

September 27, 2019

Tasman Geosciences

Bob Cornez

6855 Wet 119th Avenue

Broomfield CO 80020

**Project Name - KMG - Kern L 4-14**

**Project Number - [none]**

Attached are your analytical results for KMG - Kern L 4-14 received by Origins Laboratory, Inc. September 23, 2019. This project is associated with Origins project number Y909379-01.

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



Tasman Geosciences  
6855 Wet 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: [none]  
Project: KMG - Kern L 4-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01 - 092319	Y909379-01	Water	September 23, 2019 12:22	09/23/2019 16:12
BH02 - 092319	Y909379-02	Water	September 23, 2019 12:03	09/23/2019 16:12
BH03 - 092319	Y909379-03	Water	September 23, 2019 11:51	09/23/2019 16:12
BH04 - 092319	Y909379-04	Water	September 23, 2019 12:19	09/23/2019 16:12

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President



Tasman Geosciences  
 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 9109379

Client: Tasman

Client Project ID: Kern L 4-14

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 9/24/2019

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.5 °C /          °C /          °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> ?	<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 (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<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 HNO <sub>3</sub> , HCl, H <sub>2</sub> SO <sub>4</sub> ) / ( pH >10 for samples preserved with Na <sub>2</sub> CO <sub>3</sub> +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 (Project Manager) JG

Date/Time Reviewed 9/25/19

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**BH01 - 092319**

**9/23/2019 12:22:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909379-01 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912508	KDK	09/25/2019	09/25/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	91.3 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.2 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**BH02 - 092319**

**9/23/2019 12:03:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909379-02 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912508	KDK	09/25/2019	09/25/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	93.4 %	70-130				"	"	"	
Surrogate: Toluene-d8	104 %	70-130				"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130				"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**BH03 - 092319**

**9/23/2019 11:51:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909379-03 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912508	KDK	09/25/2019	09/25/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	89.8 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	104 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.3 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**BH04 - 092319**

**9/23/2019 12:19:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y909379-04 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B912508	KDK	09/25/2019	09/25/2019	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	89.8 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	98.2 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**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 B912508 - EPA 5030B (Water)**

**Blank (B912508-BLK1)**

Prepared: 09/25/2019 Analyzed: 09/25/2019

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
<i>Surrogate: 1,2-Dichloroethane-d4</i>	56		"	62.5		89.6	70-130			
<i>Surrogate: Toluene-d8</i>	64		"	62.5		102	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	62		"	62.5		99.9	70-130			

Origins Laboratory, Inc.



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 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**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 B912508 - EPA 5030B (Water)**

**LCS (B912508-BS1)**

Prepared: 09/25/2019 Analyzed: 09/25/2019

Benzene	53.1	1.00	ug/L	50.0		106	70-130			
Toluene	52.7	1.00	"	50.0		105	70-130			
Ethylbenzene	51.1	1.00	"	50.0		102	70-130			
m,p-Xylene	103	2.00	"	100		103	70-130			
o-Xylene	48.9	1.00	"	50.0		97.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	46		"	62.5		72.8	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.5	70-130			

Origins Laboratory, Inc.



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 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**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 B912508 - EPA 5030B (Water)**

<b>Matrix Spike (B912508-MS1)</b>	<b>Source: Y909368-01</b>			<b>Prepared: 09/25/2019 Analyzed: 09/25/2019</b>						
Benzene	50.5	1.00	ug/L	50.0	ND	101	70-130			
Toluene	51.5	1.00	"	50.0	ND	103	70-130			
Ethylbenzene	46.3	1.00	"	50.0	ND	92.6	70-130			
m,p-Xylene	95.4	2.00	"	100	ND	95.4	70-130			
o-Xylene	46.9	1.00	"	50.0	ND	93.8	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	53		"	62.5		84.5	70-130			
<i>Surrogate: Toluene-d8</i>	64		"	62.5		103	70-130			
<i>Surrogate: 4-Bromofluorobenzene</i>	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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 6855 Wet 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: [none]  
 Project: KMG - Kern L 4-14

