



## SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

## CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe): \_\_\_\_\_

OGCC Employee:

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No: \_\_\_\_\_

## GENERAL INFORMATION

<b>OGCC Operator Number:</b> 47120		<b>Contact Name and Telephone</b>	
<b>Name of Operator:</b> Kerr-McGee Oil and Gas Onshore, LP		<b>Name:</b> Phillip Hamlin	
<b>Address:</b> 1099 18th Street, Suite 1800		<b>No:</b> 970-336-3500	
<b>City:</b> Denver <b>State:</b> CO <b>Zip:</b> 80202		<b>Fax:</b> 970-336-3656	
<b>API/Facility No:</b> _____		<b>County:</b> Weld	
<b>Facility Name:</b> HSR-Hall		<b>Facility Number:</b> 64N66W31NWSW	
<b>Well Name:</b> HSR-Hall		<b>Well Number:</b> 12-31	
<b>Location (QtrQtr, Sec, Twp, Rng, Meridian):</b> NWSW S31 T4N R66W		<b>Latitude:</b> 40.26676 <b>Longitude:</b> -104.82673	

## TECHNICAL CONDITIONS

<b>Type of Waste Causing Impact (crude oil, condensate, produced water, etc.):</b> Crude Oil, Condensate, and Produced Water	
<b>Site Conditions:</b> Is location within a sensitive area (according to Rule 901e)? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation.	
<b>Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.):</b> Crop Land	
<b>Soil type, if not previously identified on Form 2A or Federal Surface Use Plan:</b> Fine to coarse grain sand.	
<b>Potential receptors (water wells within 1/4 mi, surface waters, etc.):</b> There is no surface water within 1/4 mile of the site. The nearest water well is approximately 900' west of the release area.	
<b>Description of Impact (if previously provided, refer to that form or document):</b>	
<b>Impacted Media (check):</b>	<b>Extent of Impact:</b>
<input checked="" type="checkbox"/> Soils	32' (E-W) x 41' (N-S) x 11' bgs
<input type="checkbox"/> Vegetation	
<input checked="" type="checkbox"/> Groundwater	See attached data
<input type="checkbox"/> Surface water	
<b>How Determined:</b>	
Excavation, soil sampling, and laboratory analysis	
Groundwater sampling and laboratory analysis	

## REMEDIALATION WORKPLAN

<b>Describe initial action taken (if previously provided, refer to that form or document):</b> <p>On May 25, 2016, historical hydrocarbon impacts were discovered beneath the produced water sump during construction activities at the HSR-Hall 64N66W31NWSW production facility. The volume of released material is unknown. The facility was shut in, associated infrastructure removed, and excavation activities commenced. Groundwater was encountered in the excavation at approximately 11 feet below ground surface (bgs). An Initial Form 19 was submitted to the COGCC on May 27, 2016 (Document # 401055055) and a Supplemental Form 19 was submitted to the COGCC on June 3, 2016 (Document # 401056830). The COGCC has issued Spill Tracking #445916 for this release.</p>
<b>Describe how source is to be removed:</b> <p>On May 25, 2016, excavation activities commenced and approximately 220 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Excavation activities were guided in the field using a photolionization detector (PID) to measure volatile organic compound (VOC) concentrations in soil. Soil samples were collected from the sidewalls of the final extent of the excavation area at approximately 10 feet bgs. Soil samples were submitted to Origins Laboratory in Denver, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260, TPH - diesel range organics and oil range organics (DRO and ORO) by USEPA Method 8015, electrical conductivity (EC), and pH. Laboratory results indicated that constituent concentrations in the soil samples collected from the final lateral extent of the excavation area were below applicable COGCC Table 910-1 standards. Soils were excavated into the phreatic zone to address potential hydrocarbon impacts that may have been present below the current groundwater table due to seasonal fluctuations. Groundwater was encountered in the excavation at approximately 11 feet bgs. A groundwater sample (GW01) was collected and submitted for laboratory analysis of BTEX. Analytical results received on May 27, 2016, indicated that the benzene, toluene, and total xylenes concentrations in sample GW01 were above the applicable COGCC Table 910-1 groundwater standards. Approximately 80 barrels of groundwater were removed from the excavation area via vacuum truck and transported to a licensed injection facility for disposal. A second groundwater sample (GW02) was subsequently collected from the excavation and submitted for laboratory analysis of BTEX. Analytical results received on June 1, 2016, indicated that the benzene, toluene, and total xylenes concentrations in sample GW02 remained above the applicable COGCC Table 910-1 groundwater standards. Soil and groundwater analytical results are summarized in Tables 1 and 2, respectively. Soil and excavation groundwater sample locations are illustrated on Figure 1 and laboratory analytical reports are included as Attachment A.</p>
<b>Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:</b> <p>Impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado. Impacted groundwater was transported to a licensed injection facility for disposal. Prior to backfilling the excavation, approximately 220 pounds of activated carbon were introduced to the groundwater table to mitigate remaining aqueous phase hydrocarbon impacts. Additional groundwater monitoring measures are described on the following page. The produced water sump was removed and will not be replaced; a sump closure report is included as Attachment B.</p>



Tracking Number: \_\_\_\_\_  
Name of Operator: \_\_\_\_\_  
OGCC Operator No: \_\_\_\_\_  
Received Date: \_\_\_\_\_  
Well Name & No: \_\_\_\_\_  
Facility Name & No.: \_\_\_\_\_

# REMEDIATION WORKPLAN (CONT.)

OGCC Employee: \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Temporary groundwater monitoring wells will be installed at the site to further assess the extent of groundwater impacts. These wells will be sampled on a quarterly basis and submitted for laboratory analysis of BTEX until concentrations remain below COGCC groundwater standards for four consecutive quarters.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The excavation has been backfilled with clean soil and graded to match the adjacent topography. Kerr-McGee's tank battery was removed and will not be rebuilt. Reclamation activities at the site will be compliant with COGCC regulations.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☒ Y ☐ N If yes, describe:

Laboratory data indicate that impacted soils in the excavation have been remediated to below COGCC Table 910-1 standards. Temporary monitoring wells will be installed to further assess groundwater impacts. Groundwater samples will be collected from the temporary monitoring wells until BTEX concentrations remain below the applicable COGCC standards for four consecutive quarters. Soil and groundwater analytical results are summarized in Tables 1 and 2, respectively. The analytical laboratory reports are included as Attachment A.

Final disposition of E&P waste (land treated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Impacted soil was transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. Impacted groundwater was transported to a licensed injection facility for disposal.

## IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 5/25/2016	Date Site Investigation Completed: TBD	Remediation Plan Submitted: _____
Remediation Start Date: 5/25/2016	Anticipated Completion Date: 12/15/2017	Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

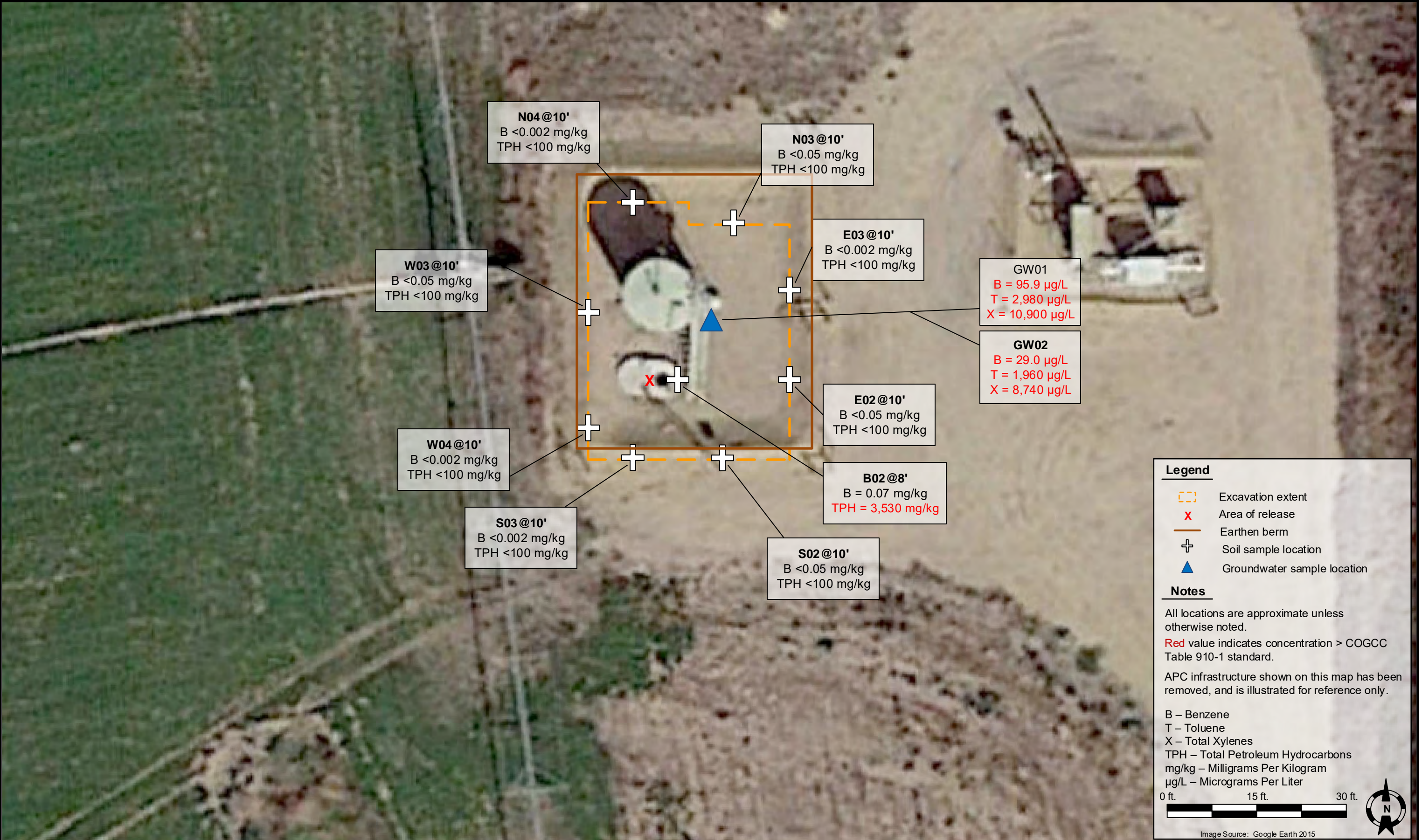
Print Name: Philip Hamlin

Signed:  Title: Senior HSE Representative Date: 9/29/16

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

**FIGURE**





DATE:	June 1, 2016
DESIGNED BY:	B. Nelson
DRAWN BY:	B. Nelson



**Kerr-McGee Oil and Gas Onshore, LP**  
**HSR-Hall 64N66W31NWSW**  
NWSW, Section 31, Township 4 North, Range 66 West  
Weld County, Colorado

Sample Location  
Map

FIGURE  
1



## **ANALYTICAL TABLES**

**TABLE 1**  
**HSR-HALL 64N66W31NWSW**  
**SOIL SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)	EC (mmhos/cm)	pH (units)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>500</b>			<b>4 mmhos/cm or 2x BG</b>	<b>6-9</b>
B02@8'	05/25/16	8	0.07	2.6	8.8	140	<b>2,200</b>	<b>1,200</b>	<b>130</b>	0.0551	7.75
S02@10'	05/26/16	10	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.105	8.19
E02@10'	05/26/16	10	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0216	8.09
W03@10'	05/27/16	10	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0965	8.47
N03@10'	05/27/16	10	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0133	8.55
W04@10'	05/31/16	10	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0184	7.45
N04@10'	05/31/16	10	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0354	7.47
E03@10'	05/31/16	10	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0124	7.53
S03@10'	05/31/16	10	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0845	7.61

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective March 16, 2016.

