	10.2	50 - 150
111 Cd	115	1	4.28	0.01	ppb	1.30	40	10.7	50 - 150
118 Sn	115	1	-0.29	-0.53	ppb	8.52	40	-0.7	50 - 150
121 Sb	115	1	4.37	0.05	ppb	0.90	40	10.9	50 - 150
137 Ba	115	1	7.57	3.31	ppb	1.41	40	17.5	50 - 150
205 Tl	165	1	4.37	0.03	ppb	0.09	40	10.9	50 - 150
208 Pb	165	1	4.34	0.02	ppb	0.98	40	10.9	50 - 150
232 Th	165	1	4.70	0.62	ppb	2.44	40	11.6	50 - 150
238 U	165	1	10.08	5.51	ppb	0.80	40	22.2	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	556944	0.45	581797	95.7	30 - 120
45 Sc	1	2377843	1.11	2574983	92.3	30 - 120
72 Ge	1	1122514	1.35	1211627	92.6	30 - 120
115 In	1	3221254	0.75	3426576	94.0	30 - 120
165 но	1	5362470	0.23	5647086	95.0	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\035 CCV.D\035 CCV.D#

Date Acquired: Jul 21 2009 06:55 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Conc.

Last Cal Update: Jul 21 2009 05:31 pm

Tune

1

1

1

1

1

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

137 Ba

205 Tl

208 Pb

232 Th

238 U

115

165

165

165

165

Element IS Ref

									~	
9	Ве	6	1	49.42	ppb	1.97	50	98.8	90 - 110	
51	V	72	1	48.32	ppb	0.92	50	96.6	90 - 110	
52	Cr	72	1	48.98	ppb	0.92	50	98.0	90 - 110	
55	Mn	72	1	48.41	ppb	0.46	50	96.8	90 - 110	
59	Co	72	1	49.42	ppb	0.37	50	98.8	90 - 110	
60	Ni	72	1	49.85	ppb	0.52	50	99.7	90 - 110	
63	Cu	72	1	50.16	ppb	0.84	50	100.3	90 - 110	
66	Zn	72	1	49.95	ppb	0.90	50	99.9	90 - 110	
75	As	72	1	50.23	ppb	0.25	50	100.5	90 - 110	
78	Se	72	1	50.22	ppb	2.05	50	100.4	90 - 110	
95	Мо	72	1	50.05	ppb	0.52	50	100.1	90 - 110	
107	Ag	115	1	49.31	ppb	0.59	50	98.6	90 - 110	
111	Cd	115	1	49.60	ppb	0.17	50	99.2	90 - 110	
118	Sn	115	1	49.20	ppb	0.37	50	98.4	90 - 110	
121	Sb	115	1	49.37	ppb	0.88	50	98.7	90 - 110	

0.50

1.38

0.82

3.26

1.69

50

50

50

50

50

49.60 ppb

50.85 ppb

50.56 ppb

52.19 ppb

51.93 ppb

RSD(%) Expected

Rec(%)

99.2

101.7

101.1

104.4

103.9

OC Range(%)

90 - 110

90 - 110

90 - 110

90 - 110

90 - 110

Flag

ISTD	Elements							
Elem	ent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	540158	0.94	581797	92.8	30 - 120	
45	Sc	1	2438139	1.30	2574983	94.7	30 - 120	
72	Ge	1	1153755	0.36	1211627	95.2	30 - 120	
115	In	1	3309113	0.86	3426576	96.6	30 - 120	
165	Но	1	5464053	0.74	5647086	96.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\036 CCB.D\036 CCB.D#

Date Acquired: Jul 21 2009 06:58 pm

QC Summary: Operator: TELAnalytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Current medical
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC E	Lemen	ts
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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	-0.003	ppb	487.71	1.00	
52 Cr	72	1	-0.001	ppb	1245.80	1.00	
55 Mn	72	1	-0.013	ppb	48.53	1.00	
59 Co	72	1	0.000	ppb	382.88	1.00	
60 Ni	72	1	-0.006	ppb	152.58	1.00	
63 Cu	72	1	-0.033	ppb	14.97	1.00	
66 Zn	72	1	0.013	ppb	162.14	1.00	
75 As	72	1	-0.001	ppb	1279.80	1.00	
78 Se	72	1	0.044	ppb	96.85	1.00	
95 Mo	72	1	0.048	ppb	21.21	1.00	
107 Ag	115	1	0.007	ppb	13.19	1.00	
111 Cd	115	1	0.004	ppb	36.72	1.00	
118 Sn	115	1	-0.066	ppb	28.84	1.00	
121 Sb	115	1	0.060	ppb	6.65	1.00	
137 Ba	115	1	0.010	ppb	78.17	1.00	
205 Tl	165	1	0.019	ppb	11.00	1.00	
208 Pb	165	1	0.004	ppb	45.34	1.00	
232 Th	165	1	0.795	ppb	15.81	1.00	
238 U	165	1	0.011	ppb	4.95	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	552374	0.81	581797	94.9	30 - 120	
45 Sc	1	2446795	1.11	2574983	95.0	30 - 120	
72 Ge	1	1178029	1.15	1211627	97.2	30 - 120	
115 In	1	3329395	0.66	3426576	97.2	/ 30 - 120	
165 Ho	1	5475567	0.43	5647086	97.0 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\		
Tune File#	3	C:\ICPCHEM\	1\7500\		•		

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Wash QC Report

Data File:

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Date Acquired:

Jul 21 2009 07:01 pm

Operator:

TEL

QC Summary:

Sample Name:

RLCV

Analytes: Pass

Misc Info:

ISTD: Pass

Vial Number:

1204

Current Method:

C:\ICPCHEM\1\METHODS\NormISIS.M

Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type:

WASH

Total Dil Factor:

1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.001 ppb	9.18	1.30	
51 V	72	1	5.141 ppb	2.55	6.50	
52 Cr	72	1	2.091 ppb	2.49	2.60	
55 Mn	72	1	1.005 ppb	1.26	1.30	
59 Co	72	1	1.028 ppb	5.10	1.30	
60 Ni	72	1	2.103 ppb	0.94	2.60	
63 Cu	72	1	2.128 ppb	2.55	2.60	
66 Zn	72	1	10.560 ppb	2.59	13.00	
75 As	72	1	5.192 ppb	0.09	6.50	
78 Se	72	1	6.309 ppb	1.74	6.50	
95 Mo	72	1	2.070 ppb	2.44	2.60	
107 Ag	115	1	5.185 ppb	1.03	6.50	
111 Cd	115	1	1.087 ppb	10.27	1.30	
118 Sn	115	1	9.916 ppb	0.55	13.00	
121 Sb	115	1	1.957 ppb	2.80	2.60	
137 Ba	115	1	1.051 ppb	2.71	1.30	
205 Tl	165	1	1.091 ppb	2.87	1.30	
208 Pb	165	1	1.075 ppb	0.84	1.30	
232 Th	165	1	2.350 ppb	2.29	2.60	
238 U	165	1	1.116 ppb	0.75	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	550628	0.54	581797	94.6	30 - 120	
45 Sc	1	2456537	0.83	2574983	95.4	30 - 120	
72 Ge	1	1156394	1.08	1211627	95.4	30 - 120	
115 In	1	3321593	0.50	3426576	96.9	30 - 120	
165 Ho	1	5496023	1.28	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :ISTD Failures

0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\038 MSD.D\038 MSD.D#

Date Acquired: Jul 21 2009 07:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3D 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\034 MS.D\034 MS.D\#

QC Elements

Eleme	ent IS Re	f Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 B	e 6	1	4.06	ppb	5.70	4.28	5.18	20	
51 V	72	1	6.38	ppb	1.64	6.27	1.79	20	
52 C	r 72	1	4.79	ppb	0.59	4.83	0.85	20	
55 M	n 72	1	4.66	ppb	1.04	4.67	0.34	20	
59 C	o 72	1	4.26	ppb	3.02	4.21	1.11	20	
60 N	i 72	1	4.59	ppb	3.03	4.58	0.15	20	
63 C	u 72	1	4.29	ppb	0.78	4.24	1.17	20	
66 Z	n 72	1	4.59	ppb	2.90	4.53	1.23	20	
75 A	s 72	1	23.78	ppb	1.59	23.45	1.40	20	
78 S	e 72	1	4.84	ppb	10.22	4.43	8.78	20	
95 M	io 72	1	5.96	ppb	2.88	6.07	1,73	20	
107 A	.g 115	1	4.19	ppb	3,60	4.06	2.98	20	
111 C	d 115	1	4.27	ppb	1.75	4.28	0.12	20	
118 S	n 115	1	-0.49	ppb	0.60	-0.29	-50.16	20	
121 S	b 115	1	4.30	ppb	1.48	4.37	1.66	20	
137 в	a 115	1	7.66	ppb	3.26	7.57	1.09	20	
205 T	1 165	1	4.33	ppb	1.08	4.37	0.87	20	
208 P	b 165	1	4.32	ppb	0.78	4.34	0.44	20	
232 T	h 165	1	4.77	ppb	2.43	4.70	1.33	20	
238 U	165	1	9.96	ppb	0.82	10.08	1.22	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	546064	0.27	581797	93.9	30 - 120	
45 Sc	1	2359431	0.90	2574983	91.6	30 - 120	
72 Ge	1	1104590	0.97	1211627	91.2	30 - 120	
115 In	1	3149159	0.41	3426576	91.9	30 - 120	
165 Ho	1	5369723	0.97	5647086	95.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\039SMPL.D\039SMPL.D#

Date Acquired: Jul 21 2009 07:06 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGCQK 10X ISTD: Pass

Misc Info: D9G100274
Vial Number: 2303

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	23.68	2.37	ppb	1.85	3600	
52 Cr	72	1	12.40	1.24	ppb	2.95	3600	
55 Mn	72	1	2.12	0.21	ppb	8.12	3600	
59 Co	72	1	0.30	0.03	ppb	7.53	3600	
60 Ni	72	1	3.33	0.33	ppb	5.22	3600	
63 Cu	72	1	-0.20	-0.02	ppb	5.61	3600	
66 Zn	72	1	2.60	0.26	ppb	8.14	3600	
75 As	72	1	114.20	11.42	ppb	1.08	3600	
78 Se	72	1	2.84	0.28	ppb	68.00	3600	
95 Mo	72	1	42.30	4.23	ppb	2.35	3600	
107 Ag	115	1	0.07	0.01	ppb	37.85	3600	
111 Cd	115	1	0.07	0.01	ppb	133.86	3600	
118 Sn	115	1	-5.30	-0.53	ppb	2.37	3600	
121 Sb	115	1	0.28	0.03	ppb	5.21	3600	
137 Ва	115	1	34.03	3.40	ppb	4.11	3600	
205 Tl	165	1	0.11	0.01	ppb	30.92	3600	
208 Pb	165	1	0.09	0.01	ppb	19.12	3600	
232 Th	165	1	1.32	0.13	ppb	13.37	1000	
238 U	165	1	6.45	0.64	ppb	0.89	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551022	0.60	581797	94.7	30 - 120	
45 Sc	1	2336691	0.75	2574983	90.7	30 - 120	
72 Ge	1	1100169	0.92	1211627	90.8	30 - 120	
115 In	1	3126709	0.78	3426576	91.2	30 - 120	
165 Ho	1	5251243	0.64	5647086	93.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\040SMPL.D\040SMPL.D#

Date Acquired: Jul 21 2009 07:09 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJV 10X ISTD: Pass

Misc Info: D9G110152
Vial Number: 2304

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.12	0.01	ppb	86.63	3600	
51 V	72	1	16.34	1.63	ppb	14.05	3600	
52 Cr	72	1	858.20	85.82	ppb	0.42	3600	
55 Mn	72	1	62.25	6.23	ppb	0.82	3600	
59 Co	72	1	0.35	0.04	ppb	4.83	3600	
60 Ni	72	1	3.24	0.32	ppb	5.41	3600	
63 Cu	72	1	-0.11	-0.01	ppb	134.88	3600	
66 Zn	72	1	0.97	0.10	ppb	20.21	3600	
75 As	72	1	137.30	13.73	ppb	1.37	3600	
78 Se	72	1	1.53	0.15	ppb	126.27	3600	
95 Mo	72	1	23.17	2.32	ppb	1.07	3600	
107 Ag	115	1	0.03	0.00	ppb	74.34	3600	
111 Cd	115	1	0.05	0.00	ppb	97.57	3600	
118 Sn	115	1	-5.16	-0.52	ppb	3.23	3600	
121 Sb	115	1	0.22	0.02	ppb	2.16	3600	
137 Ba	115	1	20.27	2.03	ppb	4.70	3600	
205 Tl	165	1	0.11	0.01	ppb	13.97	3600	
208 Pb	165	1	0.08	0.01	ppb	23.24	3600	
232 Th	165	1	0.36	0.04	ppb	9.36	1000	
238 U	165	1	7.67	0.77	ppb	2.40	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	549478	0.91	581797	94.4	30 - 120	
45 Sc	1	2376723	1.71	2574983	92.3	30 - 120	
72 Ge	1	1096432	0.47	1211627	90.5	30 - 120	
115 In	1	3124200	0.99	3426576	91.2	30 - 120	
165 Ho	1	5324718	1.58	5647086	94.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG072109.B\041SMPL.D\041SMPL.D#

Date Acquired: Jul 21 2009 07:11 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJ3 10X ISTD: Pass

Misc Info: D9G110155

Vial Number: 2305

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.06	0.01	ppb	173.23	3600	
51 V	72	1	25.99	2.60	ppb	1.41	3600	
52 Cr	72	1	90.81	9.08	ppb	1.84	3600	
55 Mn	72	1	2.28	0.23	ppb	3.91	3600	
59 Co	72	1	0.28	0.03	ppb	8.82	3600	
60 Ni	72	1	3.42	0.34	ppb	10.30	3600	
63 Cu	72	1	-0.03	0.00	ppb	414.27	3600	
66 Zn	72	1	9.09	0.91	ppb	0.15	3600	
75 As	72	1	86.50	8.65	ppb	2.13	3600	
78 Se	72	1	1.59	0.16	ppb	168.68	3600	
95 Mo	72	1	35.52	3.55	ppb	3.38	3600	
107 Ag	115	1	0.02	0.00	ppb	63.47	3600	
111 Cd	115	1	0.11	0.01	ppb	91.74	3600	
118 Sn	115	1	-5.25	-0.52	ppb	1.50	3600	
121 Sb	115	1	0.16	0.02	ppb	27.09	3600	
137 Ba	115	1	26.05	2.61	ppb	2.24	3600	
205 Tl	165	1	0.06	0.01	ppb	15.71	3600	
208 Pb	165	1	0.10	0.01	ppb	12.74	3600	
232 Th	165	1	0.18	0.02	ppb	32.01	1000	
238 U	165	1	8.01	0.80	ppb	0.86	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	558798	0.28	581797	96.0	30 - 120	
45 Sc	1	2360484	0.64	2574983	91.7	30 - 120	
72 Ge	1	1106065	0.59	1211627	91.3	30 - 120	
115 In	1	3160658	0.73	3426576	92.2	30 - 120	
165 Ho	1	5332925	0.28	5647086	94.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG072109.B\042SMPL.D\042SMPL.D#

Date Acquired: Jul 21 2009 07:14 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDKR 10X ISTD: Pass

Misc Info: D9G110159

Vial Number: 2306

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	30.44	3.04	ppb	4.27	3600	
52 Cr	72	1	17.70	1.77	ppb	1.53	3600	
55 Mn	72	1	3.41	0.34	ppb	1.05	3600	
59 Co	72	1	0.10	0.01	ppb	35.67	3600	
60 Ni	72	1	2.63	0.26	ppb	23.26	3600	
63 Cu	72	1	-0.14	-0.01	ppb	158.27	3600	
66 Zn	72	1	1.23	0.12	ppb	9.20	3600	
75 As	72	1	57.13	5.71	ppb	1.32	3600	
78 Se	72	1	2.47	0.25	ppb	139.38	3600	
95 Mo	72	1	7.30	0.73	ppb	2.20	3600	
107 Ag	115	1	0.01	0.00	ppb	150.52	3600	
111 Cd	115	1	0.05	0.00	ppb	86.56	3600	
118 Sn	115	1	-5.31	-0.53	ppb	1.46	3600	
121 Sb	115	1	0.12	0.01	ppb	36.48	3600	
137 Ba	115	1 .	22.02	2.20	ppb	2.09	3600	
205 Tl	165	1	0.03	0.00	ppb	69.45	3600	
208 Pb	165	1	0.07	0.01	ppb	7.65	3600	
232 Th	165	1	0.10	0.01	ppb	23.71	1000	
238 U	165	1	2.22	0.22	ppb	2.65	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	564989	0.50	581797	97.1	30 - 120	
45 Sc	1	2392180	0.44	2574983	92.9	30 - 120	
72 Ge	1	1130770	0.41	1211627	93.3	30 - 120	
115 In	1	3228355	1.24	3426576	94.2	30 - 120	
165 Ho	1	5420266	0.22	5647086	96.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\043 CCV.D\043 CCV.D#

Date Acquired: Jul 21 2009 07:17 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

- T	ement	IS Ref	Tuno	Cong		DCD/&\	Evported	Dog/%\	OC Banga (%)	Flac
			Tune	Conc.		RSD(%)	•	Rec(%)	-	Flag
9		6	1	49.65	ppb	2.08	50	99.3	90 - 110	
51		72	1	48.04	ppb	1.47	50	96.1	90 - 110	
52	2 Cr	72	1	48.72	ppb	2.23	50	97.4	90 - 110	
55	. Mn	72	1	48.53	ppb	1.91	50	97.1	90 - 110	
59	Co	72	1	49.19	ppb	1.05	50	98.4	90 - 110	
60) Ni	72	1	50.51	ppb	2.15	50	101.0	90 - 110	
63	3 Cu	72	1	50.79	ppb	1.69	50	101.6	90 - 110	
66	5 Zn	72	1	49.91	ppb	2.28	50	99.8	90 - 110	
75	. As	72	1	50.09	ppb	1.74	50	100.2	90 - 110	
78	Se Se	72	1	50.55	ppb	0.24	50	101.1	90 - 110	
95	Mo Mo	72	1	50.44	ppb	2.04	50	100.9	90 - 110	
10)7 Ag	115	1	49.47	ppb	1.12	50	98.9	90 - 110	
1.	1 Cd	115	1	49.64	ppb	0.86	50	99.3	90 - 110	
1.	8 Sn	115	1	49.52	ppb	0.62	50	99.0	90 - 110	
12	21 Sb	115	1	49.46	ppb	1.50	50	98.9	90 - 110	
13	37 Ba	115	1	49.75	ppb	0.64	50	99.5	90 - 110	
20)5 Tl	165	1	52.25	ppb	1.18	50	104.5	90 - 110	
20)8 Pb	165	1	51.38	ppb	1.02	50	102.8	90 - 110	
23	32 Th	165	1	53.11	ppb	2.44	50	106.2	90 - 110	
23	38 U	165	1		ppb	0.71	50	106.0	90 - 110	
I	STD Ele	ments								
E.	Lement		Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
_	T 2		1	E2C074		0 53	E01707	ດລຸລ	20 120	

