

ANALYTICAL TABLE

TABLE 1
COMO 13C-14HZ
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample Location	Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)	EC (mmhos/cm)	pH (units)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500			4 mmhos/cm or 2x BG	6-9
SS01@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.120	8.54
SS02@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.162	9.09
SS03@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.196	9.13
SS04@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.137	8.96
SS05@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.105	9.04
SS06@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.138	8.51
SS07@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.108	8.66
SS08@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	<5.00	<50	<200	0.113	8.46
SS09@1'	04/12/16	1.0	<0.050	<0.050	<0.050	<0.050	5.46	<50	<200	0.118	8.44
BG01@6"	04/13/16	0.5	NA	NA	NA	NA	NA	NA	NA	0.0659	8.00
BG02@6"	04/13/16	0.5	NA	NA	NA	NA	NA	NA	NA	0.108	7.50
BG02@1'	04/14/16	1.0	NA	NA	NA	NA	NA	NA	NA	0.162	8.57
S01@12'	04/15/16	12.0	42	150	37	270	3700	15000	3200	0.841	7.61
E01@12'	04/15/16	12.0	0.06	0.18	<0.05	<0.05	17	<50	<200	0.523	8.24
W01@12'	04/15/16	12.0	<0.05	<0.05	<0.05	<0.05	<5.0	<50	<200	0.529	8.43
B01@13'	04/15/16	13.0	0.11	0.08	<0.05	<0.05	<5.0	<50	<200	0.411	8.31
E03@13'	04/21/16	13.0	0.006	0.006	<0.002	<0.002	<0.20	<50	<200	0.623	8.23
B02@15'	04/21/16	15.0	0.06	0.04	<0.002	0.01	0.29	<50	<200	0.364	8.47
N02@13'	04/21/16	13.0	0.004	0.004	<0.002	<0.002	<0.20	<50	<200	0.624	8.41
W02@13'	04/21/16	13.0	0.06	0.06	<0.002	0.02	0.25	<50	<200	0.429	8.32
B03@9'	04/25/16	9.0	0.002	<0.002	<0.002	<0.002	<0.20	<50	<200	0.112	7.88
S02@8'	04/25/16	8.0	<0.002	<0.002	<0.002	<0.002	<0.20	<50	<200	0.0935	7.70
E04@8'	04/25/16	8.0	<0.002	<0.002	<0.002	0.006	<0.20	<50	<200	0.0938	7.91
W03@8'	04/25/16	8.0	<0.002	<0.002	<0.002	<0.002	<0.20	<50	<200	0.132	8.06
SS02-R@2'	04/27/16	2.0	NA	NA	NA	NA	NA	NA	NA	NA	8.23
SS03-R@2'	04/27/16	2.0	NA	NA	NA	NA	NA	NA	NA	NA	8.10
SS05-R@2'	04/27/16	2.0	NA	NA	NA	NA	NA	NA	NA	NA	8.75

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective January 1, 2015.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

TVPH - GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH - DRO = Total extractable petroleum hydrocarbons - diesel range organics

TEPH - ORO = Total extractable petroleum hydrocarbons - oil range organics

EC = Electrical conductivity

BG = Background

NA = Constituent Not Analyzed

mmhos/cm = Millimhos per centimeter

mg/kg = Milligrams per kilogram.

ft. bgs = Feet below ground surface.

BOLD = Analytical result is in exceedance of COGCC Table 910-1 soil standards.

LABORATORY ANALYTICAL REPORTS

April 13, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 12, 2016. This project is associated with Origins project number X604126-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01 @ 1'	X604126-01	Soil	April 12, 2016 14:12	04/12/2016 16:30
SS02 @ 1'	X604126-02	Soil	April 12, 2016 14:16	04/12/2016 16:30
SS03 @ 1'	X604126-03	Soil	April 12, 2016 14:20	04/12/2016 16:30
SS04 @ 1'	X604126-04	Soil	April 12, 2016 14:24	04/12/2016 16:30
SS05 @ 1'	X604126-05	Soil	April 12, 2016 14:28	04/12/2016 16:30
SS06 @ 1'	X604126-06	Soil	April 12, 2016 14:32	04/12/2016 16:30
SS07 @ 1'	X604126-07	Soil	April 12, 2016 14:36	04/12/2016 16:30
SS08 @ 1'	X604126-08	Soil	April 12, 2016 14:40	04/12/2016 16:30
SS09 @ 1'	X604126-09	Soil	April 12, 2016 14:44	04/12/2016 16:30

Origins Laboratory, Inc.



