

STATE OF
COLORADO

Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>

Bennett annual report

1 message

Joel Bolduc <JBolduc@albertfreiansons.com>

Fri, Aug 7, 2020 at 1:50 PM

To: "Patrick Lennberg (patrick.lennberg@state.co.us)" <patrick.lennberg@state.co.us>

Hi Patrick,

I submitted the Bennett annual report yesterday.

A few minutes ago, I discovered that I forgot to include the groundwater quality lab analyses in the Supplemental Information attachment.

They are attached. (Summit did dissolved metals, Origins did total metals and VOCs).

In addition, I have attached the entire Supplemental Information attachment including the lab analyses if you need it.

Thanks, Joel

--

Joel Bolduc

Land and Environment Manager

Albert Frei & Sons, Inc.

35715 U.S. Hwy 40, Building B Suite 120

Evergreen, CO 80439

C: 303-913-6583

Email: jbolduc@albertfreiansons.com

AFS

A L B E R T F R E I & S O N S

2 attachments**2019 0904 Bennett Groundwater Analyses Combined.pdf**

1170K

8/12/2020

State.co.us Executive Branch Mail - Bennett annual report



2020 0807 Annual Report Supplemental Information.pdf

5528K

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

September 09, 2019

Mark Molen

Molen & Associates, LLC

2090 East 104th Avenue, #205

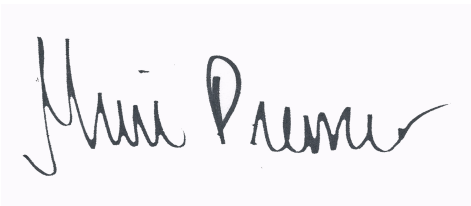
Thornton, CO 80233

RE: AFS Bennett Pit

Work Order # 1909029

Enclosed are the results of analyses for samples received by Summit Scientific on 09/04/19 15:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature is cursive and reads "Muri Premer".

Muri Premer For Ben Shrewsbury

Laboratory Manager



Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit

Project Number: [none]

Project Manager: Mark Molen

Reported:
09/09/19 15:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-4	1909029-01	Water	09/04/19 13:00	09/04/19 15:40

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.

1909029

Page 1 of 1

Project Number:

www.s2scientific.com

1909029

Sample Receipt Checklist

S2 Work Order _____

Client: Molen & Assoc. Client Project ID: AFS Bennett PitShipped Via: (H.D.) P.U./FedEx/UPS/USPS/Other Airbill #: _____Matrix (check all that apply): _____ Air _____ Soil/Solid X Water _____ Other: _____
(Describe)

Temp (°C)	<u>4.1</u>
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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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	on ice
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatile & water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
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

Signature of Custodian

Date/Time

9-4-19 1540



Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit
Project Number: [none]
Project Manager: Mark Molen

Reported:
09/09/19 15:59

MW-4
1909029-01 (Water)

Summit Scientific

Dissolved Metals by EPA Method 200.8

Date Sampled: **09/04/19 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	0.00162	0.000600	mg/L	1	1909045	09/05/19	09/05/19	EPA 200.8	
Barium	0.0741	0.00100	"	"	"	"	"	"	
Cadmium	0.0000704	0.0000500	"	"	"	"	"	"	
Chromium	ND	0.00100	"	"	"	"	"	"	
Lead	0.00104	0.000500	"	"	"	"	"	"	
Selenium	ND	0.00100	"	"	"	"	"	"	
Silver	ND	0.000250	"	"	"	"	"	"	

Dissolved Mercury by EPA Method 245.1

Date Sampled: **09/04/19 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Mercury	ND	0.000200	mg/L	1	1909050	09/05/19	09/06/19	EPA 245.1	

Summit Scientific

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Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit
Project Number: [none]
Project Manager: Mark Molen

Reported:
09/09/19 15:59

Dissolved Metals by EPA Method 200.8 - Quality Control

Summit Scientific

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

Batch 1909045 - EPA 200.8

Blank (1909045-BLK1)

Prepared & Analyzed: 09/05/19

Arsenic	ND	0.000600	mg/L
Barium	ND	0.00100	"
Cadmium	ND	0.0000500	"
Chromium	ND	0.00100	"
Lead	ND	0.000500	"
Selenium	ND	0.00100	"
Silver	ND	0.000250	"

LCS (1909045-BS1)

Prepared & Analyzed: 09/05/19

Arsenic	0.447	0.000600	mg/L	0.500	89.4	85-115
Barium	0.465	0.00100	"	0.500	93.0	85-115
Cadmium	0.0224	0.0000500	"	0.0250	89.5	85-115
Chromium	0.480	0.00100	"	0.500	96.0	85-115
Lead	0.231	0.000500	"	0.250	92.3	85-115
Selenium	0.0438	0.00100	"	0.0500	87.6	85-115
Silver	0.0230	0.000250	"	0.0250	92.1	85-115

Duplicate (1909045-DUP1)

Source: 1908390-01

Prepared & Analyzed: 09/05/19

Arsenic	0.000581	0.000600	mg/L	0.000625	7.34	20
Barium	0.141	0.00100	"	0.130	8.36	20
Cadmium	ND	0.0000500	"	ND		20
Chromium	ND	0.00100	"	ND		20
Lead	0.00564	0.000500	"	0.00512	9.66	20
Selenium	0.00377	0.00100	"	0.00374	0.839	20
Silver	ND	0.000250	"	ND		20

Matrix Spike (1909045-MS1)

