

ANALYTICAL TABLE

TABLE 1
PSC 63N68W (PSC 14-13)
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
N01@7'	01/11/16	7	<0.002	<0.002	<0.002	<0.002	0.282	<50	<200	0.123	8.46
S01@7'	01/11/16	7	6.92	67.0	9.58	119	1760	2100	480	0.313	8.23
E01@7'	01/11/16	7	<0.002	<0.002	<0.002	<0.002	0.445	<50	<200	0.266	8.30
W01@7'	01/11/16	7	<0.002	0.002	<0.002	0.011	0.357	<50	<200	0.137	8.35
B01@9'	01/11/16	9	0.002	0.009	0.002	0.014	0.364	<50	<200	0.219	8.01
S02@7'	01/12/16	7	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	0.112	8.33

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.

LABORATORY ANALYTICAL REPORTS

January 12, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - PSC 14-13

Project Number - [none]

Attached are your analytical results for KMG - PSC 14-13 received by Origins Laboratory, Inc. January 11, 2016. This project is associated with Origins project number X601082-01.

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 - PSC 14-13

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01 @ 7'	X601082-01	Soil	January 11, 2016 9:14	01/11/2016 12:52
S01 @ 7'	X601082-02	Soil	January 11, 2016 9:16	01/11/2016 12:52
E01 @ 7'	X601082-03	Soil	January 11, 2016 9:21	01/11/2016 12:52
W01 @ 7'	X601082-04	Soil	January 11, 2016 9:19	01/11/2016 12:52
B01 @ 9'	X601082-05	Soil	January 11, 2016 9:12	01/11/2016 12:52

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 - PSC 14-13

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X601082 Client: Tasman
 Client Project ID: PSC 14-13
 Checklist Completed by: Jeff Smith Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Date/time completed: 1/11/16 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 23 °C / °C / °C / °C (Describe)
 Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	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)		T		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		T		
Were all samples received intact ⁽¹⁾ ?	T			
Was adequate sample volume provided ⁽¹⁾ ?	T			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	T			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⁾ ?	T			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	T			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	T			
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)			X	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

01/11/16
 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 - PSC 14-13

N01 @ 7'
1/11/2016 9:14:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601082-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6A1102	01/11/2016	01/11/2016	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 82.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.282	0.200	mg/kg	1	B6A1103	01/11/2016	01/11/2016	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "
Surrogate: Toluene-d8 91.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.1 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.46		pH Units	1	B6A1108	01/11/2016	01/11/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.123		mmhos/cm	"	B6A1109	01/11/2016	"	
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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 - PSC 14-13

S01 @ 7'
1/11/2016 9:16:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601082-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	2100	50	mg/kg	1	B6A1102	01/11/2016	01/11/2016	
Residual Range Organics (C28-C36)	480	200	"	"	"	"	"	

Surrogate: *o*-Terphenyl 85.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1760	50.0	mg/kg	250	B6A1103	01/11/2016	01/12/2016	
Benzene	6.92	0.050	"	25	"	"	01/11/2016	
Toluene	67.0	0.498	"	250	"	"	01/12/2016	
Ethylbenzene	9.58	0.050	"	25	"	"	01/11/2016	
Xylenes, total	119	0.498	"	250	"	"	01/12/2016	

Surrogate: 1,2-Dichloroethane-d4 113 % 70-130 " " "
 Surrogate: Toluene-d8 111 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 97.4 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.23		pH Units	1	B6A1108	01/11/2016	01/11/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.313		mmhos/cm	"	B6A1109	01/11/2016	"	
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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 - PSC 14-13

E01 @ 7'
1/11/2016 9:21:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601082-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6A1102	01/11/2016	01/11/2016	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 85.2 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.445	0.200	mg/kg	1	B6A1103	01/11/2016	01/11/2016	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "
Surrogate: Toluene-d8 97.3 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 96.0 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.30		pH Units	1	B6A1108	01/11/2016	01/11/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.266		mmhos/cm	"	B6A1109	01/11/2016	"	
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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 - PSC 14-13

W01 @ 7'
1/11/2016 9:19:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601082-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6A1102	01/11/2016	01/11/2016	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