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	536974	0.53	581797	92.3	30 - 120	
45 Sc	1	2404825	0.90	2574983	93.4	30 - 120	
72 Ge	1	1144216	1.59	1211627	94.4	30 - 120	
115 In	1	3295604	0.45	3426576	96.2	30 - 120	
165 Ho	1	5413800	0.49	5647086	95.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\044 CCB.D\044 CCB.D#

Date Acquired: Jul 21 2009 07:20 pm

Operator: TEL QC Summary:
Sample Name: CCB Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB
Total Dil Factor: 1.00

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\sim		emen	

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	0.012	ppb	188.91	1.00	
52 Cr	72	1	-0.022	ppb	45.87	1.00	
55 Mn	72	1	-0.011	ppb	53.82	1.00	
59 Co	72	1	0.002	ppb	121.88	1.00	
60 Ni	72	1	0.007	ppb	120.83	1.00	
63 Cu	72	1	-0.039	ppb	12.93	1.00	
66 Zn	72	1	0.001	ppb	1830.70	1.00	
75 As	72	1	-0.015	ppb	100.54	1.00	
78 Se	72	1	0.063	ppb	454.20	1.00	
95 Mo	72	1	0.016	ppb	20.60	1.00	
107 Ag	115	1	0.010	ppb	21.43	1.00	
111 Cd	115	1	0.005	ppb	76.54	1.00	
118 Sn	115	1	-0.106	ppb	36.09	1.00	
121 Sb	115	1	0.051	ppb	15.99	1.00	
137 Ba	115	1	0.010	ppb	31.85	1.00	
205 Tl	165	1	0.020	ppb	11.21	1.00	
208 Pb	165	1	0.003	ppb	16.50	1.00	
232 Th	165	1	0.824	ppb	16.14	1.00	
238 U	165	1	0.009	ppb	11.26	1.00	

ISTD Elements

ISID Flements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540872	0.73	581797	93.0	30 - 120	
45 Sc	1	2418946	1.22	2574983	93.9	30 - 120	
72 Ge	1	1139717	0.72	1211627	94.1	30 - 120	
115 In	1	3281751	0.37	3426576	95.8	30 - 120	
165 Ho	1	5438318	1.15	5647086	96.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\checkmark		

Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\045WASH.D\045WASH.D#

Date Acquired: Jul 21 2009 07:22 pm

Operator: TEL QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

\sim	10.1	emen	
UL	E L	emen	LLS

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.045 ppb	12.08	1.30	
51 V	72	1	5.035 ppb	1.01	6,50	
52 Cr	72	1	2.023 ppb	2.27	2.60	
55 Mn	72	1	1.007 ppb	2.81	1.30	
59 Co	72	1	1.000 ppb	4.78	1.30	
60 Ni	72	1	2.095 ppb	4.44	2.60	
63 Cu	72	1	2.025 ppb	2.63	2.60	
66 Zn	72	1	10.370 ppb	2.29	13.00	
75 As	72	1	5.157 ppb	1.05	6.50	
78 Se	72	1	4.848 ppb	12.40	6.50	
95 Mo	72	1	2.162 ppb	0.74	2.60	
107 Ag	115	1	5.141 ppb	1.03	6.50	
111 Cd	115	- 1	1.004 ppb	4.06	1.30	
118 Sn	115	1	9.907 ppb	0.76	13.00	
121 Sb	115	1	1.942 ppb	1.51	2.60	
137 Ba	115	1	1.047 ppb	5.14	1.30	
205 Tl	165	1	1.098 ppb	0.61	1.30	
208 Pb	165	1	1.094 ppb	0.45	1.30	
232 Th	165	1	2.411 ppb	1.64	2.60	
238 U	165	1	1.121 ppb	1.49	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	539872	0.98	581797	92.8	30 - 120	
45 Sc	1	2370772	1.41	2574983	92.1	30 - 120	
72 Ge	1	1136181	1.05	1211627	93.8	30 - 120	
115 In	1	3268605	0.72	3426576	95.4	30 - 120	
165 Ho	1	5404596	1.26	5647086	95.7	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Metals

Supporting Documentation

Sample Sequence, Instrument Printouts

TestAmerica THE LEADER IN ENVIRONMENTAL TESTING

Lot ID:	967110159
Client: Northge	te Environmental
Batch(es) #:	9194272
Associated Samples:	
represents a complete and a	ny knowledge, the attached package accurate copy of the original data.
Signature/Date:	· // /

Metals Raw Data RoadMap

LotID		Metal	WorkOrder	Anal Dat	e TestDesc	Batch	File Id	Instr
D9G110159	1	SE	LGDKR1A	20090721	6020TOTA	9194272	AG072109	024
D9G110159	1	AS	LGDKR1AA	20090721	6020TOTA	9194272	AG072109	024

Wednesday, July 22, 2009

Page 1 of 1

METALS PREPARATION LOGS ICP-MS



THE LEADER IN ENVIRONMENTAL TESTING

Batch Number: 9194272

TestAmerica Laboratories, Inc. Metals Prep Log/ Batch Summary

Prepared By:	
JRW	

Prep Date: Due Date: 37/13/09 Sy

Lot	Work Order			. /	Initial Weight/Volume
D9G130000 Water	LGEER	В	Due Date: SDG:		<u>50 mL</u>
D9G130000 Water	LGEER	C	Due Date: SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total	S	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100272 Water	LGCN3 Total	D	Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G100274 Water	LGCQK Total		Due Date: 07/22/09 SDG:		<u>50 mL</u>
D9G110152 Water	LGDJV Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G110155 Water	LGDJ3 Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>
D9G110159 Water	LGDKR Total		Due Date: 07/23/09 SDG:		<u>50 mL</u>

Comments:

B-BLANK; C-CHECK SAMPLE; L-CHECK SAMPLE DUPLICATE; P-SERIAL DILUTION; S-MATRIX SPIKE SAMPLE; D-MATRIX SPIKE DUPLICATE SAMPLE

ICPMS ELEMENTS WITHIN THE BATCH:

AS SE

J 2/2/109

METALS PREP SHEET

SOP: DEN-IP-0014



TOTAL WATER DIGESTION FOR ICPMS (Prep code MS)

BATCH#	JKH			
PREP DATE:	7/14/2009	DIGES	TED BY:	JRW
CONSUMABLES	USED			
Digestion Cups:	Manufacturer:	Environmental Express	Lot #:	A901LS267
One or more samples	were filtered prior to ar	nalysis at the instrume	nt. Yes	☐ No
If "yes", then the metho	od blank and the LCS were	e also filtered in the sam	e manner using the sam	ne type of filter.
			Analyst(s) Initials:	
STANDARDS USE	-n			
Standard ID	Verification #	Exp. Date	Spike Amount	Pipette ID
2008Cal-1	STD-2636-09	7/1/10	100uL	15
2008Cal-2	STD-2635-09	7/1/10	100uL	15
				orania. Parasalah majarakan jarah Karabara
REAGENTS USEL)			
Reagent	Manufacturer	Lot#	Volume Used (mL)	
HNO ₃	JT Baker	H12022	3	
TEMPERATURE C	CYCLES			
Thermometer ID:	2884	Block 8	k Cup # :	
Cycle	Start Time	Temperature (°C)	End Time	Temperature (°C)
HNO3	1200	43	1615	42
HNO3	1630	42	1700/	
HNO3				
Samples and QC re	volumed to:	50mL	Analyst's Initials	JUM
COMMENTS:				
I certify that all inform	nation above is correct a	and complete.		
Signature: $\sqrt{\sqrt{\omega}}$	l		Date: 7/14/	24

METALS SAMPLE DATA ICP-MS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

G:\Metals\Hidden\Forms\MassSpec\ICP-MS Std and Spike True Values.doc

ICP-MS Standard and Spike True Values

Post Digestion Spike	200 200	200	200	200	200	200	200	200	200	200	200	200	200	20	200	200	200	200	200	
Matrix Spike Sample and Duplicate	40 40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ry for the ICSAB.
Laboratory Control Sample and Duplicate	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	ution, the % recove the ICSA from the
Interference Check Sample AB	100	100	100	100	100	100	100	100	100	1	100	100	100	100	100	100	100	100	100	in the ICSA soling the levels in
Interference Check Sample A	100,000 Aluminum	100,000 Iron	100,000 Magnesium	100,000 Sodium	100,000 Phosphorus	100,000 Potassium	100,000 Sulfur	200,000 Carbon	1,000,000 Chloride	2000 Molybdenum	2000 Titanium									Due to the presence of trace contaminants in the ICSA solution, the % recovery for the ICSAB solution is calculated by subtracting the levels in the ICSA from the ICSAB.
Continuing Calibration Standard	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	e to the presence SAB solution is
Initial Calibration Standard	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	
Cal. Std. 100 ppb	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	All units are ug/L.
Element	Aluminum	Anumony Arsenic	Barium	Beryllium	Cadmium	Chromium	Cohalt	Conner	Lead	Manganese	Molvbdenum	Nickel	Selenium	Silver	Thallium	Tin	Uranium	Vanadium	Zinc	

Quality Control Standards

CCB = Continuing Calibration Blank ICB = Initial Calibration Blank ICV = Initial Calibration Verification (Second Source) CCV = Continuing Calibration Verification

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TestAmerica Denver

Standards Preparation Logbook Record

Jul-21-2009

Logbook: \Densvr06\StdsLog\metals.std Analyst: trudelll STD4841-08, 1000 Zn (Inorganic Ventures) Lot No.: B2-ZN02045 Vendor's Expiration Date: 10-01-2009 Vendor: Inorganic Ventures Solvent: 2% HNO3 Date Prep./Opened: 09-04-2008 Date Received: 09-04-2008 Date Expires(1): 10-01-2009 (None) Date Expires(2): 10-01-2009 (None) (METALS)-Inventory ID: 779 Final Conc (mg/L) Initial Conc (mg/L) Component 1,000.0 1,000.0 1000 Zn Analyst: trudelll STD6653-08, 1000 Se Vendor's Expiration Date: 12-01-2009 Vendor: Inorganic Ventures Lot No.: B2-SE02003 Solvent: 2% HNO3 Date Prep./Opened: 11-25-2008 Date Received: 11-25-2008 Date Expires(1): 12-01-2009 (None) (None) Date Expires(2): 12-01-2009 (METALS)-Inventory ID: 803 Initial Conc (mg/L) Component 1,000.0 1,000.0 Se STD1198-09, 1000 mg/L Sn Analyst: trudelll Lot No.: B2-SN02016 Vendor's Expiration Date: 03-01-2010 Vendor: Inorganic Ventures Solvent: 1% HNO3 Date Received: 03-02-2009 Date Prep./Opened: 03-02-2009 Date Expires(1): 03-01-2010 (None) Date Expires(2): 03-01-2010 (None) (METALS)-Inventory ID: 833 Final Conc (mg/L) Initial Conc (mg/L) Component 1,000.0 1,000.0 Sn Analyst: DIAZL STD1853-09, 1 mg/l Se Lot No.: /H02026 Volume (ml): 100.00 Solvent: 5% HN03 Date Prep./Opened: 04-01-2009 Date Expires(1): 12-01-2009 (1 Year) pipette: Met 21

Page 1 of 11

Parent Std No.: STD6653-08, 1000 Se		t Amount (ml): 0.1000
Parent Date Expires(1): 12-01-2009 Parent Date Expires(2): Component	12-01-2009 <u>Initial Conc (mg/L)</u> 1,000.0	Final Conc (mg/L)
Se	1,000.0	1.0000
STD3611-09, ICP-MS 1ppm Sn/Zn		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 06-16-2009 Date Expires(1): 10-01-2009 (1 Year)		
Parent Std No.: STD3609-09, ICP-MS 10 ppm Zn	Alique	ot Amount (ml): 1.0000
Parent Std No.: \$1D3009-09, 1C1-1M3 To ppin 2nd Parent Date Expires(1): 10-01-2009 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (mg/L) 1.0000
1000 Zn	10.000	ot Amount (ml): 1.0000
Parent Std No.: STD3610-09, ICP-MS 10 ppm Sn		ot Amount (mi). 1.0000
Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	10.000	1.0000
		Analyst: LILLT
STD4008-09, ICP-MS (024) INT STD BRC-HIGH Solvent: 5% HNO3 Lot No.: H12022		Volume (ml): 250.00
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-02-2009 Date Expires(1): 11-10-2009 (1 Year) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 20		
Parent Std No.: STD1469-09, Germanium Stock	_	ot Amount (ml): 1.2000
Parent Date Expires(1): 03-16-2010 Parent Date Expires(2)): 04-01-2010	Final Conc (ug/L)
Component	Initial Conc (mg/L) 1,000.0	4,800.0
Ge	•	uot Amount (ml): 1.5000
Parent Std No.: STD1972-09, Lithium 6 Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2)		
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Lithium6	1,000.0	6,000.0
Parent Std No.: STD1973-09, Indium Stock Parent Date Expires(1): 04-07-2010 Parent Date Expires(2)	-	uot Amount (ml): 0.4000 Final Conc (ug/L)
Component	1,000.0	
In Registration of the State o		uot Amount (ml): 0.4000
Parent Std No.: STD6317-08, Scandium Stock Parent Date Expires(1): 11-10-2009 Parent Date Expires(2)	2): 12-01-2009	
Component	Initial Conc (mg/L)	
Sc	1,000.0	1,000.0

Page 2 of 11

Parent Date Expires(1): 11-10-2009 Parent Date Expires(2)		P' 10 (7)
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Но	1,000.0	1,600.0
TD4289-09, ICP-MS ICSA		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-20-2009 Date Expires(1): 08-20-2009 (1 Month) Date Expires(2): 02-01-2010 (None) pipettes: Met 8		Volume (ml): 50.000
Parent Std No.: STD0664-09, ICPMS Interferent Check Stand Parent Date Expires(1): 02-01-2010 Parent Date Expires(2)	•	not Amount (ml): 5.0000
Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000
Cl	10,000	1,000,000
Fe	1,000.0	100,000
K	1,000.0	100,000
Mg	1,000.0	100,000
Mo	20.000	2,000.0
Na	1,000.0	100,000
P	1,000.0	100,000
S Ti	1,000.0 20.000	100,000 2,000.0
TD4309-09, ICP-MS BLANK		Analyst: DIAZL
Solvent: Water Date Prep./Opened: 07-21-2009 Date Expires(1): 08-21-2009 (1 Month) Date Verified: 12-314714 by - (Verification ID: 0)		Volume (ml): 1,000.0
Parent Std No.: STD4308-09, NITRIC ACID	Aliqi	ot Amount (ml): 50.000

Page 3 of 11

Component HNO3 Final Conc (%)

5.0000

Initial Conc (%) 100.00 STD4310-09, ICP-MS 10 ppm Sn

Solvent: 5% HNO3 Lot No.: H12022

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 03-01-2010 (None)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21 and Met 8

Parent Std No.: STD1198-09, 1000 mg/L Sn Aliquot Amount (ml): 0.1000

Analyst: DIAZL

Volume (ml): 10.000

Analyst: DIAZL

Parent Date Expires(1): 03-01-2010 Parent Date Expires(2): 03-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (mg/L)}} \\ \underline{\text{Sn}} & \underline{1,000.0} & \underline{10.000} \end{array}$

STD4311-09, ICP-MS 100 ppb cal

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 50.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 20

Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inorganic Ventures Aliquot Amount (ml): 0.2500

Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): 05-01-2010

Component	Initial Conc (mg/L)	Final Conc (ug/L)
V	20.000	100.00
Zn	20.000	100.00
Ag	20.000	100.00
Al	20.000	100.00
As	20.000	100.00
Ba	20.000	100.00
Be	20.000	100.00
Cd	20.000	100.00
Co	20.000	100.00
Cr	20.000	100.00
Cu	20.000	100.00
Mn	20.000	100.00
Ni	20.000	100.00
Pb	20.000	100.00
Se	20.000	100.00
Th	20.000	100.00
TI	20.000	100.00
U	20.000	100.00

Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inorganic Ventures Aliquot Amount (ml): 0.2500 Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): 07-01-2010

 $\begin{array}{c|c} \underline{\text{Component}} & \underline{\text{Initial Conc (mg/L)}} & \underline{\text{Final Conc (ug/L)}} \\ \underline{\text{Mo}} & \underline{20.000} & \underline{100.00} \end{array}$

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Sb	20.000	100.00
Parent Std No.: STD3862-09, Iron Stock	Aliquo	t Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Fe	1,000.0	5,000.0
Depart Std No. STD4210 00 ICD MS 10 nnm Sn	Alique	t Amount (ml): 0.5000
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	pires(2): 03-01-2010	t Amount (mr). 0.3000
	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
Sn	10.000	100.00
ГD4312-09, ICP-MS CCV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H1202	22	Volume (ml): 100.00
Date Prep./Opened: 07-21-2009		, ,
Date Expires(1): 07-22-2009 (1 Day)		
Date Verified: 12-314714 by - (Verification ID: 0)		
pipettes: Met 20		
Parent Std No.: STD2637-09, ICPMS 2008CAL-2 Inc	arganic Ventures Alique	ot Amount (ml): 0.2500
	pires(2): 05-01-2010	it Amount (mr). 0.2500
1 \ \ /	Initial Conc (mg/L)	Final Conc (ug/L)
Component		
V -	20.000	50.000
Zn	20.000	50.000
Ag	20.000	50.000
Al	20.000	50.000
As	20.000	50.000
Ba	20.000	50.000
Be	20.000	50.000
Cd	20.000	50.000
Co	20.000	50.000
Cr	20.000	50.000
Cu	20.000	50.000 50.000
Mn Ni	20.000 20.000	50.000
Pb	20.000	50.000
Se	20.000	50.000
Th	20.000	50.000
Tl	20.000	50.000
U	20.000	50.000
Parent Std No.: STD3773-09, ICPMS 2008CAL-1 Inc		ot Amount (ml): 0.2500
• • • • • • • • • • • • • • • • • • • •	oires(2): 07-01-2010	
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	20.000	50.000
Sb	20.000	50.000
Parent Std No.: STD3862-09, Iron Stock	Aliquo	ot Amount (ml): 0.2500
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Component	minai Colic (liig/L)	mai Conc (ug/L)

