



January 18, 2019

Greg Hamilton
Sr. Staff HSE Representative
Kerr-McGee Oil & Gas Onshore, LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**Re: Sump Closure Summary Report
HSR-PAUL SCHMIDT #16-33 Tank Battery
Location ID: 330051
NWNW – Sec18 – T3N - R67W
COGCC Remediation Number 12301**

Dear Mr. Hamilton:

Apex Companies, LLC (Apex) is providing Kerr-McGee Oil & Gas Onshore, LP (Kerr-McGee) with this Sump Closure Summary Report to document sampling activities and the results of environmental testing at the tank battery associated with the HSR-PAUL SCHMIDT #16-33 well. This form is being submitted to document the closure activities of two produced water sumps under Remediation Number 12301, as approved by the COGCC. Apex provided the environmental services at the site that included a collection of confirmation samples from the sump excavation and documentation of field activities, as described below.

Site Assessment Activities

The field activities described herein were performed on September 10, 2018, with the purpose of assessing potential hydrocarbon impacts at the site related to the closure of two partially buried produced water sumps. Soil sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout and sample locations are provided in Figure 1.

The final extent of the northern excavation measured approximately 20 feet by 21 feet, at an approximate depth of 4 feet below ground surface (bgs). The final extent of the southern excavation measured approximately 27 feet by 20 feet, at an approximate depth of 4 feet below ground surface (bgs). Impacted soil and groundwater were not encountered in either excavation.

Confirmation soil samples were collected from the four sidewalls in each excavation area at approximately 3 feet bgs. A bentonite liner prohibited the collection of base samples from both excavations. Soil samples were field-screened using a calibrated photoionization detector. Based on the field screening, the sidewall (N-E01@3') of the northern excavation, and the sidewall (S-S01@3') of the southern excavation and submitted to Origins Laboratory in Denver, Colorado. The samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260, TPH – diesel range and residual range organics (DRO and RRO, respectively) by USEPA Method 8015, electrical conductivity (EC), and pH. Soil analytical data are summarized in Table 1 and the laboratory analytical report is provided in Attachment A.

Results

Analytical results from the confirmation soil samples (N-E01@3' and S-S01@3') collected from the final extent of both excavations indicate that BTEX, TPH, EC, and pH concentrations were in full compliance with COGCC Table 910-1 allowable levels. The remaining samples collected from the excavation area were not submitted for laboratory analysis, as analytical data from the submitted samples and field screened samples confirmed the absence of petroleum hydrocarbon impacts above COGCC Table 910-1 standards.

Conclusions

Analytical results described herein confirm BTEX and TPH impacts are not present at concentrations above applicable regulatory standards at the two former partially buried produced water sump locations. Consequently, no further site assessment or remedial activity is necessary. The two produced water sumps were removed, prior to site assessment activities. The excavation area was backfilled and contoured to match pre-existing conditions, and two new produced water sumps were installed.

Please contact me at (720) 501-5065 if you have any questions regarding this report or require additional information.

Sincerely,

Apex Companies, LLC

Maggie Graham

Maggie Graham
Senior Project Manager

Attachments:

Figure 1 – HSR-PAUL SCHMIDT#16-33- Facility Layout & Sample Locations
Table 1 – Soil Sample Analytical Results
Attachment A – Laboratory Analytical Report



Figure 1
HSR-Paul Schmidt
#16-33- Facility
Layout & Sample
Locations

Non-cropland

Access Road



N-E01@3'
 B: 0.004 mg/kg
 T: <0.002 mg/kg
 E: 0.003 mg/kg
 X: 0.013 mg/kg
 TPH: 1.32 mg/kg

S-S01@3'
 B: <0.002 mg/kg
 T: <0.002 mg/kg
 E: <0.002 mg/kg
 X: <0.002 mg/kg
 TPH: <100 mg/kg

Legend

- Soil Sample (9/10/2018)
- Former Crude Oil Tank
- Former Produced Water Sump
- Former Secondary Containment
- Excavation Extent (9/10/2018)

Sample Location

- B: benzene
- T: toluene
- E: ethylbenzene
- X: xylenes
- TPH: total petroleum hydrocarbons