**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 B9I2508 - EPA 5030B (Water)**

Matrix Spike Dup (B9I2508-MSD1)	Source: Y909368-01			Prepared: 09/25/2019 Analyzed: 09/25/2019						
Benzene	47.8	1.00	ug/L	50.0	ND	95.7	70-130	5.41	20	
Toluene	48.3	1.00	"	50.0	ND	96.6	70-130	6.43	20	
Ethylbenzene	43.7	1.00	"	50.0	ND	87.4	70-130	5.85	20	
m,p-Xylene	88.9	2.00	"	100	ND	88.9	70-130	7.07	20	
o-Xylene	44.5	1.00	"	50.0	ND	89.0	70-130	5.19	20	
Surrogate: 1,2-Dichloroethane-d4	53		"	62.5		84.4	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
6855 Wet 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: [none]  
Project: KMG - Kern L 4-14

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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



January 06, 2020

**Tasman Geosciences**

**Bob Cornez**

**6855 West 119th Avenue**

**Broomfield CO 80020**

**Project Name - KMG - Kern L 4-14**

**Project Number - 89820501**

Attached are your analytical results for KMG - Kern L 4-14 received by Origins Laboratory, Inc. December 30, 2019. This project is associated with Origins project number Y912459-01.

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

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01-123019	Y912459-01	Water	December 30, 2019 13:01	12/30/2019 16:08
BH02-123019	Y912459-02	Water	December 30, 2019 13:00	12/30/2019 16:08
BH03-123019	Y912459-03	Water	December 30, 2019 12:52	12/30/2019 16:08
BH04-123019	Y912459-04	Water	December 30, 2019 13:08	12/30/2019 16:08
BH05-123019	Y912459-05	Water	December 30, 2019 13:09	12/30/2019 16:08

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: 492159

Client: Tasman

Client Project ID: KMG - Kern L 4-14

Checklist Completed by: Don Lee

Shipped Via: 140

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

Date/time completed: 12-31-11

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 3.8 °C \_\_\_\_\_ / \_\_\_\_\_ °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> ?	<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 <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 NaAsO <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 (Project Manager) [Signature]

Date/Time Reviewed 1/2/12

Origins Laboratory, Inc.

Jefe Pellegrini

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH01-123019**

**12/30/2019 1:01:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912459-01 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B9L3103	ZZZ	12/31/2019	12/31/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	100 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH02-123019**

**12/30/2019 1:00:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912459-02 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B9L3103	ZZZ	12/31/2019	12/31/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	109 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.4 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH03-123019**  
**12/30/2019 12:52:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912459-03 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B9L3103	ZZZ	12/31/2019	12/31/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.5 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	"	

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.*

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH04-123019**

**12/30/2019 1:08:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912459-04 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B9L3103	ZZZ	12/31/2019	12/31/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	108 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	96.4 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	100 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH05-123019**

**12/30/2019 1:09:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y912459-05 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B9L3103	ZZZ	12/31/2019	12/31/2019	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	113 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	99.7 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	98.8 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B9L3103 - EPA 5030B (Water)**

**Blank (B9L3103-BLK1)**

Prepared: 12/31/2019 Analyzed: 12/31/2019

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		95.2	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.8	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B9L3103 - EPA 5030B (Water)**

**LCS (B9L3103-BS1)**

Prepared: 12/31/2019 Analyzed: 12/31/2019

Benzene	48.4	1.00	ug/L	50.0		96.9	70-130			
Toluene	47.4	1.00	"	50.0		94.8	70-130			
Ethylbenzene	47.4	1.00	"	50.0		94.9	70-130			
m,p-Xylene	104	2.00	"	100		104	70-130			
o-Xylene	47.5	1.00	"	50.0		95.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	70-130			

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B9L3103 - EPA 5030B (Water)**

<b>Matrix Spike (B9L3103-MS1)</b>	<b>Source: Y912460-01</b>			<b>Prepared: 12/31/2019 Analyzed: 12/31/2019</b>						
Benzene	77.7	1.00	ug/L	50.0	ND	155	70-130			QM-07
Toluene	72.7	1.00	"	50.0	ND	145	70-130			QM-07
Ethylbenzene	76.1	1.00	"	50.0	ND	152	70-130			QM-07
m,p-Xylene	165	2.00	"	100	ND	165	70-130			QM-07
o-Xylene	73.7	1.00	"	50.0	ND	147	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.8	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B9L3103 - EPA 5030B (Water)**

Matrix Spike Dup (B9L3103-MSD1)	Source: Y912460-01			Prepared: 12/31/2019 Analyzed: 12/31/2019						
Benzene	40.5	1.00	ug/L	50.0	ND	81.1	70-130	62.9	20	QR-03
Toluene	38.2	1.00	"	50.0	ND	76.3	70-130	62.3	20	QR-03
Ethylbenzene	39.0	1.00	"	50.0	ND	77.9	70-130	64.5	20	QR-03
m,p-Xylene	86.7	2.00	"	100	ND	86.7	70-130	62.0	20	QR-03
o-Xylene	39.1	1.00	"	50.0	ND	78.3	70-130	61.3	20	QR-03
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

---

### Notes and Definitions

U Sample is Non-Detect.