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Fe	1,000.0	2,500.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	Alique	ot Amount (ml): 0.5000
Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	, ,
Component	Initial Conc (mg/L)	Final Conc (ug/L)
Sn	10.000	50.000
STD4313-09, ICP-MS RL STD		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 10.000
Parent Std No.: STD3611-09, ICP-MS 1ppm Sn/Zn	Aliqu	ot Amount (ml): 0.0900
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	1.0000	0.0090
1000 Zn	1.0000	0.0090
Parent Std No.: STD4311-09, ICP-MS 100 ppb cal Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	•	ot Amount (ml): 0.1000
Component	Initial Conc (ug/L)	Final Conc (mg/L)
V	100.00	0.0010
Zn	100.00	0.0010
Ag	100.00	0.0010
Al	100.00	0.0010
As	100.00	0.0010
Ba	100.00	0.0010
Be	100.00	0.0010
Cd	100.00	0.0010
Co	100.00	0.0010
Cr	100.00	0.0010
Cu	100.00	0.0010
Mn	100.00	0.0010
Ni	100.00	0.0010
Pb	100.00	0.0010
Se	100.00	0.0010
Th	100.00	0.0010
Tl	100.00	0.0010
U	100.00	0.0010
Mo	100.00	0.0010
Sb	100.00	0.0010
Fe	5,000.0	0.0500
Sn	100.00	0.0010

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STD4314-09, ICP-MS AFCEE RL STD

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Analyst: DIAZL

Analyst: DIAZL

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (2 Days)

pipettes: Met 20 and Met 8

Parent Std No.: STD4313-09, ICP-MS RL STD Aliquot Amount (ml): 2.0000

Component	Initial Conc (mg/L)	Final Conc (mg/L)
Sn	0.0090	0.0018
1000 Zn	0.0090	0.0018
V	0.0010	0.0002
Zn	0.0010	0.0002
Ag	0.0010	0.0002
Al	0.0010	0.0002
As	0.0010	0.0002
Ba	0.0010	0.0002
Be	0.0010	0.0002
Cd	0.0010	0.0002
Co	0.0010	0.0002
Cr	0.0010	0.0002
Cu	0.0010	0.0002
Mn	0.0010	0.0002
Ni	0.0010	0.0002
Pb	0.0010	0.0002
Se	0.0010	0.0002
Th	0.0010	0.0002
Ti	0.0010	0.0002
U	0.0010	0.0002
Mo	0.0010	0.0002
Sb	0.0010	0.0002
Fe	0.0500	0.0100
Sn	0.0010	0.0002

STD4315-09, ICP-MS ICSAB

Solvent: 5% HNO3 Lot No.: H12022 Volume (ml): 10.000

Date Prep./Opened: 07-21-2009

Date Expires(1): 07-22-2009 (1 Day)

Date Verified: 12-31--4714 by - (Verification ID: 0)

pipettes: Met 21, Met 20, and Met 8

Parent Std No.: STD1978-09, ICPMS Interferent Check Standard Aliquot Amount (ml): 1.0000

Parent Date Expires(1): 04-01-2010 Parent Date Expires(2): 04-01-2010

Component	Initial Conc (ug/ml)	Final Conc (ug/L)
Al	1,000.0	100,000
C	2,000.0	200,000
Ca	1,000.0	100,000

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Cl		10,000	1,000,000
Fe		1,000.0	100,000
K		1,000.0	100,000
Mg		1,000.0	100,000
Mo		20.000	2,000.0
Na		1,000.0	100,000
P		1,000.0	100,000
S		1,000.0	100,000
Ti		20.000	2,000.0
Parent Std No.: STD2637-09, ICPMS	_	•	ot Amount (ml): 0.0500
Parent Date Expires(1): 05-01-2010	Parent Date Expires(2):		T' 10 (T
Component		Initial Conc (mg/L)	Final Conc (ug/L
V		20.000	100.00
Zn		20.000	100.00
Ag		20.000	100.00
Al		20.000	100.00
As		20.000	100.0
Ba		20.000	100.0
Be		20.000	100.0
Cd		20.000	100.0
Co		20.000	100.0
Cr		20.000	100.0
Cu		20.000	100.0
Mn		20.000	100.0
Ni		20.000	100.0
Pb		20.000	100.0
Se		20.000	100.0
Th		20.000	100.0
Tl		20.000	100.0
U		20.000	100.0
Parent Std No.: STD3773-09, ICPM	S 2008CAL-1 Inorganic V	entures Alique	ot Amount (ml): 0.0500
Parent Date Expires(1): 06-23-2010	Parent Date Expires(2):	07-01-2010	
Component	·	Initial Conc (mg/L)	Final Conc (ug/L
Mo		20.000	100.00
Sb		20.000	100.00
Parent Std No.: STD4310-09, ICP-M	T -	=	ot Amount (ml): 0.100
Parent Date Expires(1): 07-22-2009	Parent Date Expires(2):		
Component		Initial Conc (mg/L)	Final Conc (ug/L
Sn		10.000	100.00
D4316-09, ICPMS LR STD 10	00 ppb		Analyst: DIAZI
Solvent: 5% HNO3	Lot No.: H12022		Volume (ml): 10.000
Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Date Verified: 12-314714 by - (Ver	y)		volume (mr). 10.000

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Parent Date Expires(1): 05-01-2010 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (ug/
V	20.000	1,000
Zn	20.000	1,000
Ag	20.000	1,000
Al	20.000	1,000
As	20.000	1,000
Ba	20.000	1,000
Be	20.000	1,000
Cd	20.000	
Co	20.000	1,00
Cr	20.000	1,00
Cu		1,00
Mn	20.000	1,000
	20.000	1,00
Ni Di	20.000	1,00
Pb	20.000	1,00
Se	20.000	1,00
Th	20.000	1,00
Tl	20.000	1,00
U	20.000	1,00
Parent Date Expires(1): 06-23-2010 Parent Date Expires(2): Component	Initial Conc (mg/L)	Final Conc (ug
	20.000	1,00
		1,00
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	20.000 20.000 Alique	1,000 1,000 ot Amount (ml): 1.00
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2):	20.000 20.000 Alique	1,00 1,00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn	20.000 20.000 Alique 03-01-2010	1,000 1,000 ot Amount (ml): 1.00
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L)	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L)	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA
Sb Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L)	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIAZ
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (High	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2):	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 gh Purity) Alique 02-27-2010	Analyst: DIAZ Volume (ml): 1.00
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 gh Purity) O2-27-2010 Initial Conc (mg/L)	1,00 1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIAZ Volume (ml): 10.0 ot Amount (ml): 0.04 Final Conc (ug
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 gh Purity) 02-27-2010 Initial Conc (mg/L) 10.000	1,000 1,000 ot Amount (ml): 1.00 Final Conc (ug. 1,000 Analyst: DIAZ Volume (ml): 10.00 ot Amount (ml): 0.04 Final Conc (ug/ 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 Sh Purity) 02-27-2010 Initial Conc (mg/L) 10.000 10.000	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2 Volume (ml): 10.0 Final Conc (ug, 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As Ba	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 She Purity) 02-27-2010 Initial Conc (mg/L) 10.000 10.000 10.000	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA2 Volume (ml): 10.0 Final Conc (ug/40.0 40.0 40.0
Parent Std No.: STD4310-09, ICP-MS 10 ppm Sn Parent Date Expires(1): 07-22-2009 Parent Date Expires(2): Component Sn D4317-09, ICPMS ICV Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 02-27-2010 (None) Date Verified: 12-314714 by - (Verification ID: 0) pipettes: Met 21 and Met 8 Parent Std No.: STD1213-09, ICPMS ICV SOLUTION A (HigParent Date Expires(1): 02-27-2010 Parent Date Expires(2): Component Al As	20.000 20.000 Alique 03-01-2010 Initial Conc (mg/L) 10.000 Sh Purity) 02-27-2010 Initial Conc (mg/L) 10.000 10.000	1,00 1,00 ot Amount (ml): 1.00 Final Conc (ug 1,00 Analyst: DIA Volume (ml): 10.0 Final Conc (ug 40.0 40.0

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Co	10.000	40.000
Cr	10.000	40.000
Cu	10.000	40.000
Fe	250.00	1,000.0
Li	10.000	40.000
Mn	10.000	40.000
Ni	10.000	40.000
Pb	10.000	40.000
Se	10.000	40.000
Th	10.000	40.000
Tl	10.000	40.000
Ü	10.000	40.000
V	10.000	40.000
Zn	10.000	40.000
Parent Std No.: STD1214-09, ICPMS ICV SOLUTION B (Hi		t Amount (ml): 0.0400
Parent Date Expires(1): 02-27-2010 Parent Date Expires(2):	• •	
•	Initial Conc (ug/ml)	Final Conc (ug/L)
Component		
Ag	10.000	40.000
Mo	10.000	40.000
Sb	10.000	40.000
Sn	10.000	40.000
Zr	10.000	40.000
STD4318-09, ALTSe		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) pipettes: Met 21 and Met 8		Volume (ml): 50.000
Parent Std No.: STD1853-09, 1 mg/l Se	Aliquo	t Amount (ml): 0.1000
Component	Initial Conc (mg/L)	Final Conc (mg/L)
Se	1.0000	0.0020
	1.0000	0.0020
STD4319-09, LLCCV/RLICV		Analyst: DIAZL
Solvent: 5% HNO3 Lot No.: H12022 Date Prep./Opened: 07-21-2009 Date Expires(1): 07-22-2009 (1 Day) Date Expires(2): 05-01-2010 (None) pipettes: Met 20		Volume (ml): 100.00
Parent Std No.: STD3106-09, ICP-MS LLCCV 1 Parent Date Expires(1): 05-01-2010 Parent Date Expires(2):	•	t Amount (ml): 1.0000
Component	Initial Conc (mg/L)	Final Conc (ug/L)
	0.5000	5.0000
Ag Al	3.0000	30.000
As	0.5000	5.0000
ಗು	0.3000	3.0000

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Ba	0.1000	1.0000
Be	0.1000	1.0000
Ca	5.0000	50.000
Cd	0.1000	1.0000
Co	0.1000	1.0000
Cr	0.2000	2.0000
Cu	0.2000	2.0000
Fe	5.0000	50.000
K	10.000	100.00
Mg	5.0000	50.000
Mn	0.1000	1.0000
Na	5.0000	50.000
Ni	0.2000	2.0000
Pb	0.1000	1.0000
Se	0.5000	5.0000
Th	0.2000	2.0000
Tl	0.1000	1.0000
U	0.1000	1.0000
V	0.5000	5.0000
Zn	1.0000	10.000
Parent Std No.: STD3107-09, ICP-MS LLCCV 2	Aliquot Amount	(ml): 1.0000

Component	Initial Conc (mg/L)	Final Conc (ug/L)
Mo	0.2000	2.0000
Sb	0.2000	2.0000
Sn	1 0000	10,000

Reviewed By: LRD 07/21/2009

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Denver

RUN SUMMARY

Method: 6020 (ICP/MS) ICPMS_024 (024) Reported: 07/22/09 11:30:44

File II	D: AG072	109				Analyst:	TEL	
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q
2	Cal Blank				1.0	07/21/09 17:25	* *************************************	
3	Cal Blank				1.0	07/21/09 17:28		
4	100 ppb				1.0	07/21/09 17:31		
5	ICV				1.0	07/21/09 17:33		
6	RLIV				1.0	07/21/09 17:36		
7	ICB				1.0	07/21/09 17:39		
8	RL STD				1.0	07/21/09 17:42		
9	AFCEE RL				1.0	07/21/09 17:44		
10	ALTSe				1.0	07/21/09 17:47		
11	ICSA				1.0	07/21/09 17:50		
12	ICSAB				1.0	07/21/09 17:53		
13	RINSE				1.0	07/21/09 17:55		
14	LR				1.0	07/21/09 17:58		
15	RINSE				1.0	07/21/09 18:00		
16	CCV				1.0	07/21/09 18:03		
17	ССВ				1.0	07/21/09 18:06		
18	RLCV				1.0	07/21/09 18:09		
19	LGEE4BF	D9G130000	9194274	MD	1.0	07/21/09 18:11		
20	LGEE4CF	D9G130000	9194274	MD	1.0	07/21/09 18:14	- North Control of the Control of th	□□
21	LGDJWF 10X	D9G110152-2	9194274	MD	10.0	07/21/09 18:17		
22	LGDJWP50F	D9G110152	9194274		50.0	07/21/09 18:20		
23	LGDJWZF	D9G110152-2	9194274	1	1.0	07/21/09 18:22		
24	LGDJWSF 10		9194274	MD	10.0	07/21/09 18:25		
25	LGDJWDF 10		9194274	MD	10.0	07/21/09 18:28		
26	CCV				1.0	07/21/09 18:30		
27	ССВ				1.0	07/21/09 18:33		
28	RLCV			++	1.0	07/21/09 18:36		
29	LGEERB	D9G130000	9194272	MS	1.0	07/21/09 18:39		
30	LGEERC	D9G130000	9194272	MS	1.0	07/21/09 18:41		
31	LGCN3 10X	D9G100272-1	9194272	MS	10.0	07/21/09 18:44		
32	LGCN3P50	D9G100272	9194272		50.0	07/21/09 18:47		
33	LGCN3Z	D9G100272-1	9194272		1.0	07/21/09 18:50		
34	LGCN3S 10X		9194272	MS	10.0	07/21/09 18:52		
35	CCV				1.0	07/21/09 18:55		
36	ССВ			1	1.0	07/21/09 18:58		
37	RLCV				1.0	07/21/09 19:01		
38		D9G100272-1	9194272	MS	10.0	07/21/09 19:03		
39	LGCQK 10X	D9G100274-1	9194272	MS	10.0	07/21/09 19:06	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
40	LGDJV 10X	D9G110152-1	9194272	MS	10.0	07/21/09 19:09		
	LGDJ3 10X	D9G110155-1	9194272	MS	10.0	07/21/09 19:11		
	LGDKR 10X	D9G110159-1	9194272	MS	10.0	07/21/09 19:14		
43	CCV			+	1.0	07/21/09 19:17		
44	ССВ			+	1.0	07/21/09 19:20		
45	RLCV				1.0	07/21/09 19:22		
46	LGFC2B	D9G140000	9195077	46	1.0	07/21/09 19:25		
47	LGFC2C	D9G140000	9195077	46	1.0	07/21/09 19:28		

Denver

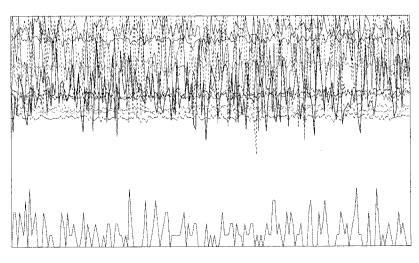
RUN SUMMARY

Method: 6020 (ICP/M	ICPMS_024 (024)	ed: 07/22/09 11:30:44

File II	D: AG0721	109	Analyst: TEL						
#	Sample ID	Lot No.	Batch		DF	Analyzed Date	Comment	Q	
48	LGEAD	D9G130118-1	9195077	U1	1.0	07/21/09 19:31			
49	LGEAR	D9G130118-2	9195077	U1	1.0	07/21/09 19:33			
50	LGEAX	D9G130118-3	9195077	U1	1.0	07/21/09 19:36			
51	LGEA0	D9G130118-4	9195077	U1	1.0	07/21/09 19:39			
52	LGEA2	D9G130118-5	9195077	U1	1.0	07/21/09 19:42			
53	LGEA3	D9G130118-6	9195077	U1	1.0	07/21/09 19:44			
54	CCV				1.0	07/21/09 19:47			
55	ССВ				1.0	07/21/09 19:50			
56	RLCV				1.0	07/21/09 19:53			
57	LGEA4	D9G130118-7	9195077	U1	1.0	07/21/09 19:55			
58	LGEFC	D9G130118-8	9195077	U1	1.0	07/21/09 19:58			
59	LGEFF	D9G130118-9	9195077	U1	1.0	07/21/09 20:01			
60	LGEFH	D9G130118-10	9195077	U1	1.0	07/21/09 20:03			
61	LGEFL	D9G130118-11	9195077	U1	1.0	07/21/09 20:06			
62	LGEFLP5	D9G130118	9195077		5.0	07/21/09 20:09			
63	LGEFLZ	D9G130118-11	9195077		1.0	07/21/09 20:11			
64	LGEFLS	D9G130118-11	9195077	Ų1	1.0	07/21/09 20:14			
65	CCV				1.0	07/21/09 20:17			
66	ССВ				1.0	07/21/09 20:20			
67	RLCV				1.0	07/21/09 20:22			
68	LGEFLD	D9G130118-11	9195077	U1	1.0	07/21/09 20:25			
69	LGEFT	D9G130118-12	9195077	U1	1.0	07/21/09 20:28			
70	LGEFX	D9G130118-13	9195077	U1	1.0	07/21/09 20:30			
71	LGEF3	D9G130118-14	9195077	U1	1.0	07/21/09 20:33			
72	LGEF4	D9G130118-15	9195077	U1	1.0	07/21/09 20:36			
73	LGEF6	D9G130118-16	9195077	U1	1.0	07/21/09 20:39			
74	LGEF8	D9G130118-17	9195077	U1	1.0	07/21/09 20:41			
75	CCV				1.0	07/21/09 20:44			
76	CCB				1.0	07/21/09 20:47			
77	RLCV				1.0	07/21/09 20:50			
78	LGKQWBF	D9G160000	9197227	MD	1.0	07/21/09 20:52			
79	LGKQWCF	D9G160000	9197227	MD	1.0	07/21/09 20:55			
80	LGH2HF 10X	D9G150224-2	9197227	MD	10.0	07/21/09 20:58			
81	LGH2HP50F	D9G150224	9197227		50.0	07/21/09 21:01			
82	LGH2HZF	D9G150224-2	9197227		1.0	07/21/09 21:03			
83	LGH2HSF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:06			
84	LGH2HDF 10	D9G150224-2	9197227	MD	10.0	07/21/09 21:09			
85	CCV				1.0	07/21/09 21:12			
86	ССВ				1.0	07/21/09 21:14			
87	RLCV				1.0	07/21/09 21:17			
88	FCKODB	D9G160000	9197220	MS	1.0	07/21/09 21:20			
89	LGKQDC	D9G160000	9197220	MS	1.0				
90	LGH2F 10X	D9G150224-1	9197220	MS	10.0	07/21/09 21:25	DNUX 7/24/09		
91	LGH2FP50	D9G150224	9197220	1	50.0	07/21/09 21:28	, , , ,		
92	LGH2FZ	D9G150224-1	9197220	-	1.0	07/21/09_21:31			

Tune File : NORM.U

Comment

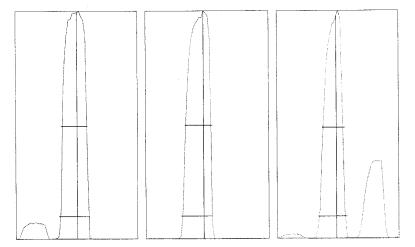


Integration Time: 0.1000 sec 1.5300 sec Sampling Period:

200 n:

1.281% Oxide: 156/140 0.506% Doubly Charged: 70/140

Background	RSD%	Mean	Count	Range	m/z
0.70	3.63	940.8	891.0	1,000	6
0.60	1.91	13059.6	13129.0	20,000	7
0.50	2.40	7856.2	7602.0	10,000	59
0.30	16.38	39.4	42.0	50	63
0.50	13.40	67.2	78.0	100	70
0.80	102.35	1.2	0.0	20	75
0.50	14.56	48.7	43.0	50	78
1.00	1.86	12029.4	12125.0	20,000	89
0.80	1.63	11739.1	11842.0	20,000	115
1.30	21.11	39.7	34.0	50	118
1.10	2.85	1323.1	1330.0	2,000	137
1.80	1.66	11223.5	11244.0	20,000	205
2.40	1.60	17931.0	17300.0	20,000	238
	8.61	1.337%	1.192%	2	156/140
	13.49	0.568%	0.664%	2	70/140



m/z:	7	89	205
Height:	13,051	12,146	11,336
Axis:	7.05	88.95	205.00
₩-50%:	0.65	0.65	0.55
W-10%:	0.7500	0.7500	0.700

0.1000 sec Integration Time: Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:30

Tune Report

Tune File : NORM.U Comment :

Comment

Tuning Paramet	026										
===Plasma Condi				===Ion Lenses=	-==			===Q-Pole Para	met	ers===	
RF Power	:	1550	W	Extract 1	L ;	C	V (AMU Gair	ı :	133	
RF Matching	:	1.7	V	Extract 2	2 :	-160	V	AMU Offset	: :	122	
Smpl Depth	:	7.5	mm	Omega Bias-ce	e :	-30	V	Axis Gair	:	1.0005	
Torch-H	:	-0.8	mm	Omega Lens-ce	e :	C) V	Axis Offset	: :	-0.02	
Torch-V	:	-0.3	mm	Cell Entrance	∍ :	-30) V	QP Bias	:	0	V
Carrier Gas	:	0.83	L/min	QP Focus	3 :	7	V V				
Makeup Gas	:	0.2	L/min	Cell Exit	t :	-30) V	===Detector Pa	aram	eters==	=
Optional Gas	:		90					Discriminator	: :	8	mV
Nebulizer Pump	:	0.1	rps	===Octopole Pa	aram	eters==	=	Analog HV	<i>!</i>	1720	V
Sample Pump	:		rps	OctP R	F :	180) V	Pulse HV	<i>7</i> :	1390	V
S/C Temp	:	2	degC	OctP Bia:	5 :	-18	3 V				
===Reaction Cel	1===	:									
Reaction Mode	:	OFF									
H2 Gas	:	0	mL/min	He Ga:	s :	() mL/min	Optional Gas	3 :		ે

Page: 2

Generated : Jul 21, 2009 16:29:27 Printed : Jul 21, 2009 16:29:33

P/A Factor Tuning Report

Acquired: Jul 21 2009 04:50 pm

Mass[amu] 6	Element Li	P/A Factor 0.061203		
7	(Li)	Sensitivity	too	low
9	Ве	0.068907		
45	Sc	0.083389		
51	V	0.086007		
52	Cr	0.088320		
53	(Cr)	Sensitivity	too	low
55	Mn	0.090395		
59	Co	0.093203		_
60	Ni	Sensitivity		
63	Cu	Sensitivity	too	low
66	Zn	0.096924		-
72	Ge	Sensitivity		
75	As	Sensitivity		
77	(Se)	Sensitivity		
78	Se	Sensitivity		
82	(Se)	Sensitivity		
83	(Se)	Sensitivity	too	low
95	Mo	0.096067		
98	(Mo)	0.096151	+	1
99	(OM)	Sensitivity	100	low
106	(Cd)	0.101305 Sensitivity	+ 00	1 011
107	Ag (Cd)	0.101769	100	TOM
108	Cd	0.101789		
111	Cd	0.102089		
114 115	In	0.101222		
113	Sn	0.101222		
121	Sb	0.101007		
137	Ba	Sensitivity	too	1 ow
165	Но	Sensitivity		
205	Tl	0.109272		1011
206	(Pb)	0.108216		
207	(Pb)	0.108287		
208	Pb	0.107820		
232	Th	0.106452		
238	Ü	0.106481		

===Detector Parameters===

Discriminator: 8.0 mV
Analog HV: 1720 V
Pulse HV: 1390 V

200.8 QC Tune Report

C:\ICPCHEM\1\DATA\AG072109.B\001TUNE.D Data File:

Date Acquired: Jul 21 2009 05:22 pm

Acq. Method: tun isis.M

Operator:

Sample Name: 200.8 TUNE

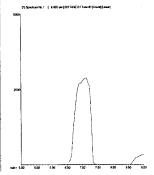
Misc Info:

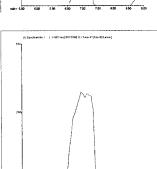
Vial Number:

Current Method:

C:\ICPCHEM\1\METHODS\tun_isis.M

Element	CPS Mean	Rep1	Rep2	Rep3	Rep4	Rep5	%RSD	Required	Flag
7 Li	31515	31705	31773	31422	31500	31173	0.76	5.00	
9 Be	3503	3538	3524	3507	3428	3516	1.23	5.00	
24 Mg	22462	22829	22575	22353	22572	21980	1.41	5.00	
59 Co	93114	93607	93864	90894	94187	93020	1.41	5.00	
115 In	1915406	1918606	1914965	1924578	1915696	1903185	0.41	5.00	
208 Pb	92064	92990	92149	91680	92260	91243	0.71	5.00	
238 U	187429	191379	187170	188068	186178	184351	1.39	5.00	





7 Li

Mass Calib.

Actual: 7.10 7.10 Required: 6.90

Flag:

Peak Width

Actual: 0.65 Required: 0.90

Flag:

9 Be

Mass Calib.

Actual: 9.05

Required:8.90 9.10

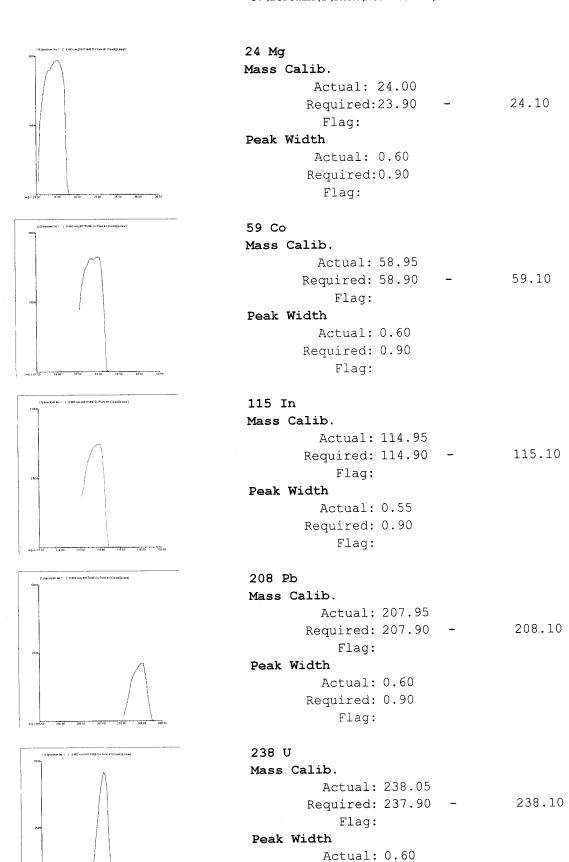
Flag:

Peak Width

Actual: 0.60

Required: 0.90

Flag:



7/21/09 5:23 PM TestAmerica

Tune Result:

Pass

C:\ICPCHEM\1\RPTTMP\2008tn.qct

Required: 0.90 Flag:

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\002CALB.D\002CALB.D#

Date Acquired: Jul 21 2009 05:25 pm

Acq. Method: NormISIS.M

Operator: TEL

Sample Name: Cal Blank

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

CalBlk Sample Type:

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	0	0.00
51	V	72	1	31	3276.40
52	Cr	72	1	2800	9.18
55	Mn	72	1	1283	9.62
59	Со	72	1	87	67.61
60	Νi	72	1	67	17.32
63	Cu	72	1	503	6.39
66	Zn	72	1	251	8.30
75	As	72	1	105	7.67
78	Se	72	1	513	6.26
95	Mo	72	1	73	15.75
107	Ag	115	1	7	86.60
111	Cd	115	1	9	188.13
118	Sn	115	1	2750	17.56
121	Sb	115	1	19	50.94
137	Ва	115	1	49	3.94
205	Tl	165	1	263	12.21
208	Pb	165	1	323	8.05
232	Th	165	1	220	25.31
238	U	165	1	96	8.06

Internal Standard Elements

Element		Tune	CPS Mean	RSD(%)	
6	Li	1	576535	0.69	
45	Sc	1	2595280	0.11	
72	Ge	1	1228451	0.87	
115	In	1	3471486	1.12	
165	Но	1	5707578	1.58	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Date Acquired: Jul 21 2009 05:28 pm

Acq. Method: NormISIS.M

Operator: TEL

Sample Name: Cal Blank

Misc Info:

Vial Number: 2101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:26 pm C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: CalBlk

QC Elements

Eleme	ent	IS Ref	Tune	CPS Mean	RSD(%)
9	Вe	6	1	0	0.00
51	V	72	1	84	380.78
52	Cr	72	1	3224	4.61
55	Mn	72	1	1180	18.88
59	Со	72	1	67	31.23
60	Ni	72	1	77	39.85
63	Cu	72	1	673	17.84
66	Zn	72	1	341	12.93
75	As	72	1	105	1.10
78	Se	72	1	570	15.79
95	Mo	72	1	90	19.25
107	Ag	115	1	10	100.00
111	Cd	115	1	6	183.92
118	Sn	115	1	4558	14.33
121	Sb	115	1	23	37.80
137	Ва	115	1	41	44.66
205	Tl	165	1	229	12.72
208	Pb	165	1	279	7.30
232	Th	165	1	273	29.57
238	U	165	1	22	43.30

Internal Standard Elements

Element		Tune	CPS Mean	RSD(%)
6	Li	1	581797	1.92
45	Sc	1	2574983	0.83
72	Ge	1	1211627	0.38
115	In	1	3426576	0.51
165	Но	1	5647086	0.49

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

Calibration Standard QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\004ICAL.D\0004ICAL.D#

Date Acquired: Jul 21 2009 05:31 pm

Acq. Method: NormISIS.M

Operator: TEL Sample Name: 100 ppb

Misc Info:

Vial Number: 2102

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:29 pm

Sample Type: ICAL

QC Elements

Elemen	ıt	IS Ref	Tune	CPS Mean	RSD(%)
9	Ве	6	1	59445	1.77
51	V	72	1	1239197	0.92
52	Cr	72	1	1240930	1.80
55	Mn	72	1	1500976	1.14
59	Co	72	1	1532853	1.14
60	Ni	72	1	335568	1.43
63	Cu	72	1	783637	0.77
66	Zn	72	1	184990	0.36
75	As	72	1	150136	1.32
78	Se	72	1	29896	1.27
95	Мо	72	1	401051	0.94
107	Ag	115	1	1170362	0.20
111	Cd	115	1	241527	0.35
118	Sn	115	1	706295	0.47
121	Sb	115	1	813196	0.45
137	Ва	115	1	335210	0.52
205	Tl	165	1	2698247	0.32
208	Pb	165	1	3677704	0.96
232	Th	165	1	3297948	2.01
238	U	165	1	3849572	0.35

ISTD Elements

Eleme	ent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	565258	0.19	581797	97.2	30 - 120	
45	Sc	1	2567639	0.66	2574983	99.7	30 - 120	
72	Ge	1	1211730	1.09	1211627	100.0	30 - 120	
115	In	1	3431729	1.40	3426576	100.2	30 - 120	
165	Но	1	5634252	0.67	5647086	99.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0

0

Initial Calibration Verification (ICV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\005 ICV.D\005 ICV.D#

Date Acquired: Jul 21 2009 05:33 pm

Operator: TEL QC Summary:

Sample Name: ICV Analytes: Fail Misc Info: ISTD: Pass

Vial Number: 2103

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICV
Total Dil Factor: 1.00

QC Elements										
Element IS Re		S Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	39.64	ppb	0.79	40	99.1	90 - 110	
51	V	72	1	38.95	ppb	0.13	40	97.4	90 - 110	
52	Cr	72	1	39.22	ppb	0.44	40	98.1	90 - 110	
55	Mn	72	1	39.68	ppb	0.45	40	99.2	90 - 110	
59	Со	72	1	39.53	ppb	0.70	40	98.8	90 - 110	
60	Ni	72	1	40.23	ppb	0.53	40	100.6	90 - 110	
63	Cu	72	1	40.61	ppb	0.32	40	101.5	90 - 110	
66	Zn	72	1	40.51	ppb	1.02	40	101.3	90 - 110	
75	As	72	1	40.08	ppb	0.64	40	100.2	90 - 110	
78	Se	72	1	41.67	ppb	1.69	40	104.2	90 - 110	
95	Mo	72	1	39.87	ppb	0.41	40	99.7	90 - 110	
107	Ag	115	1	40.34	ppb	1.30	40	100.9	90 - 110	
111	Cd	115	1	41.12	ppb	0.91	40	102.8	90 - 110	
118	Sn	115	1	38.88	ppb	0.90	40	97.2	90 - 110	
121	Sb	115	1	38.65	ppb	1.11	40	96.6	90 - 110	
137	Ва	115	1	39.89	ppb	0.94	40	99.7	90 - 110	
205	Tl	165	1	40.05	ppb	1.21	40	100.1	90 - 110	
208	Pb	165	1	40.43	ppb	0.85	40	101.1	90 - 110	
232	Th	165	1	44.22	ppb	2.85	40	110.6	90 - 110	Fail M
238	U	165	1	40.19	ppb	1.06	40	100.5	90 - 110	
T STF) Eleme	nts								
Element			Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li		1	561236		0.19	581797	96.5	30 - 120	,
45	Sc		1	2582771		1.09	2574983	100.3	30 - 120	
72	Ge		1	1213066		0.25	1211627	100.1	30 - 120	
115	In		1	3417703		1.00	3426576	99.7	30 - 120	
165			1	5664293		1.10	5647086	100.3	30 - 120	
100			-				, , , , , , ,			
	<pre>Tune File# 1 c:\icpchem\1\7500\he.u</pre>									
	Tune File# 2 C:\ICPCHEM\1\7500\				\					
Tune File# 3				C:\ICPCHEM\1\7500\						

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

1 : Element Failures 0 : Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

ISTD:

Pass

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\006WASH.D\006WASH.D#

Date Acquired: Jul 21 2009 05:36 pm

Operator: TEL QC Summary: Sample Name: RLIV Analytes: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH
Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.123 ppb	10.30	1.30	
51 V	72	1	4.905 ppb	4.36	6,50	
52 Cr	72	1	2.008 ppb	1.94	2.60	
55 Mn	72	1	1.040 ppb	1.71	1.30	
59 Co	72	1	1.042 ppb	3.30	1.30	
60 Ni	72	1	2.082 ppb	1.95	2.60	
63 Cu	72	1	2.043 ppb	4.81	2.60	
66 Zn	72	1	10.290 ppb	0.55	13.00	
75 As	72	1	5.041 ppb	1.23	6.50	
78 Se	72	1	5.606 ppb	11.10	6.50	
95 Mo	72	1	2.125 ppb	3.10	2.60	
107 Ag	115	1	5.269 ppb	0.93	6.50	
111 Cd	115	1	0.985 ppb	1.12	1.30	
118 Sn	115	1	10.060 ppb	1.78	13.00	
121 Sb	115	1	2.181 ppb	4.53	2.60	
137 Ba	115	1	1.073 ppb	3.26	1.30	
205 Tl	165	1	1.130 ppb	0.27	1.30	
208 Pb	165	1	1.039 ppb	0.95	1.30	
232 Th	165	1	2.777 ppb	3.32	2.60	
238 U	165	1	1.064 ppb	0.97	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	561585	0.30	581797	96.5	30 - 120	
45 Sc	1	2567497	0.65	2574983	99.7	30 - 120	
72 Ge	1	1227558	0.55	1211627	101.3	30 - 120	
115 In	1	3427742	1.01	3426576	100.0	30 - 120	
165 Ho	1	5710214	1.06	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Initial Calibration Blank (ICB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\007 ICB.D\007 ICB.D#

Date Acquired: Jul 21 2009 05:39 pm QC Summary:

Operator: TEL Analytes: Pass Sample Name: ICB ISTD: Pass

Misc Info:

Vial Number: 2104

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: ICB
Total Dil Factor: 1.00

QC	Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.00	ppb	0.00	1.00	
51 V	72	1	-0.03	ppb	107.86	1.00	
52 Cr	72	1	-0.02	ppb	42.01	1.00	
55 Mn	72	1	0.00	ppb	111.67	1.00	
59 Co	72	1	0.00	ppb	96.89	1.00	
60 Ni	72	1	0.00	ppb	233.62	1.00	
63 Cu	72	1	-0.01	ppb	109.12	1.00	
66 Zn	72	1	0.05	ppb	42.84	1.00	
75 As	72	1	-0.01	ppb	44.09	1.00	
78 Se	72	1	0.34	ppb	46.02	1.00	
95 Mo	72	1	0.01	ppb	40.98	1.00	
107 Ag	115	1	0.01	ppb	15.65	1.00	
111 Cd	115	1	0.00	ppb	432.82	1.00	
118 Sn	115	1	0.13	ppb	28.49	1.00	
121 Sb	115	1	0.08	ppb	2.06	1.00	
137 Ba	115	1	0.00	ppb	38.09	1.00	
205 Tl	165	1	0.03	ppb	5.05	1.00	
208 Pb	165	1	0.00	ppb	1255.10	1.00	
232 Th	165	1	0.16	ppb	5.89	1.00	
238 U	165	1	0.00	ppb	21.84	1.00	

ISTD Elements

TOID FIGHERICS							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565985	1.59	581797	97.3	30 - 120	
45 Sc	1	2566622	0.99	2574983	99.7	30 - 120	
72 Ge	1	1225621	1.10	1211627	101.2	/ 30 - 120	
115 In	1	3452773	0.47	3426576	100.8 /	30 - 120	
165 Ho	1	5650371	0.62	5647086	100.1/	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u	✓		
m = m:1 = 0	2	C. \ TCDCHEM\	1 \ 7 = 0 0 \		N.,		

Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

RL STD QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\008RLST.D\008RLST.D#

Date Acquired: Jul 21 2009 05:42 pm

Operator: TEL QC Summary:

Sample Name: RL STD Analytes: Pass Misc Info: ISTD: Pass

Vial Number: 2105

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: RLSTD Total Dil Factor: 1.00

QC Elements

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	1.05	ppb	12.11	1	104.7	50 - 150	
51	V	72	1	0.93	ppb	7.33	1	93.2	50 - 150	
52	Cr	72	1	0.97	ppb	3.56	1	97.0	50 - 150	
55	Mn	72	1	1.00	ppb	2.49	1	100.4	50 - 150	
59	Со	72	1	1.01	ppb	4.08	1	101.3	50 - 150	
60	Νi	72	1	1.00	ppb	6.56	1	100.0	50 - 150	
63	Cu	72	1	1.04	ppb	7.10	1	104.2	50 - 150	
66	Zn	72	1	10.76	ppb	1.35	10	107.6	50 - 150	
75	As	72	1	1.04	ppb	3.34	1	103.8	50 - 150	
78	Se	72	1	0.82	ppb	33.53	1	81.6	50 - 150	
95	Mo	72	1	1.01	ppb	7.76	1	101.0	50 - 150	
107	Ag	115	1	1.02	ppb	2.10	1	101.5	50 - 150	
111	Cd	115	1	1.10	ppb	3.31	1	109.6	50 - 150	
118	Sn	115	1	10.23	ppb	1.35	10	102.3	50 - 150	
121	Sb	115	1	1.05	ppb	1.23	1	104.8	50 - 150	
137	Ва	115	1	1.05	ppb	4.58	1	104.8	50 - 150	
205	Tl	165	1	1.07	ppb	2.73	1	106.5	50 - 150	
208	Pb	165	1	1.05	ppb	1.07	1	104.7	50 - 150	
232	Th	165	1	1.13	ppb	2.43	1	113.3	50 - 150	
238	U	165	1	1.07	ppb	1.03	1	107.0	50 - 150	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565978	0.78	581797	97.3	30 - 120	
45 Sc	1	2568028	1.20	2574983	99.7	30 - 120	
72 Ge	1	1217338	0.15	1211627	100.5	30 - 120	
115 In	1	3427497	0.45	3426576	100.0	30 - 120	
165 Ho	1	5631637	1.02	5647086	99.7	30 - 120	

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

AFCEE RL QC Report

QC Elements

Data File: C:\ICPCHEM\1\DATA\AG072109.B\009AFCE.D\009AFCE.D#

Date Acquired: Jul 21 2009 05:44 pm

QC Summary: Operator: TEL

Analytes: Pass Sample Name: AFCEE RL ISTD: Pass Misc Info:

Vial Number: 2106

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: AFCEERL

Total Dil Factor: 1.00

E										
Elen	nent	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 -	Ве	6	1	0.18	ppb	41.26	0	86.0	80 - 120	
51	V	72	1	0.12	ppb	39.38	0	67.0	80 - 120	
52	Cr	72	1	0.16	ppb	3.72	0	82.2	80 - 120	
55	Mn	72	1	0.20	ppb	3.24	0	98.6	80 - 120	
59	Co	72	1	0.20	ppb	5.85	0	99.3	80 - 120	
60	Ni	72	1	0.18	ppb	6.47	0	90.0	80 - 120	
63	Cu	72	1	0.32	ppb	10.85	0	155.1	80 - 120	
66	Zn	72	1	2.18	ppb	0.89	2	101.4	80 - 120	
75	As	72	1	0.20	ppb	9.34	0	94.3	80 - 120	
78	Se	72	1	0.27	ppb	16.59	0	168.2	80 - 120	
95	Mo	72	1	0.19	ppb	6.24	0	93.4	80 - 120	
107	Ag	115	1	0.20	ppb	4.78	0	99.7	80 - 120	
111	Cd	115	1	0.21	ppb	11.89	0	96.8	80 - 120	
118	Sn	115	1	1.58	ppb	4.76	2	77.3	80 - 120	
121	Sb	115	1	0.21	ppb	4.92	0	99.2	80 - 120	
137	Ва	115	1	0.22	ppb	2.48	0	102.6	80 - 120	
205	Tl	165	1	0.21	√ ppb	5.92	0	97.3	80 - 120	
208	Pb	165	1	0.20	ppb	3.45	0	95.3	80 - 120	
232	Th	165	1	0.24	ppb	4.96	0	106.3	80 - 120	
238	U	165	1	0.20	ppb	2.09	0	95.7	80 - 120	

ISTI	Elements							
Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	562011	1.45	581797	96.6	30 - 120	
45	Sc	1	2589915	1.12	2574983	100.6	30 - 120	
72	Ge	1	1216544	0.44	1211627	100.4	30 - 120	
115	In	1	3446931	1.30	3426576	100.6	30 - 120	
165	Но	1	5682005	0.45	5647086	100.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 : Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Flag

Data File: C:\ICPCHEM\1\DATA\AG072109.B\010SMPL.D\010SMPL.D#

Date Acquired: Jul 21 2009 05:47 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: ALTSe ISTD: Pass

Misc Info: 2 ppb Vial Number: 2107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 1.00 Autodil Factor: Undiluted Final Dil Factor: 1.00

QC	Elements	,
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Elen	nent	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.00	0.00	ppb	0.00	3600	,
51	V	72	1	-0.04	-0.04	ppb	104.30	3600	
52	Cr	72	1	-0.02	-0.02	ppb	103.76	3600	
55	Mn	72	1	0.02	0.02	ppb	16.79	3600	
59	Со	72	1	0.00	0.00	ppb	621.67	3600	
60	Ni	72	1	0.03	0.03	ppb	16.48	3600	
63	Cu	72	1	0.00	0.00	ppb	932.55	3600	
66	Zn	72	1	0.85	0.85	ppb	6.94	3600	
75	As	72	1	0.00	0.00	ppb	664.54	3600	
	Se	72	1	2.10 🗸	2.10	ppb	12.34	3600	
	Мо	72	1	-0.01	-0.01	ppb	45.44	3600	
107	Ag	115	1	0.00	0.00	ppb	58.87	3600	
111		115	1	0.01	0.01	ppb	69.14	3600	
118		115	1	0.05	0.05	ppb	347.56	3600	
121		115	1	0.02	0.02	ppb	33.89	3600	
137		115	1	0.02	0.02	ppb	46.40	3600	
205		165	1	0.01	0.01	ppb	7.09	3600	
208		165	1	0.01	0.01	ppb	32.33	3600	
232		165	1	0.02	0.02	ppb	9.94	1000	
238	U	165	1	0.00	0.00	ppb	61.35	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	569704	0.90	581797	97.9	30 - 120	-
45 Sc	1	2578530	1.74	2574983	100.1	30 - 120	
72 Ge	1	1225059	0.62	1211627	101.1	30 - 120	
115 In	1	3458256	0.73	3426576	100.9	30 - 120	
165 Ho	1	5659536	0.49	5647086	100.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 $C:\CPCHEM\1\7500\$ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures

0 :Max. Number of Failures Allowed

0 :ISTD Failures

0 :Max. Number of ISTD Failures Allowed

Interference Check Solution A (ICS-A) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\011ICSA.D\011ICSA.D#

Date Acquired: Jul 21 2009 05:50 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: ICSA ISTD: Pass

Misc Info:

Vial Number: 2108

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSA Dilution Factor: 1.00

QC	El	emen	ts
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-							
Eler	nent	IS Ref	Tune	Conc.	RSD(%)	High Limit ppb	Flag
9	Ве	6	1	0.01 ppb	86.57	1.00	
51	V	72	1	-0.32 ppb	45.77	1.00	
52	Cr	72	1	1.09 ppb	1.54	1.00	
55	Mn	72	1	3.02 ppb	2.13	1.00	
59	Со	72	1	0.14 ppb	6.32	1.00	
60	Ni	72	1	1.14 ppb	8.51	1.00	
63	Cu	72	1	0.52 ppb	6.79	1.00	
66	Zn	72	1	4.12 ppb	0.37	10.00	
75	As	72	1	0.41 ppb	6.37	1.00	
78	Se	72	1	0.21 ppb	202.38	1.00	
95	Мо	72	1	2029.00 ppb	1.48	2000.00	
107	Ag	115	1	0.08 ppb	1.65	1.00	
111	Çd	115	1	0.53 ppb	11.29	1.00	
118	Sn	115	1	6.55 ppb	2.38	10.00	
121	Sb	115	1	0.25 ppb	8.83	1.00	
137	Ва	115	1	1.63 ppb	3.16	1.00	
205	Tl	165	1	0.06 ppb	23.67	1.00	
208	Pb	165	1	0.15 ppb	1.74	1.00	
232	Th	165	1	0.06 ppb	7.65	1.00	
238	U	165	1	0.04 ppb	4.73	1.00	

ISTD Elements

Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	541828	0.30	581797	93.1	30 - 120	
45	Sc	1	2271867	1.39	2574983	88.2	30 - 120	
72	Ge	1	1037781	0.72	1211627	85.7	30 - 120	
115	In	1	2905629	2.08	3426576	84.8	30 - 120	
165	Но	1	5091704	1.12	5647086	90.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Nnumber of ISTD Failures Allowed

Interference Check Solution AB (ICS-AB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\012ICSB.D\012ICSB.D#

Date Acquired: Jul 21 2009 05:53 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass
Sample Name: ICSAB ISTD: Pass

Misc Info:

Vial Number: 2109

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: ICSAB
Dilution Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	%Recovery	QC Range(%)	Flag
9 Be	6	1	96.29	1.44	100	96.3	80 - 120	
51 V	72	1	99.52	1.77	100	99.5	80 - 120	
52 Cr	72	1	99.40	1.59	100	99.4	80 - 120	
55 Mn	72	1	101.10	1.41	100	101.1	80 - 120	
59 Co	72	1	95.14	1.75	100	95.1	80 - 120	
60 Ni	72	1	91.22	1.02	100	91.2	80 - 120	
63 Cu	72	1	89.55	0.75	100	89.6	80 - 120	
66 Zn	72	1	100.10	0.77	100	100.1	80 - 120	
75 As	72	1	100.30	0.37	100	100.3	80 - 120	
78 Se	72	1	108.70	2.11	100	108.7	80 - 120	
95 Mo	72	1	2124.00	1.34	2100	101.1	80 - 120	
107 Ag	115	1	88.04	3.50	100	88.0	80 - 120	
111 Cd	115	1	97.50	1.62	100	97.5	80 - 120	
118 Sn	115	1	101.00	0.92	100	101.0	80 - 120	
121 Sb	115	1	102.40	1.11	100	102.4	80 - 120	
137 Ba	115	1	103.60	1.08	100	103.6	80 - 120	
205 Tl	165	1	96.79	0.86	100	96.8	80 - 120	
208 Pb	165	1	95.41	1.15	100	95.4	80 - 120	
232 Th	165	1	110.10	0.47	100	110.1	80 - 120	
238 U	165	1	103.00	0.22	100	103.0	80 - 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551523	0.54	581797	94.8	30 - 120	
45 Sc	1	2262338	0.74	2574983	87.9	30 - 120	
72 Ge	1	1036947	1.75	1211627	85.6	30 - 120	
115 In	1	2927339	0.38	3426576	85.4	30 - 120	
165 Ho	1	5153065	0.14	5647086	91.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\013SMPL.D\013SMPL.D#

Date Acquired: Jul 21 2009 05:55 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	-0.06	-0.06	ppb	105.43	3600	
52 Cr	72	1	-0.03	-0.03	ppb	42.33	3600	
55 Mn	72	1	-0.01	-0.01	ppb	103.23	3600	
59 Co	72	1	0.00	0.00	ppb	103.31	3600	
60 Ni	72	1	0.00	0.00	dqq	490.13	3600	
63 Cu	72	1	-0.01	-0.01	ppb	55.36	3600	
66 Zn	72	1	0.02	0.02	ppb	39.30	3600	
75 As	72	1	0.01	0.01	ppb	237.74	3600	
78 Se	72	1	0.22	0.22	ppb	124.98	3600	
95 Mo	72	1	1.24	1.24	ppb	2.11	3600	
107 Ag	115	1	0.01	0.01	ppb	32.64	3600	
111 Cd	115	1	-0.01	-0.01	ppb	87.55	3600	
118 Sn	115	1	-0.44	-0.44	ppb	9.84	3600	
121 Sb	115	1	0.04	0.04	ppb	10.44	3600	
137 Ba	115	1	0.00	0.00	ppb	198.65	3600	
205 Tl	165	1	0.00	0.00	ppb	32.40	3600	
208 Pb	165	1	0.00	0.00	ppb	60.85	3600	
232 Th	165	1	0.61	0.61	ppb	14.09	1000	
238 U	165	1	0.01	0.01	ppb	16.27	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	617032	1.01	581797	106.1	30 - 120	
45 Sc	1	2571917	0.32	2574983	99.9	30 - 120	
72 Ge	1	1207363	0.62	1211627	99.6	30 - 120	
115 In	1	3468973	0.41	3426576	101.2	30 - 120	
165 Ho	1	5751339	0.52	5647086	101.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\

Linear Dynamic Range Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\014 LR.D\014 LR.D#

Date Acquired: Jul 21 2009 05:58 pm

Acq. Method: NormISIS.M QC Summary: Operator: TEL Analytes: Pass Sample Name: LR ISTD: Pass

Misc Info:

Vial Number: 2110

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LR
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Element	IS Ref	Tune	Conc.	RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	983.10 ppb	1.47	1000	98.3	90 - 110	
51 V	72	1	931.80 ppb	1.87	1000	93.2	90 - 110	
52 Cr	72	1	958.10 ppb	0.33	1000	95.8	90 - 110	
55 Mn	72	1	959.10 ppb	0.74	1000	95.9	90 - 110	
59 Co	72	1	962.90 ppb	0.81	1000	96.3	90 - 110	
60 Ni	72	1	976.00 ppb	1.67	1000	97.6	90 - 110	
63 Cu	72	1	952.70 ppb	0.56	1000	95.3	90 - 110	
66 Zn	72	1	1036.00 ppb	1.42	1000	103.6	90 - 110	
75 As	72	1	1038.00 ppb	0.83	1000	103.8	90 - 110	
78 Se	72	1	1037.00 ppb	0.75	1000	103.7	90 - 110	
95 Mo	72	1	998.50 ppb	1.19	1000	99.9	90 - 110	
107 Ag	115	1	960.60 ppb	0.36	1000	96.1	90 - 110	
111 Cd	115	1	1018.00 ppb	1.94	1000	101.8	90 - 110	
118 Sn	115	1	980.00 ppb	0.99	1000	98.0	90 - 110	
121 Sb	115	1	975.20 ppb	0.25	1000	97.5	90 - 110	
137 Ba	115	1	1014.00 ppb	0.78	1000	101.4	90 - 110	
205 Tl	165	1	970.30 ppb	1.49	1000	97.0	90 - 110	
208 Pb	165	1	959.70 ppb	1.43	1000	96.0	90 - 110	
232 Th	165	1	1070.00 ppb	0.39	1000	107.0	90 - 110	
238 U	165	1	1001.00 ppb	0.48	1000	100.1	90 - 110	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	602525	1.07	581797	103.6	30 - 120	
45 Sc	1	2585868	0.95	2574983	100.4	30 - 120	
72 Ge	1	1215769	0.81	1211627	100.3	30 - 120	
115 In	1	3432627	0.12	3426576	100.2	30 - 120	
165 Ho	1	5756427	0.96	5647086	101.9	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG072109.B\015SMPL.D\015SMPL.D#

Date Acquired: Jul 21 2009 06:00 pm

Acq. Method: NormISIS.M QC Summary:
Operator: TEL Analytes: Pass
Sample Name: RINSE ISTD: Pass

Misc Info:

Vial Number: 1101

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.01	0.01	ppb	173.21	3600	
51 V	72	1	0.00	0.00	ppb	1096.50	3600	
52 Cr	72	1	-0.02	-0.02	ppb	214.11	3600	
55 Mn	72	1	-0.01	-0.01	ppb	54.41	3600	
59 Co	72	1	0.02	0.02	ppb	17.45	3600	
60 Ni	72	1	0.02	0.02	ppb	36.35	3600	
63 Cu	72	1	0.00	0.00	ppb	3434.80	3600	
66 Zn	72	1	0.04	0.04	ppb	59.09	3600	
75 As	72	1	0.04	0.04	ppb	18.32	3600	
78 Se	72	1	0.56	0.56	ppb	27.17	3600	
95 Mo	72	1	0.75	0.75	ppb	9.81	3600	
107 Ag	115	1	0.03	0.03	ppb	9.09	3600	
111 Cd	115	1	0.01	0.01	ppb	55.86	3600	
118 Sn	115	1	0.58	0.58	ppb	22.30	3600	
121 Sb	115	1	0.43	0.43	ppb	9.45	3600	
137 Ba	115	1	0.02	0.02	ppb	30.56	3600	
205 Tl	165	1	0.10	0.10	ppb	12.56	3600	
208 Pb	165	1	0.02	0.02	ppb	9.09	3600	
232 Th	165	1	3.70	3.70	ppb	19.86	1000	
238 U	165	1	0.09	0.09	ppb	9.53	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	, Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	604269	1.86	581797	103.9	30 - 120	
45 Sc	1	2589065	0.70	2574983	100.5	30 - 120	
72 Ge	1	1243813	0.46	1211627	102.7	30 - 120	
115 In	1	3483172	1.13	3426576	101.7	30 - 120	
165 Ho	1	5709115	0.24	5647086	101.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\016 CCV.D\016 CCV.D#

Date Acquired: Jul 21 2009 06:03 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Misc Info: Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Elemen	nts	
Ele	ement	TS	R

Elemen	t IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	49.34	ppb	0.68	50	98.7	90 - 110	
51 V	72	1	49.10	ppb	0.55	50	98.2	90 - 110	
52 Cr	72	1	49.47	ppb	0.91	50	98.9	90 - 110	
55 Mr	n 72	1	49.47	ppb	1.10	50	98.9	90 - 110	
59 Cc	72	1	49.92	ppb	1.17	50	99.8	90 - 110	
60 Ni	. 72	1	50.75	ppb	0.61	50	101.5	90 - 110	
63 Cu	1 72	1	50.93	ppb	0.27	50	101.9	90 - 110	
66 Zr	72	1	50.31	ppb	0.73	50	100.6	90 - 110	
75 As	72	1	50.24	ppb	1.12	50	100.5	90 - 110	
78 Se	e 72	1	50.24	ppb	0.13	50	100.5	90 - 110	
95 Mc	72	1	50.78	ppb	1.42	50	101.6	90 - 110	
107 Ag	g 115	1	49.22	ppb	2.02	50	98.4	90 - 110	
111 Cc	115	. 1	49.66	ppb	2.34	50	99.3	90 - 110	
118 Sr	n 115	1	49.06	ppb	1.65	50	98.1	90 - 110	
121 Sk	115	1	49.30	ppb	1.60	50	98.6	90 - 110	
137 Ba	a 115	1	49.04	ppb	1.67	50	98.1	90 - 110	
205 TI	165	1	50.73	ppb	1.09	50	101.5	90 - 110	
208 Pk	165	1	49.84	ppb	1.34	50	99.7	90 - 110	
232 Th	n 165	1	52.15	ppb	2.07	50	104.3	90 - 110	
238 U	165	1	49.79	ppb	0.38	50	99.6	90 - 110	