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

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.357	0.200	mg/kg	1	B6A1103	01/11/2016	01/11/2016	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	0.002	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	0.011	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "
Surrogate: Toluene-d8 93.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 94.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.35		pH Units	1	B6A1108	01/11/2016	01/11/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.137		mmhos/cm	"	B6A1109	01/11/2016	"	
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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 - PSC 14-13

B01 @ 9'
1/11/2016 9:12:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601082-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6A1102	01/11/2016	01/11/2016	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 86.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.364	0.200	mg/kg	1	B6A1103	01/11/2016	01/12/2016	
Benzene	0.002	0.002	"	"	"	"	"	
Toluene	0.009	0.002	"	"	"	"	"	
Ethylbenzene	0.002	0.002	"	"	"	"	"	
Xylenes, total	0.014	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "
Surrogate: Toluene-d8 93.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 97.2 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.01		pH Units	1	B6A1108	01/11/2016	01/11/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.219		mmhos/cm	"	B6A1109	01/11/2016	"	
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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 - PSC 14-13

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 B6A1103 - EPA 5030 (soil)

Blank (B6A1103-BLK1)

Prepared: 01/11/2016 Analyzed: 01/11/2016

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	63.4		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	59.2		"	62.5		94.8	70-130			
Surrogate: 4-Bromofluorobenzene	59.1		"	62.5		94.6	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 - PSC 14-13

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 B6A1103 - EPA 5030 (soil)

LCS (B6A1103-BS1)

Prepared: 01/11/2016 Analyzed: 01/11/2016

Benzene	0.096	0.002	mg/kg	0.100		96.2	77.1-124			
Toluene	0.101	0.002	"	0.100		101	74.5-128			
Ethylbenzene	0.117	0.002	"	0.100		117	66.4-127			
m,p-Xylene	0.230	0.004	"	0.200		115	76.6-124			
o-Xylene	0.114	0.002	"	0.100		114	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64.7		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	58.4		"	62.5		93.5	70-130			
Surrogate: 4-Bromofluorobenzene	59.4		"	62.5		95.0	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 - PSC 14-13

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 B6A1103 - EPA 5030 (soil)

Matrix Spike (B6A1103-MS1)	Source: X601071-01			Prepared: 01/11/2016 Analyzed: 01/11/2016						
Benzene	0.099	0.002	mg/kg	0.100	ND	98.8	71.8-126			
Toluene	0.101	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.121	0.002	"	0.100	ND	121	62.2-130			
m,p-Xylene	0.236	0.004	"	0.200	ND	118	46.5-137			
o-Xylene	0.115	0.002	"	0.100	ND	115	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	59.8		ug/kg	62.5		95.6	70-130			
Surrogate: Toluene-d8	56.2		"	62.5		90.0	70-130			
Surrogate: 4-Bromofluorobenzene	59.8		"	62.5		95.6	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 - PSC 14-13

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 B6A1103 - EPA 5030 (soil)

Matrix Spike Dup (B6A1103-MSD1)	Source: X601071-01			Prepared: 01/11/2016 Analyzed: 01/11/2016						
Benzene	0.093	0.002	mg/kg	0.100	ND	93.4	71.8-126	5.58	11.3	
Toluene	0.100	0.002	"	0.100	ND	99.8	65.1-130	1.19	15.4	
Ethylbenzene	0.119	0.002	"	0.100	ND	119	62.2-130	1.82	19.6	
m,p-Xylene	0.227	0.004	"	0.200	ND	114	46.5-137	3.89	19.2	
o-Xylene	0.113	0.002	"	0.100	ND	113	54.2-134	1.82	17.9	
Surrogate: 1,2-Dichloroethane-d4	60.6		ug/kg	62.5		96.9	70-130			
Surrogate: Toluene-d8	58.1		"	62.5		92.9	70-130			
Surrogate: 4-Bromofluorobenzene	58.1		"	62.5		92.9	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 - PSC 14-13

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 B6A1102 - EPA 3580

Blank (B6A1102-BLK1)

Prepared: 01/11/2016 Analyzed: 01/11/2016

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	39		"	50.0		78.8	59-131			

LCS (B6A1102-BS1)