Source: 1908390-01

Prepared & Analyzed: 09/05/19

Arsenic	0.463	0.000600	mg/L	0.500	0.000625	92.5	70-130
Barium	0.587	0.00100	"	0.500	0.130	91.4	70-130
Cadmium	0.0228	0.0000500	"	0.0250	ND	91.1	70-130
Chromium	0.486	0.00100	"	0.500	ND	97.3	70-130
Lead	0.224	0.000500	"	0.250	0.00512	87.6	70-130
Selenium	0.0499	0.00100	"	0.0500	0.00374	92.3	70-130
Silver	0.0189	0.000250	"	0.0250	ND	75.5	70-130

Summit Scientific

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Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit

Project Number: [none]

Project Manager: Mark Molen

Reported:
09/09/19 15:59

Dissolved Metals by EPA Method 200.8 - Quality Control

Summit Scientific

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

Batch 1909045 - EPA 200.8

Matrix Spike Dup (1909045-MSD1)		Source: 1908390-01			Prepared & Analyzed: 09/05/19					
Arsenic	0.481	0.000600	mg/L	0.500	0.000625	96.0	70-130	3.71	25	
Barium	0.612	0.00100	"	0.500	0.130	96.4	70-130	4.18	25	
Cadmium	0.0236	0.0000500	"	0.0250	ND	94.5	70-130	3.68	25	
Chromium	0.507	0.00100	"	0.500	ND	101	70-130	4.15	25	
Lead	0.233	0.000500	"	0.250	0.00512	91.2	70-130	3.96	25	
Selenium	0.0567	0.00100	"	0.0500	0.00374	106	70-130	12.8	25	
Silver	0.0217	0.000250	"	0.0250	ND	86.9	70-130	14.0	25	

Summit Scientific

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Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit

Project Number: [none]

Project Manager: Mark Molen

Reported:
09/09/19 15:59

Dissolved Mercury by EPA Method 245.1 - Quality Control

Summit Scientific

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

Batch 1909050 - EPA 245.1

Blank (1909050-BLK1)

Prepared: 09/05/19 Analyzed: 09/06/19

Mercury ND 0.000200 mg/L

LCS (1909050-BS1)

Prepared: 09/05/19 Analyzed: 09/06/19

Mercury 0.00253 0.000200 mg/L 0.00250 101 85-115

Duplicate (1909050-DUP1)

Source: 1908390-01

Prepared: 09/05/19 Analyzed: 09/06/19

Mercury ND 0.000200 mg/L ND 200

Matrix Spike (1909050-MS1)

Source: 1908390-01

Prepared: 09/05/19 Analyzed: 09/06/19

Mercury 0.00229 0.000200 mg/L 0.00250 ND 91.6 75-125

Matrix Spike Dup (1909050-MSD1)

Source: 1908390-01

Prepared: 09/05/19 Analyzed: 09/06/19

Mercury 0.00227 0.000200 mg/L 0.00250 ND 90.8 75-125 0.877 20

Summit Scientific

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Molen & Associates, LLC
2090 East 104th Avenue, #205
Thornton CO, 80233

Project: AFS Bennett Pit

Project Number: [none]
Project Manager: Mark Molen

Reported:
09/09/19 15:59

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



August 19, 2019

Molen & Associates, LLC

Mark Molen

2090 East 104th Avenue - #205

Thornton CO 80233

Project Name - AFS Henderson Pit

Project Number - 19-0218

Attached are your analytical results for AFS Henderson Pit received by Origins Laboratory, Inc. August 12, 2019. This project is associated with Origins project number Y908189-01.

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

Molen & Associates, LLC

2090 East 104th Avenue - #205

Thornton CO 80233

Mark Molen

Project Number: 19-0218

Project: AFS Henderson Pit

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-04	Y908189-01	Water	August 9, 2019 14:20	08/12/2019 16:38

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.

Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

ORIGINS
LABORATORY, INC

1908189

www.originslaboratory.com

page 1 of 1

Client: Molen & Associates
Address: 2090 E 104th Ave #205
Thornton, CO 80233
Telephone Number: 303-450-1600
Email Address: Mark@molendamassociates.com

Project Manager: Mark Molen
Project Name: AFS Henderson Pit
Project Number: 19-0218
Samples Collected By: Mark Molen

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis		Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	VOCs	8-PCB		
M10-04	8/9/19	1420	1			X			X						1
M10-04	8/9/19	1420	3		X				X						2
															3
															4
															5
															6
															7
															8
															9
															10

Relinquished By: <u>Mark Molen</u>	Date: <u>8/12/19</u>	Time: <u>1638</u>	Received By: <u>[Signature]</u>	Date: <u>8-12-19</u>	Time: <u>1638</u>	Turnaround Time: <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input checked="" type="checkbox"/> 72 Hr
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Standard <input checked="" type="checkbox"/>

Date Results Needed

Temp Received: 12.8

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.

Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 7908189 Client: Molen & Associates
Client Project ID: AFS Henderson
Checklist Completed by: JM Shipped Via: HD
Date/time completed: 8/13/19 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: N/A
Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: ☐
Cooler Number/Temperature: 1 / 12.8 °C 1 / 12.8 °C 1 / 12.8 °C 1 / 12.8 °C
Thermometer ID: 7003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

⁽¹⁾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) JP

Date/Time Reviewed 8/14/19

Origins Laboratory, Inc.

Jen 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.

Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

MW-04

8/9/2019 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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GEL Laboratories, LLC

Y908189-01 (Water)

Total Metals by 6010C

Arsenic	0.282	0.030	mg/L	1	1907220	LS	08/15/2019	08/16/2019	
Barium	4.40	0.005	"	"	"	LS	"	"	
Cadmium	0.00181	0.005	"	"	"	LS	"	"	J
Chromium	0.133	0.010	"	"	"	LS	"	"	
Lead	0.411	0.020	"	"	"	LS	"	"	
Selenium	0.0485	0.030	"	"	"	LS	"	"	
Silver	ND	0.005	"	"	"	LS	"	"	U

Total Metals by 7470A

Mercury	0.000955	0.0002	mg/L	1	1907452	MTM1	"	08/16/2019	
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VOC by EPA 8260D

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L	1	B9H1208	KDK	08/12/2019	08/13/2019	Ua
1,1,1-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
1,1,2,2-Tetrachloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
1,1,2-Trichloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
1,1-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
1,1-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	Ua
1,1-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	Ua
1,2,3-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	Ua

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

MW-04

8/9/2019 2:20:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y908189-01 (Water)

VOC by EPA 8260D

1,2,3-Trichloropropane	ND	5.00	ug/L	1	B9H1208	KDK	08/12/2019	08/13/2019	Ua
1,2,4-Trichlorobenzene	ND	5.00	"	"	"	KDK	"	"	Ua
1,2,4-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
1,2-Dibromo-3-chloropropane	ND	5.00	"	"	"	KDK	"	"	Ua
1,2-Dibromoethane (EDB)	ND	1.00	"	"	"	KDK	"	"	Ua
1,2-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	Ua
1,2-Dichloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
1,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	Ua
1,3,5-Trimethylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
1,3-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	Ua
1,3-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	Ua
1,4-Dichlorobenzene	ND	1.00	"	"	"	KDK	"	"	Ua
2,2-Dichloropropane	ND	1.00	"	"	"	KDK	"	"	Ua
2-Butanone	ND	5.00	"	"	"	KDK	"	"	Ua
2-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	Ua
2-Hexanone	ND	5.00	"	"	"	KDK	"	"	Ua
4-Chlorotoluene	ND	1.00	"	"	"	KDK	"	"	Ua
4-Isopropyltoluene	ND	1.00	"	"	"	KDK	"	"	Ua
4-Methyl-2-pentanone	ND	5.00	"	"	"	KDK	"	"	Ua

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

MW-04

8/9/2019 2:20:00PM

Analyte	Result	Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y908189-01 (Water)

VOC by EPA 8260D

Acetone	ND	8.00	ug/L	1	B9H1208	KDK	08/12/2019	08/13/2019	Ua
Benzene	ND	1.00	"	"	"	KDK	"	"	Ua
Bromobenzene	ND	1.00	"	"	"	KDK	"	"	Ua
Bromochloromethane	ND	1.00	"	"	"	KDK	"	"	Ua
Bromodichloromethane	ND	1.00	"	"	"	KDK	"	"	Ua
Bromoform	ND	1.00	"	"	"	KDK	"	"	Ua
Bromomethane	ND	1.00	"	"	"	KDK	"	"	Ua
Carbon disulfide	ND	5.00	"	"	"	KDK	"	"	Ua
Carbon tetrachloride	ND	1.00	"	"	"	KDK	"	"	Ua
Chlorobenzene	ND	1.00	"	"	"	KDK	"	"	Ua
Chloroethane	ND	1.00	"	"	"	KDK	"	"	Ua
Chloroform	ND	1.00	"	"	"	KDK	"	"	Ua
Chloromethane	ND	1.00	"	"	"	KDK	"	"	Ua
cis-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	Ua
cis-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	Ua
Dibromochloromethane	ND	1.00	"	"	"	KDK	"	"	Ua
Dibromomethane	ND	1.00	"	"	"	KDK	"	"	Ua
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
Hexachlorobutadiene	ND	5.00	"	"	"	KDK	"	"	Ua

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

MW-04

8/9/2019 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y908189-01 (Water)

VOC by EPA 8260D

Iodomethane	ND	10.0	ug/L	1	B9H1208	KDK	08/12/2019	08/13/2019	Ua
Isopropylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
m,p-Xylene	ND	2.00	"	"	"	KDK	"	"	Ua
Methylene Chloride	ND	5.00	"	"	"	KDK	"	"	Ua
Methyl tert-Butyl Ether	ND	1.00	"	"	"	KDK	"	"	Ua
Naphthalene	ND	4.00	"	"	"	KDK	"	"	Ua
n-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
n-Propylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
o-Xylene	ND	1.00	"	"	"	KDK	"	"	Ua
sec-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
Styrene	ND	1.00	"	"	"	KDK	"	"	Ua
tert-Butylbenzene	ND	1.00	"	"	"	KDK	"	"	Ua
Tetrachloroethene	ND	1.00	"	"	"	KDK	"	"	Ua
Toluene	ND	1.00	"	"	"	KDK	"	"	Ua
trans-1,2-Dichloroethene	ND	1.00	"	"	"	KDK	"	"	Ua
trans-1,3-Dichloropropene	ND	1.00	"	"	"	KDK	"	"	Ua
Trichloroethene	ND	1.00	"	"	"	KDK	"	"	Ua
Trichlorofluoromethane	ND	1.00	"	"	"	KDK	"	"	Ua
Vinyl chloride	ND	1.00	"	"	"	KDK	"	"	Ua

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

MW-04

8/9/2019 2:20:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.
Y908189-01 (Water)

VOC by EPA 8260D

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130	B9H12 08	08/12/2019	08/13/2019
Surrogate: Toluene-d8	93.0 %	70-130	"	"	"
Surrogate: 4-Bromofluorobenzene	96.7 %	70-130	"	"	"

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

Blank (B9H1208-BLK1)