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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

www.originslaboratory.com

page 1 of 1



Y604120

Client: Tasman Geo for ARC
 Project Manager: Bob Cornez
 Address: Como BC-HHZ
 Project Name: Como BC-HHZ
 Project Number: Pending
 Telephone Number: 972 250 2807
 Email Address: YCORNEZ@tasman-geo.com
 Samples Collected By: Frank Nelson
ARC Invoice Sam Lohr

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	Other	Other	Other		Other
SS01 @ 1'	4/12/16	1412	2	X				X								Please run Soil Sample for SAP, S EC 740
SS02 @ 1'		1416	2	X				X								
SS03 @ 1'		1420	2	X				X								
SS04 @ 1'		1424	2	X				X								
SS05 @ 1'		1428	2	X				X								
SS06 @ 1'		1432	2	X				X								
SS07 @ 1'		1436	2	X				X								
SS08 @ 1'		1440	2	X				X								
SS09 @ 1'		1444	2	X				X								

Turnaround Time:
 Same Day 24 Hr
 48 Hr 72 Hr
 Standard

Received By: [Signature]
 Date: 4.12.16 Time: 1630

Relinquished By: [Signature]
 Date: 4/12/16

Temp Received: 46° Date Results Needed

Origins Laboratory, Inc.

Jefe Pellegrini

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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13c - 14Hz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X1624126

Client: Tasman Geosciences

Client Project ID: Como 13c - 14Hz

Checklist Completed by: J. Anderson

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

Date/time completed: 4/12/16 1102

Airbill #: NA

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

Cooler Number/Temperature: 1 / 4.6 °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⁾ ?	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)		Y		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	Y			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X			pH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	Y			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			Y	
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.

JMA
 Reviewed by (Project Manager)

4/12/16
 Date/Time Reviewed

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS01 @ 1'
4/12/2016 2:12:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 87.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 89.9 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.54		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.120		mmhos/cm	"	B6D1209	04/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS02 @ 1'
4/12/2016 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 95.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 90.4 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.7 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.09		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.162		mmhos/cm	"	B6D1209	04/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS03 @ 1'
4/12/2016 2:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 83.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 91.0 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.13		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.196		mmhos/cm	"	B6D1209	04/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS04 @ 1'
4/12/2016 2:24:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 89.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 91.7 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.96		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.137		mmhos/cm	"	B6D1209	04/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS05 @ 1'
4/12/2016 2:28:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 92.2 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 87.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.04		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.105		mmhos/cm	"	B6D1209	04/12/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS06 @ 1'
4/12/2016 2:32:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 86.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 90.6 % 70-130 " " "
Surrogate: Toluene-d8 101 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 89.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.51		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.138		mmhos/cm	"	B6D1209	04/12/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS07 @ 1'
4/12/2016 2:36:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 73.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 92.0 % 70-130 " " "
Surrogate: Toluene-d8 102 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.66		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.108		mmhos/cm	"	B6D1209	04/12/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS08 @ 1'
4/12/2016 2:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 83.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	U
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 90.0 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 89.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.46		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.113		mmhos/cm	"	B6D1209	04/12/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

SS09 @ 1'
4/12/2016 2:44:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604126-09 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1206	04/12/2016	04/12/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	5.46	5.00	mg/kg	25	B6D1201	04/12/2016	04/12/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 90.8 % 70-130 " " "
Surrogate: Toluene-d8 103 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 88.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.44		pH Units	1	B6D1208	04/12/2016	04/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.118		mmhos/cm	"	B6D1209	04/12/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D1201 - EPA 5030 (soil)										
Blank (B6D1201-BLK1)										
					Prepared: 04/12/2016 Analyzed: 04/12/2016					
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
Surrogate: 1,2-Dichloroethane-d4	58.9		ug/kg	62.5		94.3	70-130			
Surrogate: Toluene-d8	63.0		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	55.6		"	62.5		88.9	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1201 - EPA 5030 (soil)

LCS (B6D1201-BS1)

Prepared: 04/12/2016 Analyzed: 04/12/2016

Benzene	0.087	0.002	mg/kg	0.100		87.5	77.1-124			
Toluene	0.090	0.002	"	0.100		89.7	74.5-128			
Ethylbenzene	0.089	0.002	"	0.100		88.8	66.4-127			
m,p-Xylene	0.180	0.004	"	0.200		90.2	76.6-124			
o-Xylene	0.086	0.002	"	0.100		85.8	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	54.8		ug/kg	62.5		87.7	70-130			
Surrogate: Toluene-d8	64.7		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	54.3		"	62.5		86.8	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1201 - EPA 5030 (soil)

LCS Dup (B6D1201-BSD1)

Prepared: 04/12/2016 Analyzed: 04/12/2016

Benzene	0.090	0.002	mg/kg	0.100		89.5	77.1-124	2.33	20	
Toluene	0.094	0.002	"	0.100		94.3	74.5-128	4.98	20	
Ethylbenzene	0.096	0.002	"	0.100		95.6	66.4-127	7.35	20	
m,p-Xylene	0.192	0.004	"	0.200		96.1	76.6-124	6.29	20	
o-Xylene	0.090	0.002	"	0.100		89.5	76.6-124	4.20	20	
Surrogate: 1,2-Dichloroethane-d4	53.8		ug/kg	62.5		86.1	70-130			
Surrogate: Toluene-d8	65.5		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	55.7		"	62.5		89.1	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - 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 B6D1206 - EPA 3580

Blank (B6D1206-BLK1)

Prepared: 04/12/2016 Analyzed: 04/12/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		88.0	59-131			

LCS (B6D1206-BS1)

Prepared: 04/12/2016 Analyzed: 04/12/2016

Diesel (C10-C28)	990	50	mg/kg	1000		99.3	64-121			
Residual Range Organics (C28-C40)	870	200	"	1000		87.0	58-124			
Surrogate: o-Terphenyl	49		"	50.0		98.3	59-131			

Matrix Spike (B6D1206-MS1)

Source: X604126-01

Prepared: 04/12/2016 Analyzed: 04/12/2016

Diesel (C10-C28)	1100	50	mg/kg	1000	ND	105	53-125			
Residual Range Organics (C28-C40)	890	200	"	1000	ND	89.2	47-133			
Surrogate: o-Terphenyl	49		"	50.0		98.1	59-131			

Matrix Spike Dup (B6D1206-MSD1)

Source: X604126-01

Prepared: 04/12/2016 Analyzed: 04/12/2016

Diesel (C10-C28)	920	50	mg/kg	1000	ND	92.1	53-125	13.2	20	
Residual Range Organics (C28-C40)	790	200	"	1000	ND	78.9	47-133	12.3	20	
Surrogate: o-Terphenyl	43		"	50.0		86.2	59-131			

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D1208 - NO PREP										
Duplicate (B6D1208-DUP1)		Source: X604126-01			Prepared: 04/12/2016 Analyzed: 04/12/2016					
pH	8.58		pH Units		8.54			0.467	25	
Batch B6D1209 - NO PREP										
Blank (B6D1209-BLK1)		Prepared: 04/12/2016 Analyzed: 04/12/2016								
Specific Conductance (EC)	0.00280		mmhos/cm							
Duplicate (B6D1209-DUP1)		Source: X604126-01			Prepared: 04/12/2016 Analyzed: 04/12/2016					
Specific Conductance (EC)	0.123		mmhos/cm		0.120			2.88	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

April 14, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 13, 2016. This project is associated with Origins project number X604146-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG01 @ 6"	X604146-01	Soil	April 13, 2016 9:44	04/13/2016 16:00
BG02 @ 6"	X604146-02	Soil	April 13, 2016 9:48	04/13/2016 16:00

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14HZ

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604146

Client: Tasman

Client Project ID: Como 13C-14HZ

Checklist Completed by: Jef Smith

Shipped Via: 4/13/12 Pick Up
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4/13/12

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 1.2 °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 ⁽¹⁾ ?	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)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X			PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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)			✓	
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.

Jef Smith
 Reviewed by (Project Manager)

4/13/12
 Date/Time Reviewed

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

BG01 @ 6"

4/13/2016 9:44:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604146-01 (Soil)

pH in Soil by EPA 9045D

pH	8.00		pH Units	1	B6D1307	04/13/2016	04/13/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0659		mmhos/cm	"	B6D1308	04/13/2016	04/13/2016	
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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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

BG02 @ 6"

4/13/2016 9:48:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604146-02 (Soil)

pH in Soil by EPA 9045D

pH	7.50		pH Units	1	B6D1307	04/13/2016	04/13/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.108		mmhos/cm	"	B6D1308	04/13/2016	04/13/2016	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D1307 - NO PREP										
Duplicate (B6D1307-DUP1)		Source: X604144-01			Prepared: 04/13/2016 Analyzed: 04/13/2016					
pH	7.65		pH Units		7.64			0.131	25	
Batch B6D1308 - NO PREP										
Blank (B6D1308-BLK1)		Prepared: 04/13/2016 Analyzed: 04/13/2016								
Specific Conductance (EC)	0.00280		mmhos/cm							
Duplicate (B6D1308-DUP1)		Source: X604144-01			Prepared: 04/13/2016 Analyzed: 04/13/2016					
Specific Conductance (EC)	0.0733		mmhos/cm		0.0713			2.77	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

April 15, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 14, 2016. This project is associated with Origins project number X604164-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BG02 @ 1'	X604164-01	Soil	April 14, 2016 15:20	04/14/2016 17:08

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604164

Client: Tasman

Client Project ID: Como 13C-14Hz

Checklist Completed by: Jefe Smith

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

Date/time completed: 4/14/12

Airbill #: _____

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

Cooler Number/Temperature: _____ / 3.7 °C _____ / _____ °C _____ / _____ °C (Describe) _____ °C

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	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 ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X			PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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)			✓	
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.

Jefe Smith
 Reviewed by (Project Manager)

4/14/12
 Date/Time Reviewed

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

BG02 @ 1'

4/14/2016 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604164-01 (Soil)

pH in Soil by EPA 9045D

pH	8.57		pH Units	1	B6D1407	04/14/2016	04/14/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.162		mmhos/cm	"	B6D1408	04/14/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D1407 - NO PREP										
Duplicate (B6D1407-DUP1)		Source: X604164-01			Prepared: 04/14/2016 Analyzed: 04/14/2016					
pH	8.73		pH Units		8.57			1.85	25	
Batch B6D1408 - NO PREP										
Blank (B6D1408-BLK1)		Prepared: 04/14/2016 Analyzed: 04/14/2016								
Specific Conductance (EC)	0.00240		mmhos/cm							
Duplicate (B6D1408-DUP1)		Source: X604164-01			Prepared: 04/14/2016 Analyzed: 04/14/2016					
Specific Conductance (EC)	0.196		mmhos/cm		0.162			18.6	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

April 18, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 15, 2016. This project is associated with Origins project number X604182-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01@12'	X604182-01	Soil	April 15, 2016 14:05	04/15/2016 14:50
E01@12'	X604182-02	Soil	April 15, 2016 14:16	04/15/2016 14:50
W01@12'	X604182-03	Soil	April 15, 2016 14:10	04/15/2016 14:50
B01@13'	X604182-04	Soil	April 15, 2016 14:13	04/15/2016 14:50

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X160418Z

Client: Tasman Geosciences

Client Project ID: Como 13C-14Hz

Checklist Completed by: Joe Henderson

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

Date/time completed: 4/15/12 1540

Airbill #: ND

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

Cooler Number/Temperature: 1 / 4.1 °C _____ / _____ °C _____ / _____ °C (Describe)

Thermometer ID: T603

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"/>			<u>pH</u>
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.

Joe Henderson
 Reviewed by (Project Manager)

4/15/12
 Date/Time Reviewed

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

S01@12'
4/15/2016 2:05:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604182-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	15000	250	mg/kg	5	B6D1503	04/15/2016	04/17/2016	
Residual Range Organics (C28-C40)	3200	1000	"	"	"	"	"	

Surrogate: *o*-Terphenyl 489 % 59-131 " " " S-04

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	3700	100	mg/kg	500	B6D1505	04/15/2016	04/17/2016	
Benzene	42	0.50	"	250	"	"	04/15/2016	
Toluene	150	1.0	"	500	"	"	"	
Ethylbenzene	37	0.50	"	250	"	"	"	
Xylenes, total	270	1.0	"	500	"	"	04/17/2016	

Surrogate: 1,2-Dichloroethane-d4 123 % 70-130 " " 04/15/2016
 Surrogate: Toluene-d8 117 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 116 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.61		pH Units	1	B6D1506	04/15/2016	04/15/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.841		mmhos/cm	"	B6D1507	04/15/2016	04/15/2016	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

E01@12'
4/15/2016 2:16:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604182-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1503	04/15/2016	04/15/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	17	5.0	mg/kg	25	B6D1505	04/15/2016	04/15/2016	
Benzene	0.06	0.05	"	"	"	"	"	
Toluene	0.18	0.05	"	"	"	"	"	
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.24		pH Units	1	B6D1506	04/15/2016	04/15/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.523		mmhos/cm	"	B6D1507	04/15/2016	04/15/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

W01@12'
4/15/2016 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604182-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1503	04/15/2016	04/15/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 72.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6D1505	04/15/2016	04/15/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "
Surrogate: Toluene-d8 99.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.6 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.43		pH Units	1	B6D1506	04/15/2016	04/15/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.529		mmhos/cm	"	B6D1507	04/15/2016	04/15/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

B01@13'
4/15/2016 2:13:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604182-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D1503	04/15/2016	04/15/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 80.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6D1505	04/15/2016	04/15/2016	U
Benzene	0.11	0.05	"	"	"	"	"	
Toluene	0.08	0.05	"	"	"	"	"	
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 103 % 70-130 " " "
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.31		pH Units	1	B6D1506	04/15/2016	04/15/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.411		mmhos/cm	"	B6D1507	04/15/2016	04/15/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Blank (B6D1505-BLK1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Blank (B6D1505-BLK2)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

LCS (B6D1505-BS1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Benzene	0.11	0.002	mg/kg	0.100		106	77.1-124			
Toluene	0.11	0.002	"	0.100		110	74.5-128			
Ethylbenzene	0.12	0.002	"	0.100		115	66.4-127			
m,p-Xylene	0.24	0.004	"	0.200		119	76.6-124			
o-Xylene	0.11	0.002	"	0.100		114	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.4	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

LCS (B6D1505-BS2)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Benzene	0.11	0.002	mg/kg	0.100		110	77.1-124			
Toluene	0.11	0.002	"	0.100		112	74.5-128			
Ethylbenzene	0.12	0.002	"	0.100		118	66.4-127			
m,p-Xylene	0.24	0.004	"	0.200		122	76.6-124			
o-Xylene	0.12	0.002	"	0.100		116	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Matrix Spike (B6D1505-MS1)	Source: X604166-01			Prepared: 04/15/2016 Analyzed: 04/15/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	101	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	104	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	105	62.2-130			
m,p-Xylene	0.22	0.004	"	0.200	ND	110	46.5-137			
o-Xylene	0.11	0.002	"	0.100	ND	105	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.1	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Matrix Spike (B6D1505-MS2)	Source: X604157-03			Prepared: 04/15/2016 Analyzed: 04/15/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	102	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	100	65.1-130			
Ethylbenzene	0.10	0.002	"	0.100	ND	103	62.2-130			
m,p-Xylene	0.21	0.004	"	0.200	ND	106	46.5-137			
o-Xylene	0.10	0.002	"	0.100	ND	104	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Matrix Spike Dup (B6D1505-MSD1)	Source: X604166-01			Prepared: 04/15/2016 Analyzed: 04/15/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	98.7	71.8-126	2.11	11.3	
Toluene	0.10	0.002	"	0.100	ND	101	65.1-130	2.44	15.4	
Ethylbenzene	0.11	0.002	"	0.100	ND	105	62.2-130	0.247	19.6	
m,p-Xylene	0.22	0.004	"	0.200	ND	109	46.5-137	0.971	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	105	54.2-134	0.0190	17.9	
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.4	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D1505 - EPA 5030 (soil)

Matrix Spike Dup (B6D1505-MSD2)	Source: X604157-03			Prepared: 04/15/2016 Analyzed: 04/15/2016						
Benzene	0.09	0.002	mg/kg	0.100	ND	94.4	71.8-126	7.72	11.3	
Toluene	0.09	0.002	"	0.100	ND	93.7	65.1-130	6.75	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	96.8	62.2-130	6.63	19.6	
m,p-Xylene	0.20	0.004	"	0.200	ND	99.2	46.5-137	6.82	19.2	
o-Xylene	0.10	0.002	"	0.100	ND	96.3	54.2-134	7.23	17.9	
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.3	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - 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 B6D1503 - EPA 3580

Blank (B6D1503-BLK1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	41		"	50.0		82.6	59-131			

Blank (B6D1503-BLK2)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	54		"	50.0		108	59-131			

LCS (B6D1503-BS1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Diesel (C10-C28)	1000	50	mg/kg	1000		99.9	64-121			
Residual Range Organics (C28-C40)	1000	200	"	1000		104	58-124			
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			

LCS (B6D1503-BS2)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Diesel (C10-C28)	980	50	mg/kg	1000		97.5	64-121			
Residual Range Organics (C28-C40)	870	200	"	1000		86.6	58-124			
Surrogate: o-Terphenyl	47		"	50.0		94.8	59-131			

LCS Dup (B6D1503-BSD1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Diesel (C10-C28)	1100	50	mg/kg	1000		112	64-121	11.8	20	
Residual Range Organics (C28-C40)	990	200	"	1000		98.5	58-124	5.83	20	

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Extractable Petroleum Hydrocarbons by 8015C - 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 B6D1503 - EPA 3580

LCS Dup (B6D1503-BSD1)

Prepared: 04/15/2016 Analyzed: 04/15/2016

Surrogate: o-Terphenyl	52		mg/kg	50.0		103	59-131			
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D1506 - NO PREP										
Duplicate (B6D1506-DUP1)		Source: X604182-01			Prepared: 04/15/2016 Analyzed: 04/15/2016					
pH	7.55		pH Units		7.61			0.792	25	
Duplicate (B6D1506-DUP2)		Source: X604183-01			Prepared: 04/15/2016 Analyzed: 04/15/2016					
pH	8.33		pH Units		8.27			0.723	25	
Batch B6D1507 - NO PREP										
Blank (B6D1507-BLK1)		Prepared: 04/15/2016 Analyzed: 04/15/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
Blank (B6D1507-BLK2)		Prepared: 04/15/2016 Analyzed: 04/15/2016								
Specific Conductance (EC)	0.00350		mmhos/cm							
Duplicate (B6D1507-DUP1)		Source: X604182-01			Prepared: 04/15/2016 Analyzed: 04/15/2016					
Specific Conductance (EC)	0.834		mmhos/cm		0.841			0.836	25	
Duplicate (B6D1507-DUP2)		Source: X604183-01			Prepared: 04/15/2016 Analyzed: 04/15/2016					
Specific Conductance (EC)	0.0602		mmhos/cm		0.0625			3.75	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

Notes and Definitions

U Sample is Non-Detect.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

April 22, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 21, 2016. This project is associated with Origins project number X604230-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E03 @ 13'	X604230-01	Soil	April 21, 2016 15:30	04/21/2016 16:45
B02 @ 15'	X604230-02	Soil	April 21, 2016 15:35	04/21/2016 16:45
N02 @ 13'	X604230-03	Soil	April 21, 2016 15:40	04/21/2016 16:45
W02 @ 13'	X604230-04	Soil	April 21, 2016 15:45	04/21/2016 16:45

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Sample Receipt Checklist

Origins Work Order: X604230 Client: Tasman
 Client Project ID: Como 13C-14Hz

Checklist Completed by: Jeff Smith Shipped Via: _____
 Date/time completed: 4/21/12 (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 / 5.9 °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 ⁽¹⁾ ?	✓			
Is there ice present (document if blue ice is used)	✓			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		✓		
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	X	<u>4/22/12</u>		<u>PI+</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation and was it checked ⁽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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			✓	
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.

 4/21/12
 Reviewed by (Project Manager) Date/Time Reviewed

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

E03 @ 13'
4/21/2016 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604230-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2103	04/21/2016	04/21/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 81.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2102	04/21/2016	04/22/2016	U
Benzene	0.006	0.002	"	"	"	"	"	
Toluene	0.006	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 121 % 70-130 " " "
Surrogate: Toluene-d8 94.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.23		pH Units	1	B6D2105	04/21/2016	04/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.623		mmhos/cm	"	B6D2106	04/21/2016	04/21/2016	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

B02 @ 15'
4/21/2016 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604230-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2103	04/21/2016	04/21/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 79.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.29	0.20	mg/kg	1	B6D2102	04/21/2016	04/22/2016	
Benzene	0.06	0.002	"	"	"	"	"	
Toluene	0.04	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	0.01	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 117 % 70-130 " " "
Surrogate: Toluene-d8 95.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.47		pH Units	1	B6D2105	04/21/2016	04/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.364		mmhos/cm	"	B6D2106	04/21/2016	04/21/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

N02 @ 13'
4/21/2016 3:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604230-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2103	04/21/2016	04/21/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2102	04/21/2016	04/22/2016	U
Benzene	0.004	0.002	"	"	"	"	"	
Toluene	0.004	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 121 % 70-130 " " "
Surrogate: Toluene-d8 95.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.6 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.41		pH Units	1	B6D2105	04/21/2016	04/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.624		mmhos/cm	"	B6D2106	04/21/2016	04/21/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

W02 @ 13'
4/21/2016 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604230-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2103	04/21/2016	04/21/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 86.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.25	0.20	mg/kg	1	B6D2102	04/21/2016	04/22/2016	
Benzene	0.06	0.002	"	"	"	"	"	
Toluene	0.06	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	0.02	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 124 % 70-130 " " "
Surrogate: Toluene-d8 94.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.32		pH Units	1	B6D2105	04/21/2016	04/21/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.498		mmhos/cm	"	B6D2106	04/21/2016	04/21/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D2102 - EPA 5030 (soil)										
Blank (B6D2102-BLK1)										
					Prepared: 04/21/2016 Analyzed: 04/21/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	60		"	62.5		95.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2102 - EPA 5030 (soil)

LCS (B6D2102-BS1)

Prepared: 04/21/2016 Analyzed: 04/21/2016

Benzene	0.10	0.002	mg/kg	0.100		103	77.1-124			
Toluene	0.10	0.002	"	0.100		103	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.20	0.004	"	0.200		101	76.6-124			
o-Xylene	0.10	0.002	"	0.100		102	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2102 - EPA 5030 (soil)

Matrix Spike (B6D2102-MS1)	Source: X604219-04			Prepared: 04/21/2016 Analyzed: 04/21/2016						
Benzene	0.12	0.002	mg/kg	0.100	ND	124	71.8-126			
Toluene	0.12	0.002	"	0.100	ND	124	65.1-130			
Ethylbenzene	0.12	0.002	"	0.100	ND	125	62.2-130			
m,p-Xylene	0.26	0.004	"	0.200	ND	131	46.5-137			
o-Xylene	0.13	0.002	"	0.100	ND	125	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.2	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2102 - EPA 5030 (soil)

Matrix Spike Dup (B6D2102-MSD1)	Source: X604219-04			Prepared: 04/21/2016 Analyzed: 04/21/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	95.9	71.8-126	25.5	11.3	QR-02
Toluene	0.10	0.002	"	0.100	ND	95.9	65.1-130	25.4	15.4	QR-02
Ethylbenzene	0.09	0.002	"	0.100	ND	92.7	62.2-130	29.5	19.6	QR-02
m,p-Xylene	0.19	0.004	"	0.200	ND	93.3	46.5-137	33.4	19.2	QR-03
o-Xylene	0.09	0.002	"	0.100	ND	93.6	54.2-134	28.9	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - 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 B6D2103 - EPA 3580

Blank (B6D2103-BLK1)

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	64		"	50.0		128	59-131			

LCS (B6D2103-BS1)

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	1000	50	mg/kg	1000		101	64-121			
Residual Range Organics (C28-C40)	670	200	"	1000		66.9	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.6	59-131			

Matrix Spike (B6D2103-MS1)

Source: X604219-04

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	940	50	mg/kg	1000	ND	93.6	53-125			
Residual Range Organics (C28-C40)	650	200	"	1000	15	63.8	47-133			
Surrogate: o-Terphenyl	43		"	50.0		86.1	59-131			

Matrix Spike Dup (B6D2103-MSD1)

Source: X604219-04

Prepared: 04/21/2016 Analyzed: 04/21/2016

Diesel (C10-C28)	1200	50	mg/kg	1000	ND	116	53-125	21.0	20	QR-02
Residual Range Organics (C28-C40)	870	200	"	1000	15	85.0	47-133	28.4	20	QR-02
Surrogate: o-Terphenyl	52		"	50.0		104	59-131			

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D2105 - NO PREP										
Duplicate (B6D2105-DUP1)		Source: X604226-01			Prepared: 04/21/2016 Analyzed: 04/21/2016					
pH	7.70		pH Units		7.68			0.260	25	
Batch B6D2106 - NO PREP										
Blank (B6D2106-BLK1)		Prepared: 04/21/2016 Analyzed: 04/21/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6D2106-DUP1)		Source: X604226-01			Prepared: 04/21/2016 Analyzed: 04/21/2016					
Specific Conductance (EC)	0.0823		mmhos/cm		0.102			21.3	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

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.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

April 26, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - [none]

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 25, 2016. This project is associated with Origins project number X604274-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B03 @ 9'	X604274-01	Soil	April 25, 2016 16:50	04/25/2016 17:45
S02 @ 8'	X604274-02	Soil	April 25, 2016 16:54	04/25/2016 17:45
E04 @ 8'	X604274-03	Soil	April 25, 2016 16:58	04/25/2016 17:45
W03 @ 8'	X604274-04	Soil	April 25, 2016 17:00	04/25/2016 17:45

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604279

Client: Tasman

Client Project ID: Como 13C-14Hz

Checklist Completed by: Jeff Smith

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

Date/time completed: 4/25/12

Airbill #: NA

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

Cooler Number/Temperature: 1 / 5.3 °C / _____ °C / _____ °C (Describe)

Thermometer ID: T303

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"/>			PH
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.

Jeff Smith
 Reviewed by (Project Manager)

4/25/12
 Date/Time Reviewed

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

B03 @ 9'
4/25/2016 4:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604274-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2504	04/25/2016	04/25/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 83.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2506	"	04/25/2016	U
Benzene	0.002	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 141 % 70-130 " " " S-04
Surrogate: Toluene-d8 91.1 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.88		pH Units	1	B6D2508	04/25/2016	04/25/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.112		mmhos/cm	"	B6D2509	04/25/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

S02 @ 8'
4/25/2016 4:54:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604274-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2504	04/25/2016	04/25/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 90.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2506	"	04/25/2016	U
Benzene	ND	0.002	"	"	"	"	04/26/2016	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 121 % 70-130 " " "
Surrogate: Toluene-d8 92.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 108 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.70		pH Units	1	B6D2508	04/25/2016	04/25/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0935		mmhos/cm	"	B6D2509	04/25/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

E04 @ 8'
4/25/2016 4:58:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604274-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2504	04/25/2016	04/25/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 85.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2506	"	04/25/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	0.006	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 138 % 70-130 " " " S-04
Surrogate: Toluene-d8 92.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 110 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.91		pH Units	1	B6D2508	04/25/2016	04/25/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0938		mmhos/cm	"	B6D2509	04/25/2016	"	
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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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

W03 @ 8'
4/25/2016 5:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604274-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6D2504	04/25/2016	04/25/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 94.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	B6D2506	"	04/26/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 139 % 70-130 " " " S-04
Surrogate: Toluene-d8 91.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 115 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.06		pH Units	1	B6D2508	04/25/2016	04/25/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.132		mmhos/cm	"	B6D2509	04/25/2016	"	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2506 - EPA 5030 (soil)

Blank (B6D2506-BLK1)

Prepared: 04/25/2016 Analyzed: 04/25/2016

Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	74		ug/kg	62.5		118	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.7	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2506 - EPA 5030 (soil)

LCS (B6D2506-BS1)

Prepared: 04/25/2016 Analyzed: 04/25/2016

Benzene	0.09	0.002	mg/kg	0.100		91.8	77.1-124			
Toluene	0.09	0.002	"	0.100		88.4	74.5-128			
Ethylbenzene	0.09	0.002	"	0.100		91.2	66.4-127			
m,p-Xylene	0.18	0.004	"	0.200		92.1	76.6-124			
o-Xylene	0.10	0.002	"	0.100		102	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.3	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2506 - EPA 5030 (soil)

Matrix Spike (B6D2506-MS1)	Source: X604271-01			Prepared: 04/25/2016 Analyzed: 04/25/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	97.9	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	92.6	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	94.3	62.2-130			
m,p-Xylene	0.19	0.004	"	0.200	ND	95.3	46.5-137			
o-Xylene	0.10	0.002	"	0.100	ND	105	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.3	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B6D2506 - EPA 5030 (soil)

Matrix Spike Dup (B6D2506-MSD1)	Source: X604271-01			Prepared: 04/25/2016 Analyzed: 04/25/2016						
Benzene	0.10	0.002	mg/kg	0.100	ND	97.1	71.8-126	0.820	11.3	
Toluene	0.09	0.002	"	0.100	ND	93.6	65.1-130	1.14	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	98.9	62.2-130	4.78	19.6	
m,p-Xylene	0.20	0.004	"	0.200	ND	100	46.5-137	4.80	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	110	54.2-134	4.34	17.9	
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		95.7	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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - 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 B6D2504 - EPA 3580

Blank (B6D2504-BLK1)

Prepared: 04/25/2016 Analyzed: 04/25/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

LCS (B6D2504-BS1)

Prepared: 04/25/2016 Analyzed: 04/25/2016

Diesel (C10-C28)	1100	50	mg/kg				64-121			
Residual Range Organics (C28-C40)	910	200	"				58-124			
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			

Matrix Spike (B6D2504-MS1)

Source: X604237-01

Prepared: 04/25/2016 Analyzed: 04/25/2016

Diesel (C10-C28)	1100	50	mg/kg		72		53-125			
Residual Range Organics (C28-C40)	1500	200	"		480		47-133			
Surrogate: o-Terphenyl	44		"	50.0		88.8	59-131			

Matrix Spike Dup (B6D2504-MSD1)

Source: X604237-01

Prepared: 04/25/2016 Analyzed: 04/25/2016

Diesel (C10-C28)	1000	50	mg/kg		72		53-125		20	
Residual Range Organics (C28-C40)	1400	200	"		480		47-133		20	
Surrogate: o-Terphenyl	48		"	50.0		95.7	59-131			

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
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B6D2508 - NO PREP										
Duplicate (B6D2508-DUP1)		Source: X604273-01			Prepared: 04/25/2016 Analyzed: 04/25/2016					
pH	7.58		pH Units		7.62			0.526	25	
Batch B6D2509 - NO PREP										
Blank (B6D2509-BLK1)		Prepared: 04/25/2016 Analyzed: 04/25/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
Duplicate (B6D2509-DUP1)		Source: X604273-01			Prepared: 04/25/2016 Analyzed: 04/25/2016					
Specific Conductance (EC)	0.0582		mmhos/cm		0.0487			17.8	25	

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Como 13C - 14Hz

Notes and Definitions

U Sample is Non-Detect.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

April 28, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - Como 13C - 14Hz

Project Number - 89050194

Attached are your analytical results for KMG - Como 13C - 14Hz received by Origins Laboratory, Inc. April 27, 2016. This project is associated with Origins project number X604293-01.

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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: 89050194
Project: KMG - Como 13C - 14Hz

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS02-R @ 2'	X604293-01	Soil	April 27, 2016 15:22	04/27/2016 16:45
SS03-R @ 2'	X604293-03	Soil	April 27, 2016 15:18	04/27/2016 16:45
SS05-R @ 2'	X604293-05	Soil	April 27, 2016 15:14	04/27/2016 16:45

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: 89050194
 Project: KMG - Como 13C - 14Hz

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X604297

Client: Tasman

Client Project ID: Como 13C-14Hz

Checklist Completed by: JESmikh

Shipped Via: H/D
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4/27/16

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.8 °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 ⁽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"/>			PH
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 Na ₂ SO 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.

JESmikh
 Reviewed by (Project Manager)

4/27/16
 Date/Time Reviewed

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: 89050194
Project: KMG - Como 13C - 14Hz

SS02-R @ 2'
4/27/2016 3:22:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604293-01 (Soil)

pH in Soil by EPA 9045D

pH	8.23		pH Units	1	B6D2708	04/27/2016	04/27/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: 89050194
Project: KMG - Como 13C - 14Hz

SS03-R @ 2'
4/27/2016 3:18:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604293-03 (Soil)

pH in Soil by EPA 9045D

pH	8.10		pH Units	1	B6D2708	04/27/2016	04/27/2016	
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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
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: 89050194
Project: KMG - Como 13C - 14Hz

SS05-R @ 2'
4/27/2016 3:14:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X604293-05 (Soil)

pH in Soil by EPA 9045D

pH	8.75		pH Units	1	B6D2708	04/27/2016	04/27/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: 89050194
 Project: KMG - Como 13C - 14Hz

Classical Chemistry Parameters - 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 B6D2708 - NO PREP

Duplicate (B6D2708-DUP1)

Source: X604291-01

Prepared: 04/27/2016 Analyzed: 04/27/2016

pH	7.35		pH Units		7.48			1.75	25	
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Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: 89050194
Project: KMG - Como 13C - 14Hz

Notes and Definitions

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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