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.

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 24, 2020

Tasman Geosciences

Bob Cornez

6855 West 119th Avenue

Broomfield CO 80020

**Project Name - KMG - Kern L 4-14**

**Project Number - 89820501**

Attached are your analytical results for KMG - Kern L 4-14 received by Origins Laboratory, Inc. March 17, 2020. This project is associated with Origins project number Y003339-01.

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



Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01-031720	Y003339-01	Water	March 17, 2020 10:35	03/17/2020 14:45
BH02-031720	Y003339-02	Water	March 17, 2020 10:33	03/17/2020 14:45
BH03-031720	Y003339-03	Water	March 17, 2020 10:16	03/17/2020 14:45
BH04-031720	Y003339-04	Water	March 17, 2020 10:24	03/17/2020 14:45
BH05-031720	Y003339-05	Water	March 17, 2020 10:18	03/17/2020 14:45

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager



Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

Origins Laboratory

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

**Sample Receipt Checklist**

Origins Work Order: Y003339

Client: Tasman  
 Client Project ID: KMG-Kern

Checklist Completed by: Jm  
 Date/time completed: 3/8/20

Shipped Via: HO  
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)  
 Airbill #: N/A

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

Cooler Number/Temperature: 141 °C / \_\_\_\_\_ °C / \_\_\_\_\_ °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			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)			X	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)			X	
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
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> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? <b>If yes, contact client and note in narrative.</b>			X	
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)			X	
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 3/19/20

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.

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH01-031720**

**3/17/2020 10:35:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y003339-01 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	BOC1801	ZZZ	03/18/2020	03/18/2020	U
Toluene	ND	1.00	"	"	"	ZZZ	"	"	U
Ethylbenzene	ND	1.00	"	"	"	ZZZ	"	"	U
Xylenes, total	ND	1.00	"	"	"	ZZZ	"	"	U

Surrogate: 1,2-Dichloroethane-d4	92.3 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	99.7 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	91.2 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH02-031720**

**3/17/2020 10:33:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y003339-02 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	BOC1903	KDK	03/19/2020	03/21/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	105 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.6 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH03-031720**

**3/17/2020 10:16:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y003339-03 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	BOC1903	KDK	03/19/2020	03/21/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH04-031720**

**3/17/2020 10:24:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y003339-04 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	BOC1903	KDK	03/19/2020	03/21/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	104 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	99.9 %	70-130			"	"	"	"	

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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

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 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH05-031720**

**3/17/2020 10:18:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y003339-05 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	BOC1903	KDK	03/19/2020	03/21/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	103 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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Jen Pellegrini, Project Manager

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 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1801 - EPA 5030B (Water)**

**Blank (B0C1801-BLK1)**

Prepared: 03/18/2020 Analyzed: 03/18/2020

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	59		"	62.5		93.8	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		90.5	70-130			

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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1801 - EPA 5030B (Water)**

**LCS (B0C1801-BS1)**

Prepared: 03/18/2020 Analyzed: 03/18/2020

Benzene	40.2	1.00	ug/L	50.0		80.4	70-130			
Toluene	44.9	1.00	"	50.0		89.8	70-130			
Ethylbenzene	46.3	1.00	"	50.0		92.6	70-130			
m,p-Xylene	87.8	2.00	"	100		87.8	70-130			
o-Xylene	41.8	1.00	"	50.0		83.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	51		"	62.5		82.1	70-130			
Surrogate: Toluene-d8	67		"	62.5		108	70-130			
Surrogate: 4-Bromofluorobenzene	55		"	62.5		87.2	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1801 - EPA 5030B (Water)**