Prepared: 08/12/2019 Analyzed: 08/12/2019

1,1,1,2-Tetrachloroethane	ND	1.00	ug/L							Ua
1,1,1-Trichloroethane	ND	1.00	"							Ua
1,1,2,2-Tetrachloroethane	ND	1.00	"							Ua
1,1,2-Trichloroethane	ND	1.00	"							Ua
1,1-Dichloroethane	ND	1.00	"							Ua
1,1-Dichloroethene	ND	1.00	"							Ua
1,1-Dichloropropene	ND	1.00	"							Ua
1,2,3-Trichlorobenzene	ND	5.00	"							Ua
1,2,3-Trichloropropane	ND	5.00	"							Ua
1,2,4-Trichlorobenzene	ND	5.00	"							Ua
1,2,4-Trimethylbenzene	ND	1.00	"							Ua
1,2-Dibromo-3-chloropropane	ND	5.00	"							Ua
1,2-Dibromoethane (EDB)	ND	1.00	"							Ua
1,2-Dichlorobenzene	ND	1.00	"							Ua
1,2-Dichloroethane	ND	1.00	"							Ua
1,2-Dichloropropane	ND	1.00	"							Ua
1,3,5-Trimethylbenzene	ND	1.00	"							Ua
1,3-Dichlorobenzene	ND	1.00	"							Ua
1,3-Dichloropropane	ND	1.00	"							Ua
1,4-Dichlorobenzene	ND	1.00	"							Ua
2,2-Dichloropropane	ND	1.00	"							Ua
2-Butanone	ND	5.00	"							Ua
2-Chlorotoluene	ND	1.00	"							Ua
2-Hexanone	ND	5.00	"							Ua
4-Chlorotoluene	ND	1.00	"							Ua
4-Isopropyltoluene	ND	1.00	"							Ua

Origins Laboratory, Inc.



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2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

Blank (B9H1208-BLK1)

Prepared: 08/12/2019 Analyzed: 08/12/2019

4-Methyl-2-pentanone	ND	5.00	ug/L							Ua
Acetone	ND	8.00	"							Ua
Benzene	ND	1.00	"							Ua
Bromobenzene	ND	1.00	"							Ua
Bromochloromethane	ND	1.00	"							Ua
Bromodichloromethane	ND	1.00	"							Ua
Bromoform	ND	1.00	"							Ua
Bromomethane	ND	1.00	"							Ua
Carbon disulfide	ND	5.00	"							Ua
Carbon tetrachloride	ND	1.00	"							Ua
Chlorobenzene	ND	1.00	"							Ua
Chloroethane	ND	1.00	"							Ua
Chloroform	ND	1.00	"							Ua
Chloromethane	ND	1.00	"							Ua
cis-1,2-Dichloroethene	ND	1.00	"							Ua
cis-1,3-Dichloropropene	ND	1.00	"							Ua
Dibromochloromethane	ND	1.00	"							Ua
Dibromomethane	ND	1.00	"							Ua
Ethylbenzene	ND	1.00	"							Ua
Hexachlorobutadiene	ND	5.00	"							Ua
Iodomethane	ND	10.0	"							Ua
Isopropylbenzene	ND	1.00	"							Ua
m,p-Xylene	ND	2.00	"							Ua
Methylene Chloride	ND	5.00	"							Ua
Methyl tert-Butyl Ether	ND	1.00	"							Ua
Naphthalene	ND	4.00	"							Ua

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9H1208 - EPA 5030B (Water)										
Blank (B9H1208-BLK1)					Prepared: 08/12/2019 Analyzed: 08/12/2019					
n-Butylbenzene	ND	1.00	ug/L							Ua
n-Propylbenzene	ND	1.00	"							Ua
o-Xylene	ND	1.00	"							Ua
sec-Butylbenzene	ND	1.00	"							Ua
Styrene	ND	1.00	"							Ua
tert-Butylbenzene	ND	1.00	"							Ua
Tetrachloroethene	ND	1.00	"							Ua
Toluene	ND	1.00	"							Ua
trans-1,2-Dichloroethene	ND	1.00	"							Ua
trans-1,3-Dichloropropene	ND	1.00	"							Ua
Trichloroethene	ND	1.00	"							Ua
Trichlorofluoromethane	ND	1.00	"							Ua
Vinyl chloride	ND	1.00	"							Ua
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.5	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	70-130			

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

LCS (B9H1208-BS1)

Prepared: 08/12/2019 Analyzed: 08/12/2019

1,1,1,2-Tetrachloroethane	46.0	1.00	ug/L	50.0		91.9	70-130			
1,1,1-Trichloroethane	52.8	1.00	"	50.0		106	70-130			
1,1,2,2-Tetrachloroethane	48.0	1.00	"	50.0		96.1	70-130			
1,1,2-Trichloroethane	47.9	1.00	"	50.0		95.8	70-130			
1,1-Dichloroethane	53.4	1.00	"	50.0		107	70-130			
1,1-Dichloroethene	50.6	1.00	"	50.0		101	70-130			
1,1-Dichloropropene	51.0	1.00	"	50.0		102	70-130			
1,2,3-Trichlorobenzene	45.3	5.00	"	50.0		90.6	70-130			
1,2,3-Trichloropropane	47.2	5.00	"	50.0		94.4	70-130			
1,2,4-Trichlorobenzene	42.6	5.00	"	50.0		85.1	70-130			
1,2,4-Trimethylbenzene	49.4	1.00	"	50.0		98.9	70-130			
1,2-Dibromo-3-chloropropane	39.2	5.00	"	50.0		78.4	70-130			
1,2-Dibromoethane (EDB)	48.6	1.00	"	50.0		97.3	70-130			
1,2-Dichlorobenzene	46.4	1.00	"	50.0		92.7	70-130			
1,2-Dichloroethane	53.7	1.00	"	50.0		107	70-130			
1,2-Dichloropropane	53.3	1.00	"	50.0		107	70-130			
1,3,5-Trimethylbenzene	48.8	1.00	"	50.0		97.5	70-130			
1,3-Dichlorobenzene	49.1	1.00	"	50.0		98.1	70-130			
1,3-Dichloropropane	46.7	1.00	"	50.0		93.4	70-130			
1,4-Dichlorobenzene	46.1	1.00	"	50.0		92.2	70-130			
2,2-Dichloropropane	55.6	1.00	"	50.0		111	70-130			
2-Butanone	278	5.00	"	250		111	70-130			
2-Chlorotoluene	46.7	1.00	"	50.0		93.3	70-130			
2-Hexanone	256	5.00	"	250		102	70-130			
4-Chlorotoluene	47.3	1.00	"	50.0		94.6	70-130			
4-Isopropyltoluene	47.8	1.00	"	50.0		95.6	70-130			