ISTD Elements

Eler	nent	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	588145	2.13	581797	101.1	30 - 120	
45	Sc	1	2623883	0.54	2574983	101.9	30 - 120	
72	Ge	1	1228362	0.50	1211627	101.4	30 - 120	
115	In	1	3530300	1.24	3426576	103.0	30 - 120	
165	Но	1	5768046	0.38	5647086	102.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\017 CCB.D\017 CCB.D#

Date Acquired: Jul 21 2009 06:06 pm

Operator: TEL QC Summary: Sample Name: Analytes: **Pass** CCB

Misc Info:

ISTD: Pass

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.005	ppb	173.19	1.00	
51 V	72	1	-0.062	ppb	129.47	1.00	
52 Cr	72	1	-0.026	ppb	83.65	1.00	
55 Mn	72	1	-0.007	ppb	143.47	1.00	
59 Co	72	1	0.002	ppb	146.67	1.00	
60 Ni	72	1	0.009	ppb	171.37	1.00	
63 Cu	72	1	-0.013	ppb	47.42	1.00	
66 Zn	72	1	0.004	ppb	593.06	1.00	
75 As	72	1	0.008	ppb	83.97	1.00	
78 Se	72	1	0.635	ppb	21.48	1.00	
95 Mo	72	1	0.156	ppb	13.82	1.00	
107 Ag	115	1	0.013	ppb	10.04	1.00	
111 Cd	115	1	0.005	ppb	226.51	1.00	
118 Sn	115	1	0.091	ppb	27.58	1.00	
121 Sb	115	1	0.092	ppb	4.85	1.00	
137 Ba	115	1	0.007	ppb	96.12	1.00	
205 Tl	165	1	0.044	ppb	9.42	1.00	
208 Pb	165	1	0.005	ppb	16.13	1.00	
232 Th	165	1	0.846	ppb	15.54	1.00	
238 U	165	1	0.016	ppb	7.64	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	582937	1.46	581797	100.2	30 - 120	
45 Sc	1	2618279	0.49	2574983	101.7	30 - 120	
72 Ge	1	1228248	0.40	1211627	101.4	30 - 120	
115 In	1	3493471	0.25	3426576	102.0	30 - 120	
165 Ho	1	5729193	0.17	5647086	101.5	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\018WASH.D\018WASH.D#

Date Acquired: Jul 21 2009 06:09 pm

Operator: TEL QC Summary: Sample Name: Analytes: RLCV Pass Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.C
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm
Sample Type: WASH C:\ICPCHEM\1\METHODS\NormISIS.M

Sample Type: WASH Total Dil Factor: 1.00

QC.	Eleme	ents
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Ве	6	1	1.506 ppb	66.40	1.30	-
51 V	72	1	5.354 ppb	9.73	6.50	
52 Cr	72	1	2.294 ppb	19.68	2.60	
55 Mn	72	1	1.341 ppb	40.40	1.30	
59 Co	72	1	1.372 ppb	41.06	1.30	
60 Ni	72	1	2.353 ppb	23.65	2.60	
63 Cu	72	1	2.412 ppb	17.43	2.60	
66 Zn	72	1	10.710 ppb	7.57	13.00	
75 As	72	1	5.663 ppb	11.90	6.50	
78 Se	72	1	5.717 ppb	11.15	6.50	
95 Mo	72	1	4.400 ppb	84.36	2.60	
107 Ag	115	1	5.364 ppb	3,44	6.50	
111 Cd	115	1	1.442 ppb	41.34	1.30	
118 Sn	115	1	10.180 ppb	5.67	13.00	
121 Sb	115	1	2.278 ppb	21.30	2.60	
137 Ba	115	1	1.364 ppb	42.96	1.30	
205 Tl	165	1	1.415 ppb	39.27	1.30	
208 Pb	165	1	1.446 ppb	47.86	1.30	
232 Th	165	1	2.676 ppb	20.73	2.60	
238 U	165	1	1.427 ppb	40.32	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	598481	1.35	581797	102.9	30 - 120	
45 Sc	1	2642231	1.82	2574983	102.6	30 - 120	
72 Ge	1	1250188	1.58	1211627	103.2	30 - 120	
115 In	. 1	3540347	1.66	3426576	103.3	30 - 120	
165 Ho	1	5791976	1.24	5647086	102.6	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\026 CCV.D\026 CCV.D#

Date Acquired: Jul 21 2009 06:30 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC Eleme	ents								
Element	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 Be	6	1	49.60	ppb	3.76	50	99.2	90 - 110	
51 V	72	1	47.46	ppb	0.73	50	94.9	90 - 110	
52 Cr	72	1	48.46	ppb	1.90	50	96.9	90 - 110	
55 Mn	72	1	48.48	ppb	1.62	50	97.0	90 - 110	
59 Co	72	1	48.65	ppb	0.70	50	97.3	90 - 110	
60 Ni	72	1	49.63	ppb	1.26	50	99.3	90 - 110	
63 Cu	72	1	49.48	ppb	1.11	50	99.0	90 - 110	
66 Zn	72	1	49.17	ppb	0.85	50	98.3	90 - 110	
75 As	72	1	49.33	ppb	1.83	50	98.7	90 - 110	
78 Se	72	1	49.43	ppb	3.65	50	98.9	90 - 110	
95 Mo	72	1	49.52	ppb	1.74	50	99.0	90 - 110	
107 Ag	115	1	49.84	ppb	0.95	50	99.7	90 - 110	
111 Cd	115	1	49.79	ppb	0.88	50	99.6	90 - 110	
118 Sn	115	1	49.36	ppb	1.63	50	98.7	90 - 110	
121 Sb	115	1	49.58	ppb	0.60	50	99.2	90 - 110	
137 Ba	115	1	49.59	ppb	0.66	50	99.2	90 - 110	
205 Tl	165	1	50.54	ppb	0.83	50	101.1	90 - 110	
208 Pb	165	1	50.49	ppb	0.37	50	101.0	90 - 110	
232 Th	165	1	51.99	ppb	2.44	50	104.0	90 - 110	
238 U	165	1	51.90	ppb	0.76	50	103.8	90 - 110	
ISTD Ele	omonto								
Element	amencs	Tune	CPS Mean		RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li		1	571014		0.79	581797	98.1	30 - 120	rrag
45 Sc		1	2538915		1.25	2574983	98.6	30 - 120	
72 Ge		1	1213633		1.83	1211627	100.2	30 - 120	
72 Ge 115 In		1	3399341		0.85	3426576	99.2	30 - 120	
165 Ho		1	5600207		0.63	5647086	99.2	30 - 120	
T00 UO		1	3000207		0.00	3047000	22.4	30 - 120	

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\027 CCB.D\027 CCB.D#

Date Acquired: Jul 21 2009 06:33 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: CCB ISTD: Pass

Misc Info:

Current Method: C:\ICC
Calibration File C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

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Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.006	ppb	173.20	1.00	
51 V	72	1	-0.006	ppb	515.80	1.00	
52 Cr	72	1	-0.037	ppb	49.31	1.00	
55 Mn	72	1	-0.018	ppb	70.24	1.00	
59 Co	72	1	0.002	ppb	18.76	1.00	
60 Ni	72	1	0.005	ppb	28.03	1.00	
63 Cu	72	1	-0.039	ppb	12.85	1.00	
66 Zn	72	1	0.010	ppb	155.67	1.00	
75 As	72	1	-0.008	ppb	188.46	1.00	
78 Se	72	1	0.001	ppb	63037.00	1.00	
95 Mo	72	1	0.038	ppb	19.24	1.00	
107 Ag	115	1	0.006	ppb	44.60	1.00	
111 Cd	115	1	0.007	ppb	37.32	1.00	
118 Sn	115	1	-0.057	ppb	99.88	1.00	
121 Sb	115	1	0.059	ppb	8.11	1.00	
137 Ba	115	1	0.003	ppb	62.71	1.00	
205 Tl	165	1	0.021	ppb	14.15	1.00	
208 Pb	165	1	0.004	ppb	24.01	1.00	
232 Th	165	1	0.775	ppb	18.32	1.00	
238 U	165	1	0.010	ppb	13.56	1.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	568757	0.26	581797	97.8	30 - 120	
45 Sc	1	2523515	0.52	2574983	98.0	30 - 120	
72 Ge	1	1190357	0.87	1211627	98.2	30 - 120	
115 In	1	3393018	0.90	3426576	99.0	30 - 120	
165 Ho	1	5546048	0.69	5647086	98.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\028WASH.D\028WASH.D#

Date Acquired: Jul 21 2009 06:36 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: RLCV ISTD: Pass

Misc Info:

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

QC	Elements
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Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.945 ppb	17.37	1.30	
51 V	72	1	5.047 ppb	0.91	6.50	
52 Cr	72	1	2.021 ppb	3.49	2.60	
55 Mn	72	1	1.010 ppb	5.40	1.30	
59 Co	72	1	1.024 ppb	2.85	1.30	
60 Ni	72	1	2.156 ppb	3.13	2.60	
63 Cu	72	1	2.053 ppb	0.90	2.60	
66 Zn	72	1	10.450 ppb	1.17	13.00	
75 As	72	1	5.192 ppb	1.28	6.50	
78 Se	72	1	5.235 ppb	5.22	6.50	
95 Mo	72	1	2.123 ppb	6.02	2.60	
107 Ag	115	1	5.226 ppb	1.25	6.50	
111 Cd	115	1	1.069 ppb	5.99	1.30	
118 Sn	115	1	9.851 ppb	1.45	13.00	
121 Sb	115	1	1.944 ppb	1.32	2.60	
137 Ba	115	1	1.079 ppb	5.58	1.30	
205 Tl	165	1	1.091 ppb	0.56	1.30	
208 Pb	165	1	1.065 ppb	1.02	1.30	
232 Th	165	1	2.329 ppb	1.74	2.60	
238 U	165	1	1.101 ppb	0.77	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	563752	0.35	581797	96.9	30 - 120	
45 Sc	1	2522070	0.50	2574983	97.9	30 - 120	
72 Ge	1	1195071	0.30	1211627	98.6	30 - 120	
115 In	1	3409514	0.82	3426576	99.5	30 - 120	
165 Ho	1	5555873	0.54	5647086	98.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Blank QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\029 BLK.D\029 BLK.D#

Date Acquired: Jul 21 2009 06:39 pm

QC Summary: Operator: TEL LGEERB Analytes: Pass

Sample Name: ISTD: Misc Info: Pass BLANK 9194272 6020

Vial Number: 2208

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: BLK Total Dil Factor: 1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	0.000 ppb	0.00	2.00	
51 V	72	1	-0.023 ppb	197.29	2.00	
52 Cr	72	1	0.079 ppb	10.06	2.00	
55 Mn	72.	1	0.108 ppb	12.70	2.00	
59 Co	72	1	0.000 ppb	501.93	2.00	
60 Ni	72	1	0.025 ppb	81.97	2.00	
63 Cu	72	1	0.077 ppb	14.50	2.00	
66 Zn	72	1	0.692 ppb	2.78	2.00	
75 As	72	1	-0.001 ppb	1570.10	2.00	
78 Se	72	1	0.138 ppb	271.86	2.00	
95 Mo	72	1	0.012 ppb	30.51	2.00	
107 Ag	115	1	0.005 ppb	43,98	2.00	
111 Cd	115	1	0.003 ppb	153.49	2.00	
118 Sn	115	1	-0.388 ppb	3.06	2.00	
121 Sb	115	1	0.032 ppb	4.02	2.00	
137 Ba	115	1	0.024 ppb	41.42	2.00	
205 Tl	165	1	0.024 ppb	33.52	2.00	
208 Pb	165	1	0.010 ppb	10.00	2.00	
232 Th	165	1	0.149 ppb	18.82	2.00	
238 U	165	1	0.003 ppb	8.64	2.00	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567901	0.49	581797	97.6	30 - 120	
45 Sc	1	2536930	0.98	2574983	98.5	30 - 120	
72 Ge	1	1190052	0.57	1211627	98.2	30 - 120	
115 In	1	3404908	0.81	3426576	99.4	30 - 120	
165 Ho	1	5537384	1.21	5647086	98.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Laboratory Control Spike (LCS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\030 LCS.D\030 LCS.D#

Date Acquired: Jul 21 2009 06:41 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGEERC ISTD: Pass

Misc Info: LCS Vial Number: 2209

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	IS Ref	Tune	Conc. ppb	RSD(%)	Expected	Rec(%)	QC Rar	nge (%)	Flag
9 Be	6	1	40.84	2.97	40	102.1	80 -	- 120	
51 V	72	1	41.46	0.89	40	103.7	80 -	- 120	
52 Cr	72	1	42.08	1.02	40	105.2	80 -	- 120	
55 Mn	72	1	42.07	2.68	40	105.2	80 -	- 120	
59 Co	72	1	42.43	1.84	40	106.1	80 -	- 120	
60 Ni	72	1	43.29	2.68	40	108.2	80 -	- 120	
63 Cu	72	1	43.58	2.40	40	109.0	80 -	- 120	
66 Zn	72	1	41.11	1.13	40	102.8	80 -	- 120	
75 As	72	1	41.33	1.55	40	103.3	80 -	- 120	
78 Se	72	1	40.24	3.32	40	100.6	80 -	- 120	
95 Mo	72	1	43.74	5.12	40	109.4	80 -	- 120	
107 Ag	115	1	42.07	1.97	40	105.2	80 -	- 120	
111 Cd	115	1	41.62	1.54	40	104.1	80 -	- 120	
118 Sn	115	1	-0.06	879.10	40	-0.2	80 -	- 120	
121 Sb	115	1	40.67	1.75	40	101.7	80 -	- 120	
137 Ba	115	1	42.32	1.65	40	105.8	80 -	- 120	
205 Tl	165	1	43.38	1.33	40	108.5	80 -	- 120	
208 Pb	165	1	43.18	0.66	40	108.0	80 -	- 120	
232 Th	165	1	46.22	3.01	40	115.6	80 -	- 120	
238 U	165	1	44.22	0.28	40	110.6	80 -	- 120	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	572827	4.47	581797	98.5	30 - 120	
45 Sc	1	2536116	1.65	2574983	98.5	30 - 120	
72 Ge	1	1194379	2.43	1211627	98.6	30 - 120	
115 In	1	3408702	2.96	3426576	99.5	30 - 120	
165 Ho	1	5609006	1.65	5647086	99.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Data File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

Date Acquired: Jul 21 2009 06:44 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGCN3 10X ISTD: Pass

Misc Info: D9G100272

Vial Number: 2210

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: AllRef
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.11	0.01	ppb	86.58	3600	
51 V	72	1	21.63	2.16	ppb	7.43	3600	
52 Cr	72	1	6.32	0.63	ppb	7.96	3600	
55 Mn	72	1	5.24	0.52	ppb	6.66	3600	
59 Co	72	1	0.39	0.04	ppb	16.50	3600	
60 Ni	72	1	4.15	0.41	ppb	14.15	3600	
63 Cu	72	1	0.17	0.02	ppb	16.19	3600	
66 Zn	72	1	3.05	0.31	ppb	11.24	3600	
75 As	72	1	198.10	19.81	ppb	2.87	3600	
78 Se	72	1	4.94	0.49	ppb	39.09	3600	
95 Mo	72	1	16.44	1.64	ppb	4.40	3600	
107 Ag	115	1	0.09	0.01	ppb	63.79	3600	
111 Cd	115	1	0.13	0.01	ppb	29.31	3600	
118 Sn	115	1	-5.34	-0.53	ppb	1.82	3600	
121 Sb	115	1	0.48	0.05	ppb	8.21	3600	
137 Ba	115	1	33.07	3.31	ppb	2.19	3600	
205 Tl	165	1	0.27	0.03	ppb	15.00	3600	
208 Pb	165	1	0.16	0.02	ppb	10.80	3600	
232 Th	165	1	6.24	0.62	ppb	18.22	1000	
238 U	165	1	55.05	5.51	ppb	1.19	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	567824	0.66	581797	97.6	30 - 120	
45 Sc	1	2404508	0.72	2574983	93.4	30 - 120	
72 Ge	1	1124528	1.16	1211627	92.8	30 - 120	
115 In	1	3208719	1.35	3426576	93.6	30 - 120	
165 Ho	1	5383143	1.62	5647086	95.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Dilution Sample QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\032SDIL.D\032SDIL.D#

Date Acquired: Jul 21 2009 06:47 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3P50

Misc Info: SERIAL DILUTION

Vial Number: 2211

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SDIL Dilution Factor: 10.00

Dilution Ref File: C:\ICPCHEM\1\DATA\AG072109.B\031AREF.D\031AREF.D#

QC elements

Element	IS Ref	Tune	Conc.ppb		RSD(%)	Ref	Conc.	Actual(%)	QC	Rang	e(%)	Flag
9 Be	6	1	0.00	ppb	0.00		0.00	0.0	90	-	110	
51 V	72	1	0.43	ppb	23.28		0.43	99.3	90	-	110	
52 Cr	72	1	0.29	ppb	4.37		0.13	229.3	90	-	110	
55 Mn	72	1	0.15	ppb	6.68		0.10	144.4	90	_	110	
59 Co	72	1	0.01	ppb	66.01		0.01	130.9	90	_	110	
60 Ni	72	1	0.26	ppb	15.21		0.08	310.4	90	-	110	
63 Cu	72	1	-0.01	ppb	106.68		0.00	-353.0	90	-	110	
66 Zn	72	1	0.09	ppb	22.23		0.06	148.6	90	-	110	
75 As	72	1	3.90	ppb	0.41		3.96	98.4	90	_	110	
78 Se	72	1	0.05	ppb	1070.40		0.10	46.0	90	-	110	
95 Mo	72	1	0.31	ppb	1.89		0.33	95.3	90	-	110	
107 Ag	115	1	0.00	ppb	66.72		0.00	156.3	90	-	110	
111 Cd	115	1	0.00	ppb	175.62		0.00	145.6	90	-	110	
118 Sn	115	1	-0.53	ppb	3.47		-0.11	493.3	90	_	110	
121 Sb	115	1	0.02	ppb	16.35		0.01	181.6	90	-	110	
137 Ba	115	1	0.66	ppb	2.72		0.66	99.8	90	-	110	
205 Tl	165	1	0.00	ppb	195.50		0.01	21.4	90		110	
208 Pb	165	1	0.01	ppb	27.48		0.00	185.7	90	-	110	
232 Th	165	1	0.09	ppb	13.71		0.12	75.2	90	-	110	
238 U	165	1	1.10	ppb	1.87		1.10	100.1	90	-	110	

