

ANALYTICAL TABLES

TABLE 1
RICHARDSON V3-2
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 + ORO (mg/kg)	Specific Conductance (EC) (mmhos/cm)	pH (units)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500		4	6.0 < x < 9.0
N01@2	3/31/2015	2	<0.002	<0.002	<0.002	<0.002	<0.200	<200	0.138	9.28
S01@2	3/31/2015	2	<0.002	<0.002	<0.002	<0.002	<0.200	<200	0.146	8.74
E01@2	3/31/2015	2	<0.002	<0.002	<0.002	<0.002	<0.200	<200	0.169	9.03
W01@2	3/31/2015	2	<0.002	<0.002	<0.002	<0.002	<0.200	<200	0.121	9.22
W02@2	4/2/2015	2	NA	NA	NA	NA	NA	NA	NA	8.56
N02@2	4/2/2015	2	NA	NA	NA	NA	NA	NA	NA	9.10
E02@2	4/2/2015	2	NA	NA	NA	NA	NA	NA	NA	9.26
N03@2	4/8/2015	2	NA	NA	NA	NA	NA	NA	NA	8.92
E03@2	4/8/2015	2	NA	NA	NA	NA	NA	NA	NA	8.99

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.

mmhos/cm = Millimhos per centimeter

NA = Not analyzed for constituent

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

TABLE 2
RICHARDSON V3-2
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Table 910-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400
GW01	3/31/2015	1,740	7,470	494	6,660
GW02	4/9/2015	353	1,330	138	1,820

Notes:

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

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

BOLD= Analytical result is in exceedance of COGCC groundwater standards.

LABORATORY ANALYTICAL REPORTS



April 01, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Richardson V 3-2

Project Number - [none]

Attached are your analytical results for KMG - Richardson V 3-2 received by Origins Laboratory, Inc. March 31, 2015. This project is associated with Origins project number X503408-01.

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 - Richardson V 3-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01 @ 2	X503408-01	Soil	March 31, 2015 13:25	03/31/2015 16:00
S01 @ 2	X503408-02	Soil	March 31, 2015 13:17	03/31/2015 16:00
E01 @ 2	X503408-03	Soil	March 31, 2015 13:20	03/31/2015 16:00
W01 @ 2	X503408-04	Soil	March 31, 2015 13:27	03/31/2015 16:00
GW01	X503408-05	Water	March 31, 2015 13:30	03/31/2015 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.

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

ORIGINS
LABORATORY, INC

Client: Tasman Geo

Address: _____

Telephone Number: 912 230 2807

Email Address: chlwasko@tasman-geo.com

Project Manager: Christine Wasko

Project Name: Richardson V3-2

Project Number: _____

Samples Collected By: Brack Nelson

www.originslaboratory.com

page 1 of 1

X503408

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions			
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa	Other	TPH - Dredge	EC/PH	BTEX		SAZ		
H0102	3/31/15	1325	2						X				X	TPH - Dredge	EC/PH	BTEX	SAZ	If sample has
S0102	3/31/15	1317	2										X	TPH - Dredge	EC/PH	BTEX	SAZ	EC74.0, plv. sc
E0102	3/31/15	1320	2										X	TPH - Dredge	EC/PH	BTEX	SAZ	run for SAZ
W0102	3/31/15	1327	2						X				X	TPH - Dredge	EC/PH	BTEX	SAZ	
Gw01	3/31/15	1330	3						X									

Requisitioned By: [Signature]

Requisitioned By: [Signature]

Date: 3/31/15

Date: 3/31/15

Time: _____

Time: _____

Received By: [Signature]

Received By: _____

Date: 3/31/15

Date: _____

Time: _____

Time: _____

Turnaround Time: _____

Same Day ☒ 24 Hr ☐

48 Hr ☐ 72 Hr ☐

Standard ☐

Temp Received: 41.2 Date Results Needed: _____

Origins Laboratory, Inc.

Jefe Pellegrini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X503408

Client: Tasman

Client Project ID: Richardson V 3-2

Checklist Completed by: Jeff Smith

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

Date/time completed: 3/31/15

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 4.3 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: 2003

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"/>		3/31/15 JCS
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"/>			3/31/15 JCS 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 in the additional comments (above) and the case narrative.

Jeff Smith
Reviewed by (Project Manager)

3/31/15
Date/Time Reviewed

Origins Laboratory, Inc.

Jen Pellegrini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

N01 @ 2
3/31/2015 1:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503408-01 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C31008	03/31/2015	03/31/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 81.9 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C31006	03/31/2015	03/31/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 110 % 70-130 " " "
Surrogate: Toluene-d8 98.4 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.28		pH Units	1	5C31011	03/31/2015	03/31/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.138		mmhos/cm	"	5C31012	"	"
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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 - Richardson V 3-2

S01 @ 2
3/31/2015 1:17:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503408-02 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C31008	03/31/2015	03/31/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 75.7 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C31006	03/31/2015	03/31/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 110 % 70-130 " " "
Surrogate: Toluene-d8 97.8 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

pH in Soil by EPA 9045D

pH	8.74		pH Units	1	5C31011	03/31/2015	03/31/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.146		mmhos/cm	"	5C31012	"	"
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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 - Richardson V 3-2

E01 @ 2
3/31/2015 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503408-03 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C31008	03/31/2015	03/31/2015
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	5C31006	03/31/2015	03/31/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 112 % 70-130 " " "
Surrogate: Toluene-d8 93.2 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.03		pH Units	1	5C31011	03/31/2015	03/31/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.169		mmhos/cm	"	5C31012	"	"
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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 - Richardson V 3-2

W01 @ 2
3/31/2015 1:27:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503408-04 (Soil)

DRO/RRO by EPA8015C

Diesel (C10-C28)	ND	50	mg/kg	1	5C31008	03/31/2015	03/31/2015
Residual Range Organics (C28-C36)	ND	200	"	"	"	"	"

Surrogate: o-Terphenyl 75.1 % 59-131 " " "

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	5C31006	03/31/2015	03/31/2015
Benzene	ND	0.002	"	"	"	"	"
Toluene	ND	0.002	"	"	"	"	"
Ethylbenzene	ND	0.002	"	"	"	"	"
Xylenes, total	ND	0.002	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4 112 % 70-130 " " "
Surrogate: Toluene-d8 98.3 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 101 % 70-130 " " "

pH in Soil by EPA 9045D

pH	9.22		pH Units	1	5C31011	03/31/2015	03/31/2015
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.121		mmhos/cm	"	5C31012	"	"
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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 - Richardson V 3-2

GW01

3/31/2015 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X503408-05 (Water)

BTEX by EPA 8260C

Benzene	1740	20.0	ug/L	20	5C30011	03/31/2015	03/31/2015
Toluene	7470	100	"	100	"	"	03/31/2015
Ethylbenzene	494	20.0	"	20	"	"	03/31/2015
Xylenes, total	6660	20.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	94.5 %	87.3-113			"	"	"
Surrogate: Toluene-d8	98.7 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	109 %	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 - Richardson V 3-2

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 5C30011 - EPA 5030B (Water)

Blank (5C30011-BLK1)

Prepared: 03/30/2015 Analyzed: 03/31/2015

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	101		87.3-113			
Surrogate: Toluene-d8	63		"	62.5	101		90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	97.5		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 - Richardson V 3-2

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 5C30011 - EPA 5030B (Water)

LCS (5C30011-BS1)

Prepared: 03/30/2015 Analyzed: 03/31/2015

Benzene	48.2	1.0	ug/L	50.0		96.5	75-126			
Toluene	46.9	1.0	"	50.0		93.8	78.7-126			
Ethylbenzene	44.5	1.0	"	50.0		88.9	80-130			
m,p-Xylene	91.6	2.0	"	100		91.6	77.2-133			
o-Xylene	44.8	1.0	"	50.0		89.5	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		95.6	87.3-113			
Surrogate: Toluene-d8	60		"	62.5		95.4	90.9-108			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		105	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 - Richardson V 3-2

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 5C30011 - EPA 5030B (Water)

Matrix Spike (5C30011-MS1)		Source: X503362-01			Prepared: 03/30/2015 Analyzed: 03/31/2015					
Benzene	52.0	1.0	ug/L	50.0	ND	104	74-130			
Toluene	58.5	1.0	"	50.0	ND	117	73-131			
Ethylbenzene	48.1	1.0	"	50.0	ND	96.2	76-132			
m,p-Xylene	101	2.0	"	100	ND	101	69-139			
o-Xylene	54.2	1.0	"	50.0	ND	108	74-131			
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		94.9	87.3-113			
Surrogate: Toluene-d8	65		"	62.5		103	90.9-108			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	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 - Richardson V 3-2

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 5C30011 - EPA 5030B (Water)

Matrix Spike Dup (5C30011-MSD1)		Source: X503362-01			Prepared: 03/30/2015 Analyzed: 03/31/2015					
Benzene	58.5	1.0	ug/L	50.0	ND	117	74-130	11.9	20	
Toluene	64.9	1.0	"	50.0	ND	130	73-131	10.4	20	
Ethylbenzene	55.9	1.0	"	50.0	ND	112	76-132	15.1	20	
m,p-Xylene	111	2.0	"	100	ND	111	69-139	8.61	20	
o-Xylene	53.1	1.0	"	50.0	ND	106	74-131	1.98	20	
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5		100	87.3-113			
Surrogate: Toluene-d8	67		"	62.5		108	90.9-108			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.6	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 - Richardson V 3-2

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
Batch 5C31006 - EPA 5030 (soil)										
Blank (5C31006-BLK1)					Prepared: 03/31/2015 Analyzed: 03/31/2015					
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	66.7		ug/kg	62.5		107	70-130			
Surrogate: Toluene-d8	61.4		"	62.5		98.3	70-130			
Surrogate: 4-Bromofluorobenzene	63.4		"	62.5		101	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

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
Batch 5C31006 - EPA 5030 (soil)										
LCS (5C31006-BS1)					Prepared: 03/31/2015 Analyzed: 03/31/2015					
Benzene	0.105	0.002	mg/kg	0.100		105	77.1-124			
Toluene	0.103	0.002	"	0.100		103	74.5-128			
Ethylbenzene	0.104	0.002	"	0.100		104	66.4-127			
m,p-Xylene	0.209	0.004	"	0.200		105	76.6-124			
o-Xylene	0.109	0.002	"	0.100		109	76.6-124			
Surrogate: 1,2-Dichloroethane-d4	64.2		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	62.0		"	62.5		99.2	70-130			
Surrogate: 4-Bromofluorobenzene	62.3		"	62.5		99.7	70-130			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

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 5C31006 - EPA 5030 (soil)

Matrix Spike (5C31006-MS1)		Source: X503375-01			Prepared: 03/31/2015 Analyzed: 03/31/2015					
Benzene	0.100	0.002	mg/kg	0.100	ND	100	71.8-126			
Toluene	0.097	0.002	"	0.100	ND	97.0	65.1-130			
Ethylbenzene	0.097	0.002	"	0.100	ND	97.4	62.2-130			
m,p-Xylene	0.196	0.004	"	0.200	ND	98.0	46.5-137			
o-Xylene	0.099	0.002	"	0.100	ND	99.4	54.2-134			
Surrogate: 1,2-Dichloroethane-d4	64.2		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	61.1		"	62.5		97.7	70-130			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	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 - Richardson V 3-2

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 5C31006 - EPA 5030 (soil)

Matrix Spike Dup (5C31006-MSD1)		Source: X503375-01			Prepared: 03/31/2015 Analyzed: 03/31/2015					
Benzene	0.102	0.002	mg/kg	0.100	ND	102	71.8-126	1.72	11.3	
Toluene	0.100	0.002	"	0.100	ND	99.8	65.1-130	2.78	15.4	
Ethylbenzene	0.099	0.002	"	0.100	ND	99.4	62.2-130	2.05	19.6	
m,p-Xylene	0.201	0.004	"	0.200	ND	100	46.5-137	2.39	19.2	
o-Xylene	0.102	0.002	"	0.100	ND	102	54.2-134	2.46	17.9	
Surrogate: 1,2-Dichloroethane-d4	64.0		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62.2		"	62.5		99.6	70-130			
Surrogate: 4-Bromofluorobenzene	62.5		"	62.5		100	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 - Richardson V 3-2

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 5C31008 - EPA 3580

Blank (5C31008-BLK1)

Prepared: 03/31/2015 Analyzed: 03/31/2015

Diesel (C10-C28)	ND	50	mg/kg							
Residual Range Organics (C28-C36)	ND	200	"							
Surrogate: o-Terphenyl	37		"	50.0		73.3	59-131			

LCS (5C31008-BS1)

Prepared: 03/31/2015 Analyzed: 03/31/2015

Diesel (C10-C28)	950	50	mg/kg	1000		95.0	64-121			
Residual Range Organics (C28-C36)	1000	200	"	1000		101	58-124			
Surrogate: o-Terphenyl	48		"	50.0		95.3	59-131			

Matrix Spike (5C31008-MS1)

Source: X503408-01

Prepared: 03/31/2015 Analyzed: 03/31/2015

Diesel (C10-C28)	1000	50	mg/kg	1000	17	102	53-125			
Residual Range Organics (C28-C36)	880	200	"	1000	ND	88.0	47-133			
Surrogate: o-Terphenyl	34		"	50.0		68.0	59-131			

Matrix Spike Dup (5C31008-MSD1)

Source: X503408-01

Prepared: 03/31/2015 Analyzed: 03/31/2015

Diesel (C10-C28)	910	50	mg/kg	1000	17	89.0	53-125	13.3	20	
Residual Range Organics (C28-C36)	1000	200	"	1000	ND	100	47-133	13.0	20	
Surrogate: o-Terphenyl	37		"	50.0		74.4	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 - Richardson V 3-2

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 5C31011 - NO PREP										
Duplicate (5C31011-DUP1)		Source: X503408-01			Prepared: 03/31/2015 Analyzed: 03/31/2015					
pH	9.25		pH Units		9.28			0.324	25	
Batch 5C31012 - NO PREP										
Blank (5C31012-BLK1)		Prepared: 03/31/2015 Analyzed: 03/31/2015								
Specific Conductance (EC)	0.00200		mmhos/cm							
Duplicate (5C31012-DUP1)		Source: X503408-01			Prepared: 03/31/2015 Analyzed: 03/31/2015					
Specific Conductance (EC)	0.139		mmhos/cm		0.138			0.938	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 - Richardson V 3-2

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.

April 03, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Richardson V 3-2**Project Number - [none]**

Attached are your analytical results for KMG - Richardson V 3-2 received by Origins Laboratory, Inc. April 02, 2015. This project is associated with Origins project number X504032-01.

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 - Richardson V 3-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N02 @ 2	X504032-01	Soil	April 2, 2015 15:25	04/02/2015 17:00
W02 @ 2	X504032-02	Soil	April 2, 2015 15:27	04/02/2015 17:00
E02 @ 2	X504032-03	Soil	April 2, 2015 15:30	04/02/2015 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: [none]
Project: KMG - Richardson V 3-2

ORIGINS
LABORATORY, INC

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

www.originslaboratory.com

page 1 of 1

X504032

Client: Tasman Geo

Project Manager: Christine Wasko

Project Name: Richardson V 3-2

Project Number: Brack Nelson

Samples Collected By: Brack Nelson

Telephone Number: 912 230 2807

Email Address: _____

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #	Other	PH	
N0202	4/2/15	1525	2	X				X					1
N0202	4/2/15	1527	2	X				X					2
E0202	4/2/15	1530	2	X				X					3
													4
													5
													6
													7
													8
													9
													10

Relinquished By: [Signature]

Relinquished By: _____

Date: 4/2/15

Date: _____

Time: _____

Time: _____

Received By: K...

Received By: _____

Date: 4.2.15

Date: _____

Time: 1700

Time: _____

Turnaround Time: Same Day

Turnaround Time: _____

24 Hr ☐

48 Hr ☐

Standard ☐

Origins Laboratory, Inc.

Jefe Pellegrini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: XS04032

Client: Tasman

Client Project ID: Richardson V3-2

Checklist Completed by: Jesse Smith

Shipped Via: Pick Up

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

Date/time completed: 4/2/15

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 3.2 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: 7053

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 HNO ₃ , HCl, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

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

Reviewed by (Project Manager)

Date/Time Reviewed 4/2/15

Origins Laboratory, Inc.

Jesse Pellegrini

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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - Richardson V 3-2

N02 @ 2

4/2/2015 3:25:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.

X504032-01 (Soil)

pH in Soil by EPA 9045D

pH	9.10	pH Units	1	5D02015	04/02/2015	04/02/2015
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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 - Richardson V 3-2

W02 @ 2

4/2/2015 3:27:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.

X504032-02 (Soil)

pH in Soil by EPA 9045D

pH	8.56	pH Units	1	5D02015	04/02/2015	04/02/2015
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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 - Richardson V 3-2

E02 @ 2

4/2/2015 3:30:00PM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.

X504032-03 (Soil)

pH in Soil by EPA 9045D

pH	9.26	pH Units	1	5D02015	04/02/2015	04/02/2015
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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 - Richardson V 3-2

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5D02015 - NO PREP

Duplicate (5D02015-DUP1)		Source: X504029-01			Prepared: 04/02/2015 Analyzed: 04/02/2015					
pH	8.09		pH Units		8.11			0.247	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 - Richardson V 3-2

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

April 09, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Richardson V 3-2**Project Number - [none]**

Attached are your analytical results for KMG - Richardson V 3-2 received by Origins Laboratory, Inc. April 08, 2015. This project is associated with Origins project number X504105-01.

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 - Richardson V 3-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E03 @ 2	X504105-01	Soil	April 8, 2015 9:23	04/08/2015 16:40
N03 @ 2	X504105-05	Soil	April 8, 2015 9:10	04/08/2015 16:40

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.

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

ORIGINS

LABORATORY, INC

X504105

www.originslaboratory.com

Client: Tasman Geo

Project Manager: Christine Wisco

Address: _____

Project Name: Richardson V3-2

Telephone Number: 912 230 2807

Project Number: 2
Samples Collected By: Brack Nelson

Email Address: Cwisco@Tasman-geo.com

page 1 of 1

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis	Sample Instructions		
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summ. #			Other	
E03(2) 2BUN	4/8/15	913	2						X		EC TPH - Degrade C.B.T.X 5.26L	PH	1	3 11/10 for 2 11/10 for 3 11/10 for 4 11/10 for
E04(2) 2	4/8/15	925	2	X					X				2	
E05(2) 2	4/8/15	927	2	X					X				3	
E06(2) 2	4/8/15	930	2	X					X				4	
N03(2) 2BUN	4/8/15	910	2	X					X				5	3 11/10 for 2 11/10 for 3 11/10 for 4 11/10 for
N04(2) 2	4/8/15	915	2	X					X				6	
N05(2) 2	4/8/15	917	2	X					X				7	
N06(2) 2	4/8/15	920	2	X					X				8	
													9	3 11/10 for 2 11/10 for
													10	
Requisition # by: <u>[Signature]</u>	Date: <u>4/8/15</u>	Time: _____	Time: _____	Received By: <u>[Signature]</u>	Date: <u>4.8.15</u>	Time: _____	Turnaround Time: <u>Same Day</u> <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>							
Requisition # by: <u>[Signature]</u>	Date: <u>4/8/15</u>	Time: _____	Time: _____	Received By: <u>[Signature]</u>	Date: _____	Time: _____								

Temp Received: 313

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellgrini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X504105

Client: Tasman

Client Project ID: Richardson V3-2

Checklist Completed by: Jesse Smith

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

Date/time completed: 4/8/15

Airbill #: NA

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

Cooler Number/Temperature: 1 / 13.3 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: 1203

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

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

Reviewed by (Project Manager)

Date/Time Reviewed: 4-08-15 1235

Origins Laboratory, Inc.

Jesse Pellegrini

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

Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - Richardson V 3-2

E03 @ 2

4/8/2015 9:23:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.

X504105-01 (Soil)

pH in Soil by EPA 9045D

pH	8.99	pH Units	1	5D08008	04/08/2015	04/08/2015
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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 - Richardson V 3-2

N03 @ 2

4/8/2015 9:10:00AM

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit						

Origins Laboratory, Inc.

X504105-05 (Soil)

pH in Soil by EPA 9045D

pH	8.92	pH Units	1	5D08008	04/08/2015	04/08/2015
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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 - Richardson V 3-2

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 5D08008 - NO PREP										
Duplicate (5D08008-DUP1)		Source: X504076-02			Prepared: 04/08/2015 Analyzed: 04/08/2015					
pH	8.21		pH Units		8.27			0.728	25	
Duplicate (5D08008-DUP2)		Source: X504105-01			Prepared: 04/08/2015 Analyzed: 04/08/2015					
pH	9.02		pH Units		8.99			0.333	25	

Origins Laboratory, Inc.



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Tasman Geosciences

6899 Pecos Street, Unit C

Denver CO 80211

Christine Wasko

Project Number: [none]

Project: KMG - Richardson V 3-2

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



April 10, 2015

Tasman Geosciences

Christine Wasko

6899 Pecos Street, Unit C

Denver

CO 80211

Project Name - KMG - Richardson V 3-2

Project Number - [none]

Attached are your analytical results for KMG - Richardson V 3-2 received by Origins Laboratory, Inc. April 09, 2015. This project is associated with Origins project number X504122-01.

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 - Richardson V 3-2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GW02	X504122-01	Water	April 9, 2015 9:30	04/09/2015 16:30

Origins Laboratory, Inc.



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

Jen Pellegrini For Noelle Doyle Mathis, President

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

ORIGINS

LABORATORY, INC

www.originslaboratory.com

X504122

page 1 of 1

Client: TSMAN 600
 Address: _____
 Telephone Number: 910 230 2807
 Email Address: Clawko@tisman.gcc.com

Project Manager: Christine Waske
 Project Name: Richardson V3-2
 Project Number: _____
 Samples Collected By: Jack Wilson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis			Sample Instructions
				Unpreserved	HCl	HNO ₃	Groundwater	Other	Soil	Air Summa Canister #	Other			
GW02	4/9/15	930	3	X			X						X	1
														2
														3
														4
														5
														6
														7
														8
														9
														10

Relinquished By: <u>[Signature]</u>	Date: <u>4/9/15</u>	Time: _____	Received By: <u>[Signature]</u>	Date: <u>4.9.15</u>	Time: <u>1630</u>	Turnaround Time: Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>
	Date: _____	Time: _____	Received By: _____	Date: _____	Time: _____	

Temp Received-

Date Results Needed

Origins Laboratory, Inc.

Jeff Pellipini

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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X50422

Client: Tasman

Client Project ID: Richardson

Checklist Completed by: David Mathis

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

Date/time completed: 4-8-15

Airbill #: _____

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

Cooler Number/Temperature: 16.3 °C _____ °C _____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		<input checked="" type="checkbox"/>		<u>Sampled today</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"/>		
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input checked="" type="checkbox"/>			<u>HCL</u>
Additional Comments (if any):				

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

Reviewed by (Project Manager) [Signature]

4/9/15
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: [none]
Project: KMG - Richardson V 3-2

GW02

4/9/2015 9:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X504122-01 (Water)

BTEX by EPA 8260C

Benzene	353	50.0	ug/L	50	5D09013	04/09/2015	04/09/2015
Toluene	1330	50.0	"	"	"	"	"
Ethylbenzene	138	50.0	"	"	"	"	"
Xylenes, total	1820	50.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113			"	"	"
Surrogate: Toluene-d8	101 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	91.1 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

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 5D09013 - EPA 5030B (Water)

Blank (5D09013-BLK1)

Prepared: 04/09/2015 Analyzed: 04/09/2015

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	104		87.3-113			
Surrogate: Toluene-d8	64		"	62.5	102		90.9-108			
Surrogate: 4-Bromofluorobenzene	56		"	62.5	90.0		88.6-111			

Origins Laboratory, Inc.



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

Tasman Geosciences
6899 Pecos Street, Unit C
Denver CO 80211

Christine Wasko
Project Number: [none]
Project: KMG - Richardson V 3-2

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 5D09013 - EPA 5030B (Water)

LCS (5D09013-BS1)

Prepared: 04/09/2015 Analyzed: 04/09/2015

Benzene	50.6	1.0	ug/L	50.0	101	75-126
Toluene	51.9	1.0	"	50.0	104	78.7-126
Ethylbenzene	55.5	1.0	"	50.0	111	80-130
m,p-Xylene	108	2.0	"	100	108	77.2-133
o-Xylene	50.9	1.0	"	50.0	102	77.9-126
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5	96.4	87.3-113
Surrogate: Toluene-d8	63		"	62.5	101	90.9-108
Surrogate: 4-Bromofluorobenzene	58		"	62.5	92.2	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 - Richardson V 3-2

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 5D09013 - EPA 5030B (Water)

Matrix Spike (5D09013-MS1)		Source: X504089-02			Prepared: 04/09/2015 Analyzed: 04/09/2015					
Benzene	48.7	1.0	ug/L	50.0	ND	97.4	74-130			
Toluene	52.4	1.0	"	50.0	ND	105	73-131			
Ethylbenzene	55.8	1.0	"	50.0	ND	112	76-132			
m,p-Xylene	109	2.0	"	100	ND	109	69-139			
o-Xylene	51.7	1.0	"	50.0	ND	103	74-131			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		96.9	87.3-113			
Surrogate: Toluene-d8	64		"	62.5		102	90.9-108			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.7	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 - Richardson V 3-2

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

Batch 5D09013 - EPA 5030B (Water)

Matrix Spike Dup (5D09013-MSD1)		Source: X504089-02			Prepared: 04/09/2015 Analyzed: 04/09/2015					
Benzene	46.2	1.0	ug/L	50.0	ND	92.5	74-130	5.20	20	
Toluene	48.8	1.0	"	50.0	ND	97.7	73-131	6.98	20	
Ethylbenzene	51.4	1.0	"	50.0	ND	103	76-132	8.22	20	
m,p-Xylene	101	2.0	"	100	ND	101	69-139	7.52	20	
o-Xylene	48.8	1.0	"	50.0	ND	97.7	74-131	5.59	20	
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		95.3	87.3-113			
Surrogate: Toluene-d8	64		"	62.5		102	90.9-108			
Surrogate: 4-Bromofluorobenzene	58		"	62.5		92.6	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 - Richardson V 3-2

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.



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Jen Pellegrini For Noelle Doyle Mathis, President