Bold values exceed COGCC Table 910-1 allowable concentrations

Site Characteristics

Legal Location: SESE, Sec 33, T3N R66W
County: Weld
Land Use: Non-cropland **Topography:** 1-3% Slopes
Run-Off Risk: Low
Soil Type: Olney fine sandy loam

| REVISED | BY | COMMENT |
|-----------|-----|----------|
| 9/11/2018 | BJB | Figure 1 |

For illustration purposes, spatial data in this diagram (e.g. sample points, excavation perimeter) is representative of field observations, and for illustration purposes may have been adjusted to align with aerial imagery and other pictured spatial data. Apex also collects spatial data using GPS units with real-time differential correction and sub-meter accuracy. Spatial data (e.g. ESRI shapefiles, Google Earth KMZ) provided separately from this diagram, may not be consistent with what is presented in this site diagram, due to adjustments made for illustrative purposes.

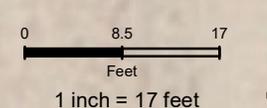


Table 1 - Soil Laboratory Results

Kerr-McGee Oil and Gas Onshore LP
 Location Name: HSR-Paul Schmidt 16-33
 Location ID: 330051
 County: Weld

| COGCC Allowable Concentration (Soil) --> | | | Organics (mg/kg [ppm]) | | | | | | | 4 | (6-9) |
|--|--------------|---------------|----------------------------------|------------------------------------|------------------------------------|---------|---------|--------------|-----------------|--------------------------------------|-----------|
| | | | 500 | 0.17 | 85 | 100 | 175 | | | | |
| Sample ID: | Sample Date: | Sample Depth: | TPH-GRO (C6-C10) Low Fraction | TPH-DRO (C10-C28) High Fraction | TPH-RRO (C28-C40) High Fraction | Benzene | Toluene | Ethylbenzene | Xylenes - total | EC (<4 mmhos/cm or 2x background) | pH (unit) |
| N-E01@3' | 9/10/18 | 3' | 1.32 | <25.0 | <100 | 0.004 | <0.002 | 0.003 | 0.013 | 0.0729 | 8.35 |
| S-S01@3' | 9/10/18 | 3' | <0.200 | <25.0 | <100 | <0.002 | <0.002 | <0.002 | <0.002 | 0.0554 | 8.75 |

Notes:

TPH Total Petroleum Hydrocarbons
 GRO Gasoline Range Organics (C6-C10)
 DRO Diesel Range Organics (C10-C28)
 RRO Residual Range Organics (C28-C36)
Indicates results exceeded COGCC Table 910-1 allowable concentration

bgs below ground surface
 mg/kg milligram per kilogram
 mmhos/cm millimhos per centimeter
 NA Not analyzed/ Not Applicable
 COGCC Colorado Oil and Gas Conservation Commission
 * Sample was collected below the designated root zone (>3' bgs)

Attachment A

Laboratory Analytical Report

September 11, 2018

Apex Companies, LLC

Maggie Graham

4150 Darley Avenue, Suite 1

Boulder CO 80305

Project Name - KMG - HSR Paul Schmidt 16-33

Project Number - COT0132

Attached are your analytical results for KMG - HSR Paul Schmidt 16-33 received by Origins Laboratory, Inc. September 10, 2018. This project is associated with Origins project number Y809100-04.

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



Apex Companies, LLC
4150 Darley Avenue, Suite 1
Boulder CO 80305

Maggie Graham
Project Number: COT0132
Project: KMG - HSR Paul Schmidt 16-33

CROSS REFERENCE REPORT

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|--------------------------|------------------|
| N-E01@3' | Y809100-04 | Soil | September 10, 2018 13:00 | 09/10/2018 17:30 |
| S-S01@3' | Y809100-08 | Soil | September 10, 2018 13:30 | 09/10/2018 17:30 |

Origins Laboratory, Inc.



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

Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

ORIGINS

LABORATORY, INC

www.originslaboratory.com

Y809100

page 1 of 1

Client: Apex Companies
 Address: 1746 Cole Blvd, Lakewood, CO 80401
 Telephone Number: 720-501-5065
 Email Address: Maggie.Graham@apexcos.com

Project Manager: Maggie Graham
 Project Name: HSR-Paul Schmidt 16-33
 Project Number: WO#COT0132 Greg Hamilton
 Samples Collected By: Caitlin Thomas
 Bill to Anadarko

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

| Sample ID Description | Date Sampled | Time Sampled | # of Containers | Preservative | | | | Matrix | | | Analysis | | | | | Sample Instructions | | | |
|--|---------------|--------------|---------------------------------|---------------|------------|--|-------|--------------------------------|------|--------------------------------|----------|--------------------------------|---------|-----------------------------------|----------|---------------------|------|------|--|
| | | | | Unpreserved | HCl | HNO ₃ | Other | Groundwater | Soil | Air Sampling Container # | Other | GETEX | DRO/RRO | EC, pH | HOLD SAR | | | HOLD | |
| N-SØ1@3' | 9/10/18 | 1245 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | Hold | 1 | |
| N-WØ1@3' | | 1250 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | ↓ | 2 | |
| N-NØ1@3' | | 1255 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | ↓ | 3 | |
| N-EØ1@3' | | 1300 | 1 | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | | | | Run | 4 | |
| S-WØ1@3' | | 1315 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | Hold | 5 | |
| S-NØ1@3' | | 1320 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | ↓ | 6 | |
| S-EØ1@3' | | 1325 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | ↓ | 7 | |
| S-SØ1@3' | | 1330 | 1 | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | | | | Run | 8 | |
| BGØ1@Ø.5' | | 1350 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | Hold | 9 | |
| S-EØ2@2' | | 1435 | 1 | ✓ | | | | | ✓ | | | | | | | ✓ | ↓ | 10 | |
| Relinquished By: <i>Caitlin Thomas</i> | Date: 9/10/18 | Time: 1557 | Received By: <i>[Signature]</i> | Date: 9/10/18 | Time: 1557 | Turnaround Time: | | | | | | | | | | | | | |
| Relinquished By: | Date: | Time: | Received By: | Date: 9/10/18 | Time: 1730 | 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"/> | | | | | |

5.3

Date Results Needed Next day, 7am

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

Origins Laboratory, Inc.

Jen Pellegrini For Noelle Doyle Mathis, President

Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: 4909100

Client: Apex

Client Project ID: KMG - HSR Paul Schmidt 16-33

Checklist Completed by: JG

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

Date/time completed: 9/10/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 / 5.3 °C _____ / _____ °C _____ / _____ °C _____ / _____ °C

Thermometer ID: T003

| Requirement Description | Yes | No | N/A | Comments (if any) |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------|
| If samples require cooling, was the temperature between 0°C to ≤ 6°C ^{(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): [Signature] Date/Time Reviewed: 9/10/18

Origins Laboratory, Inc.

Jefe Pellegrini

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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

N-E01@3'

9/10/2018 1:00:00PM

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

Origins Laboratory, Inc.
Y809100-04 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|----|------|-------|---|---------|-----|------------|------------|---|
| Diesel (C10-C28) | ND | 25.0 | mg/kg | 1 | B811001 | KDK | 09/10/2018 | 09/10/2018 | U |
| Residual Range Organics (C28-C40) | ND | 100 | " | " | " | KDK | " | " | U |

Surrogate: o-Terphenyl 64.6 % 59-131 " " "

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|---|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 1.32 | 0.200 | mg/kg | 1 | B811002 | KDK | 09/10/2018 | 09/10/2018 | |
| Benzene | 0.004 | 0.002 | " | " | " | KDK | " | " | |
| Toluene | ND | 0.002 | " | " | " | KDK | " | " | U |
| Ethylbenzene | 0.003 | 0.002 | " | " | " | KDK | " | " | |
| Xylenes, total | 0.013 | 0.002 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 95.7 % 70-130 " " "
Surrogate: Toluene-d8 97.9 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 99.3 % 70-130 " " "

pH in Soil by EPA 9045D

| | | | | | | | | | |
|----|-------------|--|----------|---|---------|-----|------------|------------|--|
| pH | 8.35 | | pH Units | 1 | B811008 | JTD | 09/10/2018 | 09/10/2018 | |
|----|-------------|--|----------|---|---------|-----|------------|------------|--|

Specific Conductance by Modified 9050A

| | | | | | | | | | |
|---------------------------|---------------|---------|----------|---|---------|-----|------------|---|--|
| Specific Conductance (EC) | 0.0729 | 0.00500 | mmhos/cm | " | B811009 | JTD | 09/10/2018 | " | |
|---------------------------|---------------|---------|----------|---|---------|-----|------------|---|--|

Origins Laboratory, Inc.



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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

S-S01@3'

9/10/2018 1:30:00PM

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

Origins Laboratory, Inc.
Y809100-08 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|----|------|-------|---|--------|-----|------------|------------|---|
| Diesel (C10-C28) | ND | 25.0 | mg/kg | 1 | B81001 | KDK | 09/10/2018 | 09/10/2018 | U |
| Residual Range Organics (C28-C40) | ND | 100 | " | " | " | KDK | " | " | U |

Surrogate: o-Terphenyl 61.7 % 59-131 " " "

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|----|-------|-------|---|--------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | ND | 0.200 | mg/kg | 1 | B81002 | KDK | 09/10/2018 | 09/11/2018 | U |
| Benzene | ND | 0.002 | " | " | " | KDK | " | " | U |
| Toluene | ND | 0.002 | " | " | " | KDK | " | " | U |
| Ethylbenzene | ND | 0.002 | " | " | " | KDK | " | " | U |
| Xylenes, total | ND | 0.002 | " | " | " | KDK | " | " | U |

Surrogate: 1,2-Dichloroethane-d4 96.3 % 70-130 " " "
Surrogate: Toluene-d8 98.0 % 70-130 " " "
Surrogate: 4-Bromofluorobenzene 94.4 % 70-130 " " "

pH in Soil by EPA 9045D

| | | | | | | | | | |
|----|------|--|----------|---|--------|-----|------------|------------|--|
| pH | 8.75 | | pH Units | 1 | B81008 | JTD | 09/10/2018 | 09/10/2018 | |
|----|------|--|----------|---|--------|-----|------------|------------|--|

Specific Conductance by Modified 9050A

| | | | | | | | | | |
|---------------------------|--------|---------|----------|---|--------|-----|------------|---|--|
| Specific Conductance (EC) | 0.0554 | 0.00500 | mmhos/cm | " | B81009 | JTD | 09/10/2018 | " | |
|---------------------------|--------|---------|----------|---|--------|-----|------------|---|--|

Origins Laboratory, Inc.



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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil) | | | | | | | | | | |
| Blank (B811002-BLK1) | | | | | | | | | | |
| | | | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Gasoline Range Hydrocarbons | ND | 0.200 | mg/kg | | | | | | | U |
| Benzene | ND | 0.002 | " | | | | | | | U |
| Toluene | ND | 0.002 | " | | | | | | | U |
| Ethylbenzene | ND | 0.002 | " | | | | | | | U |
| Xylenes, total | ND | 0.002 | " | | | | | | | U |
| Surrogate: 1,2-Dichloroethane-d4 | 55 | | ug/kg | 62.5 | | 87.8 | 70-130 | | | |
| Surrogate: Toluene-d8 | 64 | | " | 62.5 | | 102 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 58 | | " | 62.5 | | 93.6 | 70-130 | | | |

Origins Laboratory, Inc.



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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil) | | | | | | | | | | |
| Blank (B811002-BLK2) | | | | | | | | | | |
| | | | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Gasoline Range Hydrocarbons | ND | 0.200 | mg/kg | | | | | | | U |
| Benzene | ND | 0.002 | " | | | | | | | U |
| Toluene | ND | 0.002 | " | | | | | | | U |
| Ethylbenzene | ND | 0.002 | " | | | | | | | U |
| Xylenes, total | ND | 0.002 | " | | | | | | | U |
| Surrogate: 1,2-Dichloroethane-d4 | 57 | | ug/kg | 62.5 | | 91.3 | 70-130 | | | |
| Surrogate: Toluene-d8 | 62 | | " | 62.5 | | 98.9 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 59 | | " | 62.5 | | 94.7 | 70-130 | | | |

Origins Laboratory, Inc.



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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

LCS (B811002-BS1)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|----------------------------------|-------|-------|-------|-------|--|------|----------|--|--|--|
| Benzene | 0.110 | 0.002 | mg/kg | 0.100 | | 110 | 77.1-124 | | | |
| Toluene | 0.106 | 0.002 | " | 0.100 | | 106 | 74.5-128 | | | |
| Ethylbenzene | 0.107 | 0.002 | " | 0.100 | | 107 | 66.4-127 | | | |
| m,p-Xylene | 0.219 | 0.004 | " | 0.200 | | 110 | 76.6-124 | | | |
| o-Xylene | 0.110 | 0.002 | " | 0.100 | | 110 | 76.6-124 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 57 | | ug/kg | 62.5 | | 90.5 | 70-130 | | | |
| Surrogate: Toluene-d8 | 62 | | " | 62.5 | | 99.9 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 65 | | " | 62.5 | | 104 | 70-130 | | | |

Origins Laboratory, Inc.



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

Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

LCS (B811002-BS2)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|----------------------------------|-------|-------|-------|-------|--|------|----------|--|--|--|
| Benzene | 0.100 | 0.002 | mg/kg | 0.100 | | 99.9 | 77.1-124 | | | |
| Toluene | 0.100 | 0.002 | " | 0.100 | | 99.9 | 74.5-128 | | | |
| Ethylbenzene | 0.091 | 0.002 | " | 0.100 | | 91.4 | 66.4-127 | | | |
| m,p-Xylene | 0.191 | 0.004 | " | 0.200 | | 95.4 | 76.6-124 | | | |
| o-Xylene | 0.096 | 0.002 | " | 0.100 | | 96.4 | 76.6-124 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 57 | | ug/kg | 62.5 | | 91.6 | 70-130 | | | |
| Surrogate: Toluene-d8 | 67 | | " | 62.5 | | 107 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 65 | | " | 62.5 | | 105 | 70-130 | | | |

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Apex Companies, LLC
 4150 Darley Avenue, Suite 1
 Boulder CO 80305

Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

| Matrix Spike (B811002-MS1) | Source: Y809077-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|----|------|----------|--|--|--|
| Benzene | 0.102 | 0.002 | mg/kg | 0.100 | ND | 102 | 71.8-126 | | | |
| Toluene | 0.098 | 0.002 | " | 0.100 | ND | 97.6 | 65.1-130 | | | |
| Ethylbenzene | 0.095 | 0.002 | " | 0.100 | ND | 94.9 | 62.2-130 | | | |
| m,p-Xylene | 0.198 | 0.004 | " | 0.200 | ND | 99.2 | 46.5-137 | | | |
| o-Xylene | 0.099 | 0.002 | " | 0.100 | ND | 99.2 | 54.2-134 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 60 | | ug/kg | 62.5 | | 96.5 | 70-130 | | | |
| Surrogate: Toluene-d8 | 61 | | " | 62.5 | | 98.3 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 63 | | " | 62.5 | | 102 | 70-130 | | | |

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Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

| Matrix Spike (B811002-MS2) | Source: Y809077-04 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|----|------|----------|--|--|--|
| Benzene | 0.103 | 0.002 | mg/kg | 0.100 | ND | 103 | 71.8-126 | | | |
| Toluene | 0.099 | 0.002 | " | 0.100 | ND | 98.6 | 65.1-130 | | | |
| Ethylbenzene | 0.097 | 0.002 | " | 0.100 | ND | 96.9 | 62.2-130 | | | |
| m,p-Xylene | 0.201 | 0.004 | " | 0.200 | ND | 101 | 46.5-137 | | | |
| o-Xylene | 0.105 | 0.002 | " | 0.100 | ND | 105 | 54.2-134 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 57 | | ug/kg | 62.5 | | 91.4 | 70-130 | | | |
| Surrogate: Toluene-d8 | 62 | | " | 62.5 | | 98.4 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 68 | | " | 62.5 | | 109 | 70-130 | | | |

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Maggie Graham
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 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

| Matrix Spike Dup (B811002-MSD1) | Source: Y809077-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|----|------|----------|------|------|--|
| Benzene | 0.095 | 0.002 | mg/kg | 0.100 | ND | 95.3 | 71.8-126 | 6.63 | 11.3 | |
| Toluene | 0.091 | 0.002 | " | 0.100 | ND | 90.5 | 65.1-130 | 7.53 | 15.4 | |
| Ethylbenzene | 0.086 | 0.002 | " | 0.100 | ND | 86.2 | 62.2-130 | 9.58 | 19.6 | |
| m,p-Xylene | 0.181 | 0.004 | " | 0.200 | ND | 90.5 | 46.5-137 | 9.26 | 19.2 | |
| o-Xylene | 0.091 | 0.002 | " | 0.100 | ND | 90.9 | 54.2-134 | 8.67 | 17.9 | |
| Surrogate: 1,2-Dichloroethane-d4 | 60 | | ug/kg | 62.5 | | 96.4 | 70-130 | | | |
| Surrogate: Toluene-d8 | 60 | | " | 62.5 | | 96.6 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 63 | | " | 62.5 | | 101 | 70-130 | | | |

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Maggie Graham
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 Project: KMG - HSR Paul Schmidt 16-33

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 B811002 - EPA 5030 (soil)

| Matrix Spike Dup (B811002-MSD2) | Source: Y809077-04 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|----|------|----------|-------|------|--|
| Benzene | 0.108 | 0.002 | mg/kg | 0.100 | ND | 108 | 71.8-126 | 5.61 | 11.3 | |
| Toluene | 0.102 | 0.002 | " | 0.100 | ND | 102 | 65.1-130 | 3.49 | 15.4 | |
| Ethylbenzene | 0.099 | 0.002 | " | 0.100 | ND | 98.7 | 62.2-130 | 1.84 | 19.6 | |
| m,p-Xylene | 0.206 | 0.004 | " | 0.200 | ND | 103 | 46.5-137 | 2.31 | 19.2 | |
| o-Xylene | 0.105 | 0.002 | " | 0.100 | ND | 105 | 54.2-134 | 0.343 | 17.9 | |
| Surrogate: 1,2-Dichloroethane-d4 | 57 | | ug/kg | 62.5 | | 91.6 | 70-130 | | | |
| Surrogate: Toluene-d8 | 61 | | " | 62.5 | | 97.1 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 66 | | " | 62.5 | | 105 | 70-130 | | | |

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Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B8I1001 - EPA 3550B

Blank (B8I1001-BLK1)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|-----------------------------------|----|------|-------|------|--|------|--------|--|--|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | | | | | | | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | | | | | | | U |
| Surrogate: o-Terphenyl | 41 | | " | 50.0 | | 82.5 | 59-131 | | | |

Blank (B8I1001-BLK2)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|-----------------------------------|----|------|-------|------|--|------|--------|--|--|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | | | | | | | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | | | | | | | U |
| Surrogate: o-Terphenyl | 36 | | " | 50.0 | | 71.5 | 59-131 | | | |

Blank (B8I1001-BLK3)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|-----------------------------------|----|------|-------|------|--|------|--------|--|--|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | | | | | | | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | | | | | | | U |
| Surrogate: o-Terphenyl | 37 | | " | 50.0 | | 73.1 | 59-131 | | | |

LCS (B8I1001-BS1)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|-----------------------------------|-----|------|-------|------|--|------|--------|--|--|--|
| Diesel (C10-C28) | 754 | 50.0 | mg/kg | 1000 | | 75.4 | 64-121 | | | |
| Residual Range Organics (C28-C40) | 795 | 200 | " | 1000 | | 79.5 | 58-124 | | | |
| Surrogate: o-Terphenyl | 37 | | " | 50.0 | | 74.2 | 59-131 | | | |

LCS (B8I1001-BS2)

Prepared: 09/10/2018 Analyzed: 09/10/2018

| | | | | | | | | | | |
|-----------------------------------|-----|------|-------|------|--|------|--------|--|--|--|
| Diesel (C10-C28) | 749 | 50.0 | mg/kg | 1000 | | 74.9 | 64-121 | | | |
| Residual Range Organics (C28-C40) | 784 | 200 | " | 1000 | | 78.4 | 58-124 | | | |

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Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811001 - EPA 3550B | | | | | | | | | | |
| LCS (B811001-BS2) | | | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Surrogate: o-Terphenyl | 38 | | mg/kg | 50.0 | | 76.4 | 59-131 | | | |
| LCS (B811001-BS3) | | | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 790 | 50.0 | mg/kg | 1000 | | 79.0 | 64-121 | | | |
| Residual Range Organics (C28-C40) | 822 | 200 | " | 1000 | | 82.2 | 58-124 | | | |
| Surrogate: o-Terphenyl | 39 | | " | 50.0 | | 77.9 | 59-131 | | | |
| Matrix Spike (B811001-MS1) | | Source: Y809076-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 1180 | 50.0 | mg/kg | 1000 | 279 | 90.6 | 53-125 | | | |
| Residual Range Organics (C28-C40) | 875 | 200 | " | 1000 | 25.0 | 85.0 | 47-133 | | | |
| Surrogate: o-Terphenyl | 41 | | " | 50.0 | | 81.0 | 59-131 | | | |
| Matrix Spike (B811001-MS2) | | Source: Y809076-02 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 757 | 50.0 | mg/kg | 1000 | 16.4 | 74.1 | 53-125 | | | |
| Residual Range Organics (C28-C40) | 806 | 200 | " | 1000 | 45.8 | 76.0 | 47-133 | | | |
| Surrogate: o-Terphenyl | 36 | | " | 50.0 | | 71.8 | 59-131 | | | |
| Matrix Spike (B811001-MS3) | | Source: Y809096-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 792 | 50.0 | mg/kg | 1000 | ND | 79.2 | 53-125 | | | |
| Residual Range Organics (C28-C40) | 857 | 200 | " | 1000 | 8.86 | 84.8 | 47-133 | | | |
| Surrogate: o-Terphenyl | 38 | | " | 50.0 | | 75.8 | 59-131 | | | |
| Matrix Spike Dup (B811001-MSD1) | | Source: Y809076-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 1110 | 50.0 | mg/kg | 1000 | 279 | 83.4 | 53-125 | 8.21 | 20 | |
| Residual Range Organics (C28-C40) | 797 | 200 | " | 1000 | 25.0 | 77.2 | 47-133 | 9.66 | 20 | |
| Surrogate: o-Terphenyl | 40 | | " | 50.0 | | 80.5 | 59-131 | | | |
| Matrix Spike Dup (B811001-MSD2) | | Source: Y809076-02 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |

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Maggie Graham
 Project Number: COT0132
 Project: KMG - HSR Paul Schmidt 16-33

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 B811001 - EPA 3550B | | | | | | | | | | |
| Matrix Spike Dup (B811001-MSD2) | | Source: Y809076-02 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 746 | 50.0 | mg/kg | 1000 | 16.4 | 73.0 | 53-125 | 1.53 | 20 | |
| Residual Range Organics (C28-C40) | 783 | 200 | " | 1000 | 45.8 | 73.7 | 47-133 | 3.05 | 20 | |
| Surrogate: o-Terphenyl | 37 | | " | 50.0 | | 73.7 | 59-131 | | | |
| Matrix Spike Dup (B811001-MSD3) | | Source: Y809096-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Diesel (C10-C28) | 821 | 50.0 | mg/kg | 1000 | ND | 82.1 | 53-125 | 3.56 | 20 | |
| Residual Range Organics (C28-C40) | 853 | 200 | " | 1000 | 8.86 | 84.4 | 47-133 | 0.483 | 20 | |
| Surrogate: o-Terphenyl | 40 | | " | 50.0 | | 79.6 | 59-131 | | | |

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Maggie Graham
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 Project: KMG - HSR Paul Schmidt 16-33

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 B811008 - NO PREP | | | | | | | | | | |
| Duplicate (B811008-DUP1) | | Source: Y809096-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| pH | 8.03 | | pH Units | | 7.99 | | | 0.499 | 25 | |
| Batch B811009 - NO PREP | | | | | | | | | | |
| Blank (B811009-BLK1) | | | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Specific Conductance (EC) | 0.00210 | 0.00500 | mmhos/cm | | | | | | | |
| Duplicate (B811009-DUP1) | | Source: Y809096-01 | | | Prepared: 09/10/2018 Analyzed: 09/10/2018 | | | | | |
| Specific Conductance (EC) | 0.0405 | 0.00500 | mmhos/cm | | 0.0410 | | | 1.23 | 25 | |

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Maggie Graham
Project Number: COT0132
Project: KMG - HSR Paul Schmidt 16-33

Notes and Definitions

U Sample is Non-Detect.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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Jen Pellegrini For Noelle Doyle Mathis, President