

ANALYTICAL TABLES

TABLE 1
UPRR 42 PAN AM X#1
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH - GRO (mg/kg)	TEPH - DRO + ORO (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500	
N01@2'	10/1/2014	2	<0.002	<0.002	<0.002	<0.002	<0.200	<200
W01@2'	10/1/2014	2	<0.002	<0.002	0.246	0.468	48.2	160
E02@2'	10/2/2014	2	<0.002	<0.002	0.004	0.01	<50	<200
S02@2'	10/2/2014	2	<0.002	<0.002	<0.002	<0.002	<50	<200
N02@2'	10/2/2014	2	<0.002	<0.002	<0.002	<0.002	<50	<200
W02@2'	10/2/2014	2	<0.002	<0.002	<0.002	<0.002	<50	<200
S04@2'	10/3/2014	2	<0.002	<0.002	0.03	0.01	<50	<200
E04@2'	10/3/2014	2	<0.002	<0.002	0.004	0.01	<50	<200

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

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

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

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

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

mg/kg = Milligrams per kilogram.

bgs = Below ground surface.

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

TABLE 2
UPRR 42 PAN AM X#1
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
COGCC Table 910-1 Groundwater Standard (ug/L) ⁽¹⁾		5	560	700	1,400
GW01	10/1/2014	110	74.0	24.6	320
GW02	10/6/2014	<1.0	<1.0	1.4	27.3

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

ug/L = Micrograms per liter

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

= Analytical result is in exceedance of COGCC groundwater standards.

LABORATORY ANALYTICAL REPORTS

October 02, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - UPRR 42 Pan Am X #1**Project Number - [none]**

Attached are your analytical results for KMG - UPRR 42 Pan Am X #1 received by Origins Laboratory, Inc. October 01, 2014. This project is associated with Origins project number X410016-01.

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

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW01	X410016-01	Water	October 1, 2014 11:45	10/01/2014 17:30
N01 @ 2'	X410016-02	Soil	October 1, 2014 12:10	10/01/2014 17:30
W01 @ 2'	X410016-03	Soil	October 1, 2014 12:15	10/01/2014 17:30

Origins Laboratory, Inc.



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

Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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page 1 of 1

ORIGINS
LABORATORY, INC

X410014

Client: Christine Wasko
Address: 6899 Pecos Street, Unit C
Telephone Number: 303.265.9645
Email Address: Christine.Wasko@tasman-geo.com

Project Manager: Christine Wasko
Project Name: UPRR 42 Pan Am X #1
Project Number:
Samples Collected By: C. Wasko

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Sampling Container #	Other		
GWD1	10/1/14	1145	3	X	X			X				BTEX only	1
NOLQ2	10/1/14	1210	1	X				X				BTEX 8260 X 8260 8260 8260	2
WBLQ2	10/1/14	1215	1	X				X				8260 8260	3
													4
													5
													6
													7
													8
													9
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> DEPARTING 6:30 PLEASED </div>													
Requisitioned By: 	Date: 10/1/14	Time: 12:30											Unpreserved Time: 24 hr <input type="checkbox"/> Same Day <input checked="" type="checkbox"/> 48 hr <input type="checkbox"/> 72 hr <input type="checkbox"/> Standards: 2.0
Requisitioned By: 	Date: 10/1/14	Time: 17:30											

Date Results Needed

Origins Laboratory, Inc.

[Signature]

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Origins Laboratory

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

Sample Receipt Checklist

Original Work Order: XU10016

Client: Tasman

Client Project ID: UPRR 42 Pan Am X #1

Checklist Completed by: Jan Bellaguid

Shipped Via: HIP

Date/time completed: 10-1-14

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

Airbill #: 1112

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

Cooler Number/Temperature: 1 / 20 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: T002

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

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

Jan Bellaguid
Reviewed by (Project Manager)

10/1/14
Date/Time Reviewed

Origins Laboratory, Inc.

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

GW01

10/1/2014 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410016-01 (Water)

BTEX by EPA 8260C

Benzene	110	1.0	ug/L	1	4130014	10/01/2014	10/02/2014
Toluene	74.0	1.0	"	"	"	"	"
Ethylbenzene	24.6	1.0	"	"	"	"	"
Xylenes, total	320	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113			"	"	"
Surrogate: Toluene-d8	101 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

N01 @ 2'

10/1/2014 12:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410016-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	4J01012	10/01/2014	10/02/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	75.1 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4J01011	10/01/2014	10/01/2014
Benzene	ND	0.0020	"	"	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	ND	0.0020	"	"	"	"	"
Xylenes, total	ND	0.0020	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	90.8 %	70-130			"	"	"
Surrogate: Toluene-d8	98.6 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

W01 @ 2'
10/1/2014 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410016-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	160	50	mg/kg	1	4J01012	10/01/2014	10/02/2014
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	72.4 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	48.2	10.0	mg/kg	50	4J01011	10/01/2014	10/02/2014
Benzene	ND	0.0020	"	1	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	0.246	0.100	"	50	"	"	"
Xylenes, total	0.468	0.100	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	100 %	70-130			"	"	"
Surrogate: Toluene-d8	97.1 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	106 %	70-130			"	"	"

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4130014 - EPA 5030B (Water)

Blank (4130014-BLK1)

Prepared: 09/30/2014 Analyzed: 10/01/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5	105		87.3-113			
Surrogate: Toluene-d8	61		"	62.5	98.3		90.9-108			
Surrogate: 4-Bromofluorobenzene	64		"	62.5	102		88.6-111			

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4I30014 - EPA 5030B (Water)

LCS (4I30014-BS1)

Prepared: 09/30/2014 Analyzed: 10/01/2014

Benzene	43.5	1.0	ug/L	50.0	87.0	75-126
Toluene	43.7	1.0	"	50.0	87.5	78.7-126
Ethylbenzene	44.9	1.0	"	50.0	89.8	81-130
m,p-Xylene	89.8	2.0	"	100	89.8	77.2-133
o-Xylene	43.9	1.0	"	50.0	87.7	77.9-126
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5	96.0	87.3-113
Surrogate: Toluene-d8	62		"	62.5	98.5	90.9-108
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101	88.6-111

Origins Laboratory, Inc.



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6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4130014 - EPA 5030B (Water)

Matrix Spike (4130014-MS1)		Source: X409307-02			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Benzene	49.0	1.0	ug/L	50.0	ND	97.9	74-130			
Toluene	49.4	1.0	"	50.0	0.2	98.5	73-131			
Ethylbenzene	50.8	1.0	"	50.0	ND	102	76-132			
m,p-Xylene	101	2.0	"	100	ND	101	69-139			
o-Xylene	49.6	1.0	"	50.0	ND	99.2	74-131			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.3	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		99.0	90.9-108			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	88.6-111			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4130014 - EPA 5030B (Water)

Matrix Spike Dup (4130014-MSD1)		Source: X409307-02			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Benzene	47.0	1.0	ug/L	50.0	ND	93.9	74-130	4.17	20	
Toluene	47.9	1.0	"	50.0	0.2	95.4	73-131	3.19	20	
Ethylbenzene	48.4	1.0	"	50.0	ND	96.7	76-132	4.92	20	
m,p-Xylene	95.8	2.0	"	100	ND	95.8	69-139	5.64	20	
o-Xylene	47.9	1.0	"	50.0	ND	95.7	74-131	3.53	20	
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.4	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		99.2	90.9-108			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	88.6-111			

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Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J01011 - EPA 5030 (soil)

Blank (4J01011-BLK1)

Prepared: 10/01/2014 Analyzed: 10/01/2014

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0020	"							
Ethylbenzene	ND	0.0020	"							
Xylenes, total	ND	0.0020	"							
Surrogate: 1,2-Dichloroethane-d4	65.8		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62.1		"	62.5		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	62.7		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J01011 - EPA 5030 (soil)										
LCS (4J01011-BS1)					Prepared: 10/01/2014 Analyzed: 10/01/2014					
Benzene	0.105	0.0020	mg/kg	0.100		105	77.1-124			
Toluene	0.0947	0.0020	"	0.100		94.7	74.5-128			
Ethylbenzene	0.0969	0.0020	"	0.100		96.9	66.4-127			
m,p-Xylene	0.193	0.0040	"	0.200		96.5	76.6-124			
o-Xylene	0.102	0.0020	"	0.100		102	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	65.6		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	60.3		"	62.5		96.5	70-130			

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6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J01011 - EPA 5030 (soil)

Matrix Spike (4J01011-MS1)		Source: X409335-05			Prepared: 10/01/2014 Analyzed: 10/01/2014			QM-07		
Benzene	0.124	0.0020	mg/kg	0.100	0.0733	50.7	71.8-126			
Toluene	0.278	0.0020	"	0.100	0.278	0.440	65.1-130			
Ethylbenzene	ND	0.0020	"	0.100	ND		62.2-130			
m,p-Xylene	ND	0.0040	"	0.200	ND		46.5-137			
o-Xylene	ND	0.0020	"	0.100	ND		54.2-134			
Surrogate: 1,2-Dichloroethane-d4	52.4		ug/kg	62.5		83.9	70-130			
Surrogate: Toluene-d8	63.1		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64.8		"	62.5		104	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J01011 - EPA 5030 (soil)

Matrix Spike Dup (4J01011-MSD1)		Source: X409335-05			Prepared: 10/01/2014 Analyzed: 10/01/2014				QM-07	
Benzene	0.143	0.0020	mg/kg	0.100	0.0733	70.2	71.8-126	14.5	11.3	
Toluene	0.268	0.0020	"	0.100	0.278	NR	65.1-130	3.66	15.4	
Ethylbenzene	ND	0.0020	"	0.100	ND		62.2-130		19.6	
m,p-Xylene	ND	0.0040	"	0.200	ND		46.5-137		19.2	
o-Xylene	ND	0.0020	"	0.100	ND		54.2-134		17.9	
Surrogate: 1,2-Dichloroethane-d4	56.4		ug/kg	62.5		90.2	70-130			
Surrogate: Toluene-d8	63.7		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	48.2		"	62.5		77.1	70-130			

Origins Laboratory, Inc.



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

Ross S Hutto For Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J01012 - EPA 3580

Blank (4J01012-BLK1)

Prepared: 10/01/2014 Analyzed: 10/01/2014

Diesel (C10-C28)	ND	50	mg/kg
Residual Range Organics (C28-C36)	ND	200	"

Surrogate: o-Terphenyl	52		g	50.0	104	59-131
------------------------	----	--	---	------	-----	--------

LCS (4J01012-BS1)

Prepared: 10/01/2014 Analyzed: 10/01/2014

Diesel (C10-C28)	1100	50	mg/kg	1000	110	64-121
Residual Range Organics (C28-C36)	1100	200	"	1000	110	58-124

Surrogate: o-Terphenyl	56		g	50.0	111	59-131
------------------------	----	--	---	------	-----	--------

LCS Dup (4J01012-BSD1)

Prepared: 10/01/2014 Analyzed: 10/01/2014

Diesel (C10-C28)	990	50	mg/kg	1000	99.4	64-121	10.3	20
Residual Range Organics (C28-C36)	1000	200	"	1000	99.7	58-124	9.70	20

Surrogate: o-Terphenyl	51		g	50.0	102	59-131
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Origins Laboratory, Inc.



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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

Notes and Definitions

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

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.

Ross S Hutto For Noelle Doyle Mathis, President



October 03, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - UPRR 42 Pan Am X #1

Project Number - [none]

Attached are your analytical results for KMG - UPRR 42 Pan Am X #1 received by Origins Laboratory, Inc. October 02, 2014. This project is associated with Origins project number X410028-01.

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

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

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

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

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

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



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E02 @ 2'	X410028-01	Soil	October 2, 2014 11:50	10/02/2014 16:45
S02 @ 2'	X410028-02	Soil	October 2, 2014 12:00	10/02/2014 16:45
N02 @ 2'	X410028-03	Soil	October 2, 2014 11:55	10/02/2014 16:45
W02 @ 2'	X410028-04	Soil	October 2, 2014 14:00	10/02/2014 16:45

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

ORIGINS
LABORATORY, INC

www.originslaboratory.com

X410028

page 1 of 1

Client: Tasman Geosciences Project Manager/Send Report To: Christine Wasko
Address: 6899 Pecos Street, Unit C, Denver, CO 80211 Email Address: CWasko@tasman-geo.com
Telephone Number: 912 230 2807 Project Name/Number: UPRR 42 Pan Am X #1
Samples Collected By: Noelle Nelson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air/Summit		
E02@Z	10/2/14	1150	2	X				X			STEX/TPH	1
S02@Z	10/2/14	1200	2	X				X				2
N02@Z	10/2/14	1155	2	X				X				3
W02@Z	10/2/14	1400	2	X				X				4
												5
												6
												7
												8
												9
												10
Relinquished By: <u>[Signature]</u>	Date: <u>10/2/14</u>	Time: <u>11:45 AM</u>	Received By: <u>[Signature]</u>	Date: <u>10-2-14</u>	Time: <u>10:45</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"/> 4-6						

Comments:

Date Results Needed:

Origins Laboratory, Inc.

[Signature]

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Origins Laboratory

F-012207-01-R1
Effective Date: 01/08/12

Sample Receipt Checklist

Origins Work Order: X410028

Client: Tasman
Client Project ID: KMG - UPRR 42 Pan Am X #1

Checklist Completed by: Sen Pellegrini
Date/time completed: 10-2-14

Shipped Via: Pick Up
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: N/A

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____
Cooler Number/Temperature: 1 / 4.4 °C _____ °C _____ °C (Describe) _____ °C
Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly requisitioned by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ½ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄ / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

10-02-14 1753
Date/Time Reviewed

Origins Laboratory, Inc.

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

E02 @ 2'

10/2/2014 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410028-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J02017	10/02/2014	10/02/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	0.004	0.002	"	"	"	"	"
Xylenes, total	0.01	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.0 %	70-130			"	"	"
Surrogate: Toluene-d8	104 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	114 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J02018	10/02/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	81.7 %	65-146			"	"	"
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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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

S02 @ 2'

10/2/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410028-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J02017	10/02/2014	10/02/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	87.4 %	70-130			"	"	"
Surrogate: Toluene-d8	102 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J02018	10/02/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	90.2 %	65-146			"	"	"
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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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

N02 @ 2'

10/2/2014 11:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410028-03 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J02017	10/02/2014	10/02/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	110 %	70-130			"	"	"
Surrogate: Toluene-d8	94.0 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J02018	10/02/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	87.1 %	65-146			"	"	"
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

W02 @ 2'
10/2/2014 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410028-04 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J02017	10/02/2014	10/03/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	95.6 %	70-130			"	"	"
Surrogate: Toluene-d8	98.1 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	135 %	70-130			"	"	" S-GC

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J02018	10/02/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	87.3 %	65-146			"	"	"
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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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J02017 - EPA 5030 (soil)

Blank (4J02017-BLK1)

Prepared: 10/02/2014 Analyzed: 10/02/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5	102		70-130			
Surrogate: Toluene-d8	62		"	62.5	98.8		70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5	105		70-130			

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J02017 - EPA 5030 (soil)

LCS (4J02017-BS1)

Prepared: 10/02/2014 Analyzed: 10/02/2014

Benzene	0.09	0.002	mg/kg	0.100		93.7	77.1-124			
Toluene	0.08	0.002	"	0.100		81.8	74.5-128			
Ethylbenzene	0.08	0.002	"	0.100		82.4	66.4-127			
m,p-Xylene	0.21	0.004	"	0.200		106	76.6-124			
o-Xylene	0.09	0.002	"	0.100		87.3	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.2	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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J02017 - EPA 5030 (soil)

Matrix Spike (4J02017-MS1)		Source: X410026-02			Prepared: 10/02/2014 Analyzed: 10/02/2014					
Benzene	0.10	0.002	mg/kg	0.100	ND	99.2	71.8-126			
Toluene	0.09	0.002	"	0.100	0.004	87.1	65.1-130			
Ethylbenzene	0.08	0.002	"	0.100	0.004	80.1	62.2-130			
m,p-Xylene	0.21	0.004	"	0.200	0.005	105	46.5-137			
o-Xylene	0.09	0.002	"	0.100	0.005	86.0	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.9	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.3	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J02017 - EPA 5030 (soil)

Matrix Spike Dup (4J02017-MSD1)		Source: X410026-02			Prepared: 10/02/2014 Analyzed: 10/02/2014					
Benzene	0.10	0.002	mg/kg	0.100	ND	97.5	71.8-126	1.71	11.3	
Toluene	0.09	0.002	"	0.100	0.004	91.0	65.1-130	4.28	15.4	
Ethylbenzene	0.09	0.002	"	0.100	0.004	82.2	62.2-130	2.43	19.6	
m,p-Xylene	0.22	0.004	"	0.200	0.005	107	46.5-137	2.04	19.2	
o-Xylene	0.08	0.002	"	0.100	0.005	77.1	54.2-134	10.3	17.9	
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.6	70-130			
Surrogate: Toluene-d8	65		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J02018 - EPA 3580

Blank (4J02018-BLK1)

Prepared: 10/02/2014 Analyzed: 10/03/2014

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

Surrogate: o-Terphenyl 38 g 50.0 75.2 65-146

LCS (4J02018-BS1)

Prepared: 10/02/2014 Analyzed: 10/02/2014

Gasoline (C6-C10)	978	50.0	mg/kg	1000	97.8	66.7-119
Diesel (C10-C28)	1050	50.0	"	1000	105	70.1-127
Residual Range Organics (C28-C36)	1080	200	"	1000	108	54.5-139

Surrogate: o-Terphenyl 46 g 50.0 91.4 65-146

Matrix Spike (4J02018-MS1)

Source: X410026-03

Prepared: 10/02/2014 Analyzed: 10/02/2014

Gasoline (C6-C10)	1080	50.0	mg/kg	1000	ND	108	56.4-132
Diesel (C10-C28)	1130	50.0	"	1000	185	94.4	57.4-138
Residual Range Organics (C28-C36)	1090	200	"	1000	ND	109	47.7-129

Surrogate: o-Terphenyl 38 g 50.0 77.0 65-146

Matrix Spike Dup (4J02018-MSD1)

Source: X410026-03

Prepared: 10/02/2014 Analyzed: 10/02/2014

Gasoline (C6-C10)	1060	50.0	mg/kg	1000	ND	106	56.4-132	2.35	22
Diesel (C10-C28)	1100	50.0	"	1000	185	91.5	57.4-138	2.60	18.3
Residual Range Organics (C28-C36)	994	200	"	1000	ND	99.4	47.7-129	8.93	30.1

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J02018 - EPA 3580

Matrix Spike Dup (4J02018-MSD1)

Source: X410026-03

Prepared: 10/02/2014 Analyzed: 10/02/2014

Surrogate: o-Terphenyl	40		g	50.0	80.8	65-146				
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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.

Noelle Doyle Mathis, President

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President



October 05, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - UPRR 42 Pan Am X #1

Project Number - [none]

Attached are your analytical results for KMG - UPRR 42 Pan Am X #1 received by Origins Laboratory, Inc. October 03, 2014. This project is associated with Origins project number X410039-01.

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

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

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

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

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

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



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S04 @ 2	X410039-01	Soil	October 3, 2014 13:57	10/03/2014 16:00
E04 @ 2	X410039-02	Soil	October 3, 2014 14:00	10/03/2014 16:00

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

ORIGINS

LABORATORY, INC

X410039

www.originslaboratory.com

page ____ of ____

Client: Tasman Geo Project Manager/Send Report To: Christine Wasko
Address: _____ Email Address: Christine.Wasko@tasman-geo.com
Telephone Number: 916 230 2817 Project Name/Number: UPRR 42 Pan Am X #1
Samples Collected By: Jack Nelson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix		Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil		
S0402	10/3	1357	1	X					X	BTEX TPH ↓	1
E0402	↓	1400	1	X					X		2
											3
											4
											5
											6
											7
											8
											9
											10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<i>[Signature]</i>	10/3	1100	<i>[Signature]</i>	10-3-14	1600	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"/> 10-2

Comments:

Origins Laboratory, Inc.

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X410039

Client: Tasman
Client Project ID: UPRR 42 Pan Am X #1

Checklist Completed by: Jon Pellegrini

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

Date/time completed: 10-3-14

Airbill #: N/A

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

☐ Water ☐ Other:

Cooler Number/Temperature: 1 / 10.2 °C / °C / °C (Describe) °C

Thermometer ID: T002

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

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

Reviewed by (Project Manager)

10/3/14 / JWP
Date/Time Reviewed

Origins Laboratory, Inc.

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

S04 @ 2
10/3/2014 1:57:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410039-01 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J03002	10/03/2014	10/03/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	0.03	0.002	"	"	"	"	"
Xylenes, total	0.01	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	93.4 %	70-130			"	"	"
Surrogate: Toluene-d8	104 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	97.2 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J03009	10/03/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	66.5 %	65-146			"	"	"
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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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

E04 @ 2
10/3/2014 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410039-02 (Soil)

BTEX by EPA 8260C

Benzene	ND	0.002	mg/kg	1	4J03002	10/03/2014	10/03/2014
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	0.004	0.002	"	"	"	"	"
Xylenes, total	0.01	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	88.9 %	70-130			"	"	"
Surrogate: Toluene-d8	105 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	111 %	70-130			"	"	"

TPH-Carbon Chain by EPA Method 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J03009	10/03/2014	10/03/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl	65.0 %	65-146			"	"	"
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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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J03002 - EPA 5030 (soil)

Blank (4J03002-BLK1)

Prepared: 10/03/2014 Analyzed: 10/05/2014

Benzene	ND	0.002	mg/kg							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.7	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	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.

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J03002 - EPA 5030 (soil)

LCS (4J03002-BS1)

Prepared: 10/03/2014 Analyzed: 10/03/2014

Benzene	0.09	0.002	mg/kg	0.100		94.8	77.1-124			
Toluene	0.09	0.002	"	0.100		87.0	74.5-128			
Ethylbenzene	0.08	0.002	"	0.100		81.5	66.4-127			
m,p-Xylene	0.16	0.004	"	0.200		82.1	76.6-124			
o-Xylene	0.09	0.002	"	0.100		86.9	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		95.4	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.9	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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J03002 - EPA 5030 (soil)

Matrix Spike (4J03002-MS1)		Source: X410022-01			Prepared: 10/03/2014 Analyzed: 10/03/2014					
Benzene	0.10	0.002	mg/kg	0.100	ND	101	71.8-126			
Toluene	0.10	0.002	"	0.100	ND	102	65.1-130			
Ethylbenzene	0.10	0.002	"	0.100	0.004	93.6	62.2-130			
m,p-Xylene	0.19	0.004	"	0.200	0.008	90.5	46.5-137			
o-Xylene	0.09	0.002	"	0.100	0.004	87.5	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	48		ug/kg	62.5		77.5	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	67		"	62.5		106	70-130			

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J03002 - EPA 5030 (soil)

Matrix Spike Dup (4J03002-MSD1)		Source: X410022-01			Prepared: 10/03/2014 Analyzed: 10/03/2014					
Benzene	0.10	0.002	mg/kg	0.100	ND	98.1	71.8-126	3.03	11.3	
Toluene	0.09	0.002	"	0.100	ND	94.9	65.1-130	7.66	15.4	
Ethylbenzene	0.09	0.002	"	0.100	0.004	82.9	62.2-130	11.6	19.6	
m,p-Xylene	0.17	0.004	"	0.200	0.008	82.7	46.5-137	8.62	19.2	
o-Xylene	0.08	0.002	"	0.100	0.004	79.9	54.2-134	8.60	17.9	
Surrogate: 1,2-Dichloroethane-d4	55		ug/kg	62.5		87.9	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	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

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J03009 - EPA 3580

Blank (4J03009-BLK1)

Prepared: 10/03/2014 Analyzed: 10/03/2014

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

Surrogate: o-Terphenyl 35 g 50.0 70.3 65-146

LCS (4J03009-BS1)

Prepared: 10/03/2014 Analyzed: 10/03/2014

Gasoline (C6-C10)	893	50.0	mg/kg	1000	89.3	66.7-119
Diesel (C10-C28)	948	50.0	"	1000	94.8	70.1-127
Residual Range Organics (C28-C36)	917	200	"	1000	91.7	54.5-139

Surrogate: o-Terphenyl 38 g 50.0 76.3 65-146

Matrix Spike (4J03009-MS1)

Source: X410033-01

Prepared: 10/03/2014 Analyzed: 10/05/2014

Gasoline (C6-C10)	976	50.0	mg/kg	1000	ND	97.6	56.4-132
Diesel (C10-C28)	929	50.0	"	1000	ND	92.9	57.4-138
Residual Range Organics (C28-C36)	925	200	"	1000	ND	92.5	47.7-129

Surrogate: o-Terphenyl 45 g 50.0 90.1 65-146

Matrix Spike Dup (4J03009-MSD1)

Source: X410033-01

Prepared: 10/03/2014 Analyzed: 10/05/2014

Gasoline (C6-C10)	890	50.0	mg/kg	1000	ND	89.0	56.4-132	9.31	22
Diesel (C10-C28)	824	50.0	"	1000	ND	82.4	57.4-138	12.1	18.3
Residual Range Organics (C28-C36)	922	200	"	1000	ND	92.2	47.7-129	0.366	30.1

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Extractable Petroleum Hydrocarbons by 8015M - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4J03009 - EPA 3580

Matrix Spike Dup (4J03009-MSD1)

Source: X410033-01

Prepared: 10/03/2014 Analyzed: 10/05/2014

Surrogate: o-Terphenyl	45		g	50.0	90.1	65-146
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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.

Noelle Doyle Mathis, President

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Noelle Doyle Mathis, President



October 06, 2014

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - UPRR 42 Pan Am X #1

Project Number - [none]

Attached are your analytical results for KMG - UPRR 42 Pan Am X #1 received by Origins Laboratory, Inc. October 06, 2014. This project is associated with Origins project number X410051-01.

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

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

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

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

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

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



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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	X410051-01	Water	October 6, 2014 8:45	10/06/2014 14:45

Origins Laboratory, Inc.



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

Date Results Needed:

Page 3 of 10

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X410051

Client: TASMAN

Client Project ID: UPRR 42

Checklist Completed by: Jen Pellegrini

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

Date/time completed: 10-16-14

Airbill #: N/A

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

Cooler Number/Temperature: 1 16.1 °C _____ °C _____ °C (Describe) _____ °C

Thermometer ID: 1002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C?		<input checked="" type="checkbox"/>		<u>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?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded?	<input checked="" type="checkbox"/>			
For volatiles in water - is there headspace (> ½ 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? (note ID of confirmation instrument used in comments) / preservation is not confirmed for sub-contrasted analyses in order to insure sample integrity / (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with Na ₂ S ₂ O ₃ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

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

Reviewed by (Project Manager): [Signature]

Date/Time Reviewed: 10/16/14 14:15

Origins Laboratory, Inc.

[Signature]

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

GW02

10/6/2014 8:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410051-01 (Water)

BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4J06014	10/06/2014	10/06/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	1.4	1.0	"	"	"	"	"
Xylenes, total	27.3	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113			"	"	"
Surrogate: Toluene-d8	101 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	88.6-111			"	"	"

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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J06014 - EPA 5030B (Water)

Blank (4J06014-BLK1)

Prepared: 10/06/2014 Analyzed: 10/06/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	102		87.3-113			
Surrogate: Toluene-d8	61		"	62.5	98.1		90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	98.9		88.6-111			

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Noelle Doyle Mathis, President

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J06014 - EPA 5030B (Water)

LCS (4J06014-BS1)

Prepared: 10/06/2014 Analyzed: 10/06/2014

Benzene	48.2	1.0	ug/L	50.0		96.3	75-126			
Toluene	47.4	1.0	"	50.0		94.7	78.7-126			
Ethylbenzene	47.7	1.0	"	50.0		95.5	81-130			
m,p-Xylene	96.1	2.0	"	100		96.1	77.2-133			
o-Xylene	48.8	1.0	"	50.0		97.5	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.9	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		98.9	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		100	88.6-111			

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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J06014 - EPA 5030B (Water)

Matrix Spike (4J06014-MS1)		Source: X410042-02			Prepared: 10/06/2014 Analyzed: 10/06/2014					
Benzene	50.1	1.0	ug/L	50.0	0.6	98.9	74-130			
Toluene	48.9	1.0	"	50.0	0.3	97.1	73-131			
Ethylbenzene	246	1.0	"	50.0	198	97.7	76-132			
m,p-Xylene	185	2.0	"	100	84.6	101	69-139			
o-Xylene	54.0	1.0	"	50.0	4.2	99.6	74-131			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.7	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		99.1	90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	88.6-111			

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Tasman Geosciences
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Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 42 Pan Am X #1

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 4J06014 - EPA 5030B (Water)

Matrix Spike Dup (4J06014-MSD1)		Source: X410042-02			Prepared: 10/06/2014 Analyzed: 10/06/2014					
Benzene	47.6	1.0	ug/L	50.0	0.6	94.0	74-130	5.03	20	
Toluene	46.4	1.0	"	50.0	0.3	92.2	73-131	5.12	20	
Ethylbenzene	238	1.0	"	50.0	198	81.2	76-132	3.41	20	
m,p-Xylene	176	2.0	"	100	84.6	91.6	69-139	5.05	20	
o-Xylene	51.4	1.0	"	50.0	4.2	94.3	74-131	4.99	20	
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.8	87.3-113			
Surrogate: Toluene-d8	61		"	62.5		98.2	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	88.6-111			

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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - UPRR 42 Pan Am X #1

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Noelle Doyle Mathis, President