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

LCS (B9H1208-BS1)

Prepared: 08/12/2019 Analyzed: 08/12/2019

4-Methyl-2-pentanone	242	5.00	ug/L	250		96.8	70-130			
Acetone	243	8.00	"	250		97.0	70-130			
Benzene	51.0	1.00	"	50.0		102	70-130			
Bromobenzene	49.7	1.00	"	50.0		99.4	70-130			
Bromochloromethane	51.1	1.00	"	50.0		102	70-130			
Bromodichloromethane	57.0	1.00	"	50.0		114	70-130			
Bromoform	42.5	1.00	"	50.0		85.0	70-130			
Bromomethane	63.5	1.00	"				70-130			
Carbon disulfide	45.2	5.00	"	50.0		90.4	70-130			
Carbon tetrachloride	52.9	1.00	"	50.0		106	70-130			
Chlorobenzene	47.5	1.00	"	50.0		95.0	70-130			
Chloroethane	54.6	1.00	"				70-130			
Chloroform	52.7	1.00	"	50.0		105	70-130			
Chloromethane	59.3	1.00	"				70-130			
cis-1,2-Dichloroethene	53.8	1.00	"	50.0		108	70-130			
cis-1,3-Dichloropropene	49.0	1.00	"	50.0		98.1	70-130			
Dibromochloromethane	45.6	1.00	"	50.0		91.2	70-130			
Dibromomethane	52.5	1.00	"	50.0		105	70-130			
Ethylbenzene	47.2	1.00	"	50.0		94.4	70-130			
Hexachlorobutadiene	46.1	5.00	"	50.0		92.2	70-130			
Iodomethane	47.5	10.0	"	50.0		94.9	70-130			
Isopropylbenzene	47.3	1.00	"	50.0		94.6	70-130			
m,p-Xylene	97.9	2.00	"	100		97.9	70-130			
Methylene Chloride	54.3	5.00	"	50.0		109	70-130			
Methyl tert-Butyl Ether	52.6	1.00	"	50.0		105	70-130			
Naphthalene	44.2	4.00	"	50.0		88.3	70-130			

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

LCS (B9H1208-BS1)

Prepared: 08/12/2019 Analyzed: 08/12/2019

n-Butylbenzene	46.9	1.00	ug/L	50.0		93.9	70-130			
n-Propylbenzene	43.5	1.00	"	50.0		87.1	70-130			
o-Xylene	48.2	1.00	"	50.0		96.4	70-130			
sec-Butylbenzene	45.4	1.00	"	50.0		90.8	70-130			
Styrene	50.6	1.00	"	50.0		101	70-130			
tert-Butylbenzene	48.6	1.00	"	50.0		97.1	70-130			
Tetrachloroethene	46.0	1.00	"	50.0		92.1	70-130			
Toluene	47.6	1.00	"	50.0		95.2	70-130			
trans-1,2-Dichloroethene	53.4	1.00	"	50.0		107	70-130			
trans-1,3-Dichloropropene	50.7	1.00	"	50.0		101	70-130			
Trichloroethene	54.1	1.00	"	50.0		108	70-130			
Trichlorofluoromethane	52.9	1.00	"				70-130			
Vinyl chloride	60.0	1.00	"				70-130			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	70-130			
Surrogate: Toluene-d8	58		"	62.5		92.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	70-130			

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

Matrix Spike (B9H1208-MS1)		Source: Y908129-01			Prepared: 08/12/2019 Analyzed: 08/12/2019					
1,1,1,2-Tetrachloroethane	45.5	1.00	ug/L	50.0	ND	91.0	70-130			
1,1,1-Trichloroethane	60.0	1.00	"	50.0	ND	120	70-130			
1,1,2,2-Tetrachloroethane	46.3	1.00	"	50.0	ND	92.5	70-130			
1,1,2-Trichloroethane	50.2	1.00	"	50.0	ND	100	70-130			
1,1-Dichloroethane	61.3	1.00	"	50.0	ND	123	70-130			
1,1-Dichloroethene	67.9	1.00	"	50.0	ND	136	70-130			QM-07
1,1-Dichloropropene	59.1	1.00	"	50.0	ND	118	70-130			
1,2,3-Trichlorobenzene	42.1	5.00	"	50.0	1.96	80.2	70-130			
1,2,3-Trichloropropane	46.2	5.00	"	50.0	ND	92.5	70-130			
1,2,4-Trichlorobenzene	39.6	5.00	"	50.0	1.09	77.0	70-130			
1,2,4-Trimethylbenzene	50.7	1.00	"	50.0	1.96	97.5	70-130			
1,2-Dibromo-3-chloropropane	38.2	5.00	"	50.0	ND	76.3	70-130			
1,2-Dibromoethane (EDB)	49.5	1.00	"	50.0	ND	99.0	70-130			
1,2-Dichlorobenzene	45.3	1.00	"	50.0	0.270	90.0	70-130			
1,2-Dichloroethane	59.2	1.00	"	50.0	ND	118	70-130			
1,2-Dichloropropane	57.6	1.00	"	50.0	ND	115	70-130			
1,3,5-Trimethylbenzene	49.3	1.00	"	50.0	0.810	97.0	70-130			
1,3-Dichlorobenzene	48.7	1.00	"	50.0	0.190	96.9	70-130			
1,3-Dichloropropane	47.8	1.00	"	50.0	ND	95.6	70-130			
1,4-Dichlorobenzene	45.6	1.00	"	50.0	0.190	90.8	70-130			
2,2-Dichloropropane	62.6	1.00	"	50.0	ND	125	70-130			
2-Butanone	309	5.00	"	250	ND	124	70-130			
2-Chlorotoluene	46.7	1.00	"	50.0	0.110	93.2	70-130			
2-Hexanone	266	5.00	"	250	ND	107	70-130			
4-Chlorotoluene	46.5	1.00	"	50.0	0.250	92.5	70-130			
4-Isopropyltoluene	48.2	1.00	"	50.0	0.210	95.9	70-130			

Origins Laboratory, Inc.



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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9H1208 - EPA 5030B (Water)										
Matrix Spike (B9H1208-MS1)		Source: Y908129-01			Prepared: 08/12/2019 Analyzed: 08/12/2019					
4-Methyl-2-pentanone	248	5.00	ug/L	250	0.640	99.0	70-130			
Acetone	280	8.00	"	250	2.14	111	70-130			
Benzene	60.9	1.00	"	50.0	3.47	115	70-130			
Bromobenzene	47.4	1.00	"	50.0	ND	94.7	70-130			
Bromochloromethane	56.1	1.00	"	50.0	ND	112	70-130			
Bromodichloromethane	60.2	1.00	"	50.0	ND	120	70-130			
Bromoform	40.1	1.00	"	50.0	ND	80.2	70-130			
Bromomethane	84.8	1.00	"		ND		70-130			
Carbon disulfide	70.3	5.00	"	50.0	ND	141	70-130			QM-07
Carbon tetrachloride	60.3	1.00	"	50.0	ND	121	70-130			
Chlorobenzene	48.4	1.00	"	50.0	ND	96.8	70-130			
Chloroethane	65.0	1.00	"		ND		70-130			
Chloroform	57.6	1.00	"	50.0	0.110	115	70-130			
Chloromethane	74.5	1.00	"		ND		70-130			
cis-1,2-Dichloroethene	60.9	1.00	"	50.0	ND	122	70-130			
cis-1,3-Dichloropropene	50.2	1.00	"	50.0	ND	100	70-130			
Dibromochloromethane	45.6	1.00	"	50.0	ND	91.2	70-130			
Dibromomethane	55.3	1.00	"	50.0	ND	111	70-130			
Ethylbenzene	48.7	1.00	"	50.0	0.850	95.8	70-130			
Hexachlorobutadiene	42.1	5.00	"	50.0	1.56	81.1	70-130			
Iodomethane	62.7	10.0	"	50.0	ND	125	70-130			
Isopropylbenzene	47.6	1.00	"	50.0	0.200	94.9	70-130			
m,p-Xylene	107	2.00	"	100	5.91	101	70-130			
Methylene Chloride	62.6	5.00	"	50.0	2.08	121	70-130			
Methyl tert-Butyl Ether	58.7	1.00	"	50.0	ND	117	70-130			
Naphthalene	42.8	4.00	"	50.0	2.09	81.4	70-130			

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Molen & Associates, LLC
2090 East 104th Avenue - #205
Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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 B9H1208 - EPA 5030B (Water)

Matrix Spike (B9H1208-MS1)		Source: Y908129-01			Prepared: 08/12/2019 Analyzed: 08/12/2019					
n-Butylbenzene	46.8	1.00	ug/L	50.0	0.340	92.8	70-130			
n-Propylbenzene	43.2	1.00	"	50.0	0.250	85.9	70-130			
o-Xylene	51.4	1.00	"	50.0	3.19	96.4	70-130			
sec-Butylbenzene	45.4	1.00	"	50.0	1.52	87.7	70-130			
Styrene	50.1	1.00	"	50.0	ND	100	70-130			
tert-Butylbenzene	48.1	1.00	"	50.0	0.130	96.0	70-130			
Tetrachloroethene	48.7	1.00	"	50.0	ND	97.3	70-130			
Toluene	57.3	1.00	"	50.0	7.25	100	70-130			
trans-1,2-Dichloroethene	64.1	1.00	"	50.0	ND	128	70-130			
trans-1,3-Dichloropropene	51.2	1.00	"	50.0	ND	102	70-130			
Trichloroethene	59.4	1.00	"	50.0	ND	119	70-130			
Trichlorofluoromethane	61.6	1.00	"		ND		70-130			
Vinyl chloride	76.4	1.00	"		ND		70-130			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		105	70-130			
Surrogate: Toluene-d8	58		"	62.5		92.2	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	70-130			

