

ANALYTICAL TABLE

TABLE 1
UPRR 43 PAN AM O#2
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 (mg/kg)	TEPH - ORO (mg/kg)	pH (units)	EC (mmhos/cm)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500			6 - 9	4.0
B01@5'	3/24/2015	5	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	7.71	1.00
B02@5'	3/24/2015	5	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.43	0.436
E01@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	1.13	<50	<200	8.11	0.542
E02@4'	3/24/2015	4	<0.050	<0.050	0.050	0.184	303	660	<200	9.57*	0.223
W01@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.28	0.276
W02@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.11	0.604
N01@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.57	0.223
S01@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.49	0.620
S02@4'	3/24/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	9.04*	0.429
W03@4'	3/27/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.37	0.496
B03@5'	3/27/2015	5	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	9.03*	0.403
E03@4'	3/27/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.19	0.519
E02-R@4'	3/27/2015	4	<0.050	<0.050	0.068	0.127	112	1,000	340	9.14*	0.235
E01-R@4'	3/27/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	<50	<200	8.53	0.292
E04@4'	3/30/2015	4	<0.002	<0.002	<0.002	<0.002	<0.200	280	<200	8.49	1.56

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.

EC = Electrical Conductivity

mmhos/cm = Millimhos per centimeter

* = Below the designated root zone

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

LABORATORY ANALYTICAL REPORTS

March 25, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - UPRR 43 Pan Am O #2

Project Number - [none]

Attached are your analytical results for KMG - UPRR 43 Pan Am O #2 received by Origins Laboratory, Inc. March 24, 2015. This project is associated with Origins project number X503309-01.

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 43 Pan Am O #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01 @ 5'	X503309-01	Soil	March 24, 2015 14:40	03/24/2015 17:15
B02 @ 5'	X503309-02	Soil	March 24, 2015 14:48	03/24/2015 17:15
E01 @ 4'	X503309-03	Soil	March 24, 2015 14:45	03/24/2015 17:15
E02 @ 4'	X503309-04	Soil	March 24, 2015 14:50	03/24/2015 17:15
W01 @ 4'	X503309-05	Soil	March 24, 2015 15:15	03/24/2015 17:15
W02 @ 4'	X503309-06	Soil	March 24, 2015 15:20	03/24/2015 17:15
N01 @ 4'	X503309-07	Soil	March 24, 2015 15:30	03/24/2015 17:15
S01 @ 4'	X503309-08	Soil	March 24, 2015 15:46	03/24/2015 17:15
S02 @ 4'	X503309-09	Soil	March 24, 2015 15:50	03/24/2015 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.

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

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page 1 of 1

XS03309

Client: APC/TASMAN
 Project Manager: Christine Wasko
 Project Name: UPRR 43 Pan Am O #2
 Project Number: _____
 Address: _____
 Telephone Number: _____
 Email Address: CWASKO@TASMAN-660.COM
 Samples Collected By: DON BAGGUS

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	As	Pb	Cr	
B01E5'	3/24/15	1440	1	X				X				X	X	X	1
B02E5'		1448	1	X				X				X	X	X	2
E01E4'		1445	1	X				X				X	X	X	3
E02E4'		1450	1	X				X				X	X	X	4
W01E4'		1515	1	X				X				X	X	X	5
W02E4'		1520	1	X				X				X	X	X	6
N01E4'		1530	1	X				X				X	X	X	7
S01E4'		1546	1	X				X				X	X	X	8
S02E4'		1550	1	X				X				X	X	X	9
															10
Relinquished By: <i>APC</i>	Date: 3/24/2015	Time: 1700	Time: 1700	Time: 3:24 P	Date: 3/24/15	Date: 1715	Time: 1715	Time: 1715	Time: 1715	Time: 1715	Time: 1715	Time: 1715	Time: 1715	Time: 1715	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:	Time:	Time:	Date:	Date:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	Time:	

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

Temp Received: 5.7 Date Results Needed

Origins Laboratory, Inc.

Jefe Pellegrini

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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X503309

Client: Tasman
 Client Project ID: UPRR 43 Pan Am O #2

Checklist Completed by: Jeff Smith
 Date/time completed: 3/24/15

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

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

Cooler Number/Temperature: 1 / 5.7 °C 1 °C 1 °C (Describe) 1 °C

Thermometer ID: TDS3

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

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

Jeff Smith Reviewed by (Project Manager) 3/24/15 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 43 Pan Am O #2

B01 @ 5'
3/24/2015 2:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 84.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 70-130 " " "
Surrogate: Toluene-d8 96.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.5 % 70-130 " " "

pH in Soil by EPA 9045D

pH	7.71		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	1.00		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

B02 @ 5'
3/24/2015 2:48:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 81.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "
Surrogate: Toluene-d8 96.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.43		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.436		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

E01 @ 4'
3/24/2015 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	
<i>Surrogate: o-Terphenyl</i>	88.5 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	1.13	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	114 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	96.7 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	8.11		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.542		mmhos/cm	"	5C24011	"	03/24/2015	
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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

E02 @ 4'
3/24/2015 2:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	660	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 86.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	303	5.00	mg/kg	25	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	
Ethylbenzene	0.050	0.050	"	"	"	"	"	
Xylenes, total	0.184	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 " " "
Surrogate: Toluene-d8 100 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 107 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.57		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.223		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

W01 @ 4'
3/24/2015 3:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 86.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 109 % 70-130 " " "
Surrogate: Toluene-d8 97.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.9 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.28		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.276		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

W02 @ 4'
3/24/2015 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-06 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 80.6 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 70-130 " " "
Surrogate: Toluene-d8 97.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.11		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.604		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

N01 @ 4'
3/24/2015 3:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-07 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 77.4 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 106 % 70-130 " " "
Surrogate: Toluene-d8 99.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.57		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.223		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

S01 @ 4'
3/24/2015 3:46:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-08 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 81.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 125 % 70-130 " " "
Surrogate: Toluene-d8 95.6 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.49		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.620		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

S02 @ 4'
3/24/2015 3:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503309-09 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C24015	03/24/2015	03/25/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 83.3 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C24016	03/24/2015	03/25/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 119 % 70-130 " " "
Surrogate: Toluene-d8 95.7 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.04		pH Units	1	5C24010	03/24/2015	03/24/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.429		mmhos/cm	"	5C24011	"	03/24/2015	
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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 43 Pan Am O #2

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 5C24016 - EPA 5030 (soil)

Blank (5C24016-BLK1)

Prepared: 03/24/2015 Analyzed: 03/24/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	65.8		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61.7		"	62.5		98.8	70-130			
Surrogate: 4-Bromofluorobenzene	62.1		"	62.5		99.3	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

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 5C24016 - EPA 5030 (soil)

LCS (5C24016-BS1)

Prepared: 03/24/2015 Analyzed: 03/24/2015

Benzene	0.107	0.002	mg/kg	0.100		107	77.1-124			
Toluene	0.105	0.002	"	0.100		105	74.5-128			
Ethylbenzene	0.105	0.002	"	0.100		105	66.4-127			
m,p-Xylene	0.212	0.004	"	0.200		106	76.6-124			
o-Xylene	0.106	0.002	"	0.100		106	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	62.6		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	61.5		"	62.5		98.4	70-130			
Surrogate: 4-Bromofluorobenzene	60.7		"	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

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

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 5C24016 - EPA 5030 (soil)

Matrix Spike (5C24016-MS1)	Source: X503308-01			Prepared: 03/24/2015 Analyzed: 03/24/2015						
Benzene	0.078	0.002	mg/kg	0.100	0.0007	77.1	71.8-126			
Toluene	0.095	0.002	"	0.100	ND	94.6	65.1-130			
Ethylbenzene	0.083	0.002	"	0.100	ND	83.0	62.2-130			
m,p-Xylene	0.166	0.004	"	0.200	ND	83.0	46.5-137			
o-Xylene	0.083	0.002	"	0.100	ND	83.1	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	80.1		ug/kg	62.5		128	70-130			
Surrogate: Toluene-d8	66.9		"	62.5		107	70-130			
Surrogate: 4-Bromofluorobenzene	58.9		"	62.5		94.2	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 43 Pan Am O #2

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 5C24016 - EPA 5030 (soil)

Matrix Spike Dup (5C24016-MSD1)	Source: X503308-01			Prepared: 03/24/2015 Analyzed: 03/24/2015						
Benzene	0.021	0.002	mg/kg	0.100	0.0007	20.7	71.8-126	114	11.3	QM-07
Toluene	0.025	0.002	"	0.100	ND	24.8	65.1-130	117	15.4	QM-07
Ethylbenzene	0.018	0.002	"	0.100	ND	18.1	62.2-130	128	19.6	QM-07
m,p-Xylene	0.036	0.004	"	0.200	ND	18.1	46.5-137	128	19.2	QM-07
o-Xylene	0.018	0.002	"	0.100	ND	17.7	54.2-134	130	17.9	QM-07
Surrogate: 1,2-Dichloroethane-d4	80.2		ug/kg	62.5		128	70-130			
Surrogate: Toluene-d8	68.4		"	62.5		110	70-130			
Surrogate: 4-Bromofluorobenzene	58.0		"	62.5		92.8	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

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 5C24015 - EPA 3580

Blank (5C24015-BLK1)

Prepared: 03/24/2015 Analyzed: 03/24/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	47		"	50.0		94.0	59-131			

LCS (5C24015-BS1)

Prepared: 03/24/2015 Analyzed: 03/25/2015

Diesel (C10-C28)	950	50	mg/kg	1000		94.5	64-121			
Residual Range Organics (C28-C36)	1000	200	"	1000		102	58-124			
Surrogate: o-Terphenyl	46		"	50.0		92.2	59-131			

Matrix Spike (5C24015-MS1)

Source: X503307-01

Prepared: 03/24/2015 Analyzed: 03/25/2015

Diesel (C10-C28)	970	50	mg/kg	1000	24	95.1	53-125			
Residual Range Organics (C28-C36)	1100	200	"	1000	21	104	47-133			
Surrogate: o-Terphenyl	46		"	50.0		91.4	59-131			

Matrix Spike Dup (5C24015-MSD1)

Source: X503307-01

Prepared: 03/24/2015 Analyzed: 03/25/2015

Diesel (C10-C28)	970	50	mg/kg	1000	24	94.2	53-125	0.906	20	
Residual Range Organics (C28-C36)	1000	200	"	1000	21	103	47-133	1.44	20	
Surrogate: o-Terphenyl	45		"	50.0		89.5	59-131			

Origins Laboratory, Inc.



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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: [none]
 Project: KMG - UPRR 43 Pan Am O #2

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5C24010 - NO PREP										
Duplicate (5C24010-DUP1)		Source: X503302-02			Prepared: 03/24/2015 Analyzed: 03/24/2015					
pH	7.83		pH Units		7.90			0.890	25	
Duplicate (5C24010-DUP2)		Source: X503306-01			Prepared: 03/24/2015 Analyzed: 03/24/2015					
pH	8.44		pH Units		8.49			0.591	25	
Batch 5C24011 - NO PREP										
Blank (5C24011-BLK1)		Prepared: 03/24/2015 Analyzed: 03/24/2015								
Specific Conductance (EC)	0.00270		mmhos/cm							
Blank (5C24011-BLK2)		Prepared: 03/24/2015 Analyzed: 03/24/2015								
Specific Conductance (EC)	0.00240		mmhos/cm							
Duplicate (5C24011-DUP1)		Source: X503302-02			Prepared: 03/24/2015 Analyzed: 03/24/2015					
Specific Conductance (EC)	0.797		mmhos/cm		0.794			0.377	25	
Duplicate (5C24011-DUP2)		Source: X503306-01			Prepared: 03/24/2015 Analyzed: 03/24/2015					
Specific Conductance (EC)	0.691		mmhos/cm		0.685			0.872	25	

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - UPRR 43 Pan Am O #2

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

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

March 30, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - UPRR 43 Pan Am O #2

Project Number - 88743945

Attached are your analytical results for KMG - UPRR 43 Pan Am O #2 received by Origins Laboratory, Inc. March 27, 2015. This project is associated with Origins project number X503353-01.

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: 88743945
Project: KMG - UPRR 43 Pan Am O #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W03 @ 4	X503353-01	Soil	March 27, 2015 9:30	03/27/2015 12:30
B03 @ 5	X503353-02	Soil	March 27, 2015 9:35	03/27/2015 12:30
E03 @ 4	X503353-03	Soil	March 27, 2015 9:40	03/27/2015 12:30
E02-R @ 4	X503353-04	Soil	March 27, 2015 9:55	03/27/2015 12:30
E01-R @ 4	X503353-05	Soil	March 27, 2015 10:00	03/27/2015 12:30

Origins Laboratory, Inc.



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

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

www.originslaboratory.com



X503353

page 1 of 1

Client: APC / TASMAN
 Project Manager: CHRISTINE WASKO
 Project Name: UPRR 43 Pan Am O #2
 Address: _____
 Project Number: _____
 Telephone Number: _____
 Samples Collected By: DON BAGGINS
 Email Address: CWASKO@TASMAN-660.COM

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	ETA/GRB	DEQ/1020	DH.CC	
W03@4	3/27/15	0930	1	X				X				X	X		1
B03@5		0935	1	X				X				X	X		2
E03@4		0940	1	X				X				X	X		3
E02-RE4		0955	1	X				X				X	X		4
E01-RE4		1000	1	X				X				X	X		5
															6
															7
															8
															9
															10
Relinquished By: <u>TRAVIS</u>	Date: <u>3/27/15</u>	Time: <u>1230</u>	Time: _____	Received By: _____	Received By: _____	Date: <u>3/27/15</u>	Date: <u>1230</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: _____	Time: _____	Received By: _____	Received By: _____	Date: <u>3/27/15</u>	Date: <u>1230</u>								

Temp Received- _____ Date Results Needed _____

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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 2505353

Client: Tasman
 Client Project ID: UPRR43 Pan Am O #2

Checklist Completed by: Jeff Smith
 Date/time completed: 3/27/12

Shipped Via: PuK (p)
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: NA

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

Cooler Number/Temperature: 1 / 15.9 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: TK03

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

[Signature]
 Reviewed By (Project Manager)

3/27/12
 Date/Time Reviewed

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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

W03 @ 4
3/27/2015 9:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503353-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C27006	03/27/2015	03/27/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 87.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C27008	03/27/2015	03/27/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 126 % 70-130 " " "
Surrogate: Toluene-d8 94.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 98.8 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.37		pH Units	1	5C27011	03/27/2015	03/27/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.496		mmhos/cm	"	5C27012	03/27/2015	03/27/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

B03 @ 5
3/27/2015 9:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503353-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C27006	03/27/2015	03/27/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 94.8 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C27008	03/27/2015	03/27/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 114 % 70-130 " " "
Surrogate: Toluene-d8 96.3 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.03		pH Units	1	5C27011	03/27/2015	03/27/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.403		mmhos/cm	"	5C27012	03/27/2015	03/27/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

E03 @ 4
3/27/2015 9:40:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503353-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C27006	03/27/2015	03/27/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 92.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C27008	03/27/2015	03/27/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 126 % 70-130 " " "
Surrogate: Toluene-d8 95.0 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.19		pH Units	1	5C27011	03/27/2015	03/27/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.519		mmhos/cm	"	5C27012	03/27/2015	03/27/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

E02-R @ 4
3/27/2015 9:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503353-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	1000	50	mg/kg	1	5C27006	03/27/2015	03/27/2015	
Residual Range Organics (C28-C36)	340	200	"	"	"	"	"	

Surrogate: *o*-Terphenyl 103 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	112	5.00	mg/kg	25	5C27008	03/27/2015	03/27/2015	
Benzene	ND	0.050	"	"	"	"	"	
Toluene	ND	0.050	"	"	"	"	"	
Ethylbenzene	0.068	0.050	"	"	"	"	"	
Xylenes, total	0.127	0.050	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 105 % 70-130 " " "
 Surrogate: Toluene-d8 99.8 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 106 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.14		pH Units	1	5C27011	03/27/2015	03/27/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.235		mmhos/cm	"	5C27012	03/27/2015	03/27/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

E01-R @ 4
3/27/2015 10:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503353-05 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C27006	03/27/2015	03/27/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: o-Terphenyl 89.5 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C27008	03/27/2015	03/27/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 111 % 70-130 " " "
Surrogate: Toluene-d8 97.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.53		pH Units	1	5C27011	03/27/2015	03/27/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.292		mmhos/cm	"	5C27012	03/27/2015	03/27/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C27008 - EPA 5030 (soil)

Blank (5C27008-BLK1)

Prepared: 03/27/2015 Analyzed: 03/27/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	69.8		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	61.2		"	62.5		98.0	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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C27008 - EPA 5030 (soil)

LCS (5C27008-BS1)

Prepared: 03/27/2015 Analyzed: 03/27/2015

Benzene	0.096	0.002	mg/kg	0.100		96.2	77.1-124			
Toluene	0.093	0.002	"	0.100		93.3	74.5-128			
Ethylbenzene	0.091	0.002	"	0.100		91.3	66.4-127			
m,p-Xylene	0.184	0.004	"	0.200		92.0	76.6-124			
o-Xylene	0.093	0.002	"	0.100		93.0	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64.8		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.8	70-130			
Surrogate: 4-Bromofluorobenzene	61.8		"	62.5		98.9	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C27008 - EPA 5030 (soil)

Matrix Spike (5C27008-MS1)	Source: X503342-01			Prepared: 03/27/2015 Analyzed: 03/27/2015						
Benzene	0.104	0.002	mg/kg	0.100	ND	104	71.8-126			
Toluene	0.102	0.002	"	0.100	ND	102	65.1-130			
Ethylbenzene	0.103	0.002	"	0.100	ND	103	62.2-130			
m,p-Xylene	0.206	0.004	"	0.200	ND	103	46.5-137			
o-Xylene	0.105	0.002	"	0.100	ND	105	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	65.6		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	62.3		"	62.5		99.7	70-130			
Surrogate: 4-Bromofluorobenzene	63.8		"	62.5		102	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C27008 - EPA 5030 (soil)

Matrix Spike Dup (5C27008-MSD1)	Source: X503342-01			Prepared: 03/27/2015 Analyzed: 03/27/2015						
Benzene	0.095	0.002	mg/kg	0.100	ND	95.3	71.8-126	9.21	11.3	
Toluene	0.090	0.002	"	0.100	ND	90.2	65.1-130	12.1	15.4	
Ethylbenzene	0.090	0.002	"	0.100	ND	89.8	62.2-130	13.4	19.6	
m,p-Xylene	0.180	0.004	"	0.200	ND	89.8	46.5-137	13.7	19.2	
o-Xylene	0.093	0.002	"	0.100	ND	92.6	54.2-134	12.3	17.9	
Surrogate: 1,2-Dichloroethane-d4	64.6		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61.8		"	62.5		98.9	70-130			
Surrogate: 4-Bromofluorobenzene	65.0		"	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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C27006 - EPA 3580

Blank (5C27006-BLK1)

Prepared: 03/27/2015 Analyzed: 03/27/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	54		"	50.0		109	59-131			

LCS (5C27006-BS1)

Prepared: 03/27/2015 Analyzed: 03/27/2015

Diesel (C10-C28)	1100	50	mg/kg	1000		110	64-121			
Residual Range Organics (C28-C36)	970	200	"	1000		96.6	58-124			
Surrogate: o-Terphenyl	51		"	50.0		102	59-131			

Matrix Spike (5C27006-MS1)

Source: X503342-01

Prepared: 03/27/2015 Analyzed: 03/27/2015

Diesel (C10-C28)	1100	50	mg/kg	1000	49	104	53-125			
Residual Range Organics (C28-C36)	940	200	"	1000	25	91.5	47-133			
Surrogate: o-Terphenyl	46		"	50.0		92.5	59-131			

Matrix Spike Dup (5C27006-MSD1)

Source: X503342-01

Prepared: 03/27/2015 Analyzed: 03/27/2015

Diesel (C10-C28)	1100	50	mg/kg	1000	49	103	53-125	1.29	20	
Residual Range Organics (C28-C36)	950	200	"	1000	25	92.4	47-133	0.886	20	
Surrogate: o-Terphenyl	47		"	50.0		94.4	59-131			

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5C27011 - NO PREP										
Duplicate (5C27011-DUP1)		Source: X503342-01			Prepared: 03/27/2015 Analyzed: 03/27/2015					
pH	8.78		pH Units		8.76			0.228	25	
Duplicate (5C27011-DUP2)		Source: X503353-01			Prepared: 03/27/2015 Analyzed: 03/27/2015					
pH	8.40		pH Units		8.37			0.358	25	
Batch 5C27012 - NO PREP										
Blank (5C27012-BLK1)		Prepared: 03/27/2015 Analyzed: 03/27/2015								
Specific Conductance (EC)	0.00310		mmhos/cm							
Blank (5C27012-BLK2)		Prepared: 03/27/2015 Analyzed: 03/27/2015								
Specific Conductance (EC)	0.00310		mmhos/cm							
Duplicate (5C27012-DUP1)		Source: X503342-01			Prepared: 03/27/2015 Analyzed: 03/27/2015					
Specific Conductance (EC)	0.0735		mmhos/cm		0.0749			1.89	25	
Duplicate (5C27012-DUP2)		Source: X503353-01			Prepared: 03/27/2015 Analyzed: 03/27/2015					
Specific Conductance (EC)	0.493		mmhos/cm		0.496			0.607	25	

Origins Laboratory, Inc.



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Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: 88743945
Project: KMG - UPRR 43 Pan Am O #2

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

March 31, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver CO 80211

Project Name - KMG - UPRR 43 Pan Am O #2

Project Number - 88743945

Attached are your analytical results for KMG - UPRR 43 Pan Am O #2 received by Origins Laboratory, Inc. March 30, 2015. This project is associated with Origins project number X503379-01.

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: 88743945
Project: KMG - UPRR 43 Pan Am O #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E04 @ 4	X503379-01	Soil	March 30, 2015 15:35	03/30/2015 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.

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 503379

Client: LTE

Client Project ID: UPRR 43 Pan Am O# 2

Checklist Completed by: L.H. Smith

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

Date/time completed: 3/30/15

Airbill #: NA

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

Cooler Number/Temperature: 1 / 4.9 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: 7003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ^{(1)?}	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact ^{(1)?}	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ^{(1)?}	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ^{(1)?}	<input checked="" type="checkbox"/>			PH
Is a chain-of-custody (COC) present and filled out completely ^{(1)?}	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ^{(1)?}	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ^{(1)?}	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ^{(1)?}	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ^{(1)?} (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)(pH <2 for samples preserved with HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

J.H.S.
 Reviewed by (Project Manager)

3/30/15
 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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

E04 @ 4
3/30/2015 3:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503379-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	280	50	mg/kg	1	5C30007	03/30/2015	03/30/2015	
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"	

Surrogate: *o*-Terphenyl 81.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C30010	03/30/2015	03/30/2015	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	ND	0.002	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4 107 % 70-130 " " "
 Surrogate: Toluene-d8 97.6 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.49		pH Units	1	5C30009	03/30/2015	03/30/2015	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	1.56		mmhos/cm	"	5C30008	03/30/2015	03/30/2015	
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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: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C30010 - EPA 5030 (soil)

Blank (5C30010-BLK1)

Prepared: 03/30/2015 Analyzed: 03/30/2015

Gasoline Range Hydrocarbons	ND	0.200	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Surrogate: 1,2-Dichloroethane-d4	71.8		ug/kg	62.5		115	70-130			
Surrogate: Toluene-d8	60.4		"	62.5		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	63.6		"	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.

Jen Pellegrini For Noelle Doyle Mathis, President

Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C30010 - EPA 5030 (soil)

LCS (5C30010-BS1)

Prepared: 03/30/2015 Analyzed: 03/30/2015

Benzene	0.105	0.002	mg/kg	0.100		105	77.1-124			
Toluene	0.102	0.002	"	0.100		102	74.5-128			
Ethylbenzene	0.101	0.002	"	0.100		101	66.4-127			
m,p-Xylene	0.202	0.004	"	0.200		101	76.6-124			
o-Xylene	0.103	0.002	"	0.100		103	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	66.0		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	61.7		"	62.5		98.7	70-130			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C30010 - EPA 5030 (soil)

Matrix Spike (5C30010-MS1)	Source: X503366-01			Prepared: 03/30/2015 Analyzed: 03/30/2015						
Benzene	0.110	0.002	mg/kg	0.100	0.003	107	71.8-126			
Toluene	0.118	0.002	"	0.100	0.016	102	65.1-130			
Ethylbenzene	0.117	0.002	"	0.100	0.018	98.6	62.2-130			
m,p-Xylene	0.255	0.004	"	0.200	0.057	99.0	46.5-137			
o-Xylene	0.128	0.002	"	0.100	0.027	101	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	67.0		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	61.0		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	62.1		"	62.5		99.4	70-130			

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Tasman Geosciences
 6899 Pecos Street, Unit C
 Denver CO 80211

Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

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 5C30010 - EPA 5030 (soil)

Matrix Spike Dup (5C30010-MSD1)		Source: X503366-01			Prepared: 03/30/2015 Analyzed: 03/30/2015					
Benzene	0.125	0.002	mg/kg	0.100	0.003	123	71.8-126	13.2	11.3	QR-02
Toluene	0.138	0.002	"	0.100	0.016	123	65.1-130	16.2	15.4	QR-02
Ethylbenzene	0.140	0.002	"	0.100	0.018	122	62.2-130	18.3	19.6	
m,p-Xylene	0.300	0.004	"	0.200	0.057	122	46.5-137	16.3	19.2	
o-Xylene	0.155	0.002	"	0.100	0.027	128	54.2-134	18.9	17.9	QR-02
Surrogate: 1,2-Dichloroethane-d4	66.6		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	60.8		"	62.5		97.3	70-130			
Surrogate: 4-Bromofluorobenzene	63.2		"	62.5		101	70-130			

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 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 5C30007 - EPA 3580

Blank (5C30007-BLK1)

Prepared: 03/30/2015 Analyzed: 03/30/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	45		"	50.0		90.1	59-131			

LCS (5C30007-BS1)

Prepared: 03/30/2015 Analyzed: 03/30/2015

Diesel (C10-C28)	920	50	mg/kg	1000		92.0	64-121			
Residual Range Organics (C28-C36)	630	200	"	1000		62.9	58-124			
Surrogate: o-Terphenyl	46		"	50.0		92.9	59-131			

Matrix Spike (5C30007-MS1)

Source: X503355-01

Prepared: 03/30/2015 Analyzed: 03/30/2015

Diesel (C10-C28)	1100	50	mg/kg	1000	160	90.4	53-125			
Residual Range Organics (C28-C36)	770	200	"	1000	ND	77.1	47-133			
Surrogate: o-Terphenyl	48		"	50.0		95.6	59-131			

Matrix Spike Dup (5C30007-MSD1)

Source: X503355-01

Prepared: 03/30/2015 Analyzed: 03/30/2015

Diesel (C10-C28)	1100	50	mg/kg	1000	160	90.5	53-125	0.104	20	
Residual Range Organics (C28-C36)	760	200	"	1000	ND	76.4	47-133	0.932	20	
Surrogate: o-Terphenyl	45		"	50.0		89.2	59-131			

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Christine Wasko
 Project Number: 88743945
 Project: KMG - UPRR 43 Pan Am O #2

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5C30008 - NO PREP										
Blank (5C30008-BLK1)					Prepared: 03/30/2015 Analyzed: 03/30/2015					
Specific Conductance (EC)	0.00310		mmhos/cm							
Duplicate (5C30008-DUP1)					Source: X503081-01 Prepared: 03/30/2015 Analyzed: 03/30/2015					
Specific Conductance (EC)	0.154		mmhos/cm		0.156			1.42	25	
Batch 5C30009 - NO PREP										
Duplicate (5C30009-DUP1)					Source: X503081-01 Prepared: 03/30/2015 Analyzed: 03/30/2015					
pH	8.46		pH Units		8.58			1.41	25	

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Denver CO 80211

Christine Wasko
Project Number: 88743945
Project: KMG - UPRR 43 Pan Am O #2

Notes and Definitions

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.

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Jen Pellegrini For Noelle Doyle Mathis, President