



June 12, 2015

Mr. Sam LaRue
Senior HSE Representative
Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**Re: Sump Closure Summary Letter Report
Hunter 9-32
API: 05-123-19518
Facility ID: 330727
Legal: NESE Sec 32-T5N-R67W
Remediation Project #8961**

Dear Mr. LaRue:

On behalf of Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), Tasman Geosciences, Inc. (Tasman) has prepared this Sump Closure Summary Letter Report (Report) to document sampling activities and the results of environmental testing at the above-referenced site. This Report is being submitted under the Form 27 Management Plan for Closure of Produced Water Vessels, which has been assigned Remediation #8961 by the Colorado Oil and Gas Conservation Commission (COGCC). Tasman provided environmental services at the site that included collection of confirmation soil and groundwater samples from the excavation and documentation of field activities, as described below.

Site Assessment Activities

The field activities described herein were performed with the purpose of assessing potential hydrocarbon impacts at the site related to the closure of the produced water sump on September 18, 2014. Soil and groundwater sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout, excavation dimensions, and sample locations are provided in the attached site map (Attachment A).

The final extent of the excavation area measured approximately 20 feet by 21 feet with an approximate depth of 5 feet below ground surface (bgs). Approximately 40 cubic yards of impacted material were excavated and transported to the Kerr-McGee Land Treatment Facility in Weld County, Colorado for disposal. A liner was not present at the location. Groundwater was encountered in the excavation at an approximate depth of 5 feet bgs.

Confirmation soil samples were collected from the sidewalls of the excavation at approximately 2.5 feet below ground surface (bgs). Soil samples were field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). The four sidewall soil samples (north, south, east, west) collected from the final extent of the excavation area were

submitted to Origins Laboratory in Denver, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260B, and TPH - diesel range and oil range organics (DRO and ORO) by USEPA Method 8015. In addition, a groundwater sample (GW01) was collected from within the excavation and submitted for laboratory analysis of BTEX by USEPA Method 8260B. Soil and groundwater analytical data are summarized in Table 1 and Table 2, respectively. The laboratory analytical reports are provided in Attachment B.

Results

Soil analytical results from the samples collected from the final extent of the excavation area indicated that BTEX and TPH concentrations were below the applicable COGCC Table 910-1 standards. Groundwater analytical results from the sample collected from the excavation area indicated that BTEX concentrations were below the COGCC Table 910-1 groundwater standards.

Conclusions

Analytical results described herein confirm BTEX and TPH impacts were not present at concentrations above applicable regulatory standards in the former sump location. Consequently, no further site assessment or remedial activity is recommended at this time. Following site assessment activities, the produced water sump was removed and the excavation area was backfilled and contoured to match pre-existing site conditions.

Please contact me at (720) 409-8791 if you have any questions regarding this report or require additional information.

Sincerely,

A handwritten signature in blue ink that reads 'Christine Wasko'.

Christine Wasko
Project Scientist

Attachments:

Table 1 – Soil Sample Results Summary Table
Table 2 – Groundwater Sample Results Summary Table
Attachment A – Site Map
Attachment B – Laboratory Analytical Reports

Tables

TABLE 1
HUNTER 9-32
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH - GRO (mg/kg)	TEPH - DRO + ORO (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500	
N01@2.5	9/18/2014	2.5	<0.0500	0.0725	0.474	5.82	278	1500
S01@2.5	9/18/2014	2.5	<0.0020	<0.0020	<0.0020	<0.0020	<0.200	<200
E01@2.5	9/18/2014	2.5	<0.0020	<0.0020	<0.0020	<0.0020	<0.200	<200
W01@2.5	9/18/2014	2.5	<0.0020	<0.0020	<0.0020	<0.0020	0.409	<200
N02@2.5	9/19/2014	2.5	<0.002	<0.002	<0.002	<0.002	<50	<200

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

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

mg/kg = Milligrams per kilogram.

bgs = Below ground surface.

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

TABLE 2
HUNTER 9-32
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Benzene (µg/L)	Toulene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standards for groundwater (µg/L)⁽¹⁾		5	560	700	1,400
GW01	9/18/2014	<4.0	<4.0	<4.0	<4.0

Notes:

1. Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

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

µg/L = Micrograms per liter.

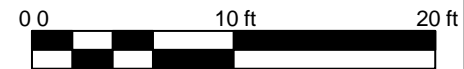
Bold = Analytical result is in exceedance of COGCC Table 910-1 groundwater standards.

Attachment A



B – Benzene
TPH – Total Petroleum Hydrocarbons
mg/kg – Milligrams Per Kilogram
µg/L – Micrograms Per Liter

Image Source:
Google Earth 2015



DRAWN BY: BRN

DATE: 6/5/2015

Facility Diagram
Kerr-McGee Oil and Gas Onshore, LP
Hunter 9-32
NENE S32 T5N R67W
Weld County, CO



6899 Pecos St., Unit C
Denver, CO 80221

LEGEND

Approximate Excavation Extent

Former Infrastructure

Berm

Approximate Groundwater Sample Location



Approximate Soil
Sample Location

FIGURE 1

SITE MAP

Attachment B



September 19, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Hunter 9-32

Project Number - [none]

Attached are your analytical results for KMG - Hunter 9-32 received by Origins Laboratory, Inc. September 18, 2014. This project is associated with Origins project number X409192-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01@2.5'	X409192-01	Soil	September 18, 2014 15:12	09/18/2014 16:30
S01@2.5'	X409192-02	Soil	September 18, 2014 15:15	09/18/2014 16:30
E01@2.5'	X409192-03	Soil	September 18, 2014 15:17	09/18/2014 16:30
W01@2.5'	X409192-04	Soil	September 18, 2014 15:20	09/18/2014 16:30
GW01	X409192-05	Water	September 18, 2014 15:25	09/18/2014 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

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

www.originslaboratory.com page 1 of 1

ORIGINS
LABORATORY, INC X409992

Client: Tasman Geo
Address: C. Wasko / Bob Conner
Telephone Number: 912 230 2807

Project Manager/Send Report To: C. Wasko
Email Address: vwasko@tasman-geo.com
Project Name/Number: Hunter 9-32
Samples Collected By: Bob Nelson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Circumdate	Soil	Air/Sediment	Other		
N01@2.5	9/18/14	1512	1	Y					X			BTEX / TPH	1
S01@2.5	9/18/14	1515	1	Y					Y				2
E01@2.5	9/18/14	1517	1	Y					Y				3
W01@2.5	9/18/14	1520	1	Y					Y				4
G101	9/18/14	1525	3	X				X				BTEX	5
													6
													7
													8
													9
													10
Relinquished By: <u>[Signature]</u>	Date: <u>9/18/14</u>	Time: <u>1630</u>	Relinquished By: <u>[Signature]</u>	Date: <u>9/18/14</u>	Time: <u>1630</u>	Turnaround Time:							
				Same Day <input checked="" type="checkbox"/>		24 Hr <input type="checkbox"/>		48 Hr <input type="checkbox"/>		72 Hr <input type="checkbox"/>		Standard <input type="checkbox"/>	

Comments:

Date Results Needed: 9/19/14

Origins Laboratory, Inc.

[Signature]

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X409192

Client: Tasman

Client Project ID: Hunter 9-32

Checklist Completed by: Jen Pelgolini

Shipped Via: Pickup

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

Date/time completed: 9-18-14 1725

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 1.9 °C _____ °C _____ °C (Describe) _____ °C

Thermometer ID: T002

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 ⁽¹⁾ ? (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 ⁽¹⁾ ? (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 analyses 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 (> 1/4 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.

Reviewed by (Project Manager): [Signature]

Date/Time Reviewed: 9-18-14 1730

Origins Laboratory, Inc.

[Signature]

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

N01@2.5'
9/18/2014 3:12:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409192-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1500	50	mg/kg	1	4118008	09/18/2014	09/19/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

<i>Surrogate: o-Terphenyl</i>	90.6 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	278	5.00	mg/kg	25	4118007	09/18/2014	09/18/2014
Benzene	ND	0.0500	"	"	"	"	"
Toluene	0.0725	0.0500	"	"	"	"	"
Ethylbenzene	0.474	0.0500	"	"	"	"	"
Xylenes, total	5.82	0.0500	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	96.7 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	106 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %	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

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

S01@2.5'
9/18/2014 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409192-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	4118008	09/18/2014	09/19/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

<i>Surrogate: o-Terphenyl</i>	76.1 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118013	09/18/2014	09/19/2014
Benzene	ND	0.0020	"	"	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	ND	0.0020	"	"	"	"	"
Xylenes, total	ND	0.0020	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	115 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	102 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	97.5 %	70-130			"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

E01@2.5'
9/18/2014 3:17:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409192-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	4118008	09/18/2014	09/19/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

<i>Surrogate: o-Terphenyl</i>	71.8 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4118013	09/18/2014	09/19/2014
Benzene	ND	0.0020	"	"	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	ND	0.0020	"	"	"	"	"
Xylenes, total	ND	0.0020	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	118 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	102 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	100 %	70-130			"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

W01@2.5'
9/18/2014 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409192-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	4118008	09/18/2014	09/19/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

<i>Surrogate: o-Terphenyl</i>	73.4 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.409	0.200	mg/kg	1	4118013	09/18/2014	09/19/2014
Benzene	ND	0.0020	"	"	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	ND	0.0020	"	"	"	"	"
Xylenes, total	ND	0.0020	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	124 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	102 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	94.1 %	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

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

GW01

9/18/2014 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409192-05 (Water)

BTEX by EPA 8260C

Benzene	ND	4.0	ug/L	4	4118012	09/18/2014	09/18/2014
Toluene	ND	4.0	"	"	"	"	"
Ethylbenzene	ND	4.0	"	"	"	"	"
Xylenes, total	ND	4.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4
Surrogate: Toluene-d8
Surrogate: 4-Bromofluorobenzene

109 % 87.3-113
98.8 % 90.9-108
95.8 % 88.6-111

" " "
" " "
" " "

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.

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18007 - EPA 5030 (soil)

Blank (4I18007-BLK1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	63.9		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62.0		"	62.5		99.1	70-130			
Surrogate: 4-Bromofluorobenzene	61.3		"	62.5		98.0	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18007 - EPA 5030 (soil)

LCS (4I18007-BS1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Benzene	0.1	0.002	mg/kg	0.100		95.7	77.1-124			
Toluene	0.09	0.002	"	0.100		89.1	74.5-128			
Ethylbenzene	0.1	0.002	"	0.100		95.2	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		96.6	76.6-124			
o-Xylene	0.1	0.002	"	0.100		96.4	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	61.1		ug/kg	62.5		97.7	70-130			
Surrogate: Toluene-d8	61.0		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	60.8		"	62.5		97.3	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118007 - EPA 5030 (soil)

Matrix Spike (4118007-MS1)		Source: X409172-01			Prepared: 09/18/2014 Analyzed: 09/18/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	85.4	71.8-126			
Toluene	0.08	0.002	"	0.100	0.001	79.2	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	92.7	62.2-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	94.7	46.5-137			
o-Xylene	0.1	0.002	"	0.100	ND	95.6	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	58.7		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	62.9		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	62.0		"	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.

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118007 - EPA 5030 (soil)

Matrix Spike Dup (4118007-MSD1)		Source: X409172-01			Prepared: 09/18/2014 Analyzed: 09/18/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	85.7	71.8-126	0.374	11.3	
Toluene	0.08	0.002	"	0.100	0.001	74.2	65.1-130	6.41	15.4	
Ethylbenzene	0.08	0.002	"	0.100	ND	82.7	62.2-130	11.4	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	80.8	46.5-137	15.8	19.2	
o-Xylene	0.09	0.002	"	0.100	ND	87.0	54.2-134	9.44	17.9	
Surrogate: 1,2-Dichloroethane-d4	70.2		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	59.6		"	62.5		95.4	70-130			
Surrogate: 4-Bromofluorobenzene	61.9		"	62.5		99.1	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

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18012 - EPA 5030B (Water)

Blank (4I18012-BLK1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5	107		87.3-113			
Surrogate: Toluene-d8	62		"	62.5	98.5		90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	97.2		88.6-111			

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.

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18012 - EPA 5030B (Water)

LCS (4I18012-BS1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Benzene	45.0	1.0	ug/L	50.0		89.9	75-126			
Toluene	49.9	1.0	"	50.0		99.7	78.7-126			
Ethylbenzene	50.8	1.0	"	50.0		102	81-130			
m,p-Xylene	102	2.0	"	100		102	77.2-133			
o-Xylene	50.8	1.0	"	50.0		102	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		100	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118012 - EPA 5030B (Water)

Matrix Spike (4118012-MS1)		Source: X409166-01			Prepared: 09/18/2014 Analyzed: 09/18/2014					
Benzene	54.7	1.0	ug/L	50.0	ND	109	74-130			
Toluene	58.3	1.0	"	50.0	ND	117	73-131			
Ethylbenzene	61.0	1.0	"	50.0	ND	122	76-132			
m,p-Xylene	114	2.0	"	100	ND	114	69-139			
o-Xylene	55.5	1.0	"	50.0	ND	111	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.7	87.3-113			
Surrogate: Toluene-d8	61		"	62.5		97.9	90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.4	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118012 - EPA 5030B (Water)

Matrix Spike Dup (4118012-MSD1)		Source: X409166-01			Prepared: 09/18/2014 Analyzed: 09/18/2014					
Benzene	51.6	1.0	ug/L	50.0	ND	103	74-130	5.80	20	
Toluene	58.9	1.0	"	50.0	ND	118	73-131	0.939	20	
Ethylbenzene	59.8	1.0	"	50.0	ND	120	76-132	1.89	20	
m,p-Xylene	117	2.0	"	100	ND	117	69-139	3.16	20	
o-Xylene	57.0	1.0	"	50.0	ND	114	74-131	2.83	20	
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5		102	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		101	90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	88.6-111			

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

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18013 - EPA 5030 (soil)

Blank (4I18013-BLK1)

Prepared: 09/18/2014 Analyzed: 09/19/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	71.5		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	64.3		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	62.0		"	62.5		99.2	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4I18013 - EPA 5030 (soil)

LCS (4I18013-BS1)

Prepared: 09/18/2014 Analyzed: 09/19/2014

Benzene	0.09	0.002	mg/kg	0.100		94.7	77.1-124			
Toluene	0.08	0.002	"	0.100		84.5	74.5-128			
Ethylbenzene	0.08	0.002	"	0.100		84.5	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		88.2	76.6-124			
o-Xylene	0.08	0.002	"	0.100		84.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64.1		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61.5		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	62.2		"	62.5		99.5	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118013 - EPA 5030 (soil)

Matrix Spike (4118013-MS1)		Source: X409175-01			Prepared: 09/18/2014 Analyzed: 09/19/2014					
Benzene	0.1	0.002	mg/kg	0.100	ND	102	71.8-126			
Toluene	0.09	0.002	"	0.100	ND	92.8	65.1-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	87.9	62.2-130			
m,p-Xylene	0.2	0.004	"	0.200	ND	93.0	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	88.6	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64.7		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	62.6		"	62.5		100	70-130			

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 4118013 - EPA 5030 (soil)

Matrix Spike Dup (4118013-MSD1)		Source: X409175-01			Prepared: 09/18/2014 Analyzed: 09/19/2014					
Benzene	0.1	0.002	mg/kg	0.100	ND	105	71.8-126	3.19	11.3	
Toluene	0.09	0.002	"	0.100	ND	94.8	65.1-130	2.22	15.4	
Ethylbenzene	0.09	0.002	"	0.100	ND	89.0	62.2-130	1.24	19.6	
m,p-Xylene	0.2	0.004	"	0.200	ND	94.7	46.5-137	1.85	19.2	
o-Xylene	0.09	0.002	"	0.100	ND	90.4	54.2-134	2.01	17.9	
Surrogate: 1,2-Dichloroethane-d4	63.7		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	60.4		"	62.5		96.6	70-130			
Surrogate: 4-Bromofluorobenzene	60.5		"	62.5		96.6	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Hunter 9-32

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 8015M - 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 4I18008 - EPA 3580

Blank (4I18008-BLK1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Diesel (C10-C28) ND 50 mg/kg

Residual Range Organics (C28-C36) ND 200 "

Surrogate: o-Terphenyl

41 g 50.0 81.6 59-131

LCS (4I18008-BS1)

Prepared: 09/18/2014 Analyzed: 09/18/2014

Diesel (C10-C28) 810 50 mg/kg 1000

Residual Range Organics (C28-C36) 700 200 " 1000 81.2 64-121

Surrogate: o-Terphenyl

33 g 50.0 66.3 59-131

Matrix Spike (4I18008-MS1)

Source: X409172-01

Prepared: 09/18/2014 Analyzed: 09/18/2014

Diesel (C10-C28) 800 50 mg/kg 1000

Residual Range Organics (C28-C36) 690 200 " 1000 ND 80.3 53-125

Surrogate: o-Terphenyl

33 g 50.0 66.7 59-131

Matrix Spike Dup (4I18008-MSD1)

Source: X409172-01

Prepared: 09/18/2014 Analyzed: 09/18/2014

Diesel (C10-C28) 790 50 mg/kg 1000

Residual Range Organics (C28-C36) 690 200 " 1000 ND 79.5 53-125 0.980 20

Surrogate: o-Terphenyl

32 g 50.0 65.0 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

Christine Wasko

Project Number: [none]

Project: KMG - Hunter 9-32

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.

Noelle Doyle Mathis, President



September 21, 2014

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - Hunter 9-32

Project Number - [none]

Attached are your analytical results for Hunter 9-32 received by Origins Laboratory, Inc. September 19, 2014. This project is associated with Origins project number X409204-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: Hunter 9-32

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N02 @ 2.5	X409204-01	Soil	September 19, 2014 14:10	09/19/2014 16:10

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: Hunter 9-32

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page 1 of 1





ORIGINS LABORATORY, INC

Client: Tasman Geo Project Manager/Send Report To: C. W. Hester Bob Cornez

Address: 6899 Pecos Street, Unit C Email Address: ycornez@tasman-geo.com

Telephone Number: 912 230 2807 Project Name/Number: Hunter 9-32

Samples Collected By: Brandon Nelson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Sampling		
N0202.5	7/16/14	1410	X	X					X		BTEX TPH	1
												2
												3
												4
												5
												6
												7
												8
												9
												10
Relinquished By: 	Date: 9/19/14	Time: 1610		Received By: 	Date: 9/19/14	Time: 1610		Turnaround Time: Some Day 24 Hr				
Relinquished By: 	Date: 9/19/14	Time: 1610		Received By: 	Date: 9/19/14	Time: 1610		48 Hr				
								Standard				1.3

Date Results Needed:

Comments:

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

Origins Laboratory, Inc.

[Signature]

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: Hunter 9-32

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X409204

Client: Tasman

Client Project ID: Hunter 9-32

Checklist Completed by: Dele Smith

Shipped Via: Pick up

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

Date/time completed: 9/19/14 12:16

Airbill #: NA

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

Cooler Number/Temperature: 1-3 °C / _____ °C / _____ °C (Describe) _____ °C

Thermometer ID: T002

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"/>			
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.

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: Hunter 9-32

N02 @ 2.5

9/19/2014 2:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X409204-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4119015	09/19/2014	09/19/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	114 %	70-130			"	"	"
Surrogate: Toluene-d8	94.6 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4118014	09/19/2014	09/19/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"
TPH - Carbon Chain Total	ND	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	71.4 %	65-146			"	"	"
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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: Hunter 9-32

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 4I19015 - EPA 5030 (soil)

Blank (4I19015-BLK1)

Prepared: 09/19/2014 Analyzed: 09/19/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.4	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: Hunter 9-32

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 4I19015 - EPA 5030 (soil)										
LCS (4I19015-BS1)					Prepared: 09/19/2014 Analyzed: 09/19/2014					
Benzene	0.10	0.002	mg/kg	0.100		102	77.1-124			
Toluene	0.09	0.002	"	0.100		91.0	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		103	66.4-127			
m,p-Xylene	0.20	0.004	"	0.200		102	76.6-124			
o-Xylene	0.11	0.002	"	0.100		111	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.9	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		95.1	70-130			

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Bob Cornez
Project Number: [none]
Project: Hunter 9-32

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 4I19015 - EPA 5030 (soil)										
LCS Dup (4I19015-BSD1)					Prepared: 09/19/2014 Analyzed: 09/19/2014					
Benzene	0.10	0.002	mg/kg	0.100		100	77.1-124	1.23	20	
Toluene	0.09	0.002	"	0.100		89.3	74.5-128	1.89	20	
Ethylbenzene	0.10	0.002	"	0.100		99.8	66.4-127	2.71	20	
m,p-Xylene	0.20	0.004	"	0.200		99.6	76.6-124	2.74	20	
o-Xylene	0.11	0.002	"	0.100		108	76.6-124	3.27	20	
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.4	70-130			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.6	70-130			

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Bob Cornez
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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 8015M - 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 4I18014 - EPA 3580

Blank (4I18014-BLK1)

Prepared: 09/18/2014 Analyzed: 09/20/2014

Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Residual Range Organics (C28-C36)	ND	200	"							
TPH - Carbon Chain Total	ND	50.0	"							

Surrogate: o-Terphenyl 40 g 50.0 80.1 65-146

LCS (4I18014-BS1)

Prepared: 09/18/2014 Analyzed: 09/20/2014

Gasoline (C6-C10)	991	50.0	mg/kg	1000		99.1	66.7-119			
Diesel (C10-C28)	988	50.0	"	1000		98.8	70.1-127			
Residual Range Organics (C28-C36)	870	200	"	1000		87.0	54.5-139			

Surrogate: o-Terphenyl 39 g 50.0 78.7 65-146

Matrix Spike (4I18014-MS1)

Source: X409175-01

Prepared: 09/18/2014 Analyzed: 09/20/2014

Gasoline (C6-C10)	993	50.0	mg/kg	1000	ND	99.3	56.4-132			
Diesel (C10-C28)	986	50.0	"	1000	ND	98.6	57.4-138			
Residual Range Organics (C28-C36)	888	200	"	1000	ND	88.8	47.7-129			

Surrogate: o-Terphenyl 40 g 50.0 80.6 65-146

Matrix Spike Dup (4I18014-MSD1)

Source: X409175-01

Prepared: 09/18/2014 Analyzed: 09/20/2014

Gasoline (C6-C10)	1010	50.0	mg/kg	1000	ND	101	56.4-132	1.65	22	
Diesel (C10-C28)	1020	50.0	"	1000	ND	102	57.4-138	3.21	18.3	
Residual Range Organics (C28-C36)	907	200	"	1000	ND	90.7	47.7-129	2.14	30.1	

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Denver CO 80211

Bob Cornez
Project Number: [none]
Project: Hunter 9-32

Extractable Petroleum Hydrocarbons by 8015M - 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 4I18014 - EPA 3580

Matrix Spike Dup (4I18014-MSD1)

Source: X409175-01

Prepared: 09/18/2014 Analyzed: 09/20/2014

Surrogate: o-Terphenyl	41		g	50.0		81.4	65-146			
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Bob Cornez
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Project: Hunter 9-32

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.

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