Prepared: 01/11/2016 Analyzed: 01/11/2016

Diesel (C10-C28)	970	50	mg/kg	1000		96.9	64-121			
Residual Range Organics (C28-C36)	1000	200	"	1000		102	58-124			
Surrogate: o-Terphenyl	55		"	50.0		111	59-131			

Matrix Spike (B6A1102-MS1)

Source: X601071-01

Prepared: 01/11/2016 Analyzed: 01/11/2016

Diesel (C10-C28)	1000	50	mg/kg	1000	ND	99.7	53-125			
Residual Range Organics (C28-C36)	1000	200	"	1000	13	101	47-133			
Surrogate: o-Terphenyl	51		"	50.0		101	59-131			

Matrix Spike Dup (B6A1102-MSD1)

Source: X601071-01

Prepared: 01/11/2016 Analyzed: 01/11/2016

Diesel (C10-C28)	990	50	mg/kg	1000	ND	99.2	53-125	0.515	20	
Residual Range Organics (C28-C36)	1000	200	"	1000	13	98.2	47-133	3.00	20	
Surrogate: o-Terphenyl	55		"	50.0		110	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 - PSC 14-13

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 B6A1108 - NO PREP										
Duplicate (B6A1108-DUP1)		Source: X601082-01			Prepared: 01/11/2016 Analyzed: 01/11/2016					
pH	8.46		pH Units		8.46			0.00	25	
Batch B6A1109 - NO PREP										
Blank (B6A1109-BLK1)		Prepared: 01/11/2016 Analyzed: 01/11/2016								
Specific Conductance (EC)	0.00220		mmhos/cm							
Duplicate (B6A1109-DUP1)		Source: X601082-01			Prepared: 01/11/2016 Analyzed: 01/11/2016					
Specific Conductance (EC)	0.126		mmhos/cm		0.123			1.85	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 - PSC 14-13

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

January 13, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - PSC 14-13

Project Number - [none]

Attached are your analytical results for KMG - PSC 14-13 received by Origins Laboratory, Inc. January 12, 2016. This project is associated with Origins project number X601103-01.

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 - PSC 14-13

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S02 @ 7'	X601103-01	Soil	January 12, 2016 14:10	01/12/2016 15:18

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - PSC 14-13

Origins Laboratory

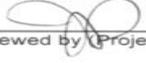
F-012207-01-R1
 Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: X601103 Client: Tasman
 Client Project ID: PSC 14-13
 Checklist Completed by: Jeff Smith Shipped Via: HTD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Date/time completed: 1/12/16 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____ (Describe)
 Cooler Number/Temperature: 1 / 7.8 °C _____ / _____ °C _____ / _____ °C _____ / _____ °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⁾ ?		X		Sampled Same Day
Is there ice present (document if blue ice is used)	<u>1/12/16</u> → <u>SS</u>	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⁾ ?	X			
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 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.


 Reviewed by (Project Manager)

01/12/16
 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 - PSC 14-13

S02 @ 7'
1/12/2016 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X601103-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	B6A1111	01/12/2016	01/12/2016	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 81.0 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6A1110	01/12/2016	01/12/2016	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 113 % 70-130 " " "
Surrogate: Toluene-d8 96.5 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.3 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.33		pH Units	1	B6A1205	01/12/2016	01/12/2016	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.112		mmhos/cm	"	B6A1206	"	"	
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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 - PSC 14-13

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 B6A1110 - EPA 5030 (soil)

Blank (B6A1110-BLK1)

Prepared: 01/11/2016 Analyzed: 01/12/2016

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	65.9		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	59.9		"	62.5		95.9	70-130			
Surrogate: 4-Bromofluorobenzene	57.9		"	62.5		92.6	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 - PSC 14-13

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 B6A1110 - EPA 5030 (soil)

LCS (B6A1110-BS1)

Prepared: 01/11/2016 Analyzed: 01/12/2016

Benzene	0.088	0.002	mg/kg	0.100		88.3	77.1-124			
Toluene	0.104	0.002	"	0.100		104	74.5-128			
Ethylbenzene	0.103	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.203	0.004	"	0.200		101	76.6-124			
o-Xylene	0.099	0.002	"	0.100		98.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66.6		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	57.8		"	62.5		92.5	70-130			
Surrogate: 4-Bromofluorobenzene	60.2		"	62.5		96.3	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 - PSC 14-13

