

August 28, 2018

Mr. Bill Lloyd
Chief Operating Officer
PetroShare Corporation
9635 Maroon Circle, Suite 400
Englewood, CO 80112

**RE: Confirmation Sampling Summary
Former State of Colorado AB 1 Tank Battery
SWNE S16 T2S R66W**

Dear Mr. Lloyd:

Tasman Geosciences, Inc. (Tasman) has prepared this confirmation sampling summary to document confirmation sampling activities conducted at the former State of Colorado AB 1 tank battery (Site), in accordance with the Colorado Oil and Gas Conservation Commission (COGCC) closure criteria.

Site Background

Between March 2 and June 11, 2018, soil samples were collected from the excavation area below the former separator at depths ranging between 4 feet and 9 feet below ground surface (bgs). Soil samples were submitted to Summit Scientific Laboratories (Summit) for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, total volatile petroleum hydrocarbons (TVPH) – gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260B, and total extractable petroleum hydrocarbons (TEPH) – diesel range organics (DRO) by USEPA Method 8015. Analytical results indicated organic compound concentrations were below COGCC Table 910-1 soil standards in all samples collected from the final excavation extent (Table 1).

On March 6, 2018, four (4) 4-point composite soil samples were collected from approximately 400 cubic yards of clean excavation material stockpiled for future backfilling. Soil samples were submitted to Summit for analysis of BTEX, naphthalene, TVPH – GRO by USEPA Method 8260B, and TEPH – DRO by USEPA Method 8015. Analytical results indicated organic compound concentrations were below COGCC Table 910-1 standards (Table 1).

Confirmation Sampling Activities

On August 16, 2018, additional confirmation soil sampling was conducted within the former excavation area below the separator (Figure 1). Six (6) discrete soil samples (DS01 – DS06) were collected from the sidewalls and base of the former excavation at 8 feet and 9 feet bgs, respectively. Soil samples were field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID) [Table 2]. Soil samples were submitted to Summit for analysis of TVPH – GRO by USEPA Method 8260B,

and TEPH – DRO and TEPH – oil range organics (ORO) by USEPA Method 8015. Analytical results indicated TVPH and TEPH concentrations were below the applicable COGCC Table 910-1 standard (Table 2).

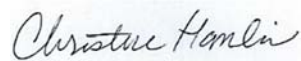
In addition, four (4) 4-point composite soil samples (CS01R – CS04R) were collected from the material previously backfilled in the dump line trench (Figure 1). Discrete soil samples were collected from various soil borings in one-foot intervals between 1 foot bgs and 4 feet bgs using a hand auger. Material was subsequently homogenized and field screened for VOC concentrations using a PID (Table 2). Composite soil samples were submitted for laboratory analysis of TVPH – GRO by USEPA Method 8260B, and TEPH – DRO and ORO by USEPA Method 8015. Analytical results indicated TVPH and TEPH concentrations were below the applicable COGCC Table 910-1 standard (Table 2).

Based on the results of confirmation soil sampling activities, petroleum hydrocarbon impacts above COGCC standards are no longer present at this Site. Consequently, no further action is required at this time.

Please contact me at (720) 409-8791 if you have questions regarding this report.

Sincerely,

Tasman Geosciences, Inc.

A handwritten signature in cursive script that reads 'Christine Hamlin'.

Christine Hamlin
Program Manager

Enclosures:

Figure 1 – Sample Overview

Table 1 – Soil Analytical Results Summary Table: Initial Excavation and Investigation

Table 2 – Soil Analytical Results Summary Table: Confirmation Sampling

Attachment A – Laboratory Report




DATE:	August 21, 2018	 TASMAN GEOSCIENCES	Tasman Geosciences, Inc. 6899 Pecos Street – Unit C Denver, CO 80221	PetroShare Corporation Former State of Colorado AB1 Tank Battery SWNE, Section 16, Township 2 South, Range 66 West Adams County, Colorado	SAMPLE OVERVIEW MAP	FIGURE 1
DESIGNED BY:	C. Hamlin					
DRAWN BY:	C. Hamlin					

TABLE 1
FORMER STATE OF COLORADO AB 1 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INITIAL EXCAVATION AND INVESTIGATION