ISTD elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	565608	0.94	581797	97.2	30 - 120	
45 Sc	1	2460020	0.58	2574983	95.5	30 - 120	
72 Ge	1	1155387	1.16	1211627	95.4	30 - 120	
115 In	1	3303714	1.14	3426576	96.4	30 - 120	
165 Ho	1	5431207	0.86	5647086	96.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Denver

7440-56-4 Germanium

7440-60-0 Holmium

SERIAL DILLITION

Denver						SERI	AL DI	LUTI	<u>ON</u>
Method: 6	6020 (ICP/MS)		ICPMS_0	24		Reported	: 07/22/0	9 08:07	':22
Departmen	nt: 090 (Metals)						Source:	Spreads	sheet
Sample: I	LGCN3P50		Se	rial Dilution:	50.00	Sample [Dilution:	10.00	
Instrumer	nt: Agilent7500		Chanr	nel 272					
File: AG0	72109 # 32			d 6020					
Acquired:	07/21/2009 18:47:00			S 024		Matrix	: AQUE	าบร	
	d: 07/21/2009 17:28:00						nits: ug/L		
CASN	Analyte Name	M/S	Area	Dilution	Sample	%Diff.	MDL	Flag	Q
7440-41-7	Beryllium	9		0	0.11200	100		*	
	Vanadium	51	5166	21.480	21.630	0.693		*	
7440-47-3	Chromium	52	6495	14.490	6.3200	129		*	
7439-96-5	Manganese	55	3291	7.5700	5.2420	44.4		*	
7440-48-4	Cobalt	59	213	0.51000	0.38970	30.9		*	
7440-02-0	Nickel	60	897	12.880	4.1490	210		*	
7440-50-8	Copper	63	553	-0.59100	0.16740	453		*	
7440-66-6	Zinc	66	485	4.5335	3.0510	48.6		*	
7440-38-2	Arsenic	75	5677	194.90	198.10	1.62	0.21	NC	
7782-49-2	Selenium	78	557	2.2740	4.9420	54.0	0.70	NC	abla
7439-98-7	Molybdenum	95	1283	15.660	16.440	4.74		*	
7440-22-4	Silver	107	40	0.13490	0.08632	56.3		*	
7440-43-9	Cadmium	111	15	0.19425	0.13340	45.6		*	
7440-31-5	Tin	118	837	-26.330	-5.3380			*	
7440-36-0	Antimony	121	160	0.87700	0.48280	81.6		*	
7440-39-3	Barium	137	2169	32.995	33.070	0.227		*	
7440-28-0	Thallium	205	250	0.05780	0.26950	78.6		*	
7439-92-1	Lead	208	484	0.30480	0.16410	85.7		*	
7440-61-1	Uranium	238	40915	55.100	55.050	0.0908		*	
7440-29-1	Thorium	232	3247	4.6955	6.2410	24.8		*	
7439-93-2		6			0			*	
	Scandium	45			0			*	
7440-74-6	Indium	115			0			*	

^{*} Analyte not requested for this batch, no MDL NC : Serial dilution concentration < 100 X MDL E: Difference greater than Limit (10%)

0

72

165

Reviewed by: Date: 7 IDB Reports TestAmerica, Inc. Version: 6.02,068

Page 1 of 1

Post Digestion Spiked Sample (PDS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\033PDS.D\033PDS.D\#

Date Acquired: Jul 21 2009 06:50 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3Z

Misc Info: POST DIGESTION SPIKE

Vial Number: 2212

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: PDS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Spike Ref. File; ---

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	6	1	200.50	0.01	ppb	2.01	200	100.2	75 - 125	
51 V	72	1	199.90	2.16	ppb	1.11	200	98.9	75 - 125	
52 Cr	72	1	201.70	0.63	ppb	1.61	200	100.5	75 - 125	
55 Mn	72	1	198.30	0.52	ppb	1.60	200	98.9	75 - 125	
59 Co	72	1	195.50	0.04	ppb	2.21	200	97.7	75 - 125	
60 Ni	72	1	195.10	0.41	ppb	0.98	200	97.3	75 - 125	
63 Cu	72	1	195.80	0.02	ppb	0.06	200	97.9	75 - 125	
66 Zn	72	1	201.20	0.31	ppb	1.52	200	100.4	75 - 125	
75 As	72	1	221.60	19.81	ppb	1.14	200	100.8	75 - 125	
78 Se	72	1	205.80	0.49	ppb	1.72	200	102.6	75 - 125	
95 Mo	72	1	206.50	1.64	ppb	1.30	200	102.4	75 - 125	
107 Ag	115	1	48.42	0.01	ppb	1.14	50	96.8	75 - 125	
111 Cd	115	1	199.60	0.01	ppb	0.85	200	99.8	75 - 125	
118 Sn	115	1	182.90	-0.53	ppb	0.64	200	91.7	75 - 125	
121 Sb	115	1	200.40	0.05	ppb	0.62	200	100.2	75 - 125	
137 Ba	115	1	204.10	3.31	ppb	0.79	200	100.4	75 - 125	
205 Tl	165	1	196.40	0.03	ppb	0.92	200	98.2	75 - 125	
208 Pb	165	1	194.00	0.02	ppb	0.57	200	97.0	75 - 125	
232 Th	165	1	0.06	0.62	ppb	5.86	200	0.0	75 - 125	
238 U	165	1	208.90	5.51	ppb	1.19	200	101.7	75 - 125	

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1	552017	0.97	581797	94.9	30 - 120	
45 Sc	1	2393086	1.79	2574983	92.9	30 - 120	
72 Ge	1	1113187	1.37	1211627	91.9	30 - 120	
115 In	1	3182521	0.72	3426576	92.9	30 - 120	
165 Ho	1	5376631	0.55	5647086	95.2	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

 $\verb| ISTD Ref File : C:\| C:\| CPCHEM\| 1\| DATA\| AG072109.B\| 003CALB.D\| 003CALB.D\| 4$

Denver

7440-20-2 Scandium

7440-56-4 Germanium

7440-60-0 Holmium

7440-74-6 Indium

SAMPLE SPIKE

Method: 60	20 (ICP/MS)		ICPMS_02	24		Reported	I: 07/22/0	9 08:07	:27
Department:	090 (Metals)						Source:	Spreads	heet
Sample: L C	GCN3Z		Spi	ike Dilution:	1.00	Sample	Dilution:	10.00	
Instrument:	Agilent7500		Chann	el 272					,
File: AG072	2109 #33		Method	16020_					
Acquired: 0	7/21/2009 18:50:00		ICPM	S 024		Matrix	x: AQUE	OUS	
Calibrated:	07/21/2009 17:28:00			_		U	nits: ug/L	-	
CASN A	Analyte Name	M/S	Area	Amount	Sample	%Rec.	Spike	Flag	Q
7440-41-7 E	Beryllium	9	116367	200.50	0.01120	100	200		
7440-62-2 \	Vanadium	51	2276200	199.90	2.1630	98.9	200		
7440-47-3	Chromium	52	2295910	201.70	0.63200	101	200		
7439-96-5	Manganese	55	2733570	198.30	0.52420	98.9	200		
7440-48-4	Cobalt	59	2753080	195.50	0.03897	97.7	200		
7440-02-0 I	Nickel	60	601491	195.10	0.41490	97.3	200		
7440-50-8	Copper	63	1409320	195.80	0.01674	97.9	200		

7440-50-8 Co	opper 63	1409320	195.80	0.01674	97.9	200	
7440-66-6 Zin	nc 66	341573	201.20	0.30510	100	200	
7440-38-2 Ars	senic 75	305470	221.60	19.810	(102)	200	\square
7782-49-2 Se	lenium 78	55960	205.80	0.49420	(103)	200	\square
7439-98-7 Mc	olybdenum 95	760715	206.50	1.6440	102	200	
7440-22-4 Sil	ver 107	525638	48.420	0.00863	96.8	50.0	
7440-43-9 Ca	dmium 111	447213	199.60	0.01334	99.8	200	
7440-31-5 Tir	າ 118	1194630	182.90	-0.53380	91.4	200	
7440-36-0 An	timony 121	1511700	200.40	0.04828	100	200	
7440-39-3 Ba	rium 137	634553	204.10	3.3070	100	200	
7440-28-0 Th	allium 205	5056800	196.40	0.02695	98.2	200	
7439-92-1 Le	ad 208	6807220	194.00	0.01641	97.0	200	
7440-61-1 Ura	anium 238	7672550	208.90	5.5050	102	200	
7440-29-1 Th	orium 232	2147	0.05994	0.62410			
7439-93-2 Lit	hium 6			0			

0

0

45

115

72

165

Date: Reviewed by: IDB Reports TestAmerica, Inc.

> View Page 1 of 1

ISTD: Pass

Spiked Sample (MS) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\034_MS.D\034_MS.D#

Jul 21 2009 06:52 pm Date Acquired: QC Summary: NormISIS.M Acq. Method: Analytes: Pass

 \mathtt{TEL} Operator:

LGCN3S 10X Sample Name: MATRIX SPIKE Misc Info:

2301 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal. Update: Jul 21 2009 05:31 pm

MS Sample Type: Prep Dil. Factor: 10.00 Undiluted Autodil Factor: 10.00 Final Dil Factor:

Spike Ref. File:

QC Elements

Element	IS Ref	Tune	Conc.	Ref Conc		RSD(%)	Spk Amt	Rec(%)	QC Range(%) QC Flag
9 Be	6	1	4.28	0.01	ppb	3.84	40	10.7	50 - 150
51 V	72	1	6.27	2.16	ppb	1.52	40	14.9	50 - 150
52 Cr	72	1	4.83	0.63	ppb	4.02	40	11.9	50 - 150
55 Mn	72	1	4.67	0.52	ppb	0.82	40	11.5	50 - 150
59 Co	72	1	4.21	0.04	ppb	1.66	40	10.5	50 - 150
60 Ni	72	1	4.58	0.41	ppb	2.25	40	11.3	50 - 150
63 Cu	72	1	4.24	0.02	ppb	2.92	40	10.6	50 - 150
66 Zn	72	1	4.53	0.31	ppb	4.27	40	11.2	50 - 150
75 As	72	1	23.45	19.81	ppb	0.47	40	39.2	50 - 150
78 Se	72	1	4.43	0.49	ppb	4.58	40	10.9	50 - 150
95 Mo	72	1	6.07	1.64	ppb	2.05	40	14.6	50 - 150
107 Ag	115	1	4.06	0.01	ppb	2.34	40	10.2	50 - 150
111 Cd	115	1	4.28	0.01	ppb	1.30	40	10.7	50 - 150
118 Sn	115	1	-0.29	-0.53	ppb	8.52	40	-0.7	50 - 150
121 Sb	115	1	4.37	0.05	ppb	0.90	40	10.9	50 - 150
137 Ba	115	1	7.57	3.31	ppb	1.41	40	17.5	50 - 150
205 Tl	165	1	4.37	0.03	ppb	0.09	40	10.9	50 - 150
208 Pb	165	1	4.34	0.02	ppb	0.98	40	10.9	50 - 150
232 Th	165	1	4.70	0.62	ppb	2.44	40	11.6	50 - 150
238 U	165	1	10.08	5.51	ppb	0.80	40	22.2	50 - 150

ISTD Elements

Element	Tune	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%) QC Flag
6 Li	1	556944	0.45	581797	95.7	30 - 120
45 Sc	1	2377843	1.11	2574983	92.3	30 - 120
72 Ge	1	1122514	1.35	1211627	92.6	30 - 120
115 In	1	3221254	0.75	3426576	94.0	30 - 120
165 Но	1	5362470	0.23	5647086	95.0	30 - 120

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\035 CCV.D\035 CCV.D#

Date Acquired: Jul 21 2009 06:55 pm

Operator: TEL QC Summary:
Sample Name: CCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCV
Total Dil Factor: 1.00

QC	Eleme	nts
បារ	mont	TC

Ele	ment	IS Ref	Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9	Ве	6	1	49.42	ppb	1.97	50	98.8	90 - 110	
51	V	72	1	48.32	ppb	0.92	50	96.6	90 - 110	
52	Cr	72	1	48.98	ppb	0.92	50	98.0	90 - 110	
55	Mn	72	1	48.41	ppb	0.46	50	96.8	90 - 110	
59	Co	72	1	49.42	ppb	0.37	50	98.8	90 - 110	
60	Ni	72	1	49.85	ppb	0.52	50	99.7	90 - 110	
63	Cu	72	1	50.16	ppb	0.84	50	100.3	90 - 110	
66	Zn	72	1	49.95	ppb	0.90	50	99.9	90 - 110	
75	As	72	1	50.23	ppb	0.25	50	100.5	90 - 110	
78	Se	72	1	50.22	ppb	2.05	50	100.4	90 - 110	
95	Мо	72	1	50.05	ppb	0.52	50	100.1	90 - 110	
107	Ag	115	1	49.31	ppb	0.59	50	98.6	90 - 110	
111	Cd	115	1	49.60	ppb	0.17	50	99.2	90 - 110	
118	Sn	115	1	49.20	ppb	0.37	50	98.4	90 - 110	
121	Sb	115	1	49.37	ppb	0.88	50	98.7	90 - 110	
137	Ва	115	1	49.60	ppb	0.50	50	99.2	90 - 110	
205	Tl	165	1	50.85	ppb	1.38	50	101.7	90 - 110	
208	Pb	165	1	50.56	ppb	0.82	50	101.1	90 - 110	
232	Th	165	1	52.19	ppb	3.26	50	104.4	90 - 110	
238	U	165	1	51.93	ppb	1.69	50	103.9	90 - 110	

ISTD Elements

Ele	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	540158	0.94	581797	92.8	30 - 120	
45	Sc	1	2438139	1.30	2574983	94.7	30 - 120	
72	Ge	1	1153755	0.36	1211627	95.2	30 - 120	
115	In	1	3309113	0.86	3426576	96.6	30 - 120	
165	Но	1	5464053	0.74	5647086	96.8	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D\#

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\036 CCB.D\036 CCB.D#

Date Acquired: Jul 21 2009 06:58 pm

QC Summary: Operator: TELAnalytes: Pass Sample Name: CCB ISTD: Pass Misc Info:

Vial Number: 1307

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Current medical
Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

	O.C	El	emen	ts
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Ele	ment	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9	Ве	6	1	0.000	ppb	0.00	1.00	
51	V	72	1	-0.003	ppb	487.71	1.00	
52	Cr	72	1	-0.001	ppb	1245.80	1.00	
55	Mn	72	1	-0.013	ppb	48.53	1.00	
59	Со	72	1	0.000	ppb	382.88	1.00	
60	Ni	72	1	-0.006	ppb	152.58	1.00	
63	Cu	72	1	-0.033	ppb	14.97	1.00	
66	Zn	72	1	0.013	ppb	162.14	1.00	
75	As	72	1	-0.001	ppb	1279.80	1.00	
78	Se	72	1	0.044	ppb	96.85	1.00	
95	Mo	72	1	0.048	ppb	21.21	1.00	
107	Ag	115	1	0.007	ppb	13.19	1.00	
111	Cd	115	1	0.004	ppb	36.72	1.00	
118	Sn	115	1	-0.066	ppb	28.84	1.00	
121	Sb	115	1	0.060	ppb	6.65	1.00	
137	Ва	115	1	0.010	ppb	78.17	1.00	
205	Tl	165	1	0.019	ppb	11.00	1.00	
208	Pb	165	1	0.004	ppb	45.34	1.00	
232	Th	165	1	0.795	ppb	15.81	1.00	
238	U	165	1	0.011	ppb	4.95	1.00	

ISTD Elements

TOTO HIGHER							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	552374	0.81	581797	94.9	30 - 120	
45 Sc	1	2446795	1.11	2574983	95.0	30 - 120	
72 Ge	1	1178029	1.15	1211627	97.2	30 - 120	
115 In	1	3329395	0.66	3426576	97.2	/ 30 - 120	
165 Ho	1	5475567	0.43	5647086	97.0 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\		\checkmark		
Tune File#	3	C:\ICPCHEM\	1\7500\		J		

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Wash QC Report

Data File:

C:\ICPCHEM\1\DATA\AG072109.B\037WASH.D\037WASH.D#

Date Acquired:

Jul 21 2009 07:01 pm

Operator:

TEL

QC Summary:

Sample Name:

RLCV

Analytes: Pass

Misc Info:

ISTD: Pass

Vial Number:

1204

C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C
Last Cal Update: Jul 21 2009 05:31 pm

Sample Type:

WASH

Total Dil Factor:

Current Method:

1.00

QC Elements

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.001 ppb	9.18	1.30	
51 V	72	1	5.141 ppb	2.55	6.50	
52 Cr	72	1	2.091 ppb	2.49	2.60	
55 Mn	72	1	1.005 ppb	1.26	1.30	
59 Co	72	1	1.028 ppb	5.10	1.30	
60 Ni	72	1	2.103 ppb	0.94	2.60	
63 Cu	72	1	2.128 ppb	2.55	2.60	
66 Zn	72	1	10.560 ppb	2.59	13.00	
75 As	72	1	5.192 ppb	0.09	6.50	
78 Se	72	1	6.309 ppb	1.74	6.50	
95 Mo	72	1	2.070 ppb	2.44	2.60	
107 Ag	115	1	5.185 ppb	1.03	6.50	
111 Cd	115	1	1.087 ppb	10.27	1.30	
118 Sn	115	1	9.916 ppb	0.55	13.00	
121 Sb	115	1	1.957 ppb	2.80	2.60	
137 Ba	115	1	1.051 ppb	2.71	1.30	
205 Tl	165	1	1.091 ppb	2.87	1.30	
208 Pb	165	1	1.075 ppb	0.84	1.30	
232 Th	165	1	2.350 ppb	2.29	2.60	
238 U	165	1	1.116 ppb	0.75	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	550628	0.54	581797	94.6	30 - 120	
45 Sc	1	2456537	0.83	2574983	95.4	30 - 120	
72 Ge	1	1156394	1.08	1211627	95.4	30 - 120	
115 In	1	3321593	0.50	3426576	96.9	30 - 120	
165 Ho	1	5496023	1.28	5647086	97.3	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :ISTD Failures

0 :Max. Number of Failures Allowed 0 :Max. Number of ISTD Failures Allowed

Duplicate Spike (MSD) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\038 MSD.D\038 MSD.D#

Date Acquired: Jul 21 2009 07:03 pm QC Summary:

Acq. Method: NormISIS.M Analytes: Pass Operator: TEL ISTD: Pass

Sample Name: LGCN3D 10X

Misc Info: MATRIX SPIKE DUPLICATE

Vial Number: 2302

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: MSD Dilution Factor: 10.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\AG072109.B\034 MS.D\034 MS.D\#