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 B6A1110 - EPA 5030 (soil)

Matrix Spike (B6A1110-MS1)	Source: X601085-06			Prepared: 01/11/2016 Analyzed: 01/12/2016						
Benzene	0.103	0.002	mg/kg	0.100	0.009	93.9	71.8-126			
Toluene	0.102	0.002	"	0.100	0.001	100	65.1-130			
Ethylbenzene	0.117	0.002	"	0.100	0.003	114	62.2-130			
m,p-Xylene	0.236	0.004	"	0.200	0.012	112	46.5-137			
o-Xylene	0.114	0.002	"	0.100	0.005	109	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65.9		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	59.9		"	62.5		95.9	70-130			
Surrogate: 4-Bromofluorobenzene	61.3		"	62.5		98.1	70-130			

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 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - PSC 14-13

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 B6A1110 - EPA 5030 (soil)

Matrix Spike Dup (B6A1110-MSD1)	Source: X601085-06			Prepared: 01/11/2016 Analyzed: 01/12/2016						
Benzene	0.105	0.002	mg/kg	0.100	0.009	95.6	71.8-126	1.65	11.3	
Toluene	0.097	0.002	"	0.100	0.001	95.4	65.1-130	4.92	15.4	
Ethylbenzene	0.110	0.002	"	0.100	0.003	107	62.2-130	5.97	19.6	
m,p-Xylene	0.225	0.004	"	0.200	0.012	106	46.5-137	4.91	19.2	
o-Xylene	0.111	0.002	"	0.100	0.005	106	54.2-134	2.53	17.9	
Surrogate: 1,2-Dichloroethane-d4	67.5		ug/kg	62.5		108	70-130			
Surrogate: Toluene-d8	60.2		"	62.5		96.4	70-130			
Surrogate: 4-Bromofluorobenzene	62.0		"	62.5		99.3	70-130			

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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Bob Cornez
 Project Number: [none]
 Project: KMG - PSC 14-13

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 B6A1111 - EPA 3580

Blank (B6A1111-BLK1)

Prepared: 01/11/2016 Analyzed: 01/12/2016

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	48		"	50.0		96.0	59-131			

LCS (B6A1111-BS1)

Prepared: 01/11/2016 Analyzed: 01/12/2016

Diesel (C10-C28)	990	50	mg/kg	1000		99.3	64-121			
Residual Range Organics (C28-C36)	1000	200	"	1000		104	58-124			
Surrogate: o-Terphenyl	52		"	50.0		105	59-131			

Matrix Spike (B6A1111-MS1)

Source: X601085-06

Prepared: 01/11/2016 Analyzed: 01/12/2016

Diesel (C10-C28)	970	50	mg/kg	1000	21	95.3	53-125			
Residual Range Organics (C28-C36)	980	200	"	1000	27	95.2	47-133			
Surrogate: o-Terphenyl	50		"	50.0		99.8	59-131			

Matrix Spike Dup (B6A1111-MSD1)

Source: X601085-06

Prepared: 01/11/2016 Analyzed: 01/12/2016

Diesel (C10-C28)	920	50	mg/kg	1000	21	89.9	53-125	5.73	20	
Residual Range Organics (C28-C36)	980	200	"	1000	27	95.3	47-133	0.113	20	
Surrogate: o-Terphenyl	52		"	50.0		105	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 - PSC 14-13

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 B6A1205 - NO PREP										
Duplicate (B6A1205-DUP1)		Source: X601100-01			Prepared: 01/12/2016 Analyzed: 01/12/2016					
pH	8.32		pH Units		8.49			2.02	25	
Batch B6A1206 - NO PREP										
Blank (B6A1206-BLK1)		Prepared: 01/12/2016 Analyzed: 01/12/2016								
Specific Conductance (EC)	0.00250		mmhos/cm							
Duplicate (B6A1206-DUP1)		Source: X601100-01			Prepared: 01/12/2016 Analyzed: 01/12/2016					
Specific Conductance (EC)	0.0701		mmhos/cm		0.0691			1.44	25	

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: KMG - PSC 14-13

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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Jen Pellegrini For Noelle Doyle Mathis, President