Thursday, February 08, 2018

Rick Allison
COGCC
1120 Lincoln St. #801
Denver, CO 80203

Re: ALS Workorder: 1801317
Project Name: Winick
Project Number: 200445363

Dear Mr. Allison:

Two soil samples were received from COGCC, on 1/25/2018. The samples were scheduled for the following analyses:

GC/MS Volatiles
Inorganics
Metals
Total Extractable Petroleum Hydrocarbons (Diesel)

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental
Katie M. OBrien
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
AIHA	214884
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280

1801317

GC/MS Volatiles:
The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The samples were also analyzed for Gasoline Range Organics (GRO).

All acceptance criteria were met.

DRO:
The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

Metals:
The samples were analyzed following SW-846, 3rd Edition procedures. Analysis by ICPMS followed method 6020A and the current revision of SOP 827. Mercury analysis by CVAA followed method 7471A and the current revision of SOP 812.

All acceptance criteria were met.

Inorganics:
The samples were analyzed following SW-846 and USDA Handbook 60 Chapter 6 procedures for the current revisions of the following SOPs and methods:

Analyte	Method	SOP #
Hexavalent chromium	7196A	1122
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft
Paste pH	USDA60	810 Draft

Chromium III is a calculated value derived from the subtraction of hexavalent chromium from total chromium.

All acceptance criteria were met.

ALS -- Fort Collins

Sample Number(s) Cross-Reference Table

OrderNum: 1801317
Client Name: COGCC
Client Project Name: Winick
Client Project Number: 200445363
Client PO Number: GAE 2018*00302

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SS-1	1801317-1		SOIL	25-Jan-18	13:53
SS-2	1801317-2		SOIL	25-Jan-18	14:05
SS-1	1801317-3		SatExtract	25-Jan-18	13:53
SS-2	1801317-4		SatExtract	25-Jan-18	14:05

ALS Environmental

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

WORKORDER #					
SAMPLER	R. Allison	DATE	1/25/2018	PAGE	1 of 1
SITE ID	TBD - email to follow	TURNAROUND	2-day on DRO*	DISPOSAL	By Lab or Return to Client
EDD FORMAT	COGCC EDD				
PURCHASE ORDER	GAE 2018*00302				

PROJECT NAME	Winick	BILL TO COMPANY	COGCC
PROJECT No.	200445363	INVOICE ATTN TO	Rick Allison
		ADDRESS	1120 Lincoln Street Suite 801
COMPANY NAME	COGCC	CITY / STATE / ZIP	Denver, CO 80203
SEND REPORT TO	Rick Allison	PHONE	970-461-2970
ADDRESS	1120 Lincoln Street Suite 801	FAX	NA
CITY / STATE / ZIP	Denver, CO 80203	E-MAIL	rick.allison@state.co.us
PHONE	970-461-2970		
FAX	NA		
E-MAIL			

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	BTEX, TPH-GRO 8260	TPH-DRO 8015	pH, electrical conductivity, SAR (saturated paste)	Total Metals (As, Ba, Cd, Cr 3, Cu, Pb, Hg, Ni, Se, Ag, Zn) 6010/6020
1	SS-1	S	1/25/18	13:53	2	8	11	X	X	X (3)	X
2	SS-2	S	1/25/18	14:05	2	8	11	X	X	X (4)	X

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:	QC PACKAGE (check below)	
2-DAY TAT REQUESTED ON DRO	X	LEVEL II (Standard QC)
STANDARD ON ALL OTHERS		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Rick Allison	1/25/18	15:56
RECEIVED BY	C Trimble	C Trimble	1-26-18	1551
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

5 of 11

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: COGCC Workorder No: 1801317

Project Manager: Ito Initials: DS Date: 1-25-18

1. Does this project require any special handling in addition to standard ALS procedures?		YES	NO
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		YES	NO
5. Are the COC and bottle labels complete and legible?		YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		YES	NO
12. Are all samples within holding times for the requested analyses?		YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ____ < green pea ____ > green pea	N/A	YES	NO
15. Do any water samples contain sediment? Amount of sediment: ____ dusting ____ moderate ____ heavy	N/A	YES	NO
16. Were the samples shipped on ice?		YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4	RAD ONLY	YES	NO

Cooler #: 1

Temperature (°C): 1.8

No. of custody seals on cooler:

DOT Survey/ Acceptance Information

External µR/hr reading:

Background µR/hr reading:

