



April 20, 2021

Tasman Geosciences

Mike Jahn

6855 West 119th Avenue

Broomfield CO 80020

Project Name - KMG - Rademacher 37-25

Project Number - 2137067

Attached are your analytical results for KMG - Rademacher 37-25 received by Origins Laboratory, Inc. April 14, 2021. This project is associated with Origins project number Y104239-01.

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

Mike Jahn

Project Number: 2137067

Project: KMG - Rademacher 37-25

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH-B01@7'	Y104239-01	Soil	April 14, 2021 11:45	04/14/2021 17:05
WH-BG01@7'	Y104239-02	Soil	April 14, 2021 11:50	04/14/2021 17:05

Origins Laboratory, Inc.



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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Mike Jahn
Project Number: 2137067
Project: KMG - Rademacher 37-25

www.originslaboratory.com

6524019

ORIGINS
LABORATORY, INC

Project Manager: Mike Jahn
Project Name: Rademacher 37-25
Project Number: 2137067
Samples Collected By: MJ

Client: OXY - TASMAN GEO
Address: 6855 W 119th St, Broomfield, CO
Telephone Number: 303-507-8869
Email Address: mjahn@tasman-geo.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative			Matrix		Analysis		Sample Instructions							
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	As Summed		Other	PH	BAR	EC	BORON	TEXT	DR
WH-00107	4-14-21	11:45	5	X				X		X	X	X	X	X	X	X	X	Saturated paste
WH-860107	✓	11:50	5	X				X		X	X	X	X	X	X	X	X	** hot water
Relinquished By: <i>Quetta Wey</i>	Date: 4-14-21	Time: 1700	Received By: <i>[Signature]</i>	Date: 4/14/21	Time: 1705	Received By: <i>[Signature]</i>	Date: 4/14/21	Time: 1705	Background Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/> MJ									

Data Results Needed

Origins Laboratory, Inc.

Jordan A. Merrill

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6855 West 119th Avenue

Broomfield CO 80020

Mike Jahn

Project Number: 2137067

Project: KMG - Rademacher 37-25

Origins Laboratory

F-012207-01-R1

Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: Y104239

Client: Tasman

Client Project ID: Rademacher 37-25

Checklist Completed by: JG

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

Date/time completed: 4/14/21

Airbill #: N/A

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

Cooler Number/Temperature: 1, 4.9 °C / _____ °C / _____ °C / _____ °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 ⁽¹⁾ ?	<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 ⁽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"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) 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 with date and time recorded ⁽¹⁾ ?	<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 ⁽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 type="checkbox"/>	<input type="checkbox"/>	<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)

Date/Time Reviewed: 4/14/21

Origins Laboratory, Inc.

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Tasman Geosciences
6855 West 119th Avenue
Broomfield CO 80020

Mike Jahn
Project Number: 2137067
Project: KMG - Rademacher 37-25

WH-B01@7'

4/14/2021 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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AAL, Inc.
Y104239-01 (Soil)

Boron (Sorbitol)

Boron	1.0		mg/L	1	[none]		04/16/2021	04/20/2021	
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DRO/ORO by EPA 8015D

Diesel (C10-C28)	ND	25.0	mg/kg	1	B1D1402	KDK	04/14/2021	04/14/2021	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	KDK	"	"	U

Surrogate: o-Terphenyl	83.3 %	50-150			"	"	"	
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GBTEX + Naphthalene by EPA 8260D

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B1D1401	TEM	"	04/14/2021	U
Benzene	ND	0.002	"	"	"	TEM	"	"	U
Toluene	ND	0.002	"	"	"	TEM	"	"	U
Ethylbenzene	ND	0.002	"	"	"	TEM	"	"	U
Xylenes, total	ND	0.002	"	"	"	TEM	"	"	U
Naphthalene	ND	0.008	"	"	"	TEM	"	"	U

Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"
Surrogate: Toluene-d8	95.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	98.7 %	70-130			"	"	"

Metals (Saturated Paste Prep)

Calcium	8.74		me/L	1	[none]		04/16/2021	04/20/2021
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Project: KMG - Rademacher 37-25

WH-B01@7'

4/14/2021 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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AAL, Inc.

Y104239-01 (Soil)

Metals (Saturated Paste Prep)

Magnesium	1.30		me/L	1	[none]		04/16/2021	04/20/2021	
Sodium	6.35		"	"	"		"	"	

pH in Soil by EPA 9045D

pH	11.1		pH Units	1	B1D1509	DJL	04/15/2021	04/15/2021	
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SAR by 20B Saturated Paste

SAR	2.83			1	[none]		04/16/2021	04/20/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	1.98	0.00500	mmhos/cm	1	B1D1510	DJL	04/15/2021	04/15/2021	
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Mike Jahn
Project Number: 2137067
Project: KMG - Rademacher 37-25

WH-BG01@7'

4/14/2021 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyst	Prepared	Analyzed	Notes
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AAL, Inc.
Y104239-02 (Soil)

Boron (Sorbitol)

Boron	0.8		mg/L	1	[none]		04/16/2021	04/20/2021	
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Metals (Saturated Paste Prep)

Calcium	16.89		me/L	1	[none]		"	04/20/2021	
Magnesium	17.99		"	"	"		"	"	
Sodium	8.32		"	"	"		"	"	

pH in Soil by EPA 9045D

pH	7.99		pH Units	1	B1D1509	DJL	04/15/2021	04/15/2021	
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SAR by 20B Saturated Paste

SAR	1.99			1	[none]		04/16/2021	04/20/2021	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	3.34	0.00500	mmhos/cm	1	B1D1510	DJL	04/15/2021	04/15/2021	
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Mike Jahn
Project Number: 2137067
Project: KMG - Rademacher 37-25

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 B1D1401 - EPA 5030 (soil)										
Blank (B1D1401-BLK1)					Prepared: 04/14/2021 Analyzed: 04/14/2021					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.008	"							U
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.8	70-130			

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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 B1D1401 - EPA 5030 (soil)										
LCS (B1D1401-BS1)					Prepared: 04/14/2021 Analyzed: 04/14/2021					
Benzene	0.057	0.002	mg/kg	0.0500		115	70-130			
Toluene	0.052	0.002	"	0.0500		103	70-130			
Ethylbenzene	0.050	0.002	"	0.0500		101	70-130			
m,p-Xylene	0.101	0.004	"	0.100		101	70-130			
o-Xylene	0.051	0.002	"	0.0500		102	70-130			
Naphthalene	0.050	0.008	"	0.0500		99.0	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		105	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		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
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Batch B1D1401 - EPA 5030 (soil)

Matrix Spike (B1D1401-MS1)		Source: Y104220-01			Prepared: 04/14/2021 Analyzed: 04/14/2021					
Benzene	0.056	0.002	mg/kg	0.0500	ND	112	70-130			
Toluene	0.050	0.002	"	0.0500	ND	101	70-130			
Ethylbenzene	0.049	0.002	"	0.0500	ND	97.1	70-130			
m,p-Xylene	0.098	0.004	"	0.100	0.001	96.7	70-130			
o-Xylene	0.050	0.002	"	0.0500	0.0004	99.4	70-130			
Naphthalene	0.050	0.008	"	0.0500	0.001	97.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		107	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.6	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		98.6	70-130			

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Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1D1401 - EPA 5030 (soil)										
Matrix Spike Dup (B1D1401-MSD1)		Source: Y104220-01			Prepared: 04/14/2021 Analyzed: 04/14/2021					
Benzene	0.056	0.002	mg/kg	0.0500	ND	112	70-130	0.537	20	
Toluene	0.051	0.002	"	0.0500	ND	102	70-130	0.989	20	
Ethylbenzene	0.050	0.002	"	0.0500	ND	100	70-130	3.20	20	
m,p-Xylene	0.101	0.004	"	0.100	0.001	99.7	70-130	3.00	20	
o-Xylene	0.051	0.002	"	0.0500	0.0004	101	70-130	1.90	20	
Naphthalene	0.048	0.008	"	0.0500	0.001	93.2	70-130	4.59	20	
Surrogate: 1,2-Dichloroethane-d4	0.13		"	0.125		106	70-130			
Surrogate: Toluene-d8	0.12		"	0.125		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	0.12		"	0.125		99.6	70-130			

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Project Number: 2137067

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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 B1D1402 - EPA 3550B										
Blank (B1D1402-BLK1)					Prepared: 04/14/2021 Analyzed: 04/14/2021					
Diesel (C10-C28)	ND	25.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	100	"							U
Surrogate: o-Terphenyl	20		"	25.0		81.2	50-150			

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Project Number: 2137067
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Extractable Petroleum Hydrocarbons by 8015D - 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 B1D1402 - EPA 3550B

LCS (B1D1402-BS1)

Prepared: 04/14/2021 Analyzed: 04/14/2021

Diesel (C10-C28)	891	50.0	mg/kg	1000		89.1	70-130			
Residual Range Organics (C28-C40)	887	200	"	1000		88.7	70-130			
Surrogate: o-Terphenyl	47		"	50.0		93.8	50-150			

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Extractable Petroleum Hydrocarbons by 8015D - 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 B1D1402 - EPA 3550B

Matrix Spike (B1D1402-MS1)		Source: Y104220-01			Prepared: 04/14/2021 Analyzed: 04/14/2021					
Diesel (C10-C28)	797	50.0	mg/kg	1000	ND	79.7	70-130			
Residual Range Organics (C28-C40)	785	200	"	1000	ND	78.5	70-130			
Surrogate: o-Terphenyl	44		"	50.0		88.0	50-150			

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Extractable Petroleum Hydrocarbons by 8015D - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B1D1402 - EPA 3550B										
Matrix Spike Dup (B1D1402-MSD1)		Source: Y104220-01			Prepared: 04/14/2021 Analyzed: 04/14/2021					
Diesel (C10-C28)	844	50.0	mg/kg	1000	ND	84.4	70-130	5.84	35	
Residual Range Organics (C28-C40)	848	200	"	1000	ND	84.8	70-130	7.61	35	
Surrogate: o-Terphenyl	44		"	50.0		88.7	50-150			

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Extractable Petroleum Hydrocarbons by 8015D - 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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Saturated Paste - 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 B1D1509 - NO PREP

Duplicate (B1D1509-DUP1)		Source: Y104220-01		Prepared: 04/15/2021 Analyzed: 04/15/2021						
pH	6.85		pH Units		6.92			1.02	25	

Batch B1D1510 - NO PREP

Blank (B1D1510-BLK1)		Prepared: 04/15/2021 Analyzed: 04/15/2021								
Specific Conductance (EC)	0.00460	0.00500	mmhos/cm							
Duplicate (B1D1510-DUP1)		Source: Y104220-01		Prepared: 04/15/2021 Analyzed: 04/15/2021						
Specific Conductance (EC)	0.369	0.00500	mmhos/cm		0.426			14.2	25	

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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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