

## **ANALYTICAL TABLE**

**TABLE 1**  
**RICHARDSON V3-2**  
**GROUNDWATER SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

| Sample ID   | Date Sampled | Benzene<br>(ug/L) | Toluene<br>(ug/L) | Ethylbenzene<br>(ug/L) | Total<br>Xylenes<br>(ug/L) |
|---|--------------|-------------------|-------------------|------------------------|----------------------------|
| COGCC Table 910-1<br>Groundwater Standard (ug/L) <sup>(1)</sup> |              | 5                 | 560               | 700                    | 1,400                      |
| GW01  | 3/31/2015    | <b>1740</b>       | <b>7470</b>       | 494                    | <b>6,660</b>               |

**Notes:**

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

COGCC = Colorado Oil and Gas Conservation Commission

ug/L = Micrograms per liter

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

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

# **LABORATORY ANALYTICAL REPORT**



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

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page 1 of 1

**X503408**

| Sample ID Description | Date Sampled | Time Sampled | # of Containers | Preservative |     |                  |       | Matrix      |      |           | Analysis |              |       |              | Sample Instructions |      |     |                 |
|-----------------------|--------------|--------------|-----------------|--------------|-----|------------------|-------|-------------|------|-----------|----------|--------------|-------|--------------|---------------------|------|-----|-----------------|
|                       |              |              |                 | Unpreserved  | HCl | HNO <sub>3</sub> | Other | Groundwater | Soil | Air Summa | Other    | TPH - Dredge | EC/PH | BTEX         |                     | SAZ  |     |                 |
| H0102                 | 3/31/15      | 1325         | 2               |              |     |                  |       |             | X    |           |          | X            | X     | TPH - Dredge | EC/PH               | BTEX | SAZ | If sample has   |
| S0102                 | 3/31/15      | 1317         | 2               |              |     |                  |       |             |      |           |          | X            | X     | TPH - Dredge | EC/PH               | BTEX | SAZ | EC74.0, plv. sc |
| E0102                 | 3/31/15      | 1320         | 2               |              |     |                  |       |             |      |           |          | X            | X     | TPH - Dredge | EC/PH               | BTEX | SAZ | run for SAZ     |
| W0102                 | 3/31/15      | 1327         | 2               |              |     |                  |       |             | X    |           |          | 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: 1600

Time: \_\_\_\_\_

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

Temp Received: 41.2

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 - 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 <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Is there ice present (document if blue ice is used)   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                           |
| Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                           |
| Were all samples received intact <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Was adequate sample volume provided <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | PH                        |
| Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |                           |
| For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3/31/15<br>X<br>65        |
| Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | 3/31/15<br>A<br>65<br>HCL |
| Additional Comments (if any):   |                                     |                                     |                          |                           |

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

Jeff Smith  
Reviewed by (Project Manager)

3/31/15  
Date/Time Reviewed

Origins Laboratory, Inc.

*Jeff Pellegrini*

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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

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

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Notes |
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|

**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 |
|----|------|--|----------|---|---------|------------|------------|

**Specific Conductance by Modified 9050A**

|                           |       |  |          |   |         |   |   |
|---------------------------|-------|--|----------|---|---------|---|---|
| Specific Conductance (EC) | 0.138 |  | mmhos/cm | " | 5C31012 | " | " |
|---------------------------|-------|--|----------|---|---------|---|---|

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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

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

| Analyte | Result | Reporting Limit | Units | Dilution | Batch | Prepared | Analyzed | Notes |
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|

**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 |
|----|------|--|----------|---|---------|------------|------------|

**Specific Conductance by Modified 9050A**

|                           |       |  |          |   |         |   |   |
|---------------------------|-------|--|----------|---|---------|---|---|
| Specific Conductance (EC) | 0.146 |  | mmhos/cm | " | 5C31012 | " | " |
|---------------------------|-------|--|----------|---|---------|---|---|

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 |
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|

**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 |
|----|------|--|----------|---|---------|------------|------------|

**Specific Conductance by Modified 9050A**

|                           |       |  |          |   |         |   |   |
|---------------------------|-------|--|----------|---|---------|---|---|
| Specific Conductance (EC) | 0.169 |  | mmhos/cm | " | 5C31012 | " | " |
|---------------------------|-------|--|----------|---|---------|---|---|

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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 |
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|
|---------|--------|-----------------|-------|----------|-------|----------|----------|-------|

**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 |
|----|------|--|----------|---|---------|------------|------------|

**Specific Conductance by Modified 9050A**

|                           |       |  |          |   |         |   |   |
|---------------------------|-------|--|----------|---|---------|---|---|
| Specific Conductance (EC) | 0.121 |  | mmhos/cm | " | 5C31012 | " | " |
|---------------------------|-------|--|----------|---|---------|---|---|

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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<br>Limit | Units | Dilution | Batch | Prepared | Analyzed | Notes |
|---------|--------|--------------------|-------|----------|-------|----------|----------|-------|
|---------|--------|--------------------|-------|----------|-------|----------|----------|-------|

## 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 |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

**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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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 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 |  |  |  |

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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 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 |  |  |  |

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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 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 |      |    |  |

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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 |
|--|--------|-----------------|-------|-------------|---|------|-------------|-----|-----------|-------|
| <b>Batch 5C31006 - EPA 5030 (soil)</b> |        |                 |       |             |   |      |             |     |           |       |
| <b>Blank (5C31006-BLK1)</b>            |        |                 |       |             | 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      |     |           |       |

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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 |
|--|--------|-----------------|-------|-------------|---|------|-------------|-----|-----------|-------|
| <b>Batch 5C31006 - EPA 5030 (soil)</b> |        |                 |       |             |   |      |             |     |           |       |
| <b>LCS (5C31006-BS1)</b>               |        |                 |       |             | 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      |     |           |       |

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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)**

| 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   |  |  |  |

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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 |
|--|--------|---------------------------|-------|-------------|---|------|-------------|------|-----------|-------|
| <b>Batch 5C31006 - EPA 5030 (soil)</b> |        |                           |       |             |   |      |             |      |           |       |
| <b>Matrix Spike Dup (5C31006-MSD1)</b> |        | <b>Source: X503375-01</b> |       |             | 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      |      |           |       |

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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 |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

## Extractable Petroleum Hydrocarbons by 8015C - Quality Control

### Origins Laboratory, Inc.

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

#### Batch 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 |      |    |  |

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

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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