Matrix Spike (B0C1801-MS1)	Source: Y003339-01			Prepared: 03/18/2020 Analyzed: 03/18/2020						
Benzene	39.1	1.00	ug/L	50.0	ND	78.1	70-130			
Toluene	39.6	1.00	"	50.0	ND	79.2	70-130			
Ethylbenzene	42.5	1.00	"	50.0	0.060	84.9	70-130			
m,p-Xylene	80.8	2.00	"	100	ND	80.8	70-130			
o-Xylene	38.7	1.00	"	50.0	ND	77.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	53		"	62.5		84.6	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.2	70-130			

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1801 - EPA 5030B (Water)**

Matrix Spike Dup (B0C1801-MSD1)	Source: Y003339-01			Prepared: 03/18/2020 Analyzed: 03/18/2020						
Benzene	34.8	1.00	ug/L	50.0	ND	69.6	70-130	11.6	20	QM-07
Toluene	34.8	1.00	"	50.0	ND	69.6	70-130	13.0	20	QM-07
Ethylbenzene	37.4	1.00	"	50.0	0.060	74.6	70-130	12.9	20	
m,p-Xylene	71.9	2.00	"	100	ND	71.9	70-130	11.6	20	
o-Xylene	34.8	1.00	"	50.0	ND	69.5	70-130	10.8	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.1	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	57		"	62.5		91.6	70-130			

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 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1903 - EPA 5030B (Water)**

**Blank (B0C1903-BLK1)**

Prepared: 03/19/2020 Analyzed: 03/20/2020

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		70-130			
Surrogate: Toluene-d8	62		"	62.5	99.4		70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5	100		70-130			

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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1903 - EPA 5030B (Water)**

**LCS (B0C1903-BS1)**

Prepared: 03/19/2020 Analyzed: 03/20/2020

Benzene	55.4	1.00	ug/L	50.0		111	70-130			
Toluene	54.2	1.00	"	50.0		108	70-130			
Ethylbenzene	54.7	1.00	"	50.0		109	70-130			
m,p-Xylene	111	2.00	"	100		111	70-130			
o-Xylene	54.6	1.00	"	50.0		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.3	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Jen Pellegrini, Project Manager

Tasman Geosciences  
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 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1903 - EPA 5030B (Water)**

<b>Matrix Spike (B0C1903-MS1)</b>	<b>Source: Y003377-03</b>			<b>Prepared: 03/19/2020 Analyzed: 03/21/2020</b>						
Benzene	51.9	1.00	ug/L	50.0	ND	104	70-130			
Toluene	53.1	1.00	"	50.0	ND	106	70-130			
Ethylbenzene	53.0	1.00	"	50.0	ND	106	70-130			
m,p-Xylene	107	2.00	"	100	ND	107	70-130			
o-Xylene	51.7	1.00	"	50.0	ND	103	70-130			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.7	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Jen Pellegrini, Project Manager

Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0C1903 - EPA 5030B (Water)**

Matrix Spike Dup (B0C1903-MSD1)	Source: Y003377-03			Prepared: 03/19/2020 Analyzed: 03/21/2020						
Benzene	51.4	1.00	ug/L	50.0	ND	103	70-130	0.910	20	
Toluene	53.3	1.00	"	50.0	ND	107	70-130	0.263	20	
Ethylbenzene	53.0	1.00	"	50.0	ND	106	70-130	0.0377	20	
m,p-Xylene	107	2.00	"	100	ND	107	70-130	0.0281	20	
o-Xylene	51.7	1.00	"	50.0	ND	103	70-130	0.0773	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Jen Pellegrini, Project Manager

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

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### Notes and Definitions

U Sample is Non-Detect.

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

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, Project Manager

June 08, 2020

Tasman Geosciences

Bob Cornez

6855 West 119th Avenue

Broomfield CO 80020

**Project Name - KMG - Kern L 4-14**

**Project Number - 89820501**

Attached are your analytical results for KMG - Kern L 4-14 received by Origins Laboratory, Inc. June 01, 2020. This project is associated with Origins project number Y006025-01.

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



Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01 - 060120	Y006025-01	Water	June 1, 2020 12:18	06/01/2020 15:35
BH02 - 060120	Y006025-02	Water	June 1, 2020 11:57	06/01/2020 15:35
BH03 - 060120	Y006025-03	Water	June 1, 2020 12:08	06/01/2020 15:35
BH04 - 060120	Y006025-04	Water	June 1, 2020 12:27	06/01/2020 15:35
BH05 - 060120	Y006025-05	Water	June 1, 2020 11:47	06/01/2020 15:35

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

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

**Sample Receipt Checklist**

Origins Work Order: Y006025 Client: Tasman  
 Client Project ID: Kern L 4-14

Checklist Completed by: JG Shipped Via: HD  
 Date/time completed: 6/2/2020 (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 15.3 °C 1 °C 1 °C 1 °C (Describe)

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> ?	<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 (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input checked="" type="checkbox"/>	<input 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: Jm (Project Manager) 6-3-20 Date/Time Reviewed

Origins Laboratory, Inc.