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? **YES / NO / NA** (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? **YES / NO / NA** Contact: _____ Date/Time: _____

Project Manager Signature / Date: 1/25/18

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Client:	COGCC	**Date:**	*08-Feb-18*
Project:	200445363 Winick	**Work Order:**	1801317
Sample ID:	SS-1	**Lab ID:**	1801317-1
Legal Location:		**Matrix:**	SOIL
Collection Date:	1/25/2018 13:53	**Percent Moisture:**	27.3

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			**SW8015M**	Prep Date: **1/26/2018**		PrepBy: **JFN**
Diesel Range Organics	**1400**	DMH	**39**	**MG/KG**	3	1/26/2018 14:37
Surr: O-TERPHENYL	*95*		*49-114*	*%REC*	3	1/26/2018 14:37
GC/MS Volatiles			**SW8260**	Prep Date: **1/26/2018**		PrepBy: **JXK**
BENZENE	ND		6.9	UG/KG	1	1/26/2018 14:12
TOLUENE	ND		6.9	UG/KG	1	1/26/2018 14:12
ETHYLBENZENE	ND		6.9	UG/KG	1	1/26/2018 14:12
M+P-XYLENE	ND		6.9	UG/KG	1	1/26/2018 14:12
O-XYLENE	ND		6.9	UG/KG	1	1/26/2018 14:12
Surr: DIBROMOFLUOROMETHANE	*101*		*61-134*	*%REC*	1	1/26/2018 14:12
Surr: TOLUENE-D8	*121*		*57-135*	*%REC*	1	1/26/2018 14:12
Surr: 4-BROMOFLUOROBENZENE	*73*		*52-151*	*%REC*	1	1/26/2018 14:12
GASOLINE RANGE ORGANICS	ND		690	UG/KG	1	1/26/2018 14:12
Hexavalent Chromium			**SW7196**	Prep Date: **2/8/2018**		PrepBy: **HMA**
CHROMIUM VI	ND		0.13	MG/KG	1	2/8/2018
ICPMS Metals			**SW6020**	Prep Date: **1/31/2018**		PrepBy: **JML**
COPPER	**27000**		**2700**	**UG/KG**	10	2/5/2018 16:17
NICKEL	**24000**		**2700**	**UG/KG**	10	2/5/2018 16:17
ARSENIC	**7000**		**270**	**UG/KG**	10	2/5/2018 16:17
BARIUM	**2400000**		**680**	**UG/KG**	10	2/5/2018 16:17
CADMIUM	**650**		**270**	**UG/KG**	10	2/5/2018 16:17
CHROMIUM	**16000**		**1400**	**UG/KG**	10	2/5/2018 16:17
LEAD	**14000**		**270**	**UG/KG**	10	2/5/2018 16:17
SELENIUM	**2600**		**1400**	**UG/KG**	10	2/5/2018 16:17
SILVER	**100**		**68**	**UG/KG**	10	2/5/2018 16:17
ZINC	**67000**		**14000**	**UG/KG**	10	2/5/2018 16:17
Mercury			**SW7471**	Prep Date: **2/6/2018**		PrepBy: **AJL2**
MERCURY	ND		0.046	MG/KG	1	2/6/2018 14:32
Sodium Adsorption Ratio			**USDA60**	Prep Date: **1/31/2018**		PrepBy: **HMA**
PASTE PH	**9.1**		**0.1**	**pH**	1	1/31/2018
Trivalent Chromium (from Total Cr - Cr+6)			**CRIII**	Prep Date: **2/8/2018**		PrepBy: **HMA**
CHROMIUM III	**16**		**1.4**	**MG/KG**	1	2/8/2018

Client:	COGCC	**Date:**	*08-Feb-18*
Project:	200445363 Winick	**Work Order:**	1801317
Sample ID:	SS-2	**Lab ID:**	1801317-2
Legal Location:		**Matrix:**	SOIL
Collection Date:	1/25/2018 14:05	**Percent Moisture:**	18.0

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Diesel Range Organics			**SW8015M**	Prep Date: **1/26/2018**		PrepBy: **JFN**
Diesel Range Organics	**14**	DMH	**5.9**	**MG/KG**	1	1/26/2018 14:16
Surr: O-TERPHENYL	*92*		*49-114*	*%REC*	1	1/26/2018 14:16
GC/MS Volatiles			**SW8260**	Prep Date: **1/26/2018**		PrepBy: **JXK**
BENZENE	ND		6.1	UG/KG	1	1/26/2018 14:40
TOLUENE	ND		6.1	UG/KG	1	1/26/2018 14:40
ETHYLBENZENE	ND		6.1	UG/KG	1	1/26/2018 14:40
M+P-XYLENE	ND		6.1	UG/KG	1	1/26/2018 14:40
O-XYLENE	ND		6.1	UG/KG	1	1/26/2018 14:40
Surr: DIBROMOFLUOROMETHANE	*100*		*61-134*	*%REC*	1	1/26/2018 14:40
Surr: TOLUENE-D8	*100*		*57-135*	*%REC*	1	1/26/2018 14:40
Surr: 4-BROMOFLUOROBENZENE	*95*		*52-151*	*%REC*	1	1/26/2018 14:40
GASOLINE RANGE ORGANICS	ND		610	UG/KG	1	1/26/2018 14:40
Hexavalent Chromium			**SW7196**	Prep Date: **2/8/2018**		PrepBy: **HMA**
CHROMIUM VI	ND		0.12	MG/KG	1	2/8/2018
ICPMS Metals			**SW6020**	Prep Date: **1/31/2018**		PrepBy: **JML**
COPPER	**2500**		**2400**	**UG/KG**	10	2/5/2018 16:47
NICKEL	ND		2400	UG/KG	10	2/5/2018 16:47
ARSENIC	**2100**		**240**	**UG/KG**	10	2/5/2018 16:47
BARIUM	**86000**		**600**	**UG/KG**	10	2/5/2018 16:47
CADMIUM	ND		240	UG/KG	10	2/5/2018 16:47
CHROMIUM	**2900**		**1200**	**UG/KG**	10	2/5/2018 16:47
LEAD	**3600**		**240**	**UG/KG**	10	2/5/2018 16:47
SELENIUM	ND		1200	UG/KG	10	2/5/2018 16:47
SILVER	ND		60	UG/KG	10	2/5/2018 16:47
ZINC	ND		12000	UG/KG	10	2/5/2018 16:47
Mercury			**SW7471**	Prep Date: **2/6/2018**		PrepBy: **AJL2**
MERCURY	ND		0.038	MG/KG	1	2/6/2018 14:34
Sodium Adsorption Ratio			**USDA60**	Prep Date: **1/31/2018**		PrepBy: **HMA**
PASTE PH	**7.2**		**0.1**	**pH**	1	1/31/2018
Trivalent Chromium (from Total Cr - Cr+6)			**CRIII**	Prep Date: **2/8/2018**		PrepBy: **HMA**
CHROMIUM III	**2.9**		**1.2**	**MG/KG**	1	2/8/2018

Client:	COGCC	**Date:**	*08-Feb-18*
Project:	200445363 Winick	**Work Order:**	1801317
Sample ID:	SS-1	**Lab ID:**	1801317-3
Legal Location:		**Matrix:**	SATEXTRACT
Collection Date:	1/25/2018 13:53	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals		**USDA60**		Prep Date: **1/30/2018**		PrepBy: **AJL2**
CALCIUM	**2.9**		**1**	**MG/L**	1	1/30/2018 14:36
MAGNESIUM	ND		1	MG/L	1	1/30/2018 14:36
SODIUM	**72**		**1**	**MG/L**	1	1/30/2018 14:36
Sodium Adsorption Ratio		**USDA60**		Prep Date: **1/31/2018**		PrepBy: **HMA**
ELECTRICAL CONDUCTIVITY @ SATURATION	**6100**		**1**	**umhos/cm**	1	1/31/2018
SODIUM ADSORPTION RATIO	**9.3**	S	**0.17**	**NU**	1	1/30/2018 14:36

Client:	COGCC	**Date:**	*08-Feb-18*
Project:	200445363 Winick	**Work Order:**	1801317
Sample ID:	SS-2	**Lab ID:**	1801317-4
Legal Location:		**Matrix:**	SATEXTRACT
Collection Date:	1/25/2018 14:05	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ICP Metals		**USDA60**		Prep Date: **1/30/2018**		PrepBy: **AJL2**
CALCIUM	**6.9**		**1**	**MG/L**	1	1/30/2018 14:39
MAGNESIUM	ND		1	MG/L	1	1/30/2018 14:39
SODIUM	**1.1**		**1**	**MG/L**	1	1/30/2018 14:39
Sodium Adsorption Ratio		**USDA60**		Prep Date: **1/31/2018**		PrepBy: **HMA**
ELECTRICAL CONDUCTIVITY @ SATURATION	**590**		**1**	**umhos/cm**	1	1/31/2018
SODIUM ADSORPTION RATIO	**0.1**	S	**0.17**	**NU**	1	1/30/2018 14:39

Client:	COGCC	**Date:**	*08-Feb-18*
Project:	200445363 Winick	**Work Order:**	1801317
Sample ID:	SS-2	**Lab ID:**	1801317-4
Legal Location:		**Matrix:**	SATEXTRACT
Collection Date:	1/25/2018 14:05	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.

- Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.

G - Sample density differs by more than 15% of LCS density.

D - DER is greater than Control Limit

M - Requested MDC not met.

LT - Result is less than requested MDC but greater than achieved MDC.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **HC180126-81-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS Sample ID: **HC180126-81** Units: **MG/KG** Analysis Date: **1/26/2018 14:59**

Client ID: Run ID: **HC180126-8A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	63.9	5	62.5		102	81-129				20	
Surr: O-TERPHENYL	10.2		12.5		82	49-114					

MB Sample ID: **HC180126-81** Units: **MG/KG** Analysis Date: **1/26/2018 12:49**

Client ID: Run ID: **HC180126-8A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	ND	5									
Surr: O-TERPHENYL	10.4		12.5		83	49-114					

The following samples were analyzed in this batch: 1801317-1 1801317-2

QC BATCH REPORT

Batch ID: **HG180206-1-1** Instrument ID **CETAC7500** Method: **SW7471**

LCS Sample ID: **HG180206-1** Units: **MG/KG** Analysis Date: **2/6/2018 14:29**
Client ID: Run ID: **HG180206-1A1** Prep Date: **2/6/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.18	0.0333	0.167		108	80-120				20	

MB Sample ID: **HG180206-1** Units: **MG/KG** Analysis Date: **2/6/2018 14:27**
Client ID: Run ID: **HG180206-1A1** Prep Date: **2/6/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	ND	0.033									

The following samples were analyzed in this batch: 1801317-1 1801317-2

QC BATCH REPORT

Batch ID: **IP180131-4-3** Instrument ID **ICPMS2** Method: **SW6020**

LCS Sample ID: **IM180131-4** Units: **UG/KG** Analysis Date: **2/5/2018 15:45**
Client ID: Run ID: **IM180205-11A3** Prep Date: **1/31/2018** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	10100	200	10000		101	80-120				20	
BARIUM	9290	500	10000		93	80-120				20	
CADMIUM	3210	200	3000		107	80-120				20	
CHROMIUM	51200	1000	50000		102	80-120				20	
COPPER	98400	2000	100000		98	80-120				20	
LEAD	5170	200	5000		103	80-120				20	
NICKEL	46500	2000	50000		93	80-120				20	
SELENIUM	10600	1000	10000		106	80-120				20	
SILVER	846	50	1000		85	80-120				20	
ZINC	211000	10000	200000		106	80-120				20	

LCSD Sample ID: **IM180131-4** Units: **UG/KG** Analysis Date: **2/5/2018 15:48**
Client ID: Run ID: **IM180205-11A3** Prep Date: **1/31/2018** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	10100	200	10000		101	80-120		10100	0	20	
BARIUM	9240	500	10000		92	80-120		9290	0	20	
CADMIUM	3160	200	3000		105	80-120		3210	1	20	
CHROMIUM	50900	1000	50000		102	80-120		51200	1	20	
COPPER	98000	2000	100000		98	80-120		98400	0	20	
LEAD	5080	200	5000		102	80-120		5170	2	20	
NICKEL	46500	2000	50000		93	80-120		46500	0	20	
SELENIUM	10600	1000	10000		106	80-120		10600	0	20	
SILVER	842	50	1000		84	80-120		846	0	20	
ZINC	209000	10000	200000		105	80-120		211000	1	20	

MB Sample ID: **IP180131-4** Units: **UG/KG** Analysis Date: **2/5/2018 15:40**
Client ID: Run ID: **IM180205-11A3** Prep Date: **1/31/2018** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	ND	200									
BARIUM	ND	500									
CADMIUM	ND	200									
CHROMIUM	ND	1000									
COPPER	ND	2000									
LEAD	ND	200									
NICKEL	ND	2000									
SELENIUM	ND	1000									
SILVER	ND	50									
ZINC	ND	10000									

QC BATCH REPORT

Batch ID: **IP180131-4-3** Instrument ID **ICPMS2** Method: **SW6020**

The following samples were analyzed in this batch: 1801317-1 1801317-2

Client: COGCC
Work Order: 1801317
Project: 200445363 Winick

QC BATCH REPORT

Batch ID: **VL180126-2-1** Instrument ID **HPV2** Method: **SW8260**

LCS Sample ID: **VL180126-2** Units: **UG/KG** Analysis Date: **1/26/2018 10:40**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	47.2	5	40		118	73-126				30	
TOLUENE	41.2	5	40		103	71-127				30	
ETHYLBENZENE	40.6	5	40		101	74-127				30	
M+P-XYLENE	78.2	5	80		98	79-126				30	
O-XYLENE	38.6	5	40		96	77-125				30	
Surr: DIBROMOFLUOROMETHANE	51.1		50		102	61-134					
Surr: TOLUENE-D8	47.5		50		95	57-135					
Surr: 4-BROMOFLUOROBENZENE	50.7		50		101	52-151					

LCSD Sample ID: **VL180126-2** Units: **UG/KG** Analysis Date: **1/26/2018 11:03**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	47.1	5	40		118	73-126		47.2	0	30	
TOLUENE	42.2	5	40		105	71-127		41.2	2	30	
ETHYLBENZENE	41.4	5	40		104	74-127		40.6	2	30	
M+P-XYLENE	79.9	5	80		100	79-126		78.2	2	30	
O-XYLENE	40.6	5	40		101	77-125		38.6	5	30	
Surr: DIBROMOFLUOROMETHANE	51		50		102	61-134			0		
Surr: TOLUENE-D8	49.2		50		98	57-135			4		
Surr: 4-BROMOFLUOROBENZENE	51		50		102	52-151			1		

MB Sample ID: **VL180126-2** Units: **UG/KG** Analysis Date: **1/26/2018 13:26**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	ND	5									
TOLUENE	ND	5									
ETHYLBENZENE	ND	5									
M+P-XYLENE	ND	5									
O-XYLENE	ND	5									
Surr: DIBROMOFLUOROMETHANE	50.1		50		100	61-134					
Surr: TOLUENE-D8	48.8		50		98	57-135					
Surr: 4-BROMOFLUOROBENZENE	50.3		50		101	52-151					

The following samples were analyzed in this batch: 1801317-1 1801317-2

Client: COGCC
Work Order: 1801317
Project: 200445363 Winick

QC BATCH REPORT

Batch ID: **VL180126-2-2** Instrument ID **HPV2** Method: **SW8260**

LCS Sample ID: **VL180126-5** Units: **UG/KG** Analysis Date: **1/26/2018 11:49**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	2180	500	2000		109	80-120				20	

LCSD Sample ID: **VL180126-5** Units: **UG/KG** Analysis Date: **1/26/2018 12:17**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	2210	500	2000		111	80-120		2180	1	20	

MB Sample ID: **VL180126-2** Units: **UG/KG** Analysis Date: **1/26/2018 13:26**
Client ID: Run ID: **VL180126-2A** Prep Date: **1/26/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	ND	500									

The following samples were analyzed in this batch: 1801317-1 1801317-2

Client: COGCC
Work Order: 1801317
Project: 200445363 Winick

QC BATCH REPORT

Batch ID: **CR180208-1-1** Instrument ID **Spec** Method: **SW7196**

LCS Sample ID: **CR180208-1** Units: **MG/KG** Analysis Date: **2/8/2018**
Client ID: Run ID: **CR180208-1A1** Prep Date: **2/8/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	2.97	0.1	3		99	80-120				20	

MB Sample ID: **CR180208-1** Units: **MG/KG** Analysis Date: **2/8/2018**
Client ID: Run ID: **CR180208-1A1** Prep Date: **2/8/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	ND	0.1									

MS Sample ID: **1801317-1** Units: **MG/KG** Analysis Date: **2/8/2018**
Client ID: **SS-1** Run ID: **CR180208-1A1** Prep Date: **2/8/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.1	0.133	1.33	0.13	83	75-125				20	

MSD Sample ID: **1801317-1** Units: **MG/KG** Analysis Date: **2/8/2018**
Client ID: **SS-1** Run ID: **CR180208-1A1** Prep Date: **2/8/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.15	0.135	1.35	0.13	85	75-125		1.1	5	20	

The following samples were analyzed in this batch: 1801317-1 1801317-2