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-HALL 64N66W31NWSW**  
**GROUNDWATER SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth To Water (ft. bgs)
<b>COGCC Standards for groundwater (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
GW01	05/26/16	<b>95.9</b>	<b>2,980</b>	552	<b>10,900</b>	~11
GW02	05/31/16	<b>29.0</b>	<b>1,960</b>	495	<b>8,740</b>	~11

**Notes:**

1. Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective March 16, 2016.

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.

**ATTACHMENT A  
LABORATORY  
ANALYTICAL REPORTS**





May 26, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR-Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR-Hall 12-31 received by Origins Laboratory, Inc. May 25, 2016. This project is associated with Origins project number X605318-05.

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: KMG - HSR-Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02 @ 8	X605318-05	Soil	May 25, 2016 16:42	05/25/2016 17:44

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 - HSR-Hall 12-31

www.originslaboratory.com

page 1 of 1

X60538

**ORIGINS**  
LABORATORY, INC

Client: Tasman Geosciences for APC

Address: [Redacted]

Telephone Number: (352) 262-9910

Email Address: COGNITIVE@TASMAN-GEOS.COM

Project Manager: Bob Cornez

Project Name: HSR-Hall 12-31

Project Number: [Redacted]

Samples Collected By: KMG FOR HSR

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summation		
N0126	5/25/16	1632	2	X				X			GIOTEX 8260 TPH 100100 8015 PH EL, SAR (IF EC4.0)	1
S0126	5/25/16	1634	2	X				X				2
E0126	5/25/16	1636	2	X				X				3
W0126	5/25/16	1638	2	X				X				4
B0228	5/25/16	1642	2	X				X				5
												6
												7
												8
												9
												10

Relinquished By: [Signature]

Relinquished By: [Signature]

Date: 5/25/16

Date: 5/25/16

Received By: [Signature]

Received By: [Signature]

Date: 5/25/16

Date: 5/25/16

Time: 1744

Time: 1744

Time: 1744

Time: 1744

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

Date Results Needed: [Redacted]

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 - HSR-Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X605318

Client: Tasman

Client Project ID: HSR Hall 12-31

Checklist Completed by: Jeff Smith

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

Date/time completed: 5/25/12

Airbill #: NH

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

Cooler Number/Temperature: 1 18.9 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

<sup>(1)</sup>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) Jeff Smith

Date/Time Reviewed 5/25/12

Origins Laboratory, Inc.

*Jeff Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**B02 @ 8**  
**5/25/2016 4:42:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605318-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	1200	25	mg/kg	1	B6E2502	05/25/2016	05/26/2016
Residual Range Organics (C28-C40)	130	100	"	"	"	"	"

Surrogate: o-Terphenyl	87.3 %	59-131			"	"	"
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	2200	50	mg/kg	250	B6E2506	05/25/2016	05/26/2016
Benzene	0.07	0.05	"	25	"	"	05/25/2016
Toluene	2.6	0.05	"	"	"	"	"
Ethylbenzene	8.8	0.50	"	250	"	"	05/26/2016
Xylenes, total	140	0.50	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"
Surrogate: Toluene-d8	109 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

**pH in Soil by EPA 9045D**

pH	7.75		pH Units	1	B6E2507	05/25/2016	05/25/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0551		mmhos/cm	"	B6E2508	05/25/2016	05/25/2016
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2506 - EPA 5030 (soil)</b>										
<b>Blank (B6E2506-BLK1)</b>					Prepared: 05/25/2016 Analyzed: 05/25/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2506 - EPA 5030 (soil)</b>										
<b>LCS (B6E2506-BS1)</b>					Prepared: 05/25/2016 Analyzed: 05/25/2016					
Benzene	0.09	0.002	mg/kg	0.100		89.6	77.1-124			
Toluene	0.09	0.002	"	0.100		93.4	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		99.5	66.4-127			
m,p-Xylene	0.20	0.004	"	0.200		102	76.6-124			
o-Xylene	0.10	0.002	"	0.100		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	67		"	62.5		107	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2506 - EPA 5030 (soil)**

Matrix Spike (B6E2506-MS1)		Source: X605309-03			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Benzene	0.08	0.002	mg/kg	0.100	ND	76.5	71.8-126			
Toluene	0.08	0.002	"	0.100	ND	79.5	65.1-130			
Ethylbenzene	0.08	0.002	"	0.100	ND	83.9	62.2-130			
m,p-Xylene	0.17	0.004	"	0.200	ND	86.4	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	85.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	70-130			

Origins Laboratory, Inc.



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Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2506 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2506-MSD1)		Source: X605309-03			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Benzene	0.09	0.002	mg/kg	0.100	ND	87.7	71.8-126	13.7	11.3	QR-02
Toluene	0.10	0.002	"	0.100	ND	95.2	65.1-130	17.9	15.4	QR-02
Ethylbenzene	0.10	0.002	"	0.100	ND	96.7	62.2-130	14.1	19.6	
m,p-Xylene	0.20	0.004	"	0.200	ND	99.4	46.5-137	14.0	19.2	
o-Xylene	0.10	0.002	"	0.100	ND	100	54.2-134	16.3	17.9	
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		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

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## 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 B6E2502 - EPA 3580

#### Blank (B6E2502-BLK1)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	43		"	50.0		85.6	59-131			

#### Blank (B6E2502-BLK2)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		87.2	59-131			

#### LCS (B6E2502-BS1)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	990	50	mg/kg	1000		98.9	64-121			
Residual Range Organics (C28-C40)	950	200	"	1000		95.4	58-124			
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

#### LCS (B6E2502-BS2)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	880	50	mg/kg	1000		88.0	64-121			
Residual Range Organics (C28-C40)	950	200	"	1000		95.5	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.7	59-131			

#### Matrix Spike (B6E2502-MS1)

Source: X605309-03

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	870	50	mg/kg	1000	ND	87.1	53-125			
Residual Range Organics (C28-C40)	830	200	"	1000	17	81.5	47-133			

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## 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
<b>Batch B6E2502 - EPA 3580</b>										
<b>Matrix Spike (B6E2502-MS1)</b>		<b>Source: X605309-03</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Surrogate: o-Terphenyl	40		mg/kg	50.0		80.2	59-131			
<b>Matrix Spike (B6E2502-MS2)</b>		<b>Source: X605317-01</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	850	50	mg/kg	1000	ND	84.9	53-125			
Residual Range Organics (C28-C40)	920	200	"	1000	15	90.4	47-133			
Surrogate: o-Terphenyl	44		"	50.0		88.0	59-131			
<b>Matrix Spike Dup (B6E2502-MSD1)</b>		<b>Source: X605309-03</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	101	53-125	15.2	20	
Residual Range Organics (C28-C40)	980	200	"	1000	17	96.1	47-133	16.5	20	
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			
<b>Matrix Spike Dup (B6E2502-MSD2)</b>		<b>Source: X605317-01</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	890	50	mg/kg	1000	ND	89.2	53-125	4.91	20	
Residual Range Organics (C28-C40)	870	200	"	1000	15	85.5	47-133	5.53	20	
Surrogate: o-Terphenyl	42		"	50.0		84.5	59-131			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2507 - NO PREP</b>										
<b>Duplicate (B6E2507-DUP1)</b>		<b>Source: X605309-02</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
pH	7.31		pH Units		7.33			0.273	25	
<b>Batch B6E2508 - NO PREP</b>										
<b>Blank (B6E2508-BLK1)</b>		Prepared: 05/25/2016 Analyzed: 05/25/2016								
Specific Conductance (EC)	0.00260		mmhos/cm							
<b>Duplicate (B6E2508-DUP1)</b>		<b>Source: X605309-02</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Specific Conductance (EC)	0.207		mmhos/cm		0.209			0.962	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR-Hall 12-31

## Notes and Definitions

U Sample is Non-Detect.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President



May 27, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR-Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR-Hall 12-31 received by Origins Laboratory, Inc. May 26, 2016. This project is associated with Origins project number X605337-01.

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: KMG - HSR-Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S02 @ 10'	X605337-01	Soil	May 26, 2016 15:15	05/26/2016 17:15
E02 @ 10'	X605337-02	Soil	May 26, 2016 15:04	05/26/2016 17:15
GW01	X605337-03	Water	May 26, 2016 14:58	05/26/2016 17:15

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 - HSR-Hall 12-31

**ORIGINS**  
LABORATORY, INC

www.originslaboratory.com

page 1 of 1

**Client:** Tasman Geosciences for APC

**Address:**

**Telephone Number:** (352) 262-9910

**Email Address:** jcornez@tasman-geo.com

**Project Manager:** Bob Cornez

**Project Name:** HSR Hall 12-31

**Project Number:**

**Samples Collected By:** KMG HSR Hall

**Sample ID Description**

S02010'

E02010'

EW01

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Sampling			Other
S02010'	5/24/16	1515	2	X				X				1	
E02010'	5/24/16	1504	2	X				X				2	
EW01	5/24/16	1458	3	X					X		BTX8200	3	
												4	
												5	
												6	
												7	
												8	
												9	
												10	

**Relinquished By:** [Signature]

**Relinquished By:** [Signature]

**Date:** 5/24/16

**Date:** 5/24/16

**Time:** 1701

**Time:** 1715

**Received By:** [Signature]

**Received By:** [Signature]

**Date:** 5-26-16

**Date:** 5-26-16

**Time:** 1715

**Time:** 1715

**Turnaround Time:** 97.24 Hr

**Turnaround Time:** 48 Hr

**Turnaround Time:** 72 Hr

**Standard:** [X]

Date Results Needed: [ ]



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 4605337

Client: Tasman

Client Project ID: HSR Hall 12-31

Checklist Completed by: Jeff Smith

Shipped Via: STTD Bulk 40  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 5/26/12

Airbill #: N/A

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

Cooler Number/Temperature: 1 19.7 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T203

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>PA</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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"/>	<u>5/16/12</u> <u>TS</u>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

<sup>(1)</sup>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)

5/26/12 1948  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jeff Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**S02 @ 10'**  
**5/26/2016 3:15:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2606	05/26/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 63.0 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2601	05/26/2016	05/26/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 100 % 70-130 " " "  
Surrogate: Toluene-d8 106 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 99.7 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.19		pH Units	1	B6E2608	05/26/2016	05/26/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.105		mmhos/cm	"	B6E2609	"	"	
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Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**E02 @ 10'**  
**5/26/2016 3:04:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2606	05/26/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 65.9 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2601	05/26/2016	05/26/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 104 % 70-130 " " "  
*Surrogate: Toluene-d8* 103 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 99.2 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.09		pH Units	1	B6E2608	05/26/2016	05/26/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0216		mmhos/cm	"	B6E2609	"	"	
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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

GW01

5/26/2016 2:58:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-03 (Water)**

**BTEX by EPA 8260C**

Benzene	95.9	4.0	ug/L	4	B6E2603	05/26/2016	05/26/2016
Toluene	2980	50.0	"	50	"	"	05/26/2016
Ethylbenzene	552	50.0	"	"	"	"	"
Xylenes, total	10900	50.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"
Surrogate: Toluene-d8	99.3 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	98.5 %	84-114			"	"	"

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2601 - EPA 5030 (soil)</b>										
<b>Blank (B6E2601-BLK1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	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 - HSR-Hall 12-31

**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
<b>Batch B6E2601 - EPA 5030 (soil)</b>										
<b>LCS (B6E2601-BS1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100		100	77.1-124			
Toluene	0.10	0.002	"	0.100		97.7	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		105	76.6-124			
o-Xylene	0.10	0.002	"	0.100		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	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 - HSR-Hall 12-31

**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 B6E2601 - EPA 5030 (soil)**

Matrix Spike (B6E2601-MS1)		Source: X605312-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	107	62.2-130			
m,p-Xylene	0.22	0.004	"	0.200	ND	111	46.5-137			
o-Xylene	0.11	0.002	"	0.100	ND	107	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	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 - HSR-Hall 12-31

**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 B6E2601 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2601-MSD1)		Source: X605312-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	102	71.8-126	2.15	11.3	
Toluene	0.10	0.002	"	0.100	ND	99.8	65.1-130	1.63	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	105	62.2-130	2.35	19.6	
m,p-Xylene	0.22	0.004	"	0.200	ND	108	46.5-137	2.40	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	106	54.2-134	1.26	17.9	
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2603 - EPA 5030B (Water)</b>										
<b>Blank (B6E2603-BLK1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
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	66		"	62.5	106		84-121			
Surrogate: Toluene-d8	63		"	62.5	100		85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5	109		84-114			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2603 - EPA 5030B (Water)**

**LCS (B6E2603-BS1)**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Benzene	47.2	1.0	ug/L	50.0		94.5	73.3-129			
Toluene	46.5	1.0	"	50.0		93.0	76.2-123			
Ethylbenzene	50.2	1.0	"	50.0		100	73.6-130			
m,p-Xylene	105	2.0	"	100		105	76.1-126			
o-Xylene	51.5	1.0	"	50.0		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.2	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	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 - HSR-Hall 12-31

**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 B6E2603 - EPA 5030B (Water)**

Matrix Spike (B6E2603-MS1)		Source: X605319-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	54.9	1.0	ug/L	50.0	0.1	110	74-130			
Toluene	54.1	1.0	"	50.0	0.1	108	73-131			
Ethylbenzene	57.1	1.0	"	50.0	ND	114	76-132			
m,p-Xylene	118	2.0	"	100	ND	118	69-139			
o-Xylene	57.9	1.0	"	50.0	ND	116	74-131			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	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 - HSR-Hall 12-31

**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 B6E2603 - EPA 5030B (Water)**

Matrix Spike Dup (B6E2603-MSD1)		Source: X605319-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	50.9	1.0	ug/L	50.0	0.1	102	74-130	7.54	20	
Toluene	51.2	1.0	"	50.0	0.1	102	73-131	5.41	20	
Ethylbenzene	53.2	1.0	"	50.0	ND	106	76-132	7.04	20	
m,p-Xylene	111	2.0	"	100	ND	111	69-139	5.99	20	
o-Xylene	53.5	1.0	"	50.0	ND	107	74-131	7.99	20	
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5		113	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.0	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 - HSR-Hall 12-31

**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 B6E2606 - EPA 3580**

**Blank (B6E2606-BLK1)**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		83.5	59-131			

**Blank (B6E2606-BLK2)**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.3	59-131			

**LCS (B6E2606-BS1)**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	910	50	mg/kg	1000		91.2	64-121			
Residual Range Organics (C28-C40)	920	200	"	1000		91.9	58-124			
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

**LCS (B6E2606-BS2)**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	910	50	mg/kg	1000		91.2	64-121			
Residual Range Organics (C28-C40)	920	200	"	1000		91.9	58-124			
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

**Matrix Spike (B6E2606-MS1)**

**Source: X605302-06**

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	840	50	mg/kg	1000	ND	84.5	53-125			
Residual Range Organics (C28-C40)	930	200	"	1000	48	88.6	47-133			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2606 - EPA 3580</b>										
<b>Matrix Spike (B6E2606-MS1)</b>		<b>Source: X605302-06</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Surrogate: o-Terphenyl	42		mg/kg	50.0		83.1	59-131			
<b>Matrix Spike (B6E2606-MS2)</b>		<b>Source: X605335-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	880	50	mg/kg	1000	ND	87.6	53-125			
Residual Range Organics (C28-C40)	930	200	"	1000	22	90.4	47-133			
Surrogate: o-Terphenyl	42		"	50.0		84.2	59-131			
<b>Matrix Spike Dup (B6E2606-MSD1)</b>		<b>Source: X605302-06</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	890	50	mg/kg	1000	ND	88.7	53-125	4.82	20	
Residual Range Organics (C28-C40)	1000	200	"	1000	48	95.2	47-133	7.20	20	
Surrogate: o-Terphenyl	44		"	50.0		87.8	59-131			
<b>Matrix Spike Dup (B6E2606-MSD2)</b>		<b>Source: X605335-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	101	53-125	14.1	20	
Residual Range Organics (C28-C40)	1000	200	"	1000	22	98.2	47-133	8.28	20	
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2608 - NO PREP</b>										
<b>Duplicate (B6E2608-DUP1)</b>		<b>Source: X605332-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
pH	8.23		pH Units		8.22			0.122	25	
<b>Batch B6E2609 - NO PREP</b>										
<b>Blank (B6E2609-BLK1)</b>		Prepared: 05/26/2016 Analyzed: 05/26/2016								
Specific Conductance (EC)	0.00310		mmhos/cm							
<b>Duplicate (B6E2609-DUP1)</b>		<b>Source: X605332-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Specific Conductance (EC)	0.207		mmhos/cm		0.209			0.962	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR-Hall 12-31

### 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.



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Jen Pellegrini For Noelle Doyle Mathis, President



May 31, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 27, 2016. This project is associated with Origins project number X605348-01.

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: KMG - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W03@10'	X605348-01	Soil	May 27, 2016 13:01	05/27/2016 15:40
N03@10'	X605348-02	Soil	May 27, 2016 13:13	05/27/2016 15:40

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 - HSR Hall 12-31

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X605348

page 1 of 1

ORIGINS  
LABORATORY, INC

Client: APC  
Address:  
Telephone Number: 303-889-1525  
Email Address: YCornez@hsr.hall-12-31.com

Project Manager: Robert Cornez  
Project Name: HSR Hall 12-31  
Project Number:  
Samples Collected By: Zachary Mathis

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ #	Other	EC	pH	TOC/TPC	
W03e10'	5/27/16	13:01	2	X				X				X	X	X	Today by 7AM
N03e10'	5/27/16	13:13	2	X				X				X	X	X	Today by 7AM
Relinquished By: <i>Zachary Mathis</i>	Date: 5/27/16	Time: 1540						Received By: <i>[Signature]</i>	Date: 5-27-16	Time: 1540				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"/>	
Relinquished By:	Date:	Time:						Received By:	Date:	Time:					

Date Results Needed

Temp Received: 67

Origins Laboratory, Inc.

*Jen 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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 1605348

Client: Tasman Geosciences

Client Project ID: HSR Hall 12-31

Checklist Completed by: Joe Henderson

Shipped Via: Hand Pick up 5/27

Date/time completed: 5/27/12 1624

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

Airbill #: \_\_\_\_\_

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

Cooler Number/Temperature: 1 / 6.7 °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 <sup>(1)</sup> ?		<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>pH</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> 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) CM

Date/Time Reviewed 5/27/12

Origins Laboratory, Inc.

*Joe 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 - HSR Hall 12-31

W03@10'  
5/27/2016 1:01:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605348-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2704	05/27/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl	75.5 %	59-131			"	"	"	
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**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2702	05/27/2016	05/27/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	98.8 %	70-130			"	"	"	
Surrogate: Toluene-d8	100 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"	

**pH in Soil by EPA 9045D**

pH	8.47		pH Units	1	B6E2703	05/27/2016	05/27/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0965		mmhos/cm	"	B6E2709	05/27/2016	05/27/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

N03@10'  
5/27/2016 1:13:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605348-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2704	05/27/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 74.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2702	05/27/2016	05/27/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 97.2 % 70-130 " " "  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 99.7 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.55		pH Units	1	B6E2703	05/27/2016	05/27/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0133		mmhos/cm	"	B6E2709	05/27/2016	05/27/2016	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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 B6E2702 - EPA 5030 (soil)**

**Blank (B6E2702-BLK1)**

Prepared: 05/27/2016 Analyzed: 05/27/2016

Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.5	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		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

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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
<b>Batch B6E2702 - EPA 5030 (soil)</b>										
<b>LCS (B6E2702-BS1)</b>					Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.12	0.002	mg/kg	0.100		120	77.1-124			
Toluene	0.12	0.002	"	0.100		116	74.5-128			
Ethylbenzene	0.12	0.002	"	0.100		115	66.4-127			
m,p-Xylene	0.23	0.004	"	0.200		116	76.6-124			
o-Xylene	0.11	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	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 - HSR Hall 12-31

**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 B6E2702 - EPA 5030 (soil)**

Matrix Spike (B6E2702-MS1)		Source: X605285-01			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.11	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	0.0007	112	62.2-130			
m,p-Xylene	0.23	0.004	"	0.200	0.002	114	46.5-137			
o-Xylene	0.11	0.002	"	0.100	0.0003	110	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.9	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 - HSR Hall 12-31

**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 B6E2702 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2702-MSD1)		Source: X605285-01			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	106	71.8-126	7.38	11.3	
Toluene	0.10	0.002	"	0.100	ND	103	65.1-130	8.71	15.4	
Ethylbenzene	0.10	0.002	"	0.100	0.0007	99.2	62.2-130	12.3	19.6	
m,p-Xylene	0.20	0.004	"	0.200	0.002	101	46.5-137	11.8	19.2	
o-Xylene	0.10	0.002	"	0.100	0.0003	98.9	54.2-134	11.0	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	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 - HSR Hall 12-31

## 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 B6E2704 - EPA 3580

#### Blank (B6E2704-BLK1)

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.1	59-131			

#### LCS (B6E2704-BS1)

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	750	50	mg/kg	1000		75.1	64-121			
Residual Range Organics (C28-C40)	860	200	"	1000		86.5	58-124			
Surrogate: o-Terphenyl	43		"	50.0		85.7	59-131			

#### Matrix Spike (B6E2704-MS1)

Source: X605320-01

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	960	50	mg/kg	1000	ND	96.3	53-125			
Residual Range Organics (C28-C40)	1000	200	"	1000	14	99.7	47-133			
Surrogate: o-Terphenyl	47		"	50.0		93.0	59-131			

#### Matrix Spike Dup (B6E2704-MSD1)

Source: X605320-01

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	840	50	mg/kg	1000	ND	84.2	53-125	13.5	20	
Residual Range Organics (C28-C40)	850	200	"	1000	14	83.7	47-133	17.4	20	
Surrogate: o-Terphenyl	42		"	50.0		84.0	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 - HSR Hall 12-31

**Classical Chemistry Parameters - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2703 - NO PREP</b>										
<b>Duplicate (B6E2703-DUP1)</b>		<b>Source: X605302-05</b>			Prepared: 05/27/2016 Analyzed: 05/27/2016					
pH	7.57		pH Units		7.81			3.12	25	
<b>Batch B6E2709 - NO PREP</b>										
<b>Blank (B6E2709-BLK1)</b>		Prepared: 05/27/2016 Analyzed: 05/27/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
<b>Duplicate (B6E2709-DUP1)</b>		<b>Source: X605302-05</b>			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Specific Conductance (EC)	0.0212		mmhos/cm		0.0199			6.33	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR Hall 12-31

### 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.*

Jen Pellegrini For Noelle Doyle Mathis, President



June 01, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 31, 2016. This project is associated with Origins project number X605367-01.

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: KMG - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W04@10'	X605367-01	Soil	May 31, 2016 10:15	05/31/2016 17:00
N04@10'	X605367-02	Soil	May 31, 2016 11:05	05/31/2016 17:00
E03@10'	X605367-03	Soil	May 31, 2016 10:21	05/31/2016 17:00
S03@10'	X605367-04	Soil	May 31, 2016 10:27	05/31/2016 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.*

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

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

ORIGINS  
LABORATORY, INC

Client: T Smier Geo

Address:

Telephone Number: 912 230 2807

Email Address: tsmierz@tsmierzgeo.com

X605367

www.originslaboratory.com

page 1 of 1

Project Manager: Bob Cornuz

Project Name: HSR - 11-11 12-31

Project Number: 246141

Samples Collected By: Brock Nelson

APL Invoice Sam Lake

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa Canister #		
W04C10'	5/31/16	1015	2 K						X		COSTX 82CLV R4 Deline EC/RH	1
K04C10'	5/31/16	1015	2 C						X		X +	2
E03C10'	5/31/16	1014	2 C								X X	3
S03C10'	5/31/16	1027	2 F						X		X X	4
												5
												6
												7
												8
												9
												10
Relinquished To:	Date: 5/31/16	Time:		Received By: [Signature]	Date: 5.31.16	Time: 1700	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard					
Relinquished By:	Date:	Time:		Received By:	Date:	Time:						

Temp Received: 8:29

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellgrini

*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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X605367

Client: Tasman Geosciences

Client Project ID: HSR-Hall 12-31

Checklist Completed by: J. Pellegrini

Shipped Via: 2 Day

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

Date/time completed: 5/31/12 1749

Airbill #: NA

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

Cooler Number/Temperature: 1 / 18.9 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: TC03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled Successfully</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>pit</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> 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.

*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 - HSR Hall 12-31

W04@10'

5/31/2016 10:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	05/31/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 68.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	05/31/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 99.1 % 70-130 " " "  
Surrogate: Toluene-d8 99.2 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.45		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0184		mmhos/cm	"	B6E3107	"	05/31/2016	
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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 - HSR Hall 12-31

N04@10'

5/31/2016 11:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	06/01/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 44.7 % 59-131 " " " S-DUP

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	05/31/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "

Surrogate: Toluene-d8 95.4 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.47		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0354		mmhos/cm	"	B6E3107	"	05/31/2016	
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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 - HSR Hall 12-31

E03@10'

5/31/2016 10:21:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	05/31/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 65.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	06/01/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 98.1 % 70-130 " " "  
Surrogate: Toluene-d8 99.0 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.53	pH Units	1	B6E3106	05/31/2016	05/31/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0124	mmhos/cm	"	B6E3107	"	05/31/2016
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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 - HSR Hall 12-31

S03@10'

5/31/2016 10:27:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	06/01/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 67.6 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	06/01/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 99.6 % 70-130 " " "  
Surrogate: Toluene-d8 99.0 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.61		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0845		mmhos/cm	"	B6E3107	"	05/31/2016	
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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 - HSR Hall 12-31

**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
<b>Batch B6E3103 - EPA 5030 (soil)</b>										
<b>Blank (B6E3103-BLK1)</b>					Prepared: 05/31/2016 Analyzed: 05/31/2016					
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	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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 B6E3103 - EPA 5030 (soil)**

**LCS (B6E3103-BS1)**

Prepared: 05/31/2016 Analyzed: 05/31/2016

Benzene	0.110	0.002	mg/kg	0.100		110	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.104	0.002	"	0.100		104	66.4-127			
m,p-Xylene	0.207	0.004	"	0.200		103	76.6-124			
o-Xylene	0.101	0.002	"	0.100		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	70-130			

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 - HSR Hall 12-31

**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 B6E3103 - EPA 5030 (soil)**

Matrix Spike (B6E3103-MS1)		Source: X605346-25			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	0.118	0.002	mg/kg	0.100	ND	118	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.111	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.222	0.004	"	0.200	ND	111	46.5-137			
o-Xylene	0.108	0.002	"	0.100	ND	108	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.2	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 - HSR Hall 12-31

**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 B6E3103 - EPA 5030 (soil)**

Matrix Spike Dup (B6E3103-MSD1)		Source: X605346-25			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	0.111	0.002	mg/kg	0.100	ND	111	71.8-126	6.38	11.3	
Toluene	0.105	0.002	"	0.100	ND	105	65.1-130	6.15	15.4	
Ethylbenzene	0.102	0.002	"	0.100	ND	102	62.2-130	8.71	19.6	
m,p-Xylene	0.205	0.004	"	0.200	ND	103	46.5-137	7.72	19.2	
o-Xylene	0.100	0.002	"	0.100	ND	100	54.2-134	7.62	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	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 - HSR Hall 12-31

## 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 B6E3104 - EPA 3580

#### Blank (B6E3104-BLK1)

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	35		"	50.0		69.0	59-131			

#### LCS (B6E3104-BS1)

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	808	50.0	mg/kg	1000		80.8	64-121			
Residual Range Organics (C28-C40)	772	200	"	1000		77.2	58-124			
Surrogate: o-Terphenyl	39		"	50.0		77.3	59-131			

#### Matrix Spike (B6E3104-MS1)

Source: X605346-25

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	771	50.0	mg/kg	1000	ND	77.1	53-125			
Residual Range Organics (C28-C40)	759	200	"	1000	14.9	74.4	47-133			
Surrogate: o-Terphenyl	37		"	50.0		73.3	59-131			

#### Matrix Spike Dup (B6E3104-MSD1)

Source: X605346-25

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	765	50.0	mg/kg	1000	ND	76.5	53-125	0.858	20	
Residual Range Organics (C28-C40)	736	200	"	1000	14.9	72.1	47-133	3.11	20	
Surrogate: o-Terphenyl	32		"	50.0		64.9	59-131			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E3106 - NO PREP</b>										
<b>Duplicate (B6E3106-DUP1)</b>		<b>Source: X605363-01</b>			Prepared: 05/31/2016 Analyzed: 05/31/2016					
pH	7.20		pH Units		7.13			0.977	25	
<b>Batch B6E3107 - NO PREP</b>										
<b>Blank (B6E3107-BLK1)</b>		Prepared: 05/31/2016 Analyzed: 05/31/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
<b>Duplicate (B6E3107-DUP1)</b>		<b>Source: X605363-01</b>			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Specific Conductance (EC)	0.0264		mmhos/cm		0.0212			21.8	25	

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR Hall 12-31

### Notes and Definitions

U Sample is Non-Detect.

S-DUP Duplicate analysis confirmed surrogate failure due to matrix effects.

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



June 01, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 31, 2016. This project is associated with Origins project number X605368-01.

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: KMG - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	X605368-01	Water	May 31, 2016 14:30	05/31/2016 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 - HSR Hall 12-31

www.originslaboratory.com  
page 1 of 1  
X655368

Client: Tasman Geosciences for APC  
Address:  
Telephone Number: (352) 262-9910  
Email Address: bob@tasman-geo.com

Project Manager: Bob Cornez  
Project Name: HSR Hall 12-31  
Project Number:  
Samples Collected By: KMG Formak

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix				Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ. #	Other		
C1W02	5/21/16	1430	3	X	X	X		X				BSX 8260	1
													2
													3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature] Date: 5/21/16 Time: 1640  
Relinquished By: [Signature] Date: 5/21/16 Time: 1700

Received By: [Signature] Date: 5-31-16 Time: 1700  
Received By: [Signature] Date: 5-31-16 Time: 1700

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

Date Results Needed: 5/31/16

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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: XL05368

Client: Tasman Geosciences

Client Project ID: HSR-Hall12-31

Checklist Completed by: Joe Henderson

Shipped Via: Pickup

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

Date/time completed: 5/31/16 1756

Airbill #: NA

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

Cooler Number/Temperature: 1 / 18.9 °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 <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled Sunday</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

<sup>(1)</sup>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 5/31/16

Origins Laboratory, Inc.

*Joe 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 - HSR Hall 12-31

## GW02

5/31/2016 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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### Origins Laboratory, Inc. X605368-01 (Water)

#### BTEX by EPA 8260C

Benzene	29.0	4.00	ug/L	4	B6E3101	05/31/2016	05/31/2016
Toluene	1960	50.0	"	50	"	"	05/31/2016
Ethylbenzene	495	4.00	"	4	"	"	05/31/2016
Xylenes, total	8740	50.0	"	50	"	"	05/31/2016
Surrogate: 1,2-Dichloroethane-d4	91.4 %	84-121			"	"	"
Surrogate: Toluene-d8	101 %	85-115			"	"	05/31/2016
Surrogate: 4-Bromofluorobenzene	97.0 %	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 - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

**Blank (B6E3101-BLK1)**

Prepared: 05/31/2016 Analyzed: 05/31/2016

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5	106		84-121			
Surrogate: Toluene-d8	62		"	62.5	98.7		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.1		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 - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

**LCS (B6E3101-BS1)**

Prepared: 05/31/2016 Analyzed: 05/31/2016

Benzene	48.7	1.00	ug/L	50.0		97.4	73.3-129			
Toluene	47.4	1.00	"	50.0		94.8	76.2-123			
Ethylbenzene	45.2	1.00	"	50.0		90.5	73.6-130			
m,p-Xylene	91.5	2.00	"	100		91.5	76.1-126			
o-Xylene	44.1	1.00	"	50.0		88.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.6	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.7	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 - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

Matrix Spike (B6E3101-MS1)		Source: X605344-01			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	52.2	1.00	ug/L	50.0	ND	104	74-130			
Toluene	51.5	1.00	"	50.0	ND	103	73-131			
Ethylbenzene	51.1	1.00	"	50.0	ND	102	76-132			
m,p-Xylene	102	2.00	"	100	ND	102	69-139			
o-Xylene	49.6	1.00	"	50.0	ND	99.3	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.7	84-114			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

Matrix Spike Dup (B6E3101-MSD1)		Source: X605344-01			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	51.6	1.00	ug/L	50.0	ND	103	74-130	1.16	20	
Toluene	50.8	1.00	"	50.0	ND	102	73-131	1.35	20	
Ethylbenzene	50.3	1.00	"	50.0	ND	101	76-132	1.64	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	1.59	20	
o-Xylene	49.4	1.00	"	50.0	ND	98.9	74-131	0.383	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.6	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.3	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 - HSR Hall 12-31

### 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.



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Jen Pellegrini For Noelle Doyle Mathis, President

**ATTACHMENT B  
SUMP CLOSURE  
REPORT**

August 10, 2016

Mr. Erik Mickelson  
Senior HSE Representative  
Kerr-McGee Oil & Gas Onshore LP  
1099 18<sup>th</sup> Street, Suite 1800  
Denver, Colorado 80202

**Re: Sump Closure Summary Letter Report**  
**HSR-Hall-64N66W31NWSW (HSR-Hall 12-31)**  
**API: 05-123-16753**  
**Facility ID: 329018**  
**Legal: NWSW Sec 31-T4N-R66W**

Dear Mr. Mickelson:

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 as an attachment to the HSR-Hall 64N66W31NWSW Form 27 (Form 27). This project has not yet been assigned a remediation number by the 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 May 27, 2016. Soil and groundwater sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout and sample locations are provided on Figure 1. Field activities associated with the State reportable release related to the produced water sump are summarized in the Form 27.

The final extent of the excavation measured approximately 41 feet by 32 feet with an approximate depth of 11 feet below ground surface (bgs). Approximately 220 cubic yards of impacted material were excavated and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal. A liner was not present at the location. Groundwater was encountered in the excavation area at approximately 11 feet bgs.

Confirmation soil samples were collected from the sidewalls of the excavation area at approximately 10 feet bgs. Soil samples were field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). Confirmation soil samples collected from the sidewalls of the excavation area were submitted to Origins Laboratory in

Denver, Colorado, for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260C, TPH – diesel range and oil range organics (DRO and ORO) by USEPA Method 8015, electrical conductivity (EC), and pH. Soil analytical data is summarized in Table 1 and the laboratory analytical reports are provided as Attachment A.

On May 26, 2016, a groundwater sample (GW01) was collected from the base of the excavation area at approximately 11 feet bgs and submitted to Origins Laboratory for analysis of BTEX. Subsequent to the collection of sample GW01, approximately 80 barrels of groundwater were removed from the excavation area via vacuum truck and transported to a licensed injection facility for disposal. On May 31, 2016, a second groundwater sample (GW02) was collected from the same location within the excavation and submitted for laboratory analysis of BTEX. Groundwater analytical data is summarized in Table 2 and the laboratory analytical reports are provided as Attachment A.

## **Results**

Soil analytical results from the samples collected from the sidewalls of 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 for GW01 indicated that benzene, toluene, and total xylenes concentrations were above the applicable COGCC Table 910-1 groundwater standards. Groundwater analytical results for GW02, collected subsequent to vacuum activities, indicated that benzene, toluene, and total xylenes concentrations within the excavation remained above the applicable COGCC Table 910-1 groundwater standards.

Prior to backfilling the excavation, approximately 220 pounds of activated carbon were introduced to the groundwater table at the base of the excavation to mitigate remaining aqueous phase hydrocarbon impacts. Temporary groundwater monitoring wells will be installed at the site to further assess the extent of groundwater impacts.

## **Conclusions**

Analytical results described herein confirm BTEX and TPH impacts in soil are not present at concentrations above applicable regulatory standards in the former sump location. 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 (303)-507-8869 if you have any questions regarding this report or require additional information.

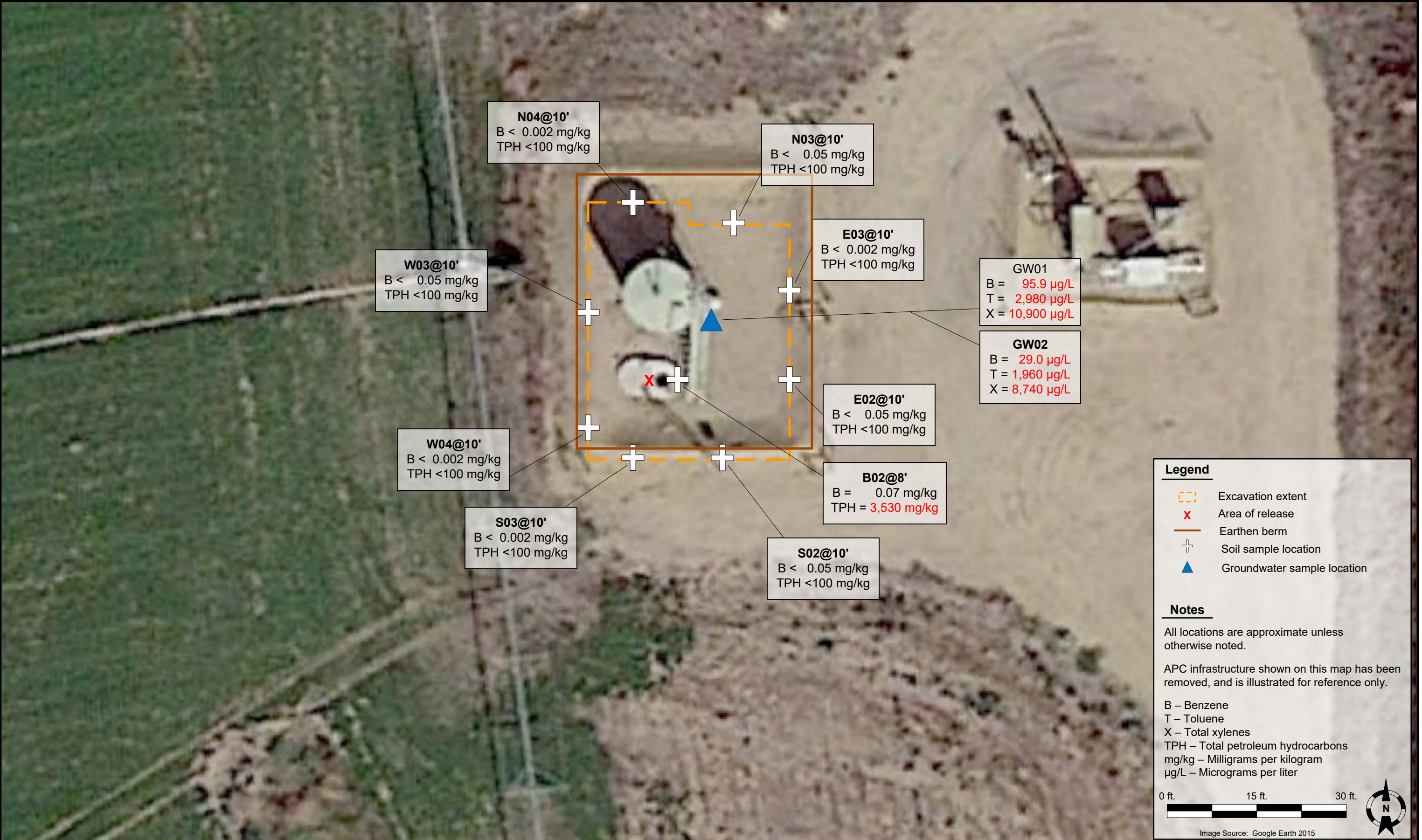
Sincerely,

A handwritten signature in black ink, appearing to read 'MJL', is positioned below the word 'Sincerely,'.

Mike Jahn, P.G.  
Senior Geologist



**FIGURE**



DATE:	June 1, 2016
DESIGNED BY:	B. Nelson
DRAWN BY:	B. Nelson



**Kerr-McGee Oil and Gas Onshore, LP**  
**HSR-Hall 64N66W31NWSW**  
NWSW, Section 31, Township 4 North, Range 66 West  
Weld County, Colorado

Sample Location  
Map

FIGURE  
1

**ANALYTICAL  
TABLES**

**TABLE 1**  
**HSR-HALL 64N66W31NWSW**  
**SOIL SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)	EC (mmhos/cm)	pH (units)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>500</b>			<b>4 mmhos/cm or 2x BG</b>	<b>6-9</b>
B02@8'	05/25/16	8.0	0.07	2.6	8.8	140	<b>2,200</b>	<b>1,200</b>	<b>130</b>	0.0551	7.75
S02@10'	05/26/16	10.0	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.105	8.19
E02@10'	05/26/16	10.0	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0216	8.09
W03@10'	05/27/16	10.0	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0965	8.47
N03@10'	05/27/16	10.0	<0.05	<0.05	<0.05	<0.05	<5.0	<25	<100	0.0133	8.55
W04@10'	05/31/16	10.0	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0184	7.45
N04@10'	05/31/16	10.0	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0354	7.47
E03@10'	05/31/16	10.0	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0124	7.53
S03@10'	05/31/16	10.0	<0.002	<0.002	<0.002	<0.002	<0.200	<25.0	<100	0.0845	7.61

**Notes:**

(1) Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective January 30, 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-HALL 64N66W31NWSW**  
**GROUNDWATER SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample Location	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Depth To Water (ft. bgs)
<b>COGCC Standards for groundwater (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>	
GW01	05/26/16	<b>95.9</b>	<b>2,980</b>	552	<b>10,900</b>	~11
GW02	05/31/16	<b>29.0</b>	<b>1,960</b>	495	<b>8,740</b>	~11

**Notes:**

(1) Standards for groundwater are taken from 2 CCR 404-1, Table 910-1, effective January 30, 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.

**ATTACHMENT A  
LABORATORY  
ANALYTICAL REPORTS**





May 26, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR-Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR-Hall 12-31 received by Origins Laboratory, Inc. May 25, 2016. This project is associated with Origins project number X605318-05.

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: KMG - HSR-Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B02 @ 8	X605318-05	Soil	May 25, 2016 16:42	05/25/2016 17:44

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 - HSR-Hall 12-31

**ORIGINS**  
LABORATORY, INC

www.originslaboratory.com

X60538

page ☐ of ☐

Client: Tasman Geosciences for APC

Address: [blank]

Project Manager: Bob Cornez

Project Name: HSR-Hall 12-31

Project Number: [blank]

Samples Collected By: KMG FOR HSR

Telephone Number: (352) 262-9910

Email Address: CORNEZ@TASMAN-GEOS.COM

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ. #		
N0126	5/25/16	1632	2	X				X			GIOTEX 8260 TPH, DEQ, BAO, SWS pH, EC, SAR, (IF EC, H <sub>2</sub> O)	1
S0126	5/25/16	1634	2	X				X				2
E0126	5/25/16	1636	2	X				X				3
W0126	5/25/16	1638	2	X				X				4
B0228	5/25/16	1642	2	X				X				5
												6
												7
												8
												9
												10

Relinquished By: [Signature]

Relinquished By: [Signature]

Date: 5/25/16

Date: 5/25/16

Time: 1744

Time: 1744

Received By: [Signature]

Received By: [Signature]

Date: 5/25/16

Date: 5/25/16

Time: 1744

Time: 1744

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

Date Results Needed: [blank]

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X605318

Client: Tasman

Client Project ID: HSR Hall 12-31

Checklist Completed by: Jeff Smith

Shipped Via: HTD

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

Date/time completed: 5/25/12

Airbill #: NH

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

Cooler Number/Temperature: 1 18.9 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T603

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>PH</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup>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) Jeff Smith

Date/Time Reviewed 5/25/12

Origins Laboratory, Inc.

*Jeff 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 - HSR-Hall 12-31

**B02 @ 8**  
**5/25/2016 4:42:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605318-05 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	1200	25	mg/kg	1	B6E2502	05/25/2016	05/26/2016
Residual Range Organics (C28-C40)	130	100	"	"	"	"	"

Surrogate: o-Terphenyl	87.3 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	2200	50	mg/kg	250	B6E2506	05/25/2016	05/26/2016
Benzene	0.07	0.05	"	25	"	"	05/25/2016
Toluene	2.6	0.05	"	"	"	"	"
Ethylbenzene	8.8	0.50	"	250	"	"	05/26/2016
Xylenes, total	140	0.50	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	106 %	70-130			"	"	"
Surrogate: Toluene-d8	109 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"

**pH in Soil by EPA 9045D**

pH	7.75		pH Units	1	B6E2507	05/25/2016	05/25/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0551		mmhos/cm	"	B6E2508	05/25/2016	05/25/2016
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Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2506 - EPA 5030 (soil)</b>										
<b>Blank (B6E2506-BLK1)</b>					Prepared: 05/25/2016 Analyzed: 05/25/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		116	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

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Tasman Geosciences  
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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2506 - EPA 5030 (soil)**

**LCS (B6E2506-BS1)**

Prepared: 05/25/2016 Analyzed: 05/25/2016

Benzene	0.09	0.002	mg/kg	0.100		89.6	77.1-124			
Toluene	0.09	0.002	"	0.100		93.4	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		99.5	66.4-127			
m,p-Xylene	0.20	0.004	"	0.200		102	76.6-124			
o-Xylene	0.10	0.002	"	0.100		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		110	70-130			
Surrogate: Toluene-d8	67		"	62.5		107	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	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 - HSR-Hall 12-31

**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 B6E2506 - EPA 5030 (soil)**

Matrix Spike (B6E2506-MS1)		Source: X605309-03			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Benzene	0.08	0.002	mg/kg	0.100	ND	76.5	71.8-126			
Toluene	0.08	0.002	"	0.100	ND	79.5	65.1-130			
Ethylbenzene	0.08	0.002	"	0.100	ND	83.9	62.2-130			
m,p-Xylene	0.17	0.004	"	0.200	ND	86.4	46.5-137			
o-Xylene	0.09	0.002	"	0.100	ND	85.2	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.5	70-130			

Origins Laboratory, Inc.



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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2506 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2506-MSD1)		Source: X605309-03			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Benzene	0.09	0.002	mg/kg	0.100	ND	87.7	71.8-126	13.7	11.3	QR-02
Toluene	0.10	0.002	"	0.100	ND	95.2	65.1-130	17.9	15.4	QR-02
Ethylbenzene	0.10	0.002	"	0.100	ND	96.7	62.2-130	14.1	19.6	
m,p-Xylene	0.20	0.004	"	0.200	ND	99.4	46.5-137	14.0	19.2	
o-Xylene	0.10	0.002	"	0.100	ND	100	54.2-134	16.3	17.9	
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		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

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## 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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

#### Batch B6E2502 - EPA 3580

#### Blank (B6E2502-BLK1)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	43		"	50.0		85.6	59-131			

#### Blank (B6E2502-BLK2)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	44		"	50.0		87.2	59-131			

#### LCS (B6E2502-BS1)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	990	50	mg/kg	1000		98.9	64-121			
Residual Range Organics (C28-C40)	950	200	"	1000		95.4	58-124			
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

#### LCS (B6E2502-BS2)

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	880	50	mg/kg	1000		88.0	64-121			
Residual Range Organics (C28-C40)	950	200	"	1000		95.5	58-124			
Surrogate: o-Terphenyl	44		"	50.0		88.7	59-131			

#### Matrix Spike (B6E2502-MS1)

Source: X605309-03

Prepared: 05/25/2016 Analyzed: 05/25/2016

Diesel (C10-C28)	870	50	mg/kg	1000	ND	87.1	53-125			
Residual Range Organics (C28-C40)	830	200	"	1000	17	81.5	47-133			

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 - HSR-Hall 12-31

## 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
<b>Batch B6E2502 - EPA 3580</b>										
<b>Matrix Spike (B6E2502-MS1)</b>		<b>Source: X605309-03</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Surrogate: o-Terphenyl	40		mg/kg	50.0		80.2	59-131			
<b>Matrix Spike (B6E2502-MS2)</b>		<b>Source: X605317-01</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	850	50	mg/kg	1000	ND	84.9	53-125			
Residual Range Organics (C28-C40)	920	200	"	1000	15	90.4	47-133			
Surrogate: o-Terphenyl	44		"	50.0		88.0	59-131			
<b>Matrix Spike Dup (B6E2502-MSD1)</b>		<b>Source: X605309-03</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	101	53-125	15.2	20	
Residual Range Organics (C28-C40)	980	200	"	1000	17	96.1	47-133	16.5	20	
Surrogate: o-Terphenyl	50		"	50.0		100	59-131			
<b>Matrix Spike Dup (B6E2502-MSD2)</b>		<b>Source: X605317-01</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Diesel (C10-C28)	890	50	mg/kg	1000	ND	89.2	53-125	4.91	20	
Residual Range Organics (C28-C40)	870	200	"	1000	15	85.5	47-133	5.53	20	
Surrogate: o-Terphenyl	42		"	50.0		84.5	59-131			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2507 - NO PREP</b>										
<b>Duplicate (B6E2507-DUP1)</b>		<b>Source: X605309-02</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
pH	7.31		pH Units		7.33			0.273	25	
<b>Batch B6E2508 - NO PREP</b>										
<b>Blank (B6E2508-BLK1)</b>		Prepared: 05/25/2016 Analyzed: 05/25/2016								
Specific Conductance (EC)	0.00260		mmhos/cm							
<b>Duplicate (B6E2508-DUP1)</b>		<b>Source: X605309-02</b>			Prepared: 05/25/2016 Analyzed: 05/25/2016					
Specific Conductance (EC)	0.207		mmhos/cm		0.209			0.962	25	

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR-Hall 12-31

### Notes and Definitions

U Sample is Non-Detect.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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May 27, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR-Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR-Hall 12-31 received by Origins Laboratory, Inc. May 26, 2016. This project is associated with Origins project number X605337-01.

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: KMG - HSR-Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S02 @ 10'	X605337-01	Soil	May 26, 2016 15:15	05/26/2016 17:15
E02 @ 10'	X605337-02	Soil	May 26, 2016 15:04	05/26/2016 17:15
GW01	X605337-03	Water	May 26, 2016 14:58	05/26/2016 17:15

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**ORIGINS**  
LABORATORY, INC

www.originslaboratory.com

page 1 of 1

**Client:** Tasman Geosciences for APC

**Address:**

**Telephone Number:** (352) 262-9910

**Email Address:** jcornez@tasman-geo.com

**Project Manager:** Bob Cornez

**Project Name:** HSR Hall 12-31

**Project Number:**

**Samples Collected By:** KMG HSR Hall

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Sample		
S02010'	5/24/16	1515	2	X				X			GPTEX 82760 TPH 100/200 8015 PAH EL, SARL (F EC 74.0)	1
E02010'	5/24/16	1504	2	X				X				2
EW01	5/24/16	1458	3	X					X		BTX 8260	3
												4
												5
												6
												7
												8
												9
												10

**Relinquished By:** [Signature]

**Relinquished By:** [Signature]

**Date:** 5/24/16

**Date:** 5/24/16

**Time:** 1701

**Time:** 1715

**Received By:** [Signature]

**Received By:** [Signature]

**Date:** 5-26-16

**Date:** 5-26-16

**Time:** 1715

**Time:** 1715

**Turnaround Time:** 97 24 Hr ☒ 48 Hr ☐ 72 Hr ☐

**Standard:** ☒

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 4605337

Client: Tasman

Client Project ID: HSR Hall 12-31

Checklist Completed by: Jeff Smith

Shipped Via: STTD Bulk 40  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 5/26/12

Airbill #: N/A

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

Cooler Number/Temperature: 1 19.7 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T203

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>PA</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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"/>	<u>5/16/12</u> <u>TCB</u>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

<sup>(1)</sup>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]

5/26/12 1948  
Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**S02 @ 10'**  
**5/26/2016 3:15:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2606	05/26/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 63.0 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2601	05/26/2016	05/26/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 100 % 70-130 " " "  
*Surrogate: Toluene-d8* 106 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 99.7 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.19		pH Units	1	B6E2608	05/26/2016	05/26/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.105		mmhos/cm	"	B6E2609	"	"	
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Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**E02 @ 10'**  
**5/26/2016 3:04:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2606	05/26/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

*Surrogate: o-Terphenyl* 65.9 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2601	05/26/2016	05/26/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

*Surrogate: 1,2-Dichloroethane-d4* 104 % 70-130 " " "  
*Surrogate: Toluene-d8* 103 % 70-130 " " "  
*Surrogate: 4-Bromofluorobenzene* 99.2 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.09		pH Units	1	B6E2608	05/26/2016	05/26/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0216		mmhos/cm	"	B6E2609	"	"	
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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

GW01

5/26/2016 2:58:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605337-03 (Water)**

**BTEX by EPA 8260C**

Benzene	95.9	4.0	ug/L	4	B6E2603	05/26/2016	05/26/2016
Toluene	2980	50.0	"	50	"	"	05/26/2016
Ethylbenzene	552	50.0	"	"	"	"	"
Xylenes, total	10900	50.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	84-121			"	"	"
Surrogate: Toluene-d8	99.3 %	85-115			"	"	"
Surrogate: 4-Bromofluorobenzene	98.5 %	84-114			"	"	"

Origins Laboratory, Inc.



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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2601 - EPA 5030 (soil)</b>										
<b>Blank (B6E2601-BLK1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	67		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		108	70-130			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2601 - EPA 5030 (soil)</b>										
<b>LCS (B6E2601-BS1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100		100	77.1-124			
Toluene	0.10	0.002	"	0.100		97.7	74.5-128			
Ethylbenzene	0.10	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		105	76.6-124			
o-Xylene	0.10	0.002	"	0.100		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	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 - HSR-Hall 12-31

**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 B6E2601 - EPA 5030 (soil)**

Matrix Spike (B6E2601-MS1)		Source: X605312-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	105	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	101	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	107	62.2-130			
m,p-Xylene	0.22	0.004	"	0.200	ND	111	46.5-137			
o-Xylene	0.11	0.002	"	0.100	ND	107	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		114	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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 B6E2601 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2601-MSD1)		Source: X605312-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	0.10	0.002	mg/kg	0.100	ND	102	71.8-126	2.15	11.3	
Toluene	0.10	0.002	"	0.100	ND	99.8	65.1-130	1.63	15.4	
Ethylbenzene	0.10	0.002	"	0.100	ND	105	62.2-130	2.35	19.6	
m,p-Xylene	0.22	0.004	"	0.200	ND	108	46.5-137	2.40	19.2	
o-Xylene	0.11	0.002	"	0.100	ND	106	54.2-134	1.26	17.9	
Surrogate: 1,2-Dichloroethane-d4	72		ug/kg	62.5		115	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

**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
<b>Batch B6E2603 - EPA 5030B (Water)</b>										
<b>Blank (B6E2603-BLK1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
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	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	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 - HSR-Hall 12-31

**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
<b>Batch B6E2603 - EPA 5030B (Water)</b>										
<b>LCS (B6E2603-BS1)</b>					Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	47.2	1.0	ug/L	50.0		94.5	73.3-129			
Toluene	46.5	1.0	"	50.0		93.0	76.2-123			
Ethylbenzene	50.2	1.0	"	50.0		100	73.6-130			
m,p-Xylene	105	2.0	"	100		105	76.1-126			
o-Xylene	51.5	1.0	"	50.0		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.2	85-115			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	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 - HSR-Hall 12-31

**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 B6E2603 - EPA 5030B (Water)**

Matrix Spike (B6E2603-MS1)		Source: X605319-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	54.9	1.0	ug/L	50.0	0.1	110	74-130			
Toluene	54.1	1.0	"	50.0	0.1	108	73-131			
Ethylbenzene	57.1	1.0	"	50.0	ND	114	76-132			
m,p-Xylene	118	2.0	"	100	ND	118	69-139			
o-Xylene	57.9	1.0	"	50.0	ND	116	74-131			
Surrogate: 1,2-Dichloroethane-d4	70		"	62.5		112	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.3	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 - HSR-Hall 12-31

**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 B6E2603 - EPA 5030B (Water)**

Matrix Spike Dup (B6E2603-MSD1)		Source: X605319-01			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Benzene	50.9	1.0	ug/L	50.0	0.1	102	74-130	7.54	20	
Toluene	51.2	1.0	"	50.0	0.1	102	73-131	5.41	20	
Ethylbenzene	53.2	1.0	"	50.0	ND	106	76-132	7.04	20	
m,p-Xylene	111	2.0	"	100	ND	111	69-139	5.99	20	
o-Xylene	53.5	1.0	"	50.0	ND	107	74-131	7.99	20	
Surrogate: 1,2-Dichloroethane-d4	71		"	62.5		113	84-121			
Surrogate: Toluene-d8	61		"	62.5		98.0	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 - HSR-Hall 12-31

## 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 B6E2606 - EPA 3580

#### Blank (B6E2606-BLK1)

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		83.5	59-131			

#### Blank (B6E2606-BLK2)

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.3	59-131			

#### LCS (B6E2606-BS1)

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	910	50	mg/kg	1000		91.2	64-121			
Residual Range Organics (C28-C40)	920	200	"	1000		91.9	58-124			
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

#### LCS (B6E2606-BS2)

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	910	50	mg/kg	1000		91.2	64-121			
Residual Range Organics (C28-C40)	920	200	"	1000		91.9	58-124			
Surrogate: o-Terphenyl	47		"	50.0		93.1	59-131			

#### Matrix Spike (B6E2606-MS1)

Source: X605302-06

Prepared: 05/26/2016 Analyzed: 05/26/2016

Diesel (C10-C28)	840	50	mg/kg	1000	ND	84.5	53-125			
Residual Range Organics (C28-C40)	930	200	"	1000	48	88.6	47-133			

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## 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
<b>Batch B6E2606 - EPA 3580</b>										
<b>Matrix Spike (B6E2606-MS1)</b>		<b>Source: X605302-06</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Surrogate: o-Terphenyl	42		mg/kg	50.0		83.1	59-131			
<b>Matrix Spike (B6E2606-MS2)</b>		<b>Source: X605335-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	880	50	mg/kg	1000	ND	87.6	53-125			
Residual Range Organics (C28-C40)	930	200	"	1000	22	90.4	47-133			
Surrogate: o-Terphenyl	42		"	50.0		84.2	59-131			
<b>Matrix Spike Dup (B6E2606-MSD1)</b>		<b>Source: X605302-06</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	890	50	mg/kg	1000	ND	88.7	53-125	4.82	20	
Residual Range Organics (C28-C40)	1000	200	"	1000	48	95.2	47-133	7.20	20	
Surrogate: o-Terphenyl	44		"	50.0		87.8	59-131			
<b>Matrix Spike Dup (B6E2606-MSD2)</b>		<b>Source: X605335-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Diesel (C10-C28)	1000	50	mg/kg	1000	ND	101	53-125	14.1	20	
Residual Range Organics (C28-C40)	1000	200	"	1000	22	98.2	47-133	8.28	20	
Surrogate: o-Terphenyl	52		"	50.0		103	59-131			

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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR-Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2608 - NO PREP</b>										
<b>Duplicate (B6E2608-DUP1)</b>		<b>Source: X605332-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
pH	8.23		pH Units		8.22			0.122	25	
<b>Batch B6E2609 - NO PREP</b>										
<b>Blank (B6E2609-BLK1)</b>		Prepared: 05/26/2016 Analyzed: 05/26/2016								
Specific Conductance (EC)	0.00310		mmhos/cm							
<b>Duplicate (B6E2609-DUP1)</b>		<b>Source: X605332-01</b>			Prepared: 05/26/2016 Analyzed: 05/26/2016					
Specific Conductance (EC)	0.207		mmhos/cm		0.209			0.962	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR-Hall 12-31

### 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.*

Jen Pellegrini For Noelle Doyle Mathis, President



May 31, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 27, 2016. This project is associated with Origins project number X605348-01.

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: KMG - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W03@10'	X605348-01	Soil	May 27, 2016 13:01	05/27/2016 15:40
N03@10'	X605348-02	Soil	May 27, 2016 13:13	05/27/2016 15:40

Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

www.originslaboratory.com page 1 of 1

**X605348**

**ORIGINS** LABORATORY, INC

Client: APC  
Address: \_\_\_\_\_  
Telephone Number: 303-889-1525  
Email Address: YCornez@hsr.hall-12-31.com

Project Manager: Robert Cornez  
Project Name: HSR Hall 12-31  
Project Number: \_\_\_\_\_  
Samples Collected By: Zachary Mathis

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ #	Other	EC	pH	TOC	
W03e10'	5/27/16	13:01	2	X				X				X	X	X	Today by 7AM
N03e10'	5/27/16	13:13	2	X				X				X	X	X	Today by 7AM
Relinquished By: <u>Zachary Mathis</u>	Date: <u>5/27/16</u>	Time: <u>1540</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"/>
Relinquished By: _____	Date: _____	Time: _____													

Temp Received: 4.7 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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: 1605348

Client: Tasman Geosciences

Client Project ID: HSR Hall 12-31

Checklist Completed by: Joe Henderson

Shipped Via: Hand Pick up 5/27

Date/time completed: 5/27/12 1624

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

Airbill #: \_\_\_\_\_

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

Cooler Number/Temperature: 1 / 6.7 °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 <sup>(1)</sup> ?		<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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>pH</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> 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) Joe Henderson

Date/Time Reviewed 5/27/12

Origins Laboratory, Inc.

*Joe 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 - HSR Hall 12-31

W03@10'  
5/27/2016 1:01:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605348-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2704	05/27/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 75.5 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2702	05/27/2016	05/27/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 98.8 % 70-130 " " "  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 99.1 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.47		pH Units	1	B6E2703	05/27/2016	05/27/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0965		mmhos/cm	"	B6E2709	05/27/2016	05/27/2016	
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Origins Laboratory, Inc.



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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

N03@10'  
5/27/2016 1:13:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605348-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25	mg/kg	1	B6E2704	05/27/2016	05/27/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 74.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	5.0	mg/kg	25	B6E2702	05/27/2016	05/27/2016	U
Benzene	ND	0.05	"	"	"	"	"	U
Toluene	ND	0.05	"	"	"	"	"	U
Ethylbenzene	ND	0.05	"	"	"	"	"	U
Xylenes, total	ND	0.05	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 97.2 % 70-130 " " "  
Surrogate: Toluene-d8 100 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 99.7 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	8.55	pH Units	1	B6E2703	05/27/2016	05/27/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0133	mmhos/cm	"	B6E2709	05/27/2016	05/27/2016
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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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
<b>Batch B6E2702 - EPA 5030 (soil)</b>										
<b>Blank (B6E2702-BLK1)</b>					Prepared: 05/27/2016 Analyzed: 05/27/2016					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		99.5	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	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 - HSR Hall 12-31

**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
<b>Batch B6E2702 - EPA 5030 (soil)</b>										
<b>LCS (B6E2702-BS1)</b>					Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.12	0.002	mg/kg	0.100		120	77.1-124			
Toluene	0.12	0.002	"	0.100		116	74.5-128			
Ethylbenzene	0.12	0.002	"	0.100		115	66.4-127			
m,p-Xylene	0.23	0.004	"	0.200		116	76.6-124			
o-Xylene	0.11	0.002	"	0.100		112	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.8	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 - HSR Hall 12-31

**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 B6E2702 - EPA 5030 (soil)**

Matrix Spike (B6E2702-MS1)		Source: X605285-01			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	114	71.8-126			
Toluene	0.11	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.11	0.002	"	0.100	0.0007	112	62.2-130			
m,p-Xylene	0.23	0.004	"	0.200	0.002	114	46.5-137			
o-Xylene	0.11	0.002	"	0.100	0.0003	110	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.9	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 - HSR Hall 12-31

**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 B6E2702 - EPA 5030 (soil)**

Matrix Spike Dup (B6E2702-MSD1)		Source: X605285-01			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Benzene	0.11	0.002	mg/kg	0.100	ND	106	71.8-126	7.38	11.3	
Toluene	0.10	0.002	"	0.100	ND	103	65.1-130	8.71	15.4	
Ethylbenzene	0.10	0.002	"	0.100	0.0007	99.2	62.2-130	12.3	19.6	
m,p-Xylene	0.20	0.004	"	0.200	0.002	101	46.5-137	11.8	19.2	
o-Xylene	0.10	0.002	"	0.100	0.0003	98.9	54.2-134	11.0	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.0	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

## 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 B6E2704 - EPA 3580

#### Blank (B6E2704-BLK1)

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	ND	50	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	42		"	50.0		84.1	59-131			

#### LCS (B6E2704-BS1)

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	750	50	mg/kg	1000		75.1	64-121			
Residual Range Organics (C28-C40)	860	200	"	1000		86.5	58-124			
Surrogate: o-Terphenyl	43		"	50.0		85.7	59-131			

#### Matrix Spike (B6E2704-MS1)

Source: X605320-01

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	960	50	mg/kg	1000	ND	96.3	53-125			
Residual Range Organics (C28-C40)	1000	200	"	1000	14	99.7	47-133			
Surrogate: o-Terphenyl	47		"	50.0		93.0	59-131			

#### Matrix Spike Dup (B6E2704-MSD1)

Source: X605320-01

Prepared: 05/27/2016 Analyzed: 05/27/2016

Diesel (C10-C28)	840	50	mg/kg	1000	ND	84.2	53-125	13.5	20	
Residual Range Organics (C28-C40)	850	200	"	1000	14	83.7	47-133	17.4	20	
Surrogate: o-Terphenyl	42		"	50.0		84.0	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 - HSR Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E2703 - NO PREP</b>										
<b>Duplicate (B6E2703-DUP1)</b>		<b>Source: X605302-05</b>			Prepared: 05/27/2016 Analyzed: 05/27/2016					
pH	7.57		pH Units		7.81			3.12	25	
<b>Batch B6E2709 - NO PREP</b>										
<b>Blank (B6E2709-BLK1)</b>		Prepared: 05/27/2016 Analyzed: 05/27/2016								
Specific Conductance (EC)	0.00230		mmhos/cm							
<b>Duplicate (B6E2709-DUP1)</b>		<b>Source: X605302-05</b>			Prepared: 05/27/2016 Analyzed: 05/27/2016					
Specific Conductance (EC)	0.0212		mmhos/cm		0.0199			6.33	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR Hall 12-31

### 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.*

Jen Pellegrini For Noelle Doyle Mathis, President

June 01, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

**Project Name - KMG - HSR Hall 12-31**

**Project Number - [none]**

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 31, 2016. This project is associated with Origins project number X605367-01.

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 - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W04@10'	X605367-01	Soil	May 31, 2016 10:15	05/31/2016 17:00
N04@10'	X605367-02	Soil	May 31, 2016 11:05	05/31/2016 17:00
E03@10'	X605367-03	Soil	May 31, 2016 10:21	05/31/2016 17:00
S03@10'	X605367-04	Soil	May 31, 2016 10:27	05/31/2016 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

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**ORIGINS**

LABORATORY, INC.

www.originslaboratory.com

page 1 of 1

Client: T Smen Co

Project Manager:

Bob Cornuz

Address:

Project Name:

HSR-11-11 12-31

Project Number:

Bucklin

Telephone Number:

912 230 2807

Samples Collected By:

Bucklin

Email Address: vcornuz@tsmco.com

AK Inmate Sam Lake

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other		
W04(2)10'	5/31/16	1015	2	X					X			COSTCO 827X TVA EC/RH SIS	1
K04(2)10'	5/31/16	1015	2	X					X			X + +	2
E03(2)10'	5/31/16	1021	2	X					X			X X X	3
S03(2)10'	5/31/16	1027	2	X					X			X X X	4
													5
													6
													7
													8
													9
													10
Relinquished By:	Date: 5/31/16	Time: 	Received By:	Date: 5/31/16	Time: 1700	Turnaround Time: Same Day X 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>							
Relinquished By:	Date: 5/31/16	Time: 	Received By:	Date: 5/31/16	Time: 								

Temp Received: 9.9

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellipini

*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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: X605367

Client: Tasman Geosciences

Client Project ID: HSR-Hall 12-31

Checklist Completed by: J. Pellegrini

Shipped Via: 2 Day

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

Date/time completed: 5/31/12 1749

Airbill #: NA

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

Cooler Number/Temperature: 1 / 18.9 °C 1 °C 1 °C 1 °C (Describe)

Thermometer ID: TG03

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled Successfully</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			<u>pit</u>
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> 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.

*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 - HSR Hall 12-31

W04@10'

5/31/2016 10:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-01 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	05/31/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 68.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	05/31/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 99.1 % 70-130 " " "  
Surrogate: Toluene-d8 99.2 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.45	pH Units	1	B6E3106	05/31/2016	05/31/2016
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0184	mmhos/cm	"	B6E3107	"	05/31/2016
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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 - HSR Hall 12-31

N04@10'

5/31/2016 11:05:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-02 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	06/01/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 44.7 % 59-131 " " " S-DUP

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	05/31/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "

Surrogate: Toluene-d8 95.4 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.47		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0354		mmhos/cm	"	B6E3107	"	05/31/2016	
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Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

E03@10'

5/31/2016 10:21:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-03 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	05/31/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 65.2 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	06/01/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 98.1 % 70-130 " " "  
Surrogate: Toluene-d8 99.0 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.53		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0124		mmhos/cm	"	B6E3107	"	05/31/2016	
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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 - HSR Hall 12-31

S03@10'

5/31/2016 10:27:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X605367-04 (Soil)**

**DRO/RRO by EPA8015C**

Diesel (C10-C28)	ND	25.0	mg/kg	1	B6E3104	05/31/2016	06/01/2016	U
Residual Range Organics (C28-C40)	ND	100	"	"	"	"	"	U

Surrogate: o-Terphenyl 67.6 % 59-131 " " "

**GBTEX by EPA 8260C**

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B6E3103	05/31/2016	06/01/2016	U
Benzene	ND	0.002	"	"	"	"	"	U
Toluene	ND	0.002	"	"	"	"	"	U
Ethylbenzene	ND	0.002	"	"	"	"	"	U
Xylenes, total	ND	0.002	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4 99.6 % 70-130 " " "  
Surrogate: Toluene-d8 99.0 % 70-130 " " "  
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

**pH in Soil by EPA 9045D**

pH	7.61		pH Units	1	B6E3106	05/31/2016	05/31/2016	
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**Specific Conductance by Modified 9050A**

Specific Conductance (EC)	0.0845		mmhos/cm	"	B6E3107	"	05/31/2016	
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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 - HSR Hall 12-31

**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
<b>Batch B6E3103 - EPA 5030 (soil)</b>										
<b>Blank (B6E3103-BLK1)</b>					Prepared: 05/31/2016 Analyzed: 05/31/2016					
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	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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
<b>Batch B6E3103 - EPA 5030 (soil)</b>										
<b>LCS (B6E3103-BS1)</b>					Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	0.110	0.002	mg/kg	0.100		110	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.104	0.002	"	0.100		104	66.4-127			
m,p-Xylene	0.207	0.004	"	0.200		103	76.6-124			
o-Xylene	0.101	0.002	"	0.100		101	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.2	70-130			

Origins Laboratory, Inc.



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



Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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
<b>Batch B6E3103 - EPA 5030 (soil)</b>										
<b>Matrix Spike (B6E3103-MS1)</b>		<b>Source: X605346-25</b>			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	0.118	0.002	mg/kg	0.100	ND	118	71.8-126			
Toluene	0.112	0.002	"	0.100	ND	112	65.1-130			
Ethylbenzene	0.111	0.002	"	0.100	ND	111	62.2-130			
m,p-Xylene	0.222	0.004	"	0.200	ND	111	46.5-137			
o-Xylene	0.108	0.002	"	0.100	ND	108	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.5	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.2	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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 B6E3103 - EPA 5030 (soil)**

Matrix Spike Dup (B6E3103-MSD1)		Source: X605346-25			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	0.111	0.002	mg/kg	0.100	ND	111	71.8-126	6.38	11.3	
Toluene	0.105	0.002	"	0.100	ND	105	65.1-130	6.15	15.4	
Ethylbenzene	0.102	0.002	"	0.100	ND	102	62.2-130	8.71	19.6	
m,p-Xylene	0.205	0.004	"	0.200	ND	103	46.5-137	7.72	19.2	
o-Xylene	0.100	0.002	"	0.100	ND	100	54.2-134	7.62	17.9	
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.4	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.7	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

## 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 B6E3104 - EPA 3580

#### Blank (B6E3104-BLK1)

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	ND	50.0	mg/kg							U
Residual Range Organics (C28-C40)	ND	200	"							U
Surrogate: o-Terphenyl	35		"	50.0		69.0	59-131			

#### LCS (B6E3104-BS1)

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	808	50.0	mg/kg	1000		80.8	64-121			
Residual Range Organics (C28-C40)	772	200	"	1000		77.2	58-124			
Surrogate: o-Terphenyl	39		"	50.0		77.3	59-131			

#### Matrix Spike (B6E3104-MS1)

Source: X605346-25

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	771	50.0	mg/kg	1000	ND	77.1	53-125			
Residual Range Organics (C28-C40)	759	200	"	1000	14.9	74.4	47-133			
Surrogate: o-Terphenyl	37		"	50.0		73.3	59-131			

#### Matrix Spike Dup (B6E3104-MSD1)

Source: X605346-25

Prepared: 05/31/2016 Analyzed: 05/31/2016

Diesel (C10-C28)	765	50.0	mg/kg	1000	ND	76.5	53-125	0.858	20	
Residual Range Organics (C28-C40)	736	200	"	1000	14.9	72.1	47-133	3.11	20	
Surrogate: o-Terphenyl	32		"	50.0		64.9	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 - HSR Hall 12-31

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B6E3106 - NO PREP</b>										
<b>Duplicate (B6E3106-DUP1)</b>		<b>Source: X605363-01</b>			Prepared: 05/31/2016 Analyzed: 05/31/2016					
pH	7.20		pH Units		7.13			0.977	25	
<b>Batch B6E3107 - NO PREP</b>										
<b>Blank (B6E3107-BLK1)</b>		Prepared: 05/31/2016 Analyzed: 05/31/2016								
Specific Conductance (EC)	0.00300		mmhos/cm							
<b>Duplicate (B6E3107-DUP1)</b>		<b>Source: X605363-01</b>			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Specific Conductance (EC)	0.0264		mmhos/cm		0.0212			21.8	25	

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR Hall 12-31

### Notes and Definitions

U Sample is Non-Detect.

S-DUP Duplicate analysis confirmed surrogate failure due to matrix effects.

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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June 01, 2016

Tasman Geosciences

Bob Cornez

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - HSR Hall 12-31

Project Number - [none]

Attached are your analytical results for KMG - HSR Hall 12-31 received by Origins Laboratory, Inc. May 31, 2016. This project is associated with Origins project number X605368-01.

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: KMG - HSR Hall 12-31

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	X605368-01	Water	May 31, 2016 14:30	05/31/2016 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 - HSR Hall 12-31

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page 1 of 1  
X65368

Project Manager: Bob Cornez  
Project Name: HSR Hall 12-31  
Project Number:  
Samples Collected By: Kate Forman

Client: Tasman Geosciences for APC  
Address:  
Telephone Number: (352) 262-9910  
Email Address: noelle@tasman-ga.com

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summ. #		
C1W02	5/21/16	1430	3	X	X			X			BEX 8260	1
												2
												3
												4
												5
												6
												7
												8
												9
												10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
Kate Forman	5/21/16	1640	Kate Forman	5-31-16	1700	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"/>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	

Date Results Needed

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 - HSR Hall 12-31

Origins Laboratory

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

## Sample Receipt Checklist

Origins Work Order: XL05368

Client: Tasman Geosciences

Client Project ID: HSR-Hall12-31

Checklist Completed by: Joe Henderson

Shipped Via: Pickup

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

Date/time completed: 5/31/16 1756

Airbill #: NA

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

Cooler Number/Temperature: 1 18.9 °C 1 °C 1 °C (Describe) °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		<u>Sampled Sunday</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 <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<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 <sup>(1)</sup> ? (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 <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH >10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

<sup>(1)</sup>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 5/31/16

Origins Laboratory, Inc.

*Joe Pellegrini*

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Tasman Geosciences  
6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

## GW02

5/31/2016 2:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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### Origins Laboratory, Inc. X605368-01 (Water)

#### BTEX by EPA 8260C

Benzene	29.0	4.00	ug/L	4	B6E3101	05/31/2016	05/31/2016
Toluene	1960	50.0	"	50	"	"	05/31/2016
Ethylbenzene	495	4.00	"	4	"	"	05/31/2016
Xylenes, total	8740	50.0	"	50	"	"	05/31/2016

Surrogate: 1,2-Dichloroethane-d4	91.4 %	84-121			"	"	"
Surrogate: Toluene-d8	101 %	85-115			"	"	05/31/2016
Surrogate: 4-Bromofluorobenzene	97.0 %	84-114			"	"	"

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C  
Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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
<b>Batch B6E3101 - EPA 5030B (Water)</b>										
<b>Blank (B6E3101-BLK1)</b>					Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5	106		84-121			
Surrogate: Toluene-d8	62		"	62.5	98.7		85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.1		84-114			

Origins Laboratory, Inc.



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Denver CO 80211

Bob Cornez  
Project Number: [none]  
Project: KMG - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

**LCS (B6E3101-BS1)**

Prepared: 05/31/2016 Analyzed: 05/31/2016

Benzene	48.7	1.00	ug/L	50.0		97.4	73.3-129			
Toluene	47.4	1.00	"	50.0		94.8	76.2-123			
Ethylbenzene	45.2	1.00	"	50.0		90.5	73.6-130			
m,p-Xylene	91.5	2.00	"	100		91.5	76.1-126			
o-Xylene	44.1	1.00	"	50.0		88.2	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66		"	62.5		106	84-121			
Surrogate: Toluene-d8	61		"	62.5		97.6	85-115			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.7	84-114			

Origins Laboratory, Inc.



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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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**Batch B6E3101 - EPA 5030B (Water)**

Matrix Spike (B6E3101-MS1)		Source: X605344-01			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	52.2	1.00	ug/L	50.0	ND	104	74-130			
Toluene	51.5	1.00	"	50.0	ND	103	73-131			
Ethylbenzene	51.1	1.00	"	50.0	ND	102	76-132			
m,p-Xylene	102	2.00	"	100	ND	102	69-139			
o-Xylene	49.6	1.00	"	50.0	ND	99.3	74-131			
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		101	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.7	84-114			

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Project: KMG - HSR Hall 12-31

**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 B6E3101 - EPA 5030B (Water)**

Matrix Spike Dup (B6E3101-MSD1)		Source: X605344-01			Prepared: 05/31/2016 Analyzed: 05/31/2016					
Benzene	51.6	1.00	ug/L	50.0	ND	103	74-130	1.16	20	
Toluene	50.8	1.00	"	50.0	ND	102	73-131	1.35	20	
Ethylbenzene	50.3	1.00	"	50.0	ND	101	76-132	1.64	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	1.59	20	
o-Xylene	49.4	1.00	"	50.0	ND	98.9	74-131	0.383	20	
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	62		"	62.5		99.6	85-115			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.3	84-114			

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Bob Cornez

Project Number: [none]

Project: KMG - HSR Hall 12-31

### 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.



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