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9H1208 - EPA 5030B (Water)										
Matrix Spike Dup (B9H1208-MSD1)	Source: Y908129-01				Prepared: 08/12/2019 Analyzed: 08/12/2019					
1,1,1,2-Tetrachloroethane	52.4	1.00	ug/L	50.0	ND	105	70-130	14.2	20	
1,1,1-Trichloroethane	66.8	1.00	"	50.0	ND	134	70-130	10.8	20	QM-07
1,1,2,2-Tetrachloroethane	52.5	1.00	"	50.0	ND	105	70-130	12.6	20	
1,1,2-Trichloroethane	53.1	1.00	"	50.0	ND	106	70-130	5.75	20	
1,1-Dichloroethane	68.6	1.00	"	50.0	ND	137	70-130	11.3	20	QM-07
1,1-Dichloroethene	76.4	1.00	"	50.0	ND	153	70-130	11.8	20	QM-07
1,1-Dichloropropene	65.4	1.00	"	50.0	ND	131	70-130	10.1	20	QM-07
1,2,3-Trichlorobenzene	53.3	5.00	"	50.0	1.96	103	70-130	23.5	20	QR-03
1,2,3-Trichloropropane	52.5	5.00	"	50.0	ND	105	70-130	12.8	20	
1,2,4-Trichlorobenzene	48.3	5.00	"	50.0	1.09	94.4	70-130	19.8	20	
1,2,4-Trimethylbenzene	58.8	1.00	"	50.0	1.96	114	70-130	14.7	20	
1,2-Dibromo-3-chloropropane	44.4	5.00	"	50.0	ND	88.8	70-130	15.1	20	
1,2-Dibromoethane (EDB)	54.6	1.00	"	50.0	ND	109	70-130	9.74	20	
1,2-Dichlorobenzene	52.1	1.00	"	50.0	0.270	104	70-130	14.1	20	
1,2-Dichloroethane	64.8	1.00	"	50.0	ND	130	70-130	8.95	20	
1,2-Dichloropropane	63.9	1.00	"	50.0	ND	128	70-130	10.4	20	
1,3,5-Trimethylbenzene	56.7	1.00	"	50.0	0.810	112	70-130	13.9	20	
1,3-Dichlorobenzene	55.2	1.00	"	50.0	0.190	110	70-130	12.5	20	
1,3-Dichloropropane	52.8	1.00	"	50.0	ND	106	70-130	10.0	20	
1,4-Dichlorobenzene	51.7	1.00	"	50.0	0.190	103	70-130	12.5	20	
2,2-Dichloropropane	70.4	1.00	"	50.0	ND	141	70-130	11.8	20	QM-07
2-Butanone	339	5.00	"	250	ND	135	70-130	9.08	20	QM-07
2-Chlorotoluene	52.3	1.00	"	50.0	0.110	104	70-130	11.2	20	
2-Hexanone	297	5.00	"	250	ND	119	70-130	10.7	20	
4-Chlorotoluene	53.8	1.00	"	50.0	0.250	107	70-130	14.5	20	
4-Isopropyltoluene	56.4	1.00	"	50.0	0.210	112	70-130	15.7	20	

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Thornton CO 80233

Mark Molen
Project Number: 19-0218
Project: AFS Henderson Pit

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9H1208 - EPA 5030B (Water)										
Matrix Spike Dup (B9H1208-MSD1)		Source: Y908129-01			Prepared: 08/12/2019 Analyzed: 08/12/2019					
4-Methyl-2-pentanone	282	5.00	ug/L	250	0.640	112	70-130	12.6	20	
Acetone	314	8.00	"	250	2.14	125	70-130	11.4	20	
Benzene	67.7	1.00	"	50.0	3.47	128	70-130	10.6	20	
Bromobenzene	54.2	1.00	"	50.0	ND	108	70-130	13.6	20	
Bromochloromethane	62.0	1.00	"	50.0	ND	124	70-130	10.0	20	
Bromodichloromethane	66.8	1.00	"	50.0	ND	134	70-130	10.4	20	QM-07
Bromoform	45.6	1.00	"	50.0	ND	91.3	70-130	12.9	20	
Bromomethane	90.6	1.00	"		ND		70-130	6.61	20	
Carbon disulfide	79.0	5.00	"	50.0	ND	158	70-130	11.6	20	QM-07
Carbon tetrachloride	67.4	1.00	"	50.0	ND	135	70-130	11.1	20	QM-07
Chlorobenzene	54.2	1.00	"	50.0	ND	108	70-130	11.3	20	
Chloroethane	73.1	1.00	"		ND		70-130	11.8	20	
Chloroform	63.7	1.00	"	50.0	0.110	127	70-130	9.97	20	
Chloromethane	83.3	1.00	"		ND		70-130	11.1	20	
cis-1,2-Dichloroethene	67.9	1.00	"	50.0	ND	136	70-130	10.9	20	QM-07
cis-1,3-Dichloropropene	56.4	1.00	"	50.0	ND	113	70-130	11.7	20	
Dibromochloromethane	50.9	1.00	"	50.0	ND	102	70-130	11.0	20	
Dibromomethane	60.8	1.00	"	50.0	ND	122	70-130	9.61	20	
Ethylbenzene	56.7	1.00	"	50.0	0.850	112	70-130	15.0	20	
Hexachlorobutadiene	52.5	5.00	"	50.0	1.56	102	70-130	22.0	20	QR-03
Iodomethane	70.6	10.0	"	50.0	ND	141	70-130	11.8	20	QM-07
Isopropylbenzene	55.3	1.00	"	50.0	0.200	110	70-130	14.8	20	
m,p-Xylene	126	2.00	"	100	5.91	120	70-130	16.0	20	
Methylene Chloride	69.6	5.00	"	50.0	2.08	135	70-130	10.6	20	QM-07
Methyl tert-Butyl Ether	65.8	1.00	"	50.0	ND	132	70-130	11.4	20	QM-07
Naphthalene	54.0	4.00	"	50.0	2.09	104	70-130	23.1	20	QR-03