QC Elements

Element	IS Ref	Tune	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	6	1	4.06	ppb	5.70	4.28	5.18	20	
51 V	72	1	6.38	ppb	1.64	6.27	1.79	20	
52 Cr	72	1	4.79	ppb	0.59	4.83	0.85	20	
55 Mn	72	1	4.66	ppb	1.04	4.67	0.34	20	
59 Co	72	1	4.26	ppb	3.02	4.21	1.11	20	
60 Ni	72	1	4.59	ppb	3.03	4.58	0.15	20	
63 Cu	72	1	4.29	ppb	0.78	4.24	1.17	20	
66 Zn	72	1	4.59	ppb	2.90	4.53	1.23	20	
75 As	72	1	23.78	ppb	1.59	23.45	1.40	20	
78 Se	72	1	4.84	ppb	10.22	4.43	8.78	20	
95 Mo	72	1	5.96	ppb	2.88	6.07	1.73	20	
107 Ag	115	1	4.19	ppb	3,60	4.06	2.98	20	
111 Cd	115	1	4.27	ppb	1.75	4.28	0.12	20	
118 Sn	115	1	-0.49	ppb	0.60	-0.29	-50.16	20	
121 Sb	115	1	4.30	ppb	1.48	4.37	1.66	20	
137 Ba	115	1	7.66	ppb	3.26	7.57	1.09	20	
205 Tl	165	1	4.33	ppb	1.08	4.37	0.87	20	
208 Pb	165	1	4.32	ppb	0.78	4.34	0.44	20	
232 Th	165	1	4.77	ppb	2.43	4.70	1.33	20	
238 U	165	1	9.96	ppb	0.82	10.08	1.22	20	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	546064	0.27	581797	93.9	30 - 120	
45 Sc	1	2359431	0.90	2574983	91.6	30 - 120	
72 Ge	1	1104590	0.97	1211627	91.2	30 - 120	
115 In	1	3149159	0.41	3426576	91.9	30 - 120	
165 Ho	1	5369723	0.97	5647086	95.1	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref. File :C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0:ISTD Failures 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\039SMPL.D\039SMPL.D#

Date Acquired: Jul 21 2009 07:06 pm

QC Summary: Acq. Method: NormISIS.M

Analytes: Pass Operator: TEL ISTD: Pass Sample Name: LGCQK 10X

Misc Info: D9G100274 Vial Number: 2303

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M C:\ICPCHEM\1\CALIB\NormISIS.C Calibration File:

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	23.68	2.37	ppb	1.85	3600	
52 Cr	72	1	12.40	1.24	ppb	2.95	3600	
55 Mn	72	1	2.12	0.21	ppb	8.12	3600	
59 Co	72	1	0.30	0.03	ppb	7.53	3600	
60 Ni	72	1	3.33	0.33	ppb	5.22	3600	
63 Cu	72	1	-0.20	-0.02	ppb	5.61	3600	
66 Zn	72	1	2.60	0.26	ppb	8.14	3600	
75 As	72	1	114.20	11.42	ppb	1.08	3600	
78 Se	72	1	2.84	0.28	ppb	68.00	3600	
95 Mo	72	1	42.30	4.23	ppb	2.35	3600	
107 Ag	115	1	0.07	0.01	ppb	37.85	3600	
111 Cd	115	1	0.07	0.01	ppb	133.86	3600	
118 Sn	115	1	-5.30	-0.53	ppb	2.37	3600	
121 Sb	115	1	0.28	0.03	ppb	5.21	3600	
137 Ba	115	1	34.03	3.40	ppb	4.11	3600	
205 Tl	165	1	0.11	0.01	ppb	30.92	3600	
208 Pb	165	1	0.09	0.01	ppb	19.12	3600	
232 Th	165	1	1.32	0.13	ppb	13.37	1000	
238 U	165	1	6.45	0.64	ppb	0.89	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	· Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	551022	0.60	581797	94.7	30 - 120	
45 Sc	1	2336691	0.75	2574983	90.7	30 - 120	
72 Ge	1	1100169	0.92	1211627	90.8	30 - 120	
115 In	1	3126709	0.78	3426576	91.2	30 - 120	
165 Ho	1	5251243	0.64	5647086	93.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ 3 C:\ICPCHEM\1\7500\ Tune File#

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Data File: C:\ICPCHEM\1\DATA\AG072109.B\040SMPL.D\040SMPL.D#

C:\ICPCHEM\1\CALIB\NormISIS.C

Date Acquired: Jul 21 2009 07:09 pm

QC Summary: Acq. Method: NormISIS.M

Operator: TEL Analytes: Pass ISTD: Pass Sample Name: LGDJV 10X

Misc Info: D9G110152 Vial Number: 2304

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M

Calibration File: Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA Dilution Factor: 10.00 Autodil Factor: Undiluted Final Dil Factor: 10.00

QC Elements

-								
Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.12	0.01	ppb	86.63	3600	
51 V	72	1	16.34	1.63	ppb	14.05	3600	
52 Cr	72	1	858.20	85.82	ppb	0.42	3600	
55 Mn	72	1	62.25	6.23	ppb	0.82	3600	
59 Co	72	1	0.35	0.04	ppb	4.83	3600	
60 Ni	72	1	3.24	0.32	ppb	5.41	3600	
63 Cu	72	1	-0.11	-0.01	ppb	134.88	3600	
66 Zn	72	1	0.97	0.10	ppb	20.21	3600	
75 As	72	1	137.30	13.73	ppb	1.37	3600	
78 Se	72	1	1.53	0.15	ppb	126.27	3600	
95 Mo	72	1	23.17	2.32	ppb	1.07	3600	
107 Ag	115	1	0.03	0.00	ppb	74.34	3600	
111 Cd	115	1	0.05	0.00	ppb	97.57	3600	
118 Sn	115	1	-5.16	-0.52	ppb	3.23	3600	
121 Sb	115	1	0.22	0.02	ppb	2.16	3600	
137 Ba	115	1	20.27	2.03	ppb	4.70	3600	
205 Tl	165	1	0.11	0.01	ppb	13.97	3600	
208 Pb	165	1	0.08	0.01	ppb	23.24	3600	
232 Th	165	1	0.36	0.04	ppb	9.36	1000	
238 U	165	1	7.67	0.77	ppb	2.40	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	549478	0.91	581797	94.4	30 - 120	
45 Sc	1	2376723	1.71	2574983	92.3	30 - 120	
72 Ge	1	1096432	0.47	1211627	90.5	30 - 120	
115 In	1	3124200	0.99	3426576	91.2	30 - 120	
165 Ho	1	5324718	1.58	5647086	94.3	30 - 120	

Tune File# c:\icpchem\1\7500\he.u Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 : Max. Number of Failures Allowed 0 :Element Failures 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Data File: C:\ICPCHEM\1\DATA\AG072109.B\041SMPL.D\041SMPL.D#

Date Acquired: Jul 21 2009 07:11 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDJ3 10X ISTD: Pass

Misc Info: D9G110155
Vial Number: 2305

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Elem	nent	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9	Ве	6	1	0.06	0.01	ppb	173.23	3600	
51	V	72	1	25.99	2.60	ppb	1.41	3600	
52	Cr	72	1	90.81	9.08	ppb	1.84	3600	
55	Mn	72	1	2.28	0.23	ppb	3.91	3600	
59	Со	72	1	0.28	0.03	ppb	8.82	3600	
60	Ni	72	1	3.42	0.34	ppb	10.30	3600	
63	Cu	72	1	-0.03	0.00	ppb	414.27	3600	
66	Zn	72	1	9.09	0.91	ppb	0.15	3600	
75 .	As	72	1	86.50	8.65	ppb	2.13	3600	
78	Se	72	1	1.59	0.16	ppb	168.68	3600	
95	Мо	72	1	35.52	3.55	ppb	3.38	3600	
107.	Ag	115	1	0.02	0.00	ppb	63.47	3600	
111	Cd	115	1	0.11	0.01	ppb	91.74	3600	
118	Sn	115	1	-5.25	-0.52	ppb	1.50	3600	
121	Sb	115	1	0.16	0.02	ppb	27.09	3600	
137	Ва	115	1	26.05	2.61	ppb	2.24	3600	
205	T1	165	1	0.06	0.01	ppb	15.71	3600	
208	Pb	165	1	0.10	0.01	ppb	12.74	3600	
232	Th	165	1	0.18	0.02	ppb	32.01	1000	
238	U	165	1	8.01	0.80	ppb	0.86	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	558798	0.28	581797	96.0	30 - 120	
45 Sc	1	2360484	0.64	2574983	91.7	30 - 120	
72 Ge	1	1106065	0.59	1211627	91.3	30 - 120	
115 In	1	3160658	0.73	3426576	92.2	30 - 120	
165 Ho	1	5332925	0.28	5647086	94.4	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures
0 :ISTD Failures

0:Max. Number of Failures Allowed 0:Max. Number of ISTD Failures Allowed

Data File: C:\ICPCHEM\1\DATA\AG072109.B\042SMPL.D\042SMPL.D#

Date Acquired: Jul 21 2009 07:14 pm

Acq. Method: NormISIS.M QC Summary:

Operator: TEL Analytes: Pass Sample Name: LGDKR 10X ISTD: Pass

Misc Info: D9G110159
Vial Number: 2306

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal. Update: Jul 21 2009 05:31 pm

Sample Type: SA
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

QC Elements

Element	IS Ref	Tune	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	6	1	0.00	0.00	ppb	0.00	3600	
51 V	72	1	30.44	3.04	ppb	4.27	3600	
52 Cr	72	1	17.70	1.77	ppb	1.53	3600	
55 Mn	72	1	3.41	0.34	ppb	1.05	3600	
59 Co	72	1	0.10	0.01	ppb	35.67	3600	
60 Ni	72	1	2.63	0.26	ppb	23.26	3600	
63 Cu	72	1	-0.14	-0.01	ppb	158.27	3600	
66 Zn	72	1	1.23	0.12	ppb	9.20	3600	
75 As	72	1	57.13	5.71	ppb	1.32	3600	
78 Se	72	1	2.47	0.25	ppb	139.38	3600	
95 Mo	72	1	7.30	0.73	ppb	2.20	3600	
107 Ag	115	1	0.01	0.00	ppb	150.52	3600	
111 Cd	115	1	0.05	0.00	ppb	86.56	3600	
118 Sn	115	1	-5.31	-0.53	ppb	1.46	3600	
121 Sb	115	1	0.12	0.01	ppb	36.48	3600	
137 Ba	115	1 .	22.02	2.20	ppb	2.09	3600	
205 Tl	165	1	0.03	0.00	ppb	69.45	3600	
208 Pb	165	1	0.07	0.01	ppb	7.65	3600	
232 Th	165	1	0.10	0.01	ppb	23.71	1000	
238 U	165	1	2.22	0.22	ppb	2.65	3600	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	' Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	564989	0.50	581797	97.1	30 - 120	
45 Sc	1	2392180	0.44	2574983	92.9	30 - 120	
72 Ge	1	1130770	0.41	1211627	93.3	30 - 120	
115 In	1	3228355	1.24	3426576	94.2	30 - 120	
165 Ho	1	5420266	0.22	5647086	96.0	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

Continuing Calibration Verification (CCV) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\043 CCV.D\043 CCV.D#

Date Acquired: Jul 21 2009 07:17 pm

QC Summary: Operator: TEL Analytes: Pass Sample Name: CCV Misc Info: ISTD: Pass

Vial Number: 1107

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

CCV Sample Type: Total Dil Factor: 1.00

QC Elements

Eleme	nt IS Re	f Tune	Conc.		RSD(%)	Expected	Rec(%)	QC Range(%)	Flag
9 B	se 6	1	49.65	ppb	2.08	50	99.3	90 - 110	
51 V	72	1	48.04	ppb	1.47	50	96.1	90 - 110	
52 C	r 72	1	48.72	ppb	2.23	50	97.4	90 - 110	
55 M	In 72	1	48.53	ppb	1.91	50	97.1	90 - 110	
59 C	o 72	1	49.19	ppb	1.05	50	98.4	90 - 110	
60 N	Ti 72	1	50.51	ppb	2.15	50	101.0	90 - 110	
63 C	u 72	1	50.79	ppb	1.69	50	101.6	90 - 110	
66 Z	in 72	1	49.91	ppb	2.28	50	99.8	90 - 110	
75 A	as 72	. 1	50.09	ppb	1.74	50	100.2	90 - 110	
78 S	se 72	1	50.55	ppb	0.24	50	101.1	90 - 110	
95 M	Io 72	1	50.44	ppb	2.04	50	100.9	90 - 110	
107 A	ig 115	1	49.47	ppb	1.12	50	98.9	90 - 110	
111 C	d 115	1	49.64	ppb	0.86	50	99.3	90 - 110	
118 S	in 115	1	49.52	ppb	0.62	50	99.0	90 - 110	
121 S	b 115	1	49.46	ppb	1.50	50	98.9	90 - 110	
137 B	8a 115	1	49.75	ppb	0.64	50	99.5	90 - 110	
205 T	165	1	52.25	ppb	1.18	50	104.5	90 - 110	
208 P	b 165	1	51.38	ppb	1.02	50	102.8	90 - 110	
232 T	h 165	1	53.11	ppb	2.44	50	106.2	90 - 110	
238 U	165	1	53.01	ppb	0.71	50	106.0	90 - 110	

IST) Elements							
Ele	ment	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6	Li	1	536974	0.53	581797	92.3	30 - 120	
45	Sc	1	2404825	0.90	2574983	93.4	30 - 120	
72	Ge	1	1144216	1.59	1211627	94.4	30 - 120	
115	In	1	3295604	0.45	3426576	96.2	30 - 120	
165	Но	1	5413800	0.49	5647086	95.9	30 - 120	

Tune File# c:\icpchem\1\7500\he.u 1 Tune File# 2 C:\ICPCHEM\1\7500\ Tune File# C:\ICPCHEM\1\7500\

ISTD Ref File : C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures 0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Continuing Calibration Blank (CCB) QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\044 CCB.D\044 CCB.D#

Date Acquired: Jul 21 2009 07:20 pm

QC Summary: Operator: \mathtt{TEL} Analytes: Pass Sample Name: CCB ISTD: Pass Misc Info:

1307 Vial Number:

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: CCB Total Dil Factor: 1.00

Element	IS Ref	Tune	Conc.		RSD(%)	High Limit	Flag
9 Be	6	1	0.000	ppb	0.00	1.00	
51 V	72	1	0.012	ppb	188.91	1.00	
52 Cr	72	1	-0.022	ppb	45.87	1.00	
55 Mn	72	1	-0.011	ppb	53.82	1.00	
59 Co	72	1	0.002	ppb	121.88	1.00	
60 Ni	72	1	0.007	ppb	120.83	1.00	
63 Cu	72	1	-0.039	ppb	12.93	1.00	
66 Zn	72	1	0.001	ppb	1830.70	1.00	
75 As	72	1	-0.015	ppb	100.54	1.00	
78 Se	72	1	0.063	ppb	454.20	1.00	
95 Mo	72	1	0.016	ppb	20.60	1.00	
107 Ag	115	1	0.010	ppb	21.43	1.00	
111 Cd	115	1	0.005	ppb	76.54	1.00	
118 Sn	115	1	-0.106	ppb	36.09	1.00	
121 Sb	115	1	0.051	ppb	15.99	1.00	
137 Ba	115	1	0.010	ppb	31.85	1.00	
205 Tl	165	1	0.020	ppb	11.21	1.00	
208 Pb	165	1	0.003	ppb	16.50	1.00	
232 Th	165	1	0.824	ppb	16.14	1.00	
238 U	165	1	0.009	ppb	11.26	1.00	

TOTO Flements

ISID Flements							
Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	540872	0.73	581797	93.0	30 - 120	
45 Sc	1	2418946	1.22	2574983	93.9	30 - 120	
72 Ge	1	1139717	0.72	1211627	94.1	30 - 120	
115 In	1	3281751	0.37	3426576	95.8	30 - 120	
165 Ho	1	5438318	1.15	5647086	96.3 /	30 - 120	
Tune File#	1	c:\icpchem\	1\7500\h	e.u			
Tune File#	2	C:\ICPCHEM\	1\7500\				

Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File :

C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Max. Number of Failures Allowed 0 :Element Failures

0 :Max. Number of ISTD Failures Allowed 0 :ISTD Failures

Wash QC Report

Data File: C:\ICPCHEM\1\DATA\AG072109.B\045WASH.D\045WASH.D#

Date Acquired: Jul 21 2009 07:22 pm

Operator: TEL QC Summary:
Sample Name: RLCV Analytes: Pass
Misc Info: ISTD: Pass

Vial Number: 1204

Current Method: C:\ICPCHEM\1\METHODS\NormISIS.M Calibration File: C:\ICPCHEM\1\CALIB\NormISIS.C

Last Cal Update: Jul 21 2009 05:31 pm

Sample Type: WASH Total Dil Factor: 1.00

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UL	E L	emen	LLS

Element	IS Ref	Tune	Conc.	RSD(%)	High Limit	Flag
9 Be	6	1	1.045 ppb	12.08	1.30	
51 V	72	1	5.035 ppb	1.01	6,50	
52 Cr	72	1	2.023 ppb	2.27	2.60	
55 Mn	72	1	1.007 ppb	2.81	1.30	
59 Co	72	1	1.000 ppb	4.78	1.30	
60 Ni	72	1	2.095 ppb	4.44	2.60	
63 Cu	72	1	2.025 ppb	2.63	2.60	
66 Zn	72	1	10.370 ppb	2.29	13.00	
75 As	72	1	5.157 ppb	1.05	6.50	
78 Se	72	1.	4.848 ppb	12.40	6.50	
95 Mo	72	1	2.162 ppb	0.74	2.60	
107 Ag	115	1. 1	5.141 ppb	1.03	6.50	
111 Cd	115	- 1	1.004 ppb	4.06	1.30	
118 Sn	115	1	9.907 ppb	0.76	13.00	
121 Sb	115	1	1.942 ppb	1.51	2.60	
137 Ba	115	1	1.047 ppb	5.14	1.30	
205 Tl	165	1	1.098 ppb	0.61	1.30	
208 Pb	165	1	1.094 ppb	0.45	1.30	
232 Th	165	1	2.411 ppb	1.64	2.60	
238 U	165	1	1.121 ppb	1.49	1.30	

ISTD Elements

Element	Tune	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1	539872	0.98	581797	92.8	30 - 120	
45 Sc	1	2370772	1.41	2574983	92.1	30 - 120	
72 Ge	1	1136181	1.05	1211627	93.8	30 - 120	
115 In	1	3268605	0.72	3426576	95.4	30 - 120	
165 Ho	1	5404596	1.26	5647086	95.7	30 - 120	

Tune File# 1 c:\icpchem\1\7500\he.u
Tune File# 2 C:\ICPCHEM\1\7500\
Tune File# 3 C:\ICPCHEM\1\7500\

ISTD Ref File: C:\ICPCHEM\1\DATA\AG072109.B\003CALB.D\003CALB.D#

0 :Element Failures 0 :Max. Number of Failures Allowed

0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed