

ANALYTICAL TABLES

TABLE 1
HSR-GRANT BROTHERS 10-31
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	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
W01@8'	02/16/16	8.0	<0.050	<0.050	0.450	<0.050	39.4	130	<200	0.155	8.60
N01@8'	02/16/16	8.0	0.090	<0.050	0.716	<0.050	73.1	85.0	<200	0.117	8.69
S01@8'	02/16/16	8.0	<0.050	<0.050	0.213	<0.050	28.0	<50	<200	0.150	8.61
E01@8'	02/16/16	8.0	0.034	<0.002	<0.002	<0.002	10.5	<50	<200	0.0905	8.37

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

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.

TABLE 2
HSR-GRANT BROTHERS 10-31
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth To Water (ft. BGS)
COGCC Standards for groundwater (µg/L) ⁽¹⁾		5	560	700	1,400	
GW01	02/17/16	1,500	<4.0	438	676	~10

Notes:

1. Standards for groundwater 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.

µg/L = Micrograms per liter.

ft. BGS = Feet below ground surface

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

LABORATORY ANALYTICAL REPORTS

February 17, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Grant Bros 10-31**Project Number - [none]**

Attached are your analytical results for KMG - Grant Bros 10-31 received by Origins Laboratory, Inc. February 16, 2016. This project is associated with Origins project number X602171-01.

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 - Grant Bros 10-31

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W01 @ 8'	X602171-01	Soil	February 16, 2016 14:50	02/16/2016 16:45
N01 @ 8'	X602171-02	Soil	February 16, 2016 14:57	02/16/2016 16:45
S01 @ 8'	X602171-03	Soil	February 16, 2016 15:03	02/16/2016 16:45
E01 @ 8'	X602171-04	Soil	February 16, 2016 15:06	02/16/2016 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 - Grant Bros 10-31

ORIGINS LABORATORY, INC

www.originslaboratory.com

page 1 of 1

Client: Tasman Geosciences

Address:

Telephone Number: 352 262 9910

Email Address: info@tasman-geo.com

Project Manager: Bob Cornez

Project Name: Grant Bros 10-31

Project Number:

Samples Collected By: Zak F. Brock N.

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ #		
N0108'	2/16/14	1450	2	X				X			GISTEX 8240 TPH, DO, DOB, BGS EC, pH, SAR (if EC)	1
N0108'		1457	2									2
S0108'		1503	2									3
E0108'		1506	2									4
												5
												6
												7
												8
												9
												10

Relinquished By: [Signature]

Relinquished By: [Signature]

Date: 2/16/14

Date:

Time: 1430

Time:

Received By: [Signature]

Received By:

Date: 2/16/14

Date:

Time: 1645

Time:

Turnaround Time:

Same Day ☒ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☐

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 - Grant Bros 10-31

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X602171

Client: Tasman

Client Project ID: Grant Bros 10-31

Checklist Completed by: Jefo Smith

Shipped Via: Pick Up

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

Date/time completed: 2/16/16

Airbill #: NA

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

Cooler Number/Temperature: L 13.9 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: 1253

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)		1		
Were all samples received intact ⁽¹⁾ ?	1			
Was adequate sample volume provided ⁽¹⁾ ?	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⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	1			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	1			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	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)			1	
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.

Jefo Smith
Reviewed by (Project Manager)

2/16/16
Date/Time Reviewed

Origins Laboratory, Inc.

Jefo Pellegrini

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

W01 @ 8'
2/16/2016 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X602171-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	130	50	mg/kg	1	B6B1510	02/16/2016	02/16/2016	
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 73.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	39.4	5.00	mg/kg	25	B6B1509	02/16/2016	02/16/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.450	0.050	"	"	"	"	"	
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 76.4 % 70-130 " " "
Surrogate: Toluene-d8 99.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.60		pH Units	1	B6B1507	02/16/2016	02/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.155		mmhos/cm	"	B6B1508	02/16/2016	02/16/2016	
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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 - Grant Bros 10-31

N01 @ 8'
2/16/2016 2:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X602171-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	85	50	mg/kg	1	B6B1510	02/16/2016	02/16/2016	
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 78.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	73.1	5.00	mg/kg	25	B6B1509	02/16/2016	02/16/2016	
Benzene	0.090	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.716	0.050	"	"	"	"	"	
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 82.4 % 70-130 " " "
Surrogate: Toluene-d8 99.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 95.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.69		pH Units	1	B6B1507	02/16/2016	02/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.117		mmhos/cm	"	B6B1508	02/16/2016	02/16/2016	
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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 - Grant Bros 10-31

S01 @ 8'
2/16/2016 3:03:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X602171-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6B1510	02/16/2016	02/16/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 58.1 % 59-131 " " " S-04

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	28.0	5.00	mg/kg	25	B6B1509	02/16/2016	02/17/2016	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	0.213	0.050	"	"	"	"	"	
Xylenes, total	ND	0.050	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 82.1 % 70-130 " " "

Surrogate: Toluene-d8 99.9 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 93.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.61		pH Units	1	B6B1507	02/16/2016	02/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.150		mmhos/cm	"	B6B1508	02/16/2016	02/16/2016	
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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 - Grant Bros 10-31

E01 @ 8'
2/16/2016 3:06:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X602171-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6B1510	02/16/2016	02/16/2016	U
Residual Range Organics (C28-C40)	ND	200	"	"	"	"	"	U

Surrogate: o-Terphenyl 76.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	10.5	0.200	mg/kg	1	B6B1509	02/16/2016	02/17/2016	
Benzene	0.034	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 83.9 % 70-130 " " "
Surrogate: Toluene-d8 104 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.37		pH Units	1	B6B1507	02/16/2016	02/16/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0905		mmhos/cm	"	B6B1508	02/16/2016	02/16/2016	
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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1509 - EPA 5030 (soil)										
Blank (B6B1509-BLK1)					Prepared: 02/15/2016 Analyzed: 02/16/2016					
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	65.5		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	65.4		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	58.7		"	62.5		93.9	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1509 - EPA 5030 (soil)										
LCS (B6B1509-BS1)					Prepared: 02/15/2016 Analyzed: 02/16/2016					
Benzene	0.094	0.002	mg/kg	0.100		94.1	77.1-124			
Toluene	0.095	0.002	"	0.100		94.6	74.5-128			
Ethylbenzene	0.095	0.002	"	0.100		94.9	66.4-127			
m,p-Xylene	0.188	0.004	"	0.200		93.8	76.6-124			
o-Xylene	0.095	0.002	"	0.100		94.6	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	56.5		ug/kg	62.5		90.3	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	64.9		"	62.5		104	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1509 - EPA 5030 (soil)

Matrix Spike (B6B1509-MS1)		Source: X602155-01			Prepared: 02/15/2016 Analyzed: 02/16/2016					
Benzene	0.095	0.002	mg/kg	0.100	ND	95.4	71.8-126			
Toluene	0.101	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.091	0.002	"	0.100	ND	91.3	62.2-130			
m,p-Xylene	0.181	0.004	"	0.200	ND	90.3	46.5-137			
o-Xylene	0.091	0.002	"	0.100	ND	91.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	56.2		ug/kg	62.5		89.9	70-130			
Surrogate: Toluene-d8	64.6		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1509 - EPA 5030 (soil)

Matrix Spike Dup (B6B1509-MSD1)		Source: X602155-01			Prepared: 02/15/2016 Analyzed: 02/16/2016					
Benzene	0.092	0.002	mg/kg	0.100	ND	92.5	71.8-126	3.07	11.3	
Toluene	0.090	0.002	"	0.100	ND	90.0	65.1-130	11.2	15.4	
Ethylbenzene	0.086	0.002	"	0.100	ND	86.3	62.2-130	5.65	19.6	
m,p-Xylene	0.177	0.004	"	0.200	ND	88.3	46.5-137	2.27	19.2	
o-Xylene	0.085	0.002	"	0.100	ND	85.3	54.2-134	6.88	17.9	
Surrogate: 1,2-Dichloroethane-d4	55.8		ug/kg	62.5		89.2	70-130			
Surrogate: Toluene-d8	62.6		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	62.8		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1510 - EPA 3580

Blank (B6B1510-BLK1)

Prepared: 02/15/2016 Analyzed: 02/16/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	49		"	50.0		97.4	59-131			

LCS (B6B1510-BS1)

Prepared: 02/15/2016 Analyzed: 02/16/2016

Diesel (C10-C28)	1100	50	mg/kg	1000		113	64-121			
Residual Range Organics (C28-C40)	1100	200	"	1000		110	58-124			
Surrogate: o-Terphenyl	50		"	50.0		101	59-131			

Matrix Spike (B6B1510-MS1)

Source: X602145-06

Prepared: 02/15/2016 Analyzed: 02/16/2016

Diesel (C10-C28)	880	50	mg/kg	1000	ND	87.9	53-125			
Residual Range Organics (C28-C40)	860	200	"	1000	12	84.4	47-133			
Surrogate: o-Terphenyl	41		"	50.0		82.1	59-131			

Matrix Spike Dup (B6B1510-MSD1)

Source: X602145-06

Prepared: 02/15/2016 Analyzed: 02/16/2016

Diesel (C10-C28)	920	50	mg/kg	1000	ND	91.8	53-125	4.35	20	
Residual Range Organics (C28-C40)	880	200	"	1000	12	86.7	47-133	2.64	20	
Surrogate: o-Terphenyl	45		"	50.0		89.7	59-131			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1507 - NO PREP										
Duplicate (B6B1507-DUP1)		Source: X602145-05			Prepared: 02/15/2016 Analyzed: 02/16/2016					
pH	8.21		pH Units		8.26			0.607	25	
Batch B6B1508 - NO PREP										
Blank (B6B1508-BLK1)		Prepared: 02/15/2016 Analyzed: 02/16/2016								
Specific Conductance (EC)	0.00340		mmhos/cm							
Duplicate (B6B1508-DUP1)		Source: X602145-05			Prepared: 02/15/2016 Analyzed: 02/16/2016					
Specific Conductance (EC)	0.0471		mmhos/cm		0.0439			7.03	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 - Grant Bros 10-31

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.



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February 18, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Grant Bros 10-31**Project Number - [none]**

Attached are your analytical results for KMG - Grant Bros 10-31 received by Origins Laboratory, Inc. February 17, 2016. This project is associated with Origins project number X602191-01.

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 - Grant Bros 10-31

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	X602191-01	Water	February 17, 2016 14:45	02/17/2016 17:00

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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

ORIGINS LABORATORY, INC X602191 www.originslaboratory.com

Client: Tasman LLC Project Manager: Bob Cornez
Address: _____ Project Name: Grant Brothers 10-31
Telephone Number: 912 234 2402 Project Number: _____
Email Address: rcornez@tasman-geo.com Samples Collected By: Brock Nelson

1725 Elk Place | Phone: 303 433 1322 | Fax: 303 265 9445 | Denver, CO 80211

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Sample	Container #		
GWC1	2/17/16	1445	5		X			X				BTEX (826)	1
													2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature] Date: 2/17/16 Time: 1700 Received By: [Signature] Date: 2.17.16 Time: 1700
Relinquished By: _____ Date: _____ Time: _____ Received By: _____ Date: _____ Time: _____

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

8-1 Date Results Needed _____

Origins Laboratory, Inc.

Jefe Pellegrini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X60291

Client: Tasman

Client Project ID: Grant Brothers 10-31

Checklist Completed by: Jeff Smith

Shipped Via: Pick up

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

Date/time completed: 2/17/12

Airbill #: NA

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

Cooler Number/Temperature: 1 / 8.1 °C 1 °C 1 °C (Describe)

Thermometer ID: T003

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

2/17/12
Date/Time Reviewed

Origins Laboratory, Inc.

Jefe Pellegrini

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

GW01

2/17/2016 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X602191-01 (Water)

BTEX by EPA 8260C

Benzene	1500	50.0	ug/L	50	B6B1513	02/17/2016	02/17/2016	
Toluene	ND	4.0	"	4	"	"	02/17/2016	U
Ethylbenzene	438	4.0	"	"	"	"	"	
Xylenes, total	676	4.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	104 %	84-121			"	"	"
Surrogate: Toluene-d8	99.5 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	98.5 %	84-114			"	"	"

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)										
Blank (B6B1513-BLK1)					Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	ND	1.0	ug/L							U
Toluene	ND	1.0	"							U
Ethylbenzene	ND	1.0	"							U
Xylenes, total	ND	1.0	"							U
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5	113		84-121			
Surrogate: Toluene-d8	61		"	62.5	96.8		85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5	104		84-114			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)										
Blank (B6B1513-BLK2)					Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	ND	1.0	ug/L							U
Toluene	ND	1.0	"							U
Ethylbenzene	ND	1.0	"							U
Xylenes, total	ND	1.0	"							U
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		99.7	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.9	85-115			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)

LCS (B6B1513-BS1)

Prepared: 02/15/2016 Analyzed: 02/17/2016

Benzene	48.7	1.0	ug/L	50.0		97.5	73.3-129			
Toluene	45.9	1.0	"	50.0		91.8	76.2-123			
Ethylbenzene	46.3	1.0	"	50.0		92.6	73.6-130			
m,p-Xylene	92.3	2.0	"	100		92.3	76.1-126			
o-Xylene	45.5	1.0	"	50.0		91.0	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		107	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.1	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)										
LCS (B6B1513-BS2)					Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	50.0	1.0	ug/L	50.0		100	73.3-129			
Toluene	50.6	1.0	"	50.0		101	76.2-123			
Ethylbenzene	50.2	1.0	"	50.0		100	73.6-130			
m,p-Xylene	102	2.0	"	100		102	76.1-126			
o-Xylene	49.8	1.0	"	50.0		99.7	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	63		"	62.5		101	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)

Matrix Spike (B6B1513-MS1)		Source: X602127-01			Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	48.3	1.0	ug/L	50.0	ND	96.7	74-130			
Toluene	45.9	1.0	"	50.0	ND	91.7	73-131			
Ethylbenzene	46.2	1.0	"	50.0	ND	92.4	76-132			
m,p-Xylene	92.5	2.0	"	100	ND	92.5	69-139			
o-Xylene	47.4	1.0	"	50.0	ND	94.8	74-131			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.5	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)

Matrix Spike (B6B1513-MS2)		Source: X602127-02			Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	42.1	1.0	ug/L	50.0	ND	84.2	74-130			
Toluene	39.9	1.0	"	50.0	ND	79.9	73-131			
Ethylbenzene	40.0	1.0	"	50.0	ND	80.0	76-132			
m,p-Xylene	80.4	2.0	"	100	ND	80.4	69-139			
o-Xylene	41.2	1.0	"	50.0	ND	82.3	74-131			
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		108	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.0	85-115			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)

Matrix Spike Dup (B6B1513-MSD1)		Source: X602127-01			Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	44.3	1.0	ug/L	50.0	ND	88.5	74-130	8.79	20	
Toluene	41.5	1.0	"	50.0	ND	83.0	73-131	10.0	20	
Ethylbenzene	41.5	1.0	"	50.0	ND	83.0	76-132	10.7	20	
m,p-Xylene	83.3	2.0	"	100	ND	83.3	69-139	10.4	20	
o-Xylene	42.5	1.0	"	50.0	ND	85.0	74-131	11.0	20	
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		108	84-121			
Surrogate: Toluene-d8	61		"	62.5		96.8	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - Grant Bros 10-31

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 B6B1513 - EPA 5030B (Water)

Matrix Spike Dup (B6B1513-MSD2)		Source: X602127-02			Prepared: 02/15/2016 Analyzed: 02/17/2016					
Benzene	49.8	1.0	ug/L	50.0	ND	99.5	74-130	16.7	20	
Toluene	46.4	1.0	"	50.0	ND	92.9	73-131	15.0	20	
Ethylbenzene	46.8	1.0	"	50.0	ND	93.7	76-132	15.7	20	
m,p-Xylene	93.6	2.0	"	100	ND	93.6	69-139	15.3	20	
o-Xylene	47.2	1.0	"	50.0	ND	94.4	74-131	13.6	20	
Surrogate: 1,2-Dichloroethane-d4	68		"	62.5		109	84-121			
Surrogate: Toluene-d8	60		"	62.5		96.5	85-115			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	84-114			

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - Grant Bros 10-31

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.