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Tasman Geosciences  
 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH01 - 060120**  
**6/1/2020 12:18:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y006025-01 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B0F0206	KDK	06/02/2020	06/03/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH02 - 060120**  
**6/1/2020 11:57:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y006025-02 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B0F0206	KDK	06/02/2020	06/03/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	102 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"	"	

Origins Laboratory, Inc.



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 6855 West 119th Avenue  
 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH03 - 060120**  
**6/1/2020 12:08:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y006025-03 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B0F0206	KDK	06/02/2020	06/03/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.3 %	70-130				"	"	"	
Surrogate: Toluene-d8	101 %	70-130				"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	70-130				"	"	"	

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Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**BH04 - 060120**  
**6/1/2020 12:27:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y006025-04 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B0F0206	KDK	06/02/2020	06/03/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	100 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"	"	

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 Broomfield CO 80020

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 Project: KMG - Kern L 4-14

**BH05 - 060120**  
**6/1/2020 11:47:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**Y006025-05 (Water)**

**BTEX by EPA 8260D**

Benzene	ND	1.00	ug/L	1	B0F0206	KDK	06/02/2020	06/03/2020	U
Toluene	ND	1.00	"	"	"	KDK	"	"	U
Ethylbenzene	ND	1.00	"	"	"	KDK	"	"	U
Xylenes, total	ND	1.00	"	"	"	KDK	"	"	U

Surrogate: 1,2-Dichloroethane-d4	102 %	70-130			"	"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	"	
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"	"	

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 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0F0206 - EPA 5030B (Water)**

**Blank (B0F0206-BLK1)**

Prepared: 06/02/2020 Analyzed: 06/02/2020

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	63		"	62.5		101	70-130			
Surrogate: Toluene-d8	62		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	70-130			

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 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0F0206 - EPA 5030B (Water)**

**LCS (B0F0206-BS1)**

Prepared: 06/02/2020 Analyzed: 06/02/2020

Benzene	46.0	1.00	ug/L	50.0		92.1	70-130			
Toluene	49.3	1.00	"	50.0		98.6	70-130			
Ethylbenzene	48.2	1.00	"	50.0		96.3	70-130			
m,p-Xylene	92.1	2.00	"	100		92.1	70-130			
o-Xylene	45.0	1.00	"	50.0		90.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.3	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0F0206 - EPA 5030B (Water)**

<b>Matrix Spike (B0F0206-MS1)</b>	<b>Source: Y006022-01</b>			<b>Prepared: 06/02/2020 Analyzed: 06/02/2020</b>						
Benzene	95.1	1.00	ug/L	100	ND	95.1	70-130			
Toluene	103	1.00	"	100	ND	103	70-130			
Ethylbenzene	99.3	1.00	"	100	ND	99.3	70-130			
m,p-Xylene	190	2.00	"	200	ND	95.1	70-130			
o-Xylene	89.9	1.00	"	100	ND	89.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.7	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		106	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences  
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 Broomfield CO 80020

Bob Cornez  
 Project Number: 89820501  
 Project: KMG - Kern L 4-14

**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 B0F0206 - EPA 5030B (Water)**

Matrix Spike Dup (B0F0206-MSD1)	Source: Y006022-01			Prepared: 06/02/2020 Analyzed: 06/02/2020						
Benzene	94.4	1.00	ug/L	100	ND	94.4	70-130	0.696	20	
Toluene	100	1.00	"	100	ND	100	70-130	2.23	20	
Ethylbenzene	98.0	1.00	"	100	ND	98.0	70-130	1.29	20	
m,p-Xylene	189	2.00	"	200	ND	94.7	70-130	0.448	20	
o-Xylene	89.4	1.00	"	100	ND	89.4	70-130	0.524	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.9	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		107	70-130			

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

Tasman Geosciences  
6855 West 119th Avenue  
Broomfield CO 80020

Bob Cornez  
Project Number: 89820501  
Project: KMG - Kern L 4-14

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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.

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