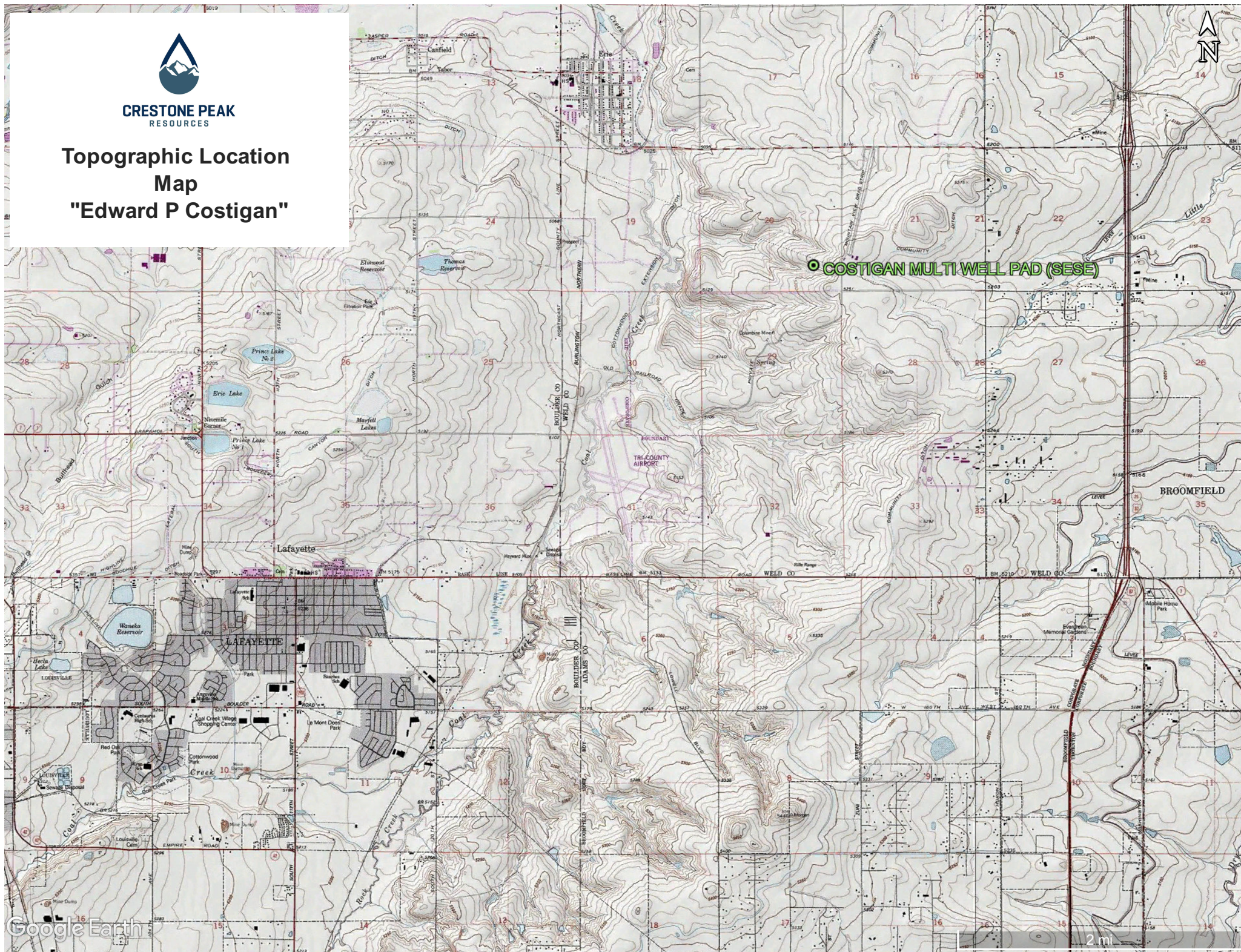