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH ⁽²⁾ (mg/kg)	PID Reading (ppm)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	23	500	
SS01 @ 9'	3/2/2018	9	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.85	207.6
SS02 @ 7'	3/2/2018	7	0.0035	0.040	0.089	1.4	0.34	148	402.7
SS03 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	1.8
SS04 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	1.9
SS05 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	53	2.0
SS06 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	1.8
SS07 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	1.4
SS08 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	1.7
SS09 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	3.2
SS10 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	2.8
SS11 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	65	2.9
SS12 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	7.3
SS13 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	3.6
SS14 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	5.0
SS15 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	4.8
SS16 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.61	6.4
SS17 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	4.4
SS18 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	8.7
SS19 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	67	4.5
SS20 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	9.8
SS21 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	6.5
SS22 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	55	11.9
SS23 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	28.3
SS24 @ 5'	3/6/2018	5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	5.2
SS25 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	64	2.7
SS26 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	330	20.0
SS27 @ 5'	3/6/2018	5	0.0052	<0.0050	<0.0050	0.036	0.026	1.0	52.3
SS28 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	0.010	<50	7.8
SS29 @ 4'	3/6/2018	4	<0.0020	<0.0050	0.010	0.27	0.18	239.6	153.5
SS30 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	130	12.2
SS31 @ 4'	3/6/2018	4	<0.0020	0.0070	0.016	0.17	0.15	265.4	93.3
SS32 @ 8'	3/6/2018	8	<0.0020	<0.0050	<0.0050	0.014	0.13	682	606.4
SS33 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	100.54	214.8
SS34 @ 4'	3/6/2018	4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	210.55	115.2
SS35 @ 6'	3/6/2018	6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	235.0	26.4
SS36 @ 8'	3/6/2018	8	<0.0020	<0.0050	<0.0050	0.030	<0.010	344.1	587.7
SS37 @ 5'	3/6/2018	5	<0.0020	0.020	0.27	3.8	1.5	234	387.4
SS38 @ 8'	6/11/2018	8	0.0069	<0.0050	<0.0050	0.010	<0.010	0.72	308.0
CS01	3/6/2018	-	<0.0020	<0.0050	<0.0050	0.030	<0.010	120.91	6.9
CS02	3/6/2018	-	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	2.4
CS03	3/6/2018	-	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50	3.2
CS04	3/6/2018	-	<0.0020	<0.0050	<0.0050	<0.010	<0.010	64	1.6

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.

2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

TABLE 1
FORMER STATE OF COLORADO AB 1 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INITIAL EXCAVATION AND INVESTIGATION

GRO = Total volatile petroleum hydrocarbons - gasoline range organics

DRO = Total extractable petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

bgs = Below ground surface

CS- sample designation was used for composite samples collected from stockpiled material.

PID = Photoionization detector

ppm = Parts per million

(<) = Analytical result is less than the indicated laboratory reporting limit.

BOLD = Analytical result is in exceedance of COGCC soil standards.

TABLE 2
FORMER STATE OF COLORADO AB 1 TANK BATTERY
SOIL ANALYTICAL RESULTS SUMMARY TABLE
CONFIRMATION SAMPLING

Sample ID	Date Sampled	Depth (feet bgs)	TVPH - GRO (mg/kg)	TEPH - DRO (mg/kg)	TEPH - ORO (mg/kg)	PID Reading (ppm)
COGCC standard for soil (mg/kg) ⁽¹⁾			500			
DS01 @ 8'	8/16/2018	8	1.8	<50	<50	492.7
DS02 @ 8'	8/16/2018	8	0.57	<50	<50	110.8
DS03 @ 8'	8/16/2018	8	14	150	<50	689.4
DS04 @ 8'	8/16/2018	8	2.6	<50	<50	131.9
DS05 @ 8'	8/16/2018	8	6.9	<50	<50	523
DS06 @ 9'	8/16/2018	9	1.3	<50	<50	67.1
CS01R	8/16/2018	-	<0.50	<50	<50	6.9
CS02R	8/16/2018	-	<0.50	<50	<50	6.2
CS03R	8/16/2018	-	<0.50	<50	<50	6.2
CS04R	8/16/2018	-	<0.50	<50	<50	5.4

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective May 1, 2018.

COGCC = Colorado Oil and Gas Conservation Commission

TVPH - GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH - DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH - ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram

bgs = Below ground surface

CS- sample designation was used for composite samples collected from stockpiled material.

PID = Photoionization detector

ppm = Parts per million

(<) = Analytical result is less than the indicated laboratory reporting limit.

BOLD = Analytical result is in exceedance of COGCC soil standards.

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 17, 2018

Christine Hamlin

Tasman Geosciences

6899 Pecos St, Unit C

Denver, CO 80221

RE: State of Colorado AB1

Enclosed are the results of analyses for samples received by Summit Scientific on 08/16/18 18:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DS01@8'	1808225-01	Soil	08/16/18 09:01	08/16/18 18:20
DS02@8'	1808225-02	Soil	08/16/18 09:17	08/16/18 18:20
DS03@8'	1808225-03	Soil	08/16/18 09:32	08/16/18 18:20
DS04@8'	1808225-04	Soil	08/16/18 09:57	08/16/18 18:20
DS05@8'	1808225-05	Soil	08/16/18 10:09	08/16/18 18:20
DS06@9'	1808225-06	Soil	08/16/18 10:31	08/16/18 18:20
CS01R	1808225-07	Soil	08/16/18 10:51	08/16/18 18:20
CS02R	1808225-08	Soil	08/16/18 11:32	08/16/18 18:20
CS03R	1808225-09	Soil	08/16/18 11:59	08/16/18 18:20
CS04R	1808225-10	Soil	08/16/18 12:51	08/16/18 18:20

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Summit Scientific

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-374-5933 Fax

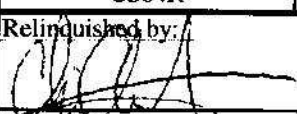
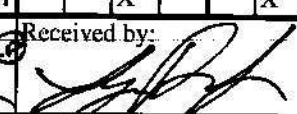
1808225