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Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B9H1208 - EPA 5030B (Water)										
Matrix Spike Dup (B9H1208-MSD1)			Source: Y908129-01		Prepared: 08/12/2019 Analyzed: 08/12/2019					
n-Butylbenzene	55.1	1.00	ug/L	50.0	0.340	110	70-130	16.4	20	
n-Propylbenzene	50.8	1.00	"	50.0	0.250	101	70-130	16.0	20	
o-Xylene	59.3	1.00	"	50.0	3.19	112	70-130	14.3	20	
sec-Butylbenzene	53.4	1.00	"	50.0	1.52	104	70-130	16.2	20	
Styrene	57.5	1.00	"	50.0	ND	115	70-130	13.8	20	
tert-Butylbenzene	55.6	1.00	"	50.0	0.130	111	70-130	14.5	20	
Tetrachloroethene	54.1	1.00	"	50.0	ND	108	70-130	10.5	20	
Toluene	64.8	1.00	"	50.0	7.25	115	70-130	12.2	20	
trans-1,2-Dichloroethene	71.5	1.00	"	50.0	ND	143	70-130	11.0	20	QM-07
trans-1,3-Dichloropropene	57.6	1.00	"	50.0	ND	115	70-130	11.8	20	
Trichloroethene	65.5	1.00	"	50.0	ND	131	70-130	9.68	20	QM-07
Trichlorofluoromethane	69.5	1.00	"		ND		70-130	12.1	20	
Vinyl chloride	85.3	1.00	"		ND		70-130	11.0	20	
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	70-130			
Surrogate: Toluene-d8	58		"	62.5		92.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.6	70-130			

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Project Number: 19-0218
Project: AFS Henderson Pit

Volatile Organic Compounds by GC/MS SW846 8260D - 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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Total Metals by 6010C - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1907220 - SW846 3005A

BLANK (1204357250-BLK)

Prepared: 08/15/2019 Analyzed: 08/16/2019

Arsenic	ND	0.030	mg/L				-			U
Silver	ND	0.005	"				-			U
Selenium	ND	0.030	"				-			U
Lead	ND	0.020	"				-			U
Chromium	ND	0.010	"				-			U
Barium	ND	0.005	"				-			U
Cadmium	ND	0.005	"				-			U

LCS (1204357251-BKS)

Prepared: 08/15/2019 Analyzed: 08/16/2019

Lead	0.461	0.020	mg/L	0.500		92.1	80-120			
Arsenic	0.443	0.030	"	0.500		88.6	80-120			
Selenium	0.450	0.030	"	0.500		90	80-120			
Silver	0.0893	0.005	"	0.100		89.3	80-120			
Barium	0.451	0.005	"	0.500		90.1	80-120			
Chromium	0.450	0.010	"	0.500		89.9	80-120			
Cadmium	0.444	0.005	"	0.500		88.8	80-120			

DUP (1204357252 D)

Source: 487356001

Prepared: 08/15/2019 Analyzed: 08/16/2019

Silver	ND	0.005	mg/L		<0.001		0-20	17.4	20	U
Arsenic	ND	0.030	"		0.00523		0-20	137	20	U
Barium	0.313	0.005	"		0.308		0-20	1.7	20	
Cadmium	ND	0.005	"		<0.001		0-20	0.123	20	U

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 2090 East 104th Avenue - #205
 Thornton CO 80233

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 Project Number: 19-0218
 Project: AFS Henderson Pit

Total Metals by 6010C - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1907220 - SW846 3005A

DUP (1204357252 D)

Source: 487356001

Prepared: 08/15/2019 Analyzed: 08/16/2019

Chromium	ND	0.010	mg/L		0.00108		0-20	18.3	20	U
Lead	0.00407	0.020	"		<0.0033		0-20	42.9	20	J
Selenium	ND	0.030	"		<0.006		0-20	48.8	20	U

MS (1204357253 S)

Source: 487356001

Prepared: 08/15/2019 Analyzed: 08/16/2019

Silver	0.0884	0.005	mg/L	0.100	<0.001	88.1	75-125			
Selenium	0.416	0.030	"	0.500	<0.006	82.4	75-125			
Lead	0.423	0.020	"	0.500	<0.0033	84	75-125			
Chromium	0.420	0.010	"	0.500	0.00108	83.7	75-125			
Cadmium	0.411	0.005	"	0.500	<0.001	82.2	75-125			
Arsenic	0.437	0.030	"	0.500	0.00523	86.3	75-125			
Barium	0.717	0.005	"	0.500	0.308	81.8	75-125			

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Total Metals by 7470A - Quality Control GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1907452 - SW846 7470A Prep										
BLANK (1204357813-BLK)					Prepared: 08/15/2019 Analyzed: 08/16/2019					
Mercury	0.000181	0.0002	mg/L				-			J
LCS (1204357814-BKS)					Prepared: 08/15/2019 Analyzed: 08/16/2019					
Mercury	0.00169	0.0002	mg/L	0.002		84.4	80-120			
DUP (1204357818 D)					Prepared: 08/15/2019 Analyzed: 08/16/2019					
		Source: 485651008								
Mercury	0.00391	0.0002	mg/L		0.00397		0-20	1.62	20	
MS (1204357819 S)					Prepared: 08/15/2019 Analyzed: 08/16/2019					
		Source: 485651008								
Mercury	0.00619	0.0002	mg/L	0.002	0.00397	111	75-125			

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Mark Molen
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Project: AFS Henderson Pit

Notes and Definitions

Ua Sample is Non-Detect.

U Result not detected above the detection limit

QR-03 The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

J Greater than the detection limit but less than the reporting limit

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