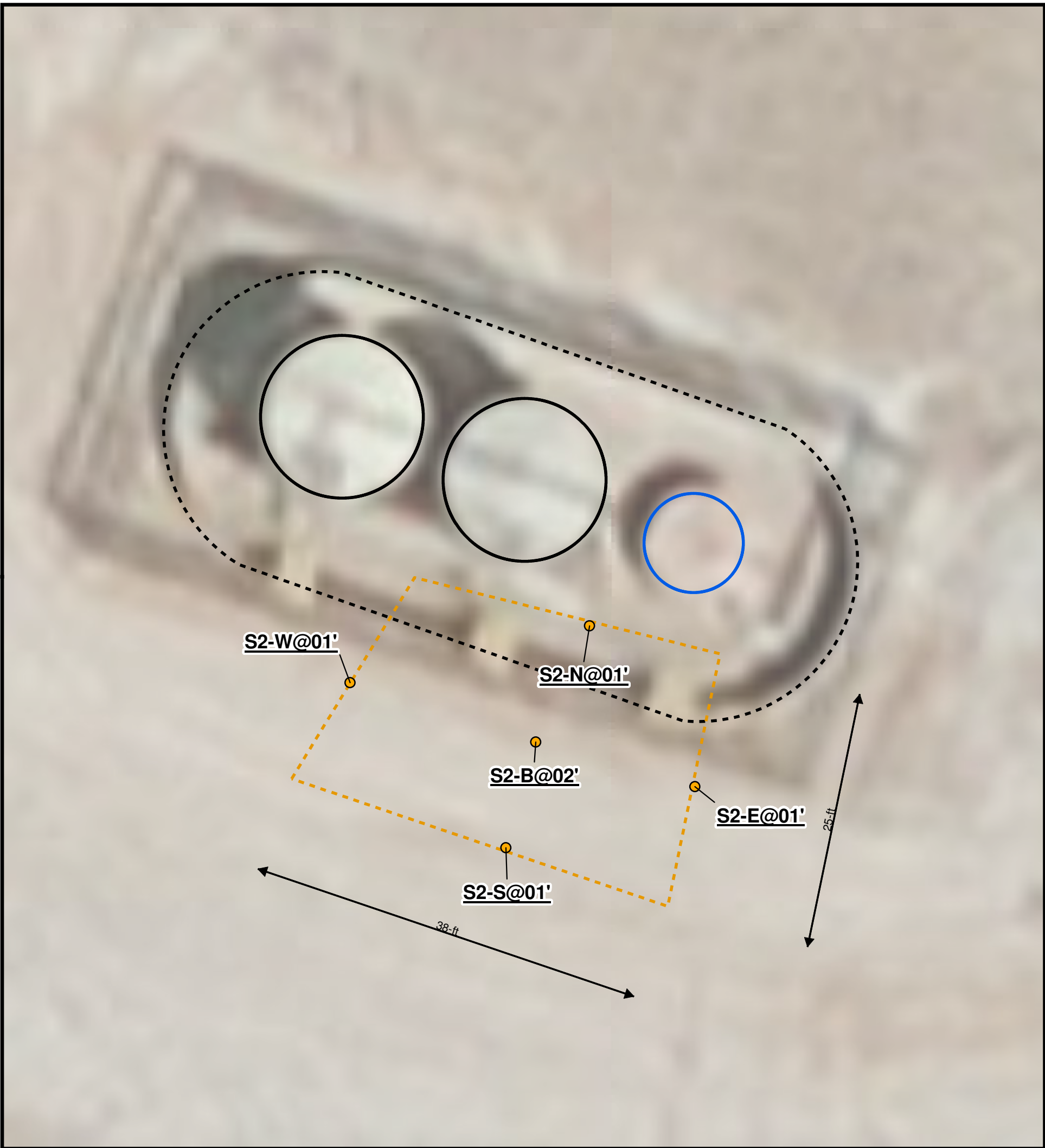




CRESTONE PEAK
RESOURCES

Topographic Location Map "Edward P Costigan"





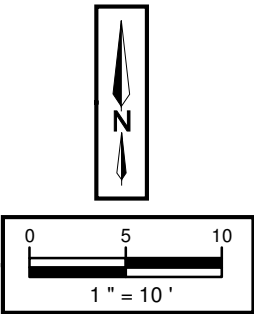
Crestone Peak Resources
Costigan Multi Well Pad (SESE)
COGCC Location ID: 335663
Site Diagram



Legal Description: NESE, Sec 20, T1N R68W
County: Weld
Land Use: Non-cropland
Topography: 5-20% Slopes
Run-Off Risk: Not Available
Soil Type: Midway-Shingle complex
Receiving Waters: Unnamed trib

- Soil Sample (8/5/2019)
- Approximate Previous Excavation Extent
- Crude Oil Tank
- Produced Water Vessel
- Secondary Containment

Sample ID	Latitude NAD83	Longitude NAD83
S2-N@01'	40.031663	-105.021751
S2-W@01'	40.031648	-105.021833
S2-E@01'	40.031621	-105.021715
S2-B@02'	40.031632	-105.021770
S2-S@01'	40.031605	-105.021780



SOIL SAMPLE RESULTS						
		Organics (mg/kg)				
COGCC Allowable Concentration (Soil) -->		500	0.17	85	100	175
Sample Date	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)	Benzene	Toluene	Ethylbenzene	Xylenes - total
8/5/19	S2 - S@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
8/5/19	S2 - E@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
8/5/19	S2 - W@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
8/5/19	S2 - N@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
8/5/19	S2 - B@02'	<50	<0.0020	<0.0050	<0.0050	<0.010

Spatial data collected for this project was acquired using a GPS with submeter accuracy. Illustration discrepancies may be present in this diagram due to the inherent limitations of data accuracy for both project data and the underlying aerial imagery. To accurately reflect field conditions, illustrated data may have been manually corrected in order to fit with the aerial imagery reference points and other collected data points.



Laboratory Results Summary Table - Soil
Edward P Costigan
Spill Date: 4/3/2018

COGCC Allowable Concentration (Soil) -->			Organics (mg/kg)				
			500	0.17	85	100	175
Location	Sample Date	Sample ID	TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)	Benzene	Toluene	Ethylbenzene	Xylenes - total
Costigan Multi Well Pad	8/5/19	S2 - S@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
Costigan Multi Well Pad	8/5/19	S2 - E@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
Costigan Multi Well Pad	8/5/19	S2 - W@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
Costigan Multi Well Pad	8/5/19	S2 - N@01'	<50	<0.0020	<0.0050	<0.0050	<0.010
Costigan Multi Well Pad	8/5/19	S2 - B@02'	<50	<0.0020	<0.0050	<0.0050	<0.010

Attachment A

Laboratory Analytical Report

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 12, 2019

Maggie Graham

Apex Companies

176 Cole Blvd. Suite 250

Lakewood, CO 80101

RE: CPR - Costigan Multi Well Pad-Spill 2

Work Order # 1908029

Enclosed are the results of analyses for samples received by Summit Scientific on 08/05/19 16:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light purple background. The signature is written in a cursive style and appears to read "Muri Premier".

Muri Premier For Ben Shrewsbury

Laboratory Manager



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2

Project Number: 125.1902.01-335663

Project Manager: Maggie Graham

Reported:
08/12/19 12:18

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S2 - S@01'	1908029-01	Soil	08/05/19 14:00	08/05/19 16:30
S2 - E@01'	1908029-02	Soil	08/05/19 14:02	08/05/19 16:30
S2 - W@01'	1908029-03	Soil	08/05/19 14:04	08/05/19 16:30
S2 - N@01'	1908029-04	Soil	08/05/19 14:06	08/05/19 16:30
S2 - B@02'	1908029-05	Soil	08/05/19 14:10	08/05/19 16:30

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

Page 1 of 1

Sampler Name: Kevin Ambrose

Project Number: 125.1902.01 / 335603

www.s2scientific.com

Sample Receipt Checklist

S2 Work Order

1908029

Client:

APEX / CPR

Client Project ID:

Costigan Multi-Well Prod - Spill 2

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other

Airbill #:

Matrix (check all that apply):

Air

X

Soil/Solid

Water

Other:

(Describe)

Temp (°C)

9.9

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.	✓			on ice
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.				

Custodian Printed Name or Initials

ES

Signature of Custodian

White Amely

Date/Time

8/5/14 16:30



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

S2 - S@01'
1908029-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/19 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	1908065	08/06/19	08/07/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/05/19 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/05/19 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	1908066	08/06/19	08/07/19	EPA 8015M	

Date Sampled: **08/05/19 14:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
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.



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

S2 - E@01'
1908029-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/19 14:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908065	08/06/19	08/07/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/05/19 14:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		116 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/05/19 14:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908066	08/06/19	08/07/19	EPA 8015M	

Date Sampled: **08/05/19 14:02**

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



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

S2 - W@01'
1908029-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/19 14:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908065	08/06/19	08/07/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/05/19 14:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/05/19 14:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908066	08/06/19	08/07/19	EPA 8015M	

Date Sampled: **08/05/19 14:04**

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



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

S2 - N@01'
1908029-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/19 14:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908065	08/06/19	08/07/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/05/19 14:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/05/19 14:06**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908066	08/06/19	08/07/19	EPA 8015M	

Date Sampled: **08/05/19 14:06**

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



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

S2 - B@02'
1908029-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/05/19 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1908065	08/06/19	08/07/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/05/19 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/05/19 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1908066	08/06/19	08/07/19	EPA 8015M	

Date Sampled: **08/05/19 14:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		105 %	30-150		"	"	"	"	

Summit Scientific

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Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

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	Notes

Batch 1908065 - EPA 5030 Soil MS

Blank (1908065-BLK1)

Prepared & Analyzed: 08/06/19

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0412		"	0.0400	103		23-173			
Surrogate: Toluene-d8	0.0411		"	0.0400	103		20-170			
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400	96.2		21-167			

LCS (1908065-BS1)

Prepared & Analyzed: 08/06/19

Benzene	0.101	0.0020	mg/kg	0.100	101		70-130			
Toluene	0.107	0.0050	"	0.100	107		70-130			
Ethylbenzene	0.102	0.0050	"	0.100	102		70-130			
m,p-Xylene	0.185	0.010	"	0.200	92.4		70-130			
o-Xylene	0.0915	0.0050	"	0.100	91.5		70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0397		"	0.0400	99.2		23-173			
Surrogate: Toluene-d8	0.0492		"	0.0400	123		20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0400	94.8		21-167			

Matrix Spike (1908065-MS1)

Source: 1908021-01

Prepared & Analyzed: 08/06/19

Benzene	0.109	0.0020	mg/kg	0.100	ND	109	70-130			
Toluene	0.115	0.0050	"	0.100	ND	115	70-130			
Ethylbenzene	0.122	0.0050	"	0.100	ND	122	70-130			
m,p-Xylene	0.223	0.010	"	0.200	ND	111	70-130			
o-Xylene	0.114	0.0050	"	0.100	ND	114	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0400	107		23-173			
Surrogate: Toluene-d8	0.0442		"	0.0400	110		20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400	99.1		21-167			

Summit Scientific

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Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

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	Notes

Batch 1908065 - EPA 5030 Soil MS

Matrix Spike Dup (1908065-MSD1)		Source: 1908021-01			Prepared & Analyzed: 08/06/19					
Benzene	0.103	0.0020	mg/kg	0.100	ND	103	70-130	5.84	30	
Toluene	0.114	0.0050	"	0.100	ND	114	70-130	0.942	30	
Ethylbenzene	0.129	0.0050	"	0.100	ND	129	70-130	6.22	30	
m,p-Xylene	0.233	0.010	"	0.200	ND	116	70-130	4.24	30	
o-Xylene	0.115	0.0050	"	0.100	ND	115	70-130	1.10	30	
Surrogate: 1,2-Dichloroethane-d4	0.0404		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0403		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	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.



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2
Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1908066 - EPA 3550A

Blank (1908066-BLK1)

Prepared: 08/06/19 Analyzed: 08/07/19

C10-C28 (DRO) ND 50 mg/kg

LCS (1908066-BS1)

Prepared: 08/06/19 Analyzed: 08/07/19

C10-C28 (DRO) 537 50 mg/kg 500 107 70-130

Matrix Spike (1908066-MS1)

Source: 1908021-01

Prepared: 08/06/19 Analyzed: 08/07/19

C10-C28 (DRO) 459 50 mg/kg 500 8.52 90.0 70-130

Matrix Spike Dup (1908066-MSD1)

Source: 1908021-01

Prepared: 08/06/19 Analyzed: 08/07/19

C10-C28 (DRO) 498 50 mg/kg 500 8.52 98.0 70-130 8.31 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.



Apex Companies
176 Cole Blvd. Suite 250
Lakewood CO, 80101

Project: CPR - Costigan Multi Well Pad-Spill 2

Project Number: 125.1902.01-335663
Project Manager: Maggie Graham

Reported:
08/12/19 12:18

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