Page 1 of 1

Client: Tasman Geosciences
Address:
City/State/Zip:
Phone: Fax:
Sampler Name: Chris Armbruster

Project Manager: Christine Hamlin
E-Mail: chamlin@tasman.geo.com
Project Name: State of Colorado ABI
Project Number:

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:										Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	TPH/DRO/GRO/ORO										
DS01 @8'	8/16/2018	9:01	1			X		X			X											
DS02 @8'	8/16/2018	9:17	1			X		X			X											
DS03 @8'	8/16/2018	9:32	1			X		X			X											
DS04 @8'	8/16/2018	9:57	1			X		X			X											
DS05 @8'	8/16/2018	10:09	1			X		X			X											
DS06 @9'	8/16/2018	10:31	1			X		X			X											
CS01R	8/16/2018	10:51	1			X		X			X											
CS02R	8/16/2018	11:32	1			X		X			X											
CS03R	8/16/2018	11:59	1			X		X			X											
CS04R	8/16/2018	12:51	1			X		X			X											

Relinquished by: 	Date/Time: 8/16/18 1820	Received by: 	Date/Time: 8-16-18 1820	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: 9.2 Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 1808225

Client: Tasman

Client Project ID: State of Colorado ABI

Shipped Via: Pickup

Airbill #: _____

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply): Air ☒ Soil/Solid Water Other: _____
(Describe)

Temp (°C)

9.2

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?			✓	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?			✓	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✓	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			✓	
Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

LP

Custodian Printed Name or Initials

[Signature]
Signature of Custodian

8-16-18 1825
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS01@8'
1808225-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 09:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	1.8	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 09:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 09:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/16/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 09:01**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		110 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS02@8'
1808225-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	0.57	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/16/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 09:17**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		106 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS03@8'
1808225-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	14	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		99.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		145 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	150	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 09:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]

Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS04@8'
1808225-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 09:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	2.6	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 09:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 09:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 09:57**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS05@8'
1808225-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	6.9	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		120 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 10:09**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		118 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

DS06@9'
1808225-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 10:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	1.3	0.50	mg/kg	1	1808222	08/16/18	08/16/18	EPA 8260B	

Date Sampled: **08/16/18 10:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 10:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 10:31**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]

Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

CS01R
1808225-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	ND	0.50	mg/kg	1	1808222	08/16/18	08/16/18	EPA 8260B	

Date Sampled: **08/16/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 10:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]

Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

CS02R
1808225-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	ND	0.50	mg/kg	1	1808222	08/16/18	08/17/18	EPA 8260B	

Date Sampled: **08/16/18 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]

Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

CS03R
1808225-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	ND	0.50	mg/kg	1	1808222	08/16/18	08/16/18	EPA 8260B	

Date Sampled: **08/16/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 11:59**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		117 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]

Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

CS04R
1808225-10 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/16/18 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Gasoline Range Hydrocarbons	ND	0.50	mg/kg	1	1808222	08/16/18	08/16/18	EPA 8260B	

Date Sampled: **08/16/18 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/16/18 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1808223	08/16/18	08/17/18	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **08/16/18 12:51**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit

Batch 1808222 - EPA 5030 Soil MS

Blank (1808222-BLK1)

Prepared & Analyzed: 08/16/18

Gasoline Range Hydrocarbons	ND	0.50	mg/kg						
Surrogate: 1,2-Dichloroethane-d4	0.0406		"	0.0396	103	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400	98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0400	91.6	21-167			

LCS (1808222-BS1)

Prepared & Analyzed: 08/16/18

Surrogate: 1,2-Dichloroethane-d4	0.0391		mg/kg	0.0396	98.6	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400	99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400	95.0	21-167			

Matrix Spike (1808222-MS1)

Source: 1808223-01

Prepared & Analyzed: 08/16/18

Surrogate: 1,2-Dichloroethane-d4	0.0434		mg/kg	0.0396	110	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400	100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400	96.4	21-167			

Matrix Spike Dup (1808222-MSD1)

Source: 1808223-01

Prepared & Analyzed: 08/16/18

Surrogate: 1,2-Dichloroethane-d4	0.0422		mg/kg	0.0396	107	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400	99.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0400	100	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1808223 - EPA 3550A

Blank (1808223-BLK1)

Prepared: 08/16/18 Analyzed: 08/17/18

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

LCS (1808223-BS1)

Prepared: 08/16/18 Analyzed: 08/17/18

C10-C28 (DRO)	588	50	mg/kg	500	118	81.4-129
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Matrix Spike (1808223-MS1)

Source: 1808223-01

Prepared: 08/16/18 Analyzed: 08/17/18

C10-C28 (DRO)	513	50	mg/kg	500	23.3	97.9	77.8-133
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Matrix Spike Dup (1808223-MSD1)

Source: 1808223-01

Prepared: 08/16/18 Analyzed: 08/17/18

C10-C28 (DRO)	548	50	mg/kg	500	23.3	105	77.8-133	6.65	8.48
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Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

Project: State of Colorado AB1

Project Number: [none]
Project Manager: Christine Hamlin

Reported:
08/17/18 06:03

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference