



**Q3 2017 Quarterly Groundwater Monitoring Report  
Roggen LP Release #1  
Roggen, Colorado**

**October 9, 2017**

**Apex Project No. 5369**

**Prepared for: DCP Midstream, LP  
370 17<sup>th</sup> Street, Suite 2500  
Denver, Colorado 80202**

**Prepared by: Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder, Colorado 80305**

A handwritten signature in blue ink, appearing to read 'W. Catt Wilson'.

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W. Catt Wilson, P.E.  
Principal Engineer

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## 1.0 Site Location and Background

The Roggen LP Release #1 site (the Site) is located in Roggen, Weld County, Colorado (Figure 1). The Site is located at latitude 40.1423N and longitude 104.3481W, approximately two miles southeast of Roggen, Colorado, near the intersection of County Road 75.5 and County Road 18 (Figure 2).

On August 21, and from August 24 through 26, 2015, Apex Companies, LLC (Apex), managed the removal of approximately 1,500 cubic yards of soil impacted as a result of a release from a condensate pipeline. At the completion of remediation activities, the maximum depth of the excavation reached approximately 35 feet. The dimensions of the excavation were approximately 45 feet in length (north-south) by 30 feet in width, with the dimensions narrowing at depth. Groundwater was observed at approximately 33 feet below ground surface during excavation activities. Laboratory analytical results indicated post-excavation confirmation soil samples had no detections of benzene, toluene, ethylbenzene or total xylenes (BTEX) or total petroleum hydrocarbons (TPH). One groundwater sample was collected during excavation activities and concentrations of BTEX were detected over the Colorado Oil and Gas Conservation Committee (COGCC) Table 910-1 regulatory standards. On November 2, 2015, Apex installed four groundwater monitoring wells (MW01 through MW04) at the Site to further characterize groundwater quality in the area of the condensate release. Based on the results of the four groundwater monitoring wells and the apparent groundwater gradient, Apex installed three additional groundwater monitoring wells (MW05, MW06, and MW07) to the north of the existing wells on July 7, 2016.

## 2.0 Groundwater Monitoring

Apex conducted the third quarter (Q3) groundwater monitoring event on September 19, 2017. The monitoring event included measuring groundwater elevations at all seven of the monitoring wells (Table 1) and collecting groundwater samples for laboratory analysis (Table 2). Phase-separated hydrocarbons (PSH) were not detected in any well during the sampling event. The Q3 2017 groundwater samples were analyzed for BTEX using EPA Method 8260.

### Groundwater Elevation Monitoring

Water level measurements were collected at all seven of the monitoring wells before collecting groundwater samples (Table 1). Depth to water during the Q3 2017 sampling event ranged from 24.64 to 27.73 feet below the top of casing (TOC). The groundwater elevations were approximately 1.0 feet higher than they were during the previous quarterly event, and approximately 2.5 feet lower than the Q3 2016 elevations. A groundwater elevation contour map was created from the recorded water levels (Figure 3). Historical groundwater elevation data is presented in Table A1 (Appendix A).

During Q3 2017, the flow direction was predominantly to the west, with an average groundwater gradient of approximately 0.006 feet per foot (ft/ft). The western flow direction slightly differs from the northwest flow direction recorded during Q2 2017.

### Groundwater Quality Monitoring

All wells were purged a minimum of three well volumes prior to sampling to help ensure the samples were representative of ambient groundwater conditions, with the exception of two wells (MW03R and MW05) which purged dry prior to three well volumes. Once the dry-purged wells recharged, groundwater samples were collected. Groundwater samples were collected using disposable polyethylene bailers, placed in laboratory supplied vials, then packed and delivered in accordance with industry-standard practices to Origins Laboratory Inc. (Origins) for analysis. Origins is a State of Colorado-approved laboratory located in Denver, Colorado.

A summary of groundwater analytical results from the Q3 2017 sampling event is provided in Table 2. Historical groundwater analytical results are presented in Table A2 (Appendix A). The most recent laboratory analytical report is included in Appendix B. The Q3 2017 groundwater analytical results are also shown in Figure 4.

The Q3 2017 analytical results can be summarized as follows:

- BTEX constituents were not detected above laboratory reporting limits in six monitoring wells (MW01, MW02, MW04, MW05, MW06 and MW07). Benzene, ethylbenzene and xylenes were detected in MW03R; however, the concentrations were less than COGCC Groundwater Standards.

Trip blanks were transported in sample coolers and analyzed by the laboratory for BTEX compounds. Results for both trip blanks were non-detect for all analytes. The trip blank analytical results suggest acceptable sample transport protocols were followed during the sampling event. Apex collected one set of duplicate samples during the sampling event, and the results of the duplicate samples indicate the analytical data are acceptable and unqualified.

## **4.0 Summary and Conclusions**

BTEX concentrations have remained below COGCC Groundwater Standards in all monitoring wells at the Site during the last four quarters of groundwater monitoring (laboratory reports for the last four quarters are included in Appendix B). **Apex is recommending closure of the monitoring program at the Site.**

Apex collected groundwater samples from all seven monitoring wells during the Q3 2017 monitoring event. BTEX constituents were not detected above laboratory reporting limits in six monitoring wells (MW01, MW02, MW04, MW05, MW06 and MW07). Benzene, ethylbenzene and xylenes were detected in MW03R; however, the concentrations were less than COGCC Groundwater Standards. Based on the most recent data, it appears that the 2015 excavation

combined with subsequent natural attenuation has been effective at mitigating hydrocarbon impacts associated with the condensate line release at this Site.

## **TABLES**

**Table 1 - Groundwater Elevation Data  
 Roggen LP Release; Roggen, CO  
 DCP Midstream, LP**

Well ID	Well Data			Liquid Level Data				
	Casing Elevation	Well Depth	Screen Interval	Sample Date	Depth to Water	Depth to PSH	PSH Thickness	Corrected Groundwater Elevation
	(ft AMSL)	(ft TOC)	(ft TOC)		(ft TOC)	(ft TOC)	(feet)	(ft AMSL)
MW01	4,713.60	34.20	24.20 - 34.20	9/19/2017	24.64	-	-	4,688.96
MW02	4,716.64	38.68	28.68 - 38.68	9/19/2017	27.49	-	-	4,689.15
MW03R	4,716.86	35.00	15.00 - 35.00	9/19/2017	27.73	-	-	4,689.13
MW04	4,715.58	38.24	28.24 - 38.24	9/19/2017	26.16	-	-	4,689.42
MW05	4,715.88	35.00	15.00 - 35.00	9/19/2017	26.33	-	-	4,689.55
MW06	4,716.63	35.00	15.00 - 35.00	9/19/2017	27.59	-	-	4,689.04
MW07	4,714.39	35.00	15.00 - 35.00	9/19/2017	25.50	-	-	4,688.89

Notes:

- ft AMSL    feet above mean sea level
- ft TOC    feet below top of casing
- PSH       phase-separated hydrocarbon
- PSH not observed during monitoring event

**Table 2 - BTEX Concentrations in Groundwater  
Roggen LP Release; Roggen, CO  
DCP Midstream, LP**

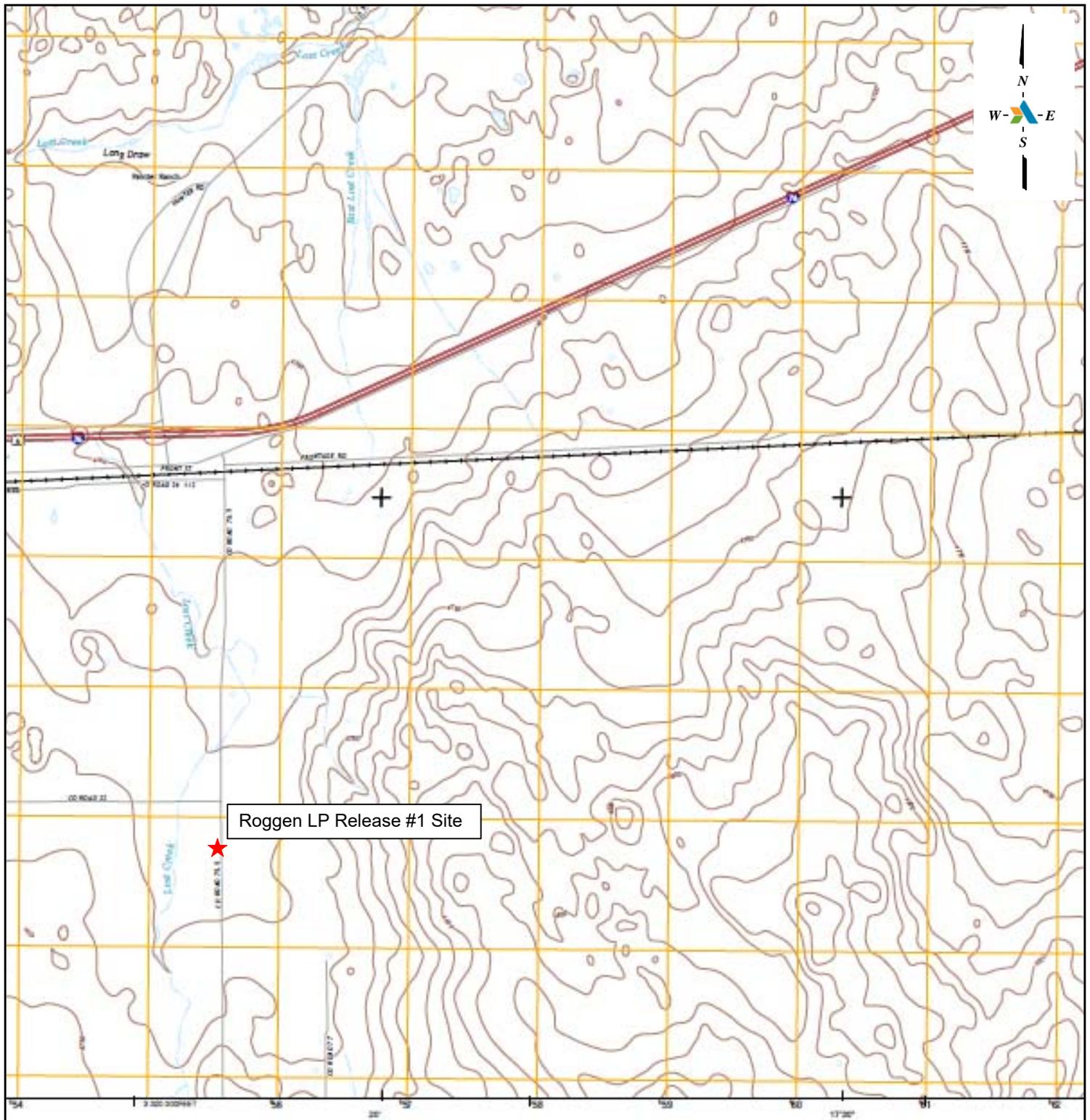
Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes
		----- µg/L -----			
COGCC Groundwater Standard		5	560	700	1,400
MW01	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
MW02	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
MW03R	9/19/2017	1.66	< 1.00	2.23	2.76
MW04	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
MW05	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
DUP	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
MW06	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
MW07	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00

Notes:

1. Benzene, toluene, ethylbenzene, xylenes (BTEX) analyzed using EPA Method 8260C

µg/L            micrograms per liter  
COGCC        Colorado Oil and Gas Conservation Commission  
DUP            Duplicate sample

## FIGURES



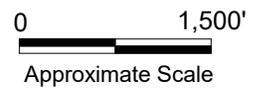
Roggen LP Release #1 Site

**SITE LOCATION INFORMATION**

S17, T2N, R62W  
 Weld County, Colorado  
 Roggen Quadrangle  
 USGS 7.5 Minute Series Topographic Maps, 2013

Centered at approximately  
 N 40.169724, W -104.31375

★ Approximate site location



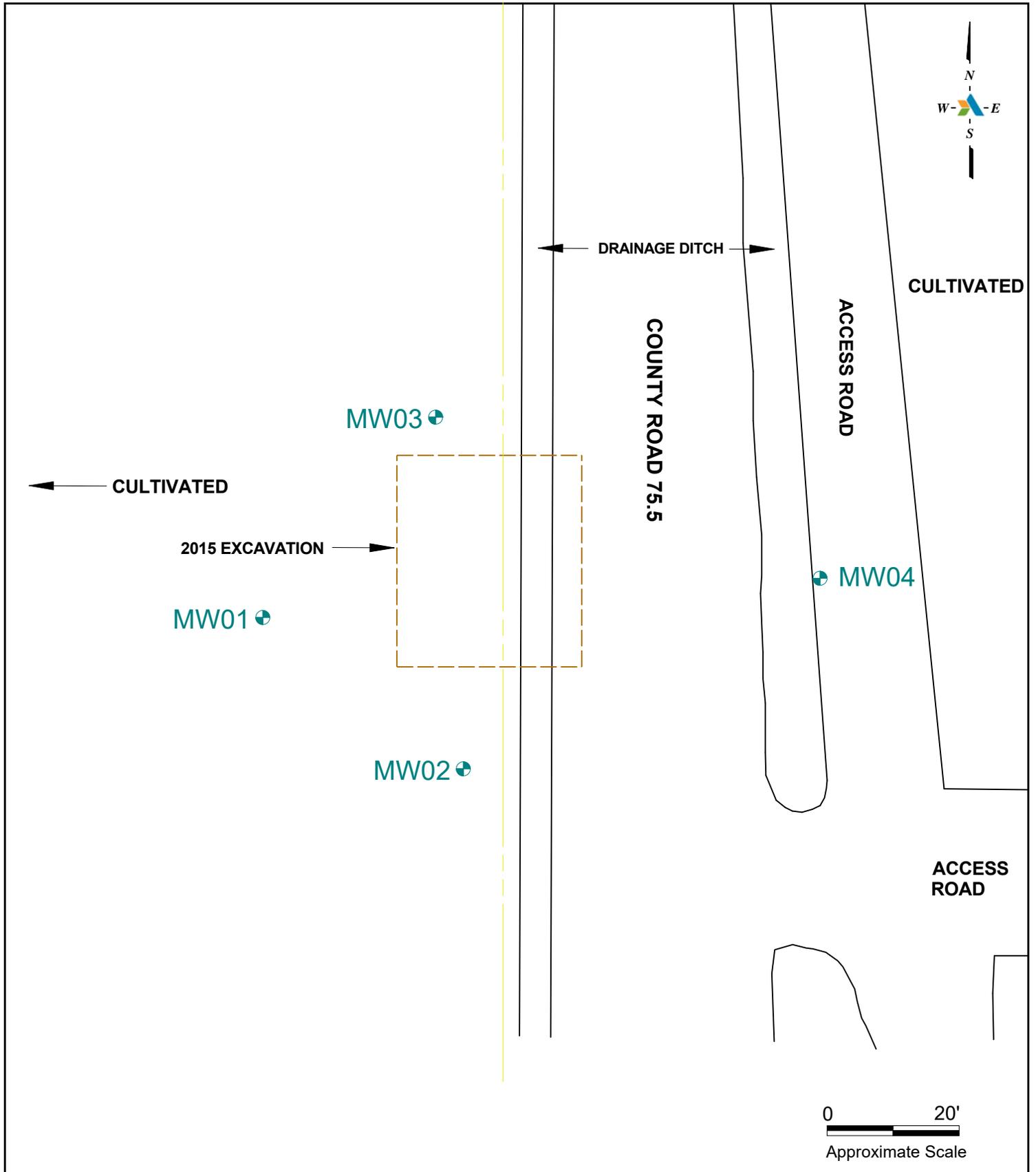
**FIGURE 1 - Site Location**

**Roggen LP Release #1  
 Weld County, CO**

Apex Job No. 5369

DATE - 06/28/17 (DP-CW)  
 FILE - 5369\_F1 Site Location.dc





**LEGEND**

- MW02 ⊕ Monitoring Well
- DCP Pipeline

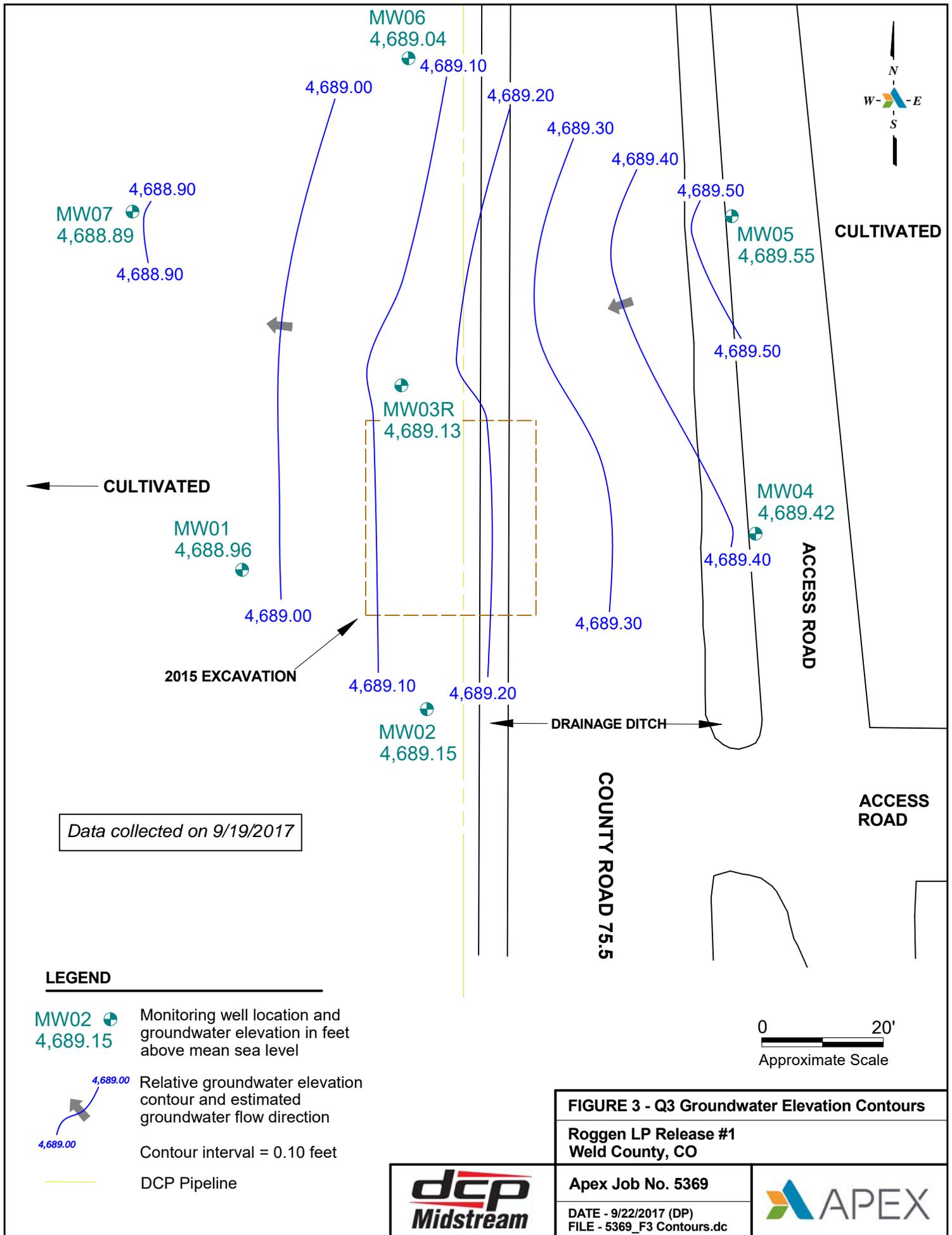
**FIGURE 2 - Site Plan**

**Roggen LP Release #1  
Weld County, CO**

**Apex Job No. 5369**

DATE - 05/10/2016 (DP-DC-JR)  
FILE - 5369\_F2 Site Plan.dc





Samples collected on 9/19/2017



MW06  
ND

MW07  
ND

DRAINAGE DITCH

MW05  
ND

CULTIVATED

ACCESS ROAD

MW03R

MW03R	
9/19/2017	
B	1.66
T	ND
E	2.23
X	2.76

CULTIVATED

COUNTY ROAD 75.5

2015 EXCAVATION

MW04  
ND

MW01  
ND

MW02  
ND

ACCESS ROAD

**LEGEND**

- MW01 Monitoring well
- ND Not detected; all analytical results for this sample below laboratory reporting limits
- Groundwater sample analytical results
- Sample location & date
- Benzene, micrograms per liter (µg/L)
- Toluene, µg/L
- Ethylbenzene, µg/L
- Xylenes, µg/L
- DCP Pipeline

MW03	
9/19/2017	
B	1.66
T	ND
E	2.23
X	2.76

0 20'  
Approximate Scale

**FIGURE 4 - Q3 Groundwater Sample Results**

Roggen LP Release #1  
Weld County, CO



Apex Job No. 5369

DATE - 9/29/2017 (DP)  
FILE - 5369\_F4 Results.dc



## **APPENDIX A**

### **Historical Data Tables**

**Table A1 - Historical Groundwater Elevation Data  
Roggen LP Release; Roggen, CO  
DCP Midstream, LP**

Well ID	Well Data			Liquid Level Data				
	Casing Elevation (ft AMSL)	Well Depth (ft TOC)	Screen Interval (ft TOC)	Sample Date	Depth to Water (ft TOC)	Depth to PSH (ft TOC)	PSH Thickness (feet)	Corrected Groundwater Elevation (ft AMSL)
MW01	4,713.60	34.20	24.20 - 34.20	9/19/2017	24.64	-	-	4,688.96
				6/13/2017	25.53	-	-	4,688.07
				3/16/2017	24.59	-	-	4,689.01
				12/7/2016	23.02	-	-	4,690.58
				10/10/2016	21.96	-	-	4,691.64
				6/17/2016	21.66	-	-	4,691.94
MW02	4,716.64	38.68	28.68 - 38.68	9/19/2017	27.49	-	-	4,689.15
				6/13/2017	28.41	-	-	4,688.23
				3/16/2017	27.47	-	-	4,689.17
				12/7/2016	25.93	-	-	4,690.71
				10/10/2016	24.93	-	-	4,691.71
				6/17/2016	24.80	-	-	4,691.84
MW03R	4,716.86	35.00	15.00 - 35.00	9/19/2017	27.73	-	-	4,689.13
				6/13/2017	28.77	-	-	4,688.09
				3/16/2017	27.83	-	-	4,689.03
				12/7/2016	26.22	-	-	4,690.64
				10/10/2016	25.15	-	-	4,691.71
				MW03	4,716.59	38.22	28.22 - 38.22	6/17/2016
3/31/2016	27.80	-	-					4,688.79
MW04	4,715.58	38.24	28.24 - 38.24	9/19/2017	26.16	-	-	4,689.42
				6/13/2017	27.28	-	-	4,688.30
				3/16/2017	26.34	-	-	4,689.24
				12/7/2016	24.85	-	-	4,690.73
				10/10/2016	23.92	-	-	4,691.66
				6/17/2016	24.11	-	-	4,691.47
MW05	4,715.88	35.00	15.00 - 35.00	9/19/2017	26.33	-	-	4,689.55
				6/13/2017	27.66	-	-	4,688.22
				3/16/2017	26.73	-	-	4,689.15
				12/7/2016	25.16	-	-	4,690.72
				10/10/2016	24.19	-	-	4,691.69
				MW06	4,716.63	35.00	15.00 - 35.00	9/19/2017
6/13/2017	28.69	-	-					4,687.94
3/16/2017	27.77	-	-					4,688.86
12/7/2016	26.15	-	-					4,690.48
10/10/2016	25.15	-	-					4,691.48
MW07	4,714.39	35.00	15.00 - 35.00					9/19/2017
				6/13/2017	26.49	-	-	4,687.90
				3/16/2017	25.55	-	-	4,688.84
				12/7/2016	23.97	-	-	4,690.42
				10/10/2016	22.93	-	-	4,691.46

Notes:

ft AMSL    feet above mean sea level  
ft TOC     feet below top of casing  
PSH        phase-separated hydrocarbon  
-            PSH not observed during monitoring event

**Table A2 - Historical BTEX Concentrations in Groundwater  
Roggen LP Release; Roggen, CO  
DCP Midstream, LP**

Well ID	Sample Date	Benzene	Toluene	Ethylbenzene	Xylenes
		-----µg/L-----			
COGCC Groundwater Standard		5	560	700	1,400
MW01	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	< 1.00	< 1.00	< 1.00	< 1.00
	3/16/2017	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	9/15/2016	< 1.00	< 1.00	< 1.00	< 1.00
	6/17/2016	< 1.00	< 1.00	< 1.00	< 1.00
	3/31/2016	< 1.00	< 1.00	< 1.00	< 1.00
MW02	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	< 1.00	< 1.00	< 1.00	< 1.00
	3/16/2017	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	9/15/2016	< 1.00	< 1.00	< 1.00	< 1.00
	6/17/2016	< 1.00	< 1.00	< 1.00	< 1.00
	3/31/2016	< 1.00	< 1.00	< 1.00	< 1.00
MW03R  DUP  DUP	9/19/2017	1.66	< 1.00	2.23	2.76
	6/13/2017	< 1.00	< 1.00	3.82	< 1.00
	6/13/2017	< 1.00	< 1.00	2.75	< 1.00
	3/16/2017	< 1.00	< 1.00	1.33	< 1.00
	12/7/2016	< 1.00	< 1.00	1.84	3.41
	9/15/2016	3.10	< 1.00	2.70	12.2
	9/15/2016	3.00	< 1.00	2.51	11.9
MW03	6/17/2016	<b>5.76</b>	1.56	1.38	5.90
	3/31/2016	<b>4,480</b>	<b>781</b>	<b>723</b>	<b>2,100</b>
MW04	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	< 1.00	< 1.00	< 1.00	< 1.00
	3/16/2017	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	2.31	< 1.00	< 1.00	< 1.00
	9/15/2016	3.09	< 1.00	< 1.00	< 1.00
	6/17/2016	1.62	< 1.00	< 1.00	< 1.00
	3/31/2016	<b>77.4</b>	< 1.00	< 1.00	6.3
MW05  DUP	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	1.55	< 1.00	< 1.00	< 1.00
	3/16/2017	1.29	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	9/15/2016	< 1.00	< 1.00	< 1.00	< 1.00
MW06  DUP	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	< 1.00	< 1.00	< 1.00	< 1.00
	3/16/2017	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	9/15/2016	<b>12.4</b>	< 1.00	< 1.00	< 1.00
MW07	9/19/2017	< 1.00	< 1.00	< 1.00	< 1.00
	6/13/2017	< 1.00	< 1.00	< 1.00	< 1.00
	3/16/2017	< 1.00	< 1.00	< 1.00	< 1.00
	12/7/2016	< 1.00	< 1.00	< 1.00	< 1.00
	9/15/2016	< 1.00	< 1.00	< 1.00	< 1.00

Notes:

1. Benzene, toluene, ethylbenzene, xylenes (BTEX) analyzed using EPA Method 8260C

**BOLD**           bolded values exceed the COGCC groundwater standards  
µg/L           micrograms per liter  
COGCC       Colorado Oil and Gas Conservation Commission  
DUP           Duplicate sample

## **APPENDIX B**

### **Laboratory Analytical Reports**

September 26, 2017

Apex Companies, LLC

David Puchrik

4150 Darley Avenue, Suite 1

Boulder CO 80305

**Project Name - Roggen Monitoring**

**Project Number - 5369**

Attached are your analytical results for Roggen Monitoring received by Origins Laboratory, Inc. September 19, 2017. This project is associated with Origins project number Y709239-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-01	Y709239-01	Water	September 19, 2017 7:30	09/19/2017 12:02
MW-02	Y709239-02	Water	September 19, 2017 8:00	09/19/2017 12:02
MW-3R	Y709239-03	Water	September 19, 2017 11:00	09/19/2017 12:02
MW-04	Y709239-04	Water	September 19, 2017 8:35	09/19/2017 12:02
MW-05	Y709239-05	Water	September 19, 2017 10:20	09/19/2017 12:02
MW-06	Y709239-06	Water	September 19, 2017 9:15	09/19/2017 12:02
MW-07	Y709239-07	Water	September 19, 2017 9:50	09/19/2017 12:02
MW-05 Dup	Y709239-08	Water	September 19, 2017 10:20	09/19/2017 12:02
Trip Blank	Y709239-09	Water	September 19, 2017 0:00	09/19/2017 12:02

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: 4709239 Client: Apex Co.  
 Checklist Completed by: David La Client Project ID: Roggen Monitoring  
 Date/time completed: 9-15-12 1207 Shipped Via: FEDEX  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: NA  
 Matrix(s) Received: (Check all that apply): Soil/Solid / Water Other: \_\_\_\_\_  
 Cooler Number/Temperature: 1 / 7.8 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe)  
 Thermometer ID: 1003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		/		sampled same day
Is there ice present (document if blue ice is used)	/			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		/		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		/		
Were all samples received intact <sup>(1)</sup> ?	/			
Was adequate sample volume provided <sup>(1)</sup> ?	/			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		/		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	/			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	/			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	/			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	/			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		/		
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)		/		
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature] Date/Time Reviewed 9/20/12

Origins Laboratory, Inc.

*Jefe Pellegrini*

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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-01**  
**9/19/2017 7:30:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

**Origins Laboratory, Inc.**  
**Y709239-01 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	94.2 %	84-121			"	"	"	
Surrogate: Toluene-d8	104 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-02**  
**9/19/2017 8:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.3 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-3R**  
**9/19/2017 11:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-03 (Water)**

**BTEX by EPA 8260C**

Benzene	1.66	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	2.23	1.00	"	"	"	"	"	
Xylenes, total	2.76	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	95.0 %	84-121			"	"	"	
Surrogate: Toluene-d8	105 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-04**  
**9/19/2017 8:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-04 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	95.0 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-05**  
**9/19/2017 10:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-05 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.7 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.3 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-06**  
**9/19/2017 9:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-06 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	93.5 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.8 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-07**  
**9/19/2017 9:50:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-07 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	94.0 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-05 Dup**  
**9/19/2017 10:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-08 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	96.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	102 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.3 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Trip Blank**  
**9/19/2017 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y709239-09 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B712108	09/21/2017	09/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	95.4 %	84-121			"	"	"	
<i>Surrogate: Toluene-d8</i>	102 %	85-115			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	99.7 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B712108 - EPA 5030B (Water)**

**Blank (B712108-BLK1)**

Prepared: 09/21/2017 Analyzed: 09/21/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5	97.2		84-121			
Surrogate: Toluene-d8	63		"	62.5	102		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.0		84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B712108 - EPA 5030B (Water)**

**LCS (B712108-BS1)**

Prepared: 09/21/2017 Analyzed: 09/21/2017

Benzene	48.7	1.00	ug/L	50.0		97.4	73.3-129			
Toluene	49.8	1.00	"	50.0		99.6	76.2-123			
Ethylbenzene	49.2	1.00	"	50.0		98.5	73.6-130			
m,p-Xylene	94.9	2.00	"	100		94.9	76.1-126			
o-Xylene	47.9	1.00	"	50.0		95.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.2	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B712108 - EPA 5030B (Water)**

<b>Matrix Spike (B712108-MS1)</b>	<b>Source: Y709239-01</b>			<b>Prepared: 09/21/2017 Analyzed: 09/21/2017</b>						
Benzene	50.8	1.00	ug/L	50.0	ND	102	74-130			
Toluene	56.9	1.00	"	50.0	ND	114	73-131			
Ethylbenzene	53.2	1.00	"	50.0	ND	106	76-132			
m,p-Xylene	101	2.00	"	100	ND	101	69-139			
o-Xylene	50.8	1.00	"	50.0	ND	102	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.1	84-121			
Surrogate: Toluene-d8	65		"	62.5		105	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B712108 - EPA 5030B (Water)**

Matrix Spike Dup (B712108-MSD1)	Source: Y709239-01			Prepared: 09/21/2017 Analyzed: 09/21/2017						
Benzene	50.9	1.00	ug/L	50.0	ND	102	74-130	0.216	20	
Toluene	51.4	1.00	"	50.0	ND	103	73-131	10.1	20	
Ethylbenzene	50.2	1.00	"	50.0	ND	100	76-132	5.84	20	
m,p-Xylene	96.6	2.00	"	100	ND	96.6	69-139	4.70	20	
o-Xylene	48.2	1.00	"	50.0	ND	96.4	74-131	5.25	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.5	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

---

**Notes and Definitions**

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



*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.*

---

Jen Pellegrini For Noelle Doyle Mathis, President



June 20, 2017

Apex Companies, LLC

David Puchrik

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - Roggen Monitoring

Project Number - 5369

Attached are your analytical results for Roggen Monitoring received by Origins Laboratory, Inc. June 13, 2017. This project is associated with Origins project number Y706152-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	Y706152-01	Water	June 13, 2017 9:05	06/13/2017 13:45
MW-2	Y706152-02	Water	June 13, 2017 9:40	06/13/2017 13:45
MW-4	Y706152-03	Water	June 13, 2017 10:20	06/13/2017 13:45
MW-6	Y706152-04	Water	June 13, 2017 11:00	06/13/2017 13:45
MW-7	Y706152-05	Water	June 13, 2017 12:00	06/13/2017 13:45
MW-3R	Y706152-06	Water	June 13, 2017 12:20	06/13/2017 13:45
MW-5	Y706152-07	Water	June 13, 2017 11:40	06/13/2017 13:45
Dup	Y706152-08	Water	June 13, 2017 12:20	06/13/2017 13:45
Trip Blank	Y706152-09	Water	June 13, 2017 9:05	06/13/2017 13:45

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: y 706152

Client: Apex Co.

Client Project ID: Roggen Monitoring

Checklist Completed by: DK G

Shipped Via: HD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 6-13-17 1408

Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 / 11.9 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe)

Thermometer ID: T005

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)?</sup>		<input checked="" type="checkbox"/>		sampled same Day
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)?</sup>		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked <sup>(1)?</sup> (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH <2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with Na <sub>2</sub> SO <sub>2</sub> +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: [Signature] (Project Manager)

Date/Time Reviewed: 6/14/17

Origins Laboratory, Inc.

Jefe Pellegrini

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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-1**

**6/13/2017 9:05:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-01 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.2 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.1 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-2**

**6/13/2017 9:40:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.0 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.2 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-4**

**6/13/2017 10:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	98.4 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.7 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-6**  
**6/13/2017 11:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-04 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.4 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-7**

**6/13/2017 12:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-05 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	97.5 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.5 %	84-114			"	"	"	

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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-3R**  
**6/13/2017 12:20:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-06 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	<b>3.82</b>	1.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.3 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.1 %	84-114			"	"	"	

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 Project: Roggen Monitoring

**MW-5**  
**6/13/2017 11:40:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-07 (Water)**

**BTEX by EPA 8260C**

Benzene	1.55	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.9 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.2 %	84-114			"	"	"	

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 Project: Roggen Monitoring

**Dup**  
**6/13/2017 12:20:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-08 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1403	06/14/2017	06/15/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	<b>2.75</b>	1.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	84-121			"	"	"	
Surrogate: Toluene-d8	96.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.6 %	84-114			"	"	"	

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 Project: Roggen Monitoring

**Trip Blank**  
**6/13/2017 9:05:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y706152-09 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7F1901	06/19/2017	06/20/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	92.4 %	84-121			"	"	"	
Surrogate: Toluene-d8	103 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.9 %	84-114			"	"	"	

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 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

**Blank (B7F1403-BLK1)**

Prepared: 06/14/2017 Analyzed: 06/14/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		84-121			
Surrogate: Toluene-d8	62		"	62.5	98.8		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.1		84-114			

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David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

**Blank (B7F1403-BLK2)**

Prepared: 06/14/2017 Analyzed: 06/14/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		105	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.0	84-114			

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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

**LCS (B7F1403-BS1)**

Prepared: 06/14/2017 Analyzed: 06/14/2017

Benzene	51.7	1.00	ug/L	50.0		103	73.3-129			
Toluene	52.2	1.00	"	50.0		104	76.2-123			
Ethylbenzene	52.7	1.00	"	50.0		105	73.6-130			
m,p-Xylene	108	2.00	"	100		108	76.1-126			
o-Xylene	53.1	1.00	"	50.0		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	56		"	62.5		90.0	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	84-114			

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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

**LCS (B7F1403-BS2)**

Prepared: 06/14/2017 Analyzed: 06/14/2017

Benzene	52.2	1.00	ug/L	50.0		104	73.3-129			
Toluene	53.6	1.00	"	50.0		107	76.2-123			
Ethylbenzene	53.8	1.00	"	50.0		108	73.6-130			
m,p-Xylene	109	2.00	"	100		109	76.1-126			
o-Xylene	52.2	1.00	"	50.0		104	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		93.9	84-121			
Surrogate: Toluene-d8	64		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

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David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

<b>Matrix Spike (B7F1403-MS1)</b>	<b>Source: Y706152-01</b>			<b>Prepared: 06/14/2017 Analyzed: 06/14/2017</b>						
Benzene	55.4	1.00	ug/L	50.0	ND	111	74-130			
Toluene	55.8	1.00	"	50.0	ND	112	73-131			
Ethylbenzene	57.0	1.00	"	50.0	ND	114	76-132			
m,p-Xylene	109	2.00	"	100	ND	109	69-139			
o-Xylene	51.8	1.00	"	50.0	ND	104	74-131			
Surrogate: 1,2-Dichloroethane-d4	55		"	62.5		88.6	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	84-114			

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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

<b>Matrix Spike (B7F1403-MS2)</b>	<b>Source: Y706152-02</b>			<b>Prepared: 06/14/2017 Analyzed: 06/14/2017</b>						
Benzene	55.0	1.00	ug/L	50.0	ND	110	74-130			
Toluene	55.6	1.00	"	50.0	ND	111	73-131			
Ethylbenzene	56.2	1.00	"	50.0	ND	112	76-132			
m,p-Xylene	107	2.00	"	100	ND	107	69-139			
o-Xylene	51.9	1.00	"	50.0	ND	104	74-131			
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		91.9	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.7	84-114			

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David Puchrik  
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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

<b>Matrix Spike Dup (B7F1403-MSD1)</b>	<b>Source: Y706152-01</b>			<b>Prepared: 06/14/2017 Analyzed: 06/14/2017</b>						
Benzene	57.7	1.00	ug/L	50.0	ND	115	74-130	4.00	20	
Toluene	58.4	1.00	"	50.0	ND	117	73-131	4.68	20	
Ethylbenzene	58.5	1.00	"	50.0	ND	117	76-132	2.65	20	
m,p-Xylene	109	2.00	"	100	ND	109	69-139	0.495	20	
o-Xylene	52.9	1.00	"	50.0	ND	106	74-131	2.08	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		90.8	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.0	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.1	84-114			

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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1403 - EPA 5030B (Water)**

Matrix Spike Dup (B7F1403-MSD2)	Source: Y706152-02			Prepared: 06/14/2017 Analyzed: 06/14/2017						
Benzene	50.8	1.00	ug/L	50.0	ND	102	74-130	7.99	20	
Toluene	50.0	1.00	"	50.0	ND	100	73-131	10.6	20	
Ethylbenzene	49.1	1.00	"	50.0	ND	98.3	76-132	13.4	20	
m,p-Xylene	95.0	2.00	"	100	ND	95.0	69-139	11.9	20	
o-Xylene	47.7	1.00	"	50.0	ND	95.3	74-131	8.52	20	
Surrogate: 1,2-Dichloroethane-d4	57		"	62.5		90.9	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.5	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.1	84-114			

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**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1901 - EPA 5030B (Water)**

**Blank (B7F1901-BLK1)**

Prepared: 06/19/2017 Analyzed: 06/19/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.0	84-121			
Surrogate: Toluene-d8	65		"	62.5		105	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	84-114			

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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1901 - EPA 5030B (Water)**

Matrix Spike (B7F1901-MS1)	Source: Y706227-02			Prepared: 06/19/2017 Analyzed: 06/20/2017						
Benzene	53.5	1.00	ug/L	50.0	ND	107	74-130			
Toluene	52.2	1.00	"	50.0	ND	104	73-131			
Ethylbenzene	52.7	1.00	"	50.0	ND	105	76-132			
m,p-Xylene	101	2.00	"	100	ND	101	69-139			
o-Xylene	50.3	1.00	"	50.0	ND	101	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		96.8	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.1	84-114			

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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7F1901 - EPA 5030B (Water)**

<b>Matrix Spike Dup (B7F1901-MSD1)</b>	<b>Source: Y706227-02</b>			<b>Prepared: 06/19/2017 Analyzed: 06/20/2017</b>						
Benzene	52.7	1.00	ug/L	50.0	ND	105	74-130	1.58	20	
Toluene	51.8	1.00	"	50.0	ND	104	73-131	0.634	20	
Ethylbenzene	51.3	1.00	"	50.0	ND	103	76-132	2.73	20	
m,p-Xylene	98.8	2.00	"	100	ND	98.8	69-139	1.89	20	
o-Xylene	48.7	1.00	"	50.0	ND	97.4	74-131	3.21	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.3	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

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Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

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**Notes and Definitions**

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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---

Jen Pellegrini For Noelle Doyle Mathis, President

March 23, 2017

Apex Companies, LLC

David Puchrik

4150 Darley Avenue, Suite 1

Boulder CO 80305

**Project Name - Roggen Monitoring**

**Project Number - 5369**

Attached are your analytical results for Roggen Monitoring received by Origins Laboratory, Inc. March 16, 2017. This project is associated with Origins project number Y703249-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	Y703249-01	Water	March 16, 2017 9:35	03/16/2017 15:15
MW-2	Y703249-02	Water	March 16, 2017 10:10	03/16/2017 15:15
MW-3R	Y703249-03	Water	March 16, 2017 13:15	03/16/2017 15:15
MW-4	Y703249-04	Water	March 16, 2017 12:05	03/16/2017 15:15
MW-5	Y703249-05	Water	March 16, 2017 11:20	03/16/2017 15:15
MW-6	Y703249-06	Water	March 16, 2017 12:40	03/16/2017 15:15
MW-7	Y703249-07	Water	March 16, 2017 11:05	03/16/2017 15:15

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: V703249

Client: Apex

Client Project ID: Roggen Monitoring

Checklist Completed by: D. Lu

Shipped Via: FD  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 3-17-17 19:17

Airbill #: N/A

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_ (Describe)

Cooler Number/Temperature: 1 / 0.5 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C / \_\_\_\_\_ °C

Thermometer ID: RXB

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> 1/4 inch bubble) present? <b>If yes, contact client and note in narrative.</b>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date, time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: [Signature] (Project Manager)

Date/Time Reviewed: 3-17-17 19:07

Origins Laboratory, Inc.



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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-1**

**3/16/2017 9:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-01 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-2**

**3/16/2017 10:10:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-3R**  
**3/16/2017 1:15:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	<b>1.33</b>	1.00	"	"	"	"	"	
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	84-121			"	"	"	
Surrogate: Toluene-d8	100 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-4**

**3/16/2017 12:05:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-04 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-5**  
**3/16/2017 11:20:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-05 (Water)**

**BTEX by EPA 8260C**

Benzene	1.29	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.7 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

**MW-6**

**3/16/2017 12:40:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
Y703249-06 (Water)

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.5 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-7**

**3/16/2017 11:05:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y703249-07 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B7C2107	03/21/2017	03/21/2017	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	108 %	84-121			"	"	"	
Surrogate: Toluene-d8	99.6 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	84-114			"	"	"	

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7C2107 - EPA 5030B (Water)**

**Blank (B7C2107-BLK1)**

Prepared: 03/21/2017 Analyzed: 03/21/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5	107		84-121			
Surrogate: Toluene-d8	62		"	62.5	99.2		85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5	102		84-114			

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7C2107 - EPA 5030B (Water)**

**LCS (B7C2107-BS1)**

Prepared: 03/21/2017 Analyzed: 03/21/2017

Benzene	52.1	1.00	ug/L	50.0		104	73.3-129			
Toluene	51.9	1.00	"	50.0		104	76.2-123			
Ethylbenzene	53.5	1.00	"	50.0		107	73.6-130			
m,p-Xylene	104	2.00	"	100		104	76.1-126			
o-Xylene	50.1	1.00	"	50.0		100	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.9	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B7C2107 - EPA 5030B (Water)**

<b>Matrix Spike (B7C2107-MS1)</b>	<b>Source: Y703249-01</b>			<b>Prepared: 03/21/2017 Analyzed: 03/21/2017</b>						
Benzene	56.6	1.00	ug/L	50.0	0.230	113	74-130			
Toluene	56.4	1.00	"	50.0	0.200	112	73-131			
Ethylbenzene	58.5	1.00	"	50.0	0.120	117	76-132			
m,p-Xylene	113	2.00	"	100	0.370	113	69-139			
o-Xylene	54.5	1.00	"	50.0	ND	109	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

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

**Batch B7C2107 - EPA 5030B (Water)**

<b>Matrix Spike Dup (B7C2107-MSD1)</b>	<b>Source: Y703249-01</b>			<b>Prepared: 03/21/2017 Analyzed: 03/21/2017</b>						
Benzene	57.7	1.00	ug/L	50.0	0.230	115	74-130	1.98	20	
Toluene	56.9	1.00	"	50.0	0.200	113	73-131	0.777	20	
Ethylbenzene	58.8	1.00	"	50.0	0.120	117	76-132	0.562	20	
m,p-Xylene	114	2.00	"	100	0.370	114	69-139	1.16	20	
o-Xylene	54.8	1.00	"	50.0	ND	110	74-131	0.585	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		102	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.2	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

---

**Notes and Definitions**

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



*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.*

---

Jen Pellegrini For Noelle Doyle Mathis, President

December 09, 2016

Apex Companies, LLC

David Puchrik

4150 Darley Avenue, Suite 1

Boulder CO 80305

**Project Name - Roggen Monitoring**

**Project Number - 5369**

Attached are your analytical results for Roggen Monitoring received by Origins Laboratory, Inc. December 07, 2016. This project is associated with Origins project number X612108-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



Apex Companies, LLC  
4150 Darley Avenue, Suite 1  
Boulder CO 80305

David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	X612108-01	Water	December 7, 2016 10:00	12/07/2016 16:30
MW-2	X612108-02	Water	December 7, 2016 9:15	12/07/2016 16:30
MW-3R	X612108-03	Water	December 7, 2016 13:10	12/07/2016 16:30
MW-4	X612108-04	Water	December 7, 2016 12:15	12/07/2016 16:30
MW-5	X612108-05	Water	December 7, 2016 11:30	12/07/2016 16:30
MW-6	X612108-06	Water	December 7, 2016 14:00	12/07/2016 16:30
MW-7	X612108-07	Water	December 7, 2016 10:45	12/07/2016 16:30
MW-6 duplicate	X612108-08	Water	December 7, 2016 14:00	12/07/2016 16:30
Trip Blank	X612108-09	Water	December 7, 2016 0:00	12/07/2016 16:30

Origins Laboratory, Inc.



*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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

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12108

page 1 of

**ORIGINS**  
 LABORATORY, INC

Client: Apex Companies, LLC  
 Project Manager: David Puchrik  
 Address: 1746 Cole Blvd. #265  
 Project Name: Roggen Monitoring Q4  
 Lakewood, CO 80401  
 Project Number: 5369  
 Telephone Number: 720 501 5048  
 Samples Collected By: RP  
 Email Address: tholby@apexcos.com / dpuchrik@apexcos.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>			
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ. #	Other	Date:			Time:	Date:	Time:
MW-1	12/7/16	1000	3	X				X									
MW-2		0915		X				X									
MW-3R		1310		X				X									
MW-4		1215		X				X									
MW-5		1130		X				X									
MW-6		1400		X				X									
MW-7		1045		X				X									
MW-6 duplicate		1400		X				X									
Tip Blank																	
Relinquished By: [Signature]	Date: 12/7/2016	Time: 1630															
Relinquished By: [Signature]	Date: 12/7/16	Time: 1630															

Temp Received: 8.1  
 Date Results Needed

Origins Laboratory, Inc.

*Jefe Pellegrini*

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, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

Origins Laboratory

F-012207-01-R1  
 Effective Date: 01/09/12

**Sample Receipt Checklist**

Origins Work Order: X112108

Client: Apex

Client Project ID: Roggen Monitoring

Checklist Completed by: Jeff Smith

Shipped Via: HD  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 12-9-16

Airbill #: NA

Matrix(s) Received: (Check all that apply):  Soil/Solid  Water  Other: \_\_\_\_\_

Cooler Number/Temperature: 1 12.1 °C 1 °C 1 °C (Describe) \_\_\_\_\_ °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		X		Sampled Same Day
Is there ice present (document if blue ice is used)	✓			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	✓			
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	✓			
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		X		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	12/16	X		Trip Blank was not noted on COC
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)	✓			HCL
Additional Comments (if any): <u>Ryan H. requested by email to add Trip Blank to COC</u>				
<u>12/8/16 JMS</u>				

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) \_\_\_\_\_

Date/Time Reviewed 12-8-16

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-1**

**12/7/2016 10:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-01 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/08/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-2**

**12/7/2016 9:15:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-02 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/08/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-3R**  
**12/7/2016 1:10:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-03 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	<b>1.84</b>	1.00	"	"	"	"	"	
Xylenes, total	<b>3.41</b>	1.00	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-4**

**12/7/2016 12:15:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-04 (Water)**

**BTEX by EPA 8260C**

Benzene	2.31	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.9 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-5**

**12/7/2016 11:30:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-05 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.6 %	84-114			"	"	"	

Origins Laboratory, Inc.



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David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-6**  
**12/7/2016 2:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-06 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	105 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.2 %	84-114			"	"	"	

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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-7**

**12/7/2016 10:45:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-07 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.0 %	84-114			"	"	"	

Origins Laboratory, Inc.



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Apex Companies, LLC  
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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**MW-6 duplicate**  
**12/7/2016 2:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-08 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.5 %	84-114			"	"	"	

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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Trip Blank**  
**12/7/2016 12:00:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X612108-09 (Water)**

**BTEX by EPA 8260C**

Benzene	ND	1.00	ug/L	1	B6L0803	12/08/2016	12/09/2016	U
Toluene	ND	1.00	"	"	"	"	"	U
Ethylbenzene	ND	1.00	"	"	"	"	"	U
Xylenes, total	ND	1.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	84-121			"	"	"	
Surrogate: Toluene-d8	101 %	85-115			"	"	"	
Surrogate: 4-Bromofluorobenzene	95.3 %	84-114			"	"	"	

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Apex Companies, LLC  
 4150 Darley Avenue, Suite 1  
 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B6L0803 - EPA 5030B (Water)**

**Blank (B6L0803-BLK1)**

Prepared: 12/08/2016 Analyzed: 12/08/2016

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.3	84-114			

Origins Laboratory, Inc.



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Apex Companies, LLC  
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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B6L0803 - EPA 5030B (Water)**

**LCS (B6L0803-BS1)**

Prepared: 12/08/2016 Analyzed: 12/08/2016

Benzene	52.6	1.00	ug/L	50.0		105	73.3-129			
Toluene	52.9	1.00	"	50.0		106	76.2-123			
Ethylbenzene	53.1	1.00	"	50.0		106	73.6-130			
m,p-Xylene	105	2.00	"	100		105	76.1-126			
o-Xylene	52.5	1.00	"	50.0		105	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.3	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	84-114			

Origins Laboratory, Inc.



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 Boulder CO 80305

David Puchrik  
 Project Number: 5369  
 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B6L0803 - EPA 5030B (Water)**

Matrix Spike (B6L0803-MS1)	Source: X612107-01			Prepared: 12/08/2016 Analyzed: 12/08/2016						
Benzene	49.9	1.00	ug/L	50.0	ND	99.7	74-130			
Toluene	50.7	1.00	"	50.0	ND	101	73-131			
Ethylbenzene	51.1	1.00	"	50.0	ND	102	76-132			
m,p-Xylene	101	2.00	"	100	ND	101	69-139			
o-Xylene	50.4	1.00	"	50.0	ND	101	74-131			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.8	84-121			
Surrogate: Toluene-d8	63		"	62.5		102	85-115			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.4	84-114			

Origins Laboratory, Inc.



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 Project: Roggen Monitoring

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch B6L0803 - EPA 5030B (Water)**

<b>Matrix Spike Dup (B6L0803-MSD1)</b>	<b>Source: X612107-01</b>			<b>Prepared: 12/08/2016 Analyzed: 12/08/2016</b>						
Benzene	45.1	1.00	ug/L	50.0	ND	90.1	74-130	10.1	20	
Toluene	45.8	1.00	"	50.0	ND	91.5	73-131	10.3	20	
Ethylbenzene	45.3	1.00	"	50.0	ND	90.6	76-132	12.0	20	
m,p-Xylene	89.8	2.00	"	100	ND	89.8	69-139	11.9	20	
o-Xylene	45.1	1.00	"	50.0	ND	90.2	74-131	11.2	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	61		"	62.5		97.1	84-121			
<i>Surrogate: Toluene-d8</i>	64		"	62.5		102	85-115			
<i>Surrogate: 4-Bromofluorobenzene</i>	60		"	62.5		96.2	84-114			

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David Puchrik  
Project Number: 5369  
Project: Roggen Monitoring

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**Notes and Definitions**

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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---

Jen Pellegrini For Noelle Doyle Mathis, President