

November 06, 2018

Olsson Associates

James Hix

1525 Raleigh St, Suite 400

Denver

CO 80204

Project Name - GWOG - Colorado State #2

Project Number - 018-

Attached are your analytical results for GWOG - Colorado State #2 received by Origins Laboratory, Inc. October 29, 2018. This project is associated with Origins project number Y810425-01.

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



Olsson Associates
1525 Raleigh St, Suite 400
Denver CO 80204

James Hix
Project Number: 018-
Project: GWOG - Colorado State #2

CROSS REFERENCE REPORT

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-------------|---------------|--------|------------------------|------------------|
| SS1N@5.5ft | Y810425-01 | Soil | October 29, 2018 12:15 | 10/29/2018 15:40 |
| SS2S@5.5ft | Y810425-02 | Soil | October 29, 2018 12:20 | 10/29/2018 15:40 |
| SS3E@5.5ft | Y810425-03 | Soil | October 29, 2018 12:30 | 10/29/2018 15:40 |
| SS4B@6.0ft | Y810425-04 | Soil | October 29, 2018 12:35 | 10/29/2018 15:40 |
| SS5W@5.0ft | Y810425-05 | Soil | October 29, 2018 12:40 | 10/29/2018 15:40 |
| SS6NW@2.5ft | Y810425-06 | Soil | October 29, 2018 12:50 | 10/29/2018 15:40 |
| SS7W@1.0ft | Y810425-07 | Soil | October 29, 2018 13:00 | 10/29/2018 15:40 |

Per the phone call from James on 10-30-18, ORO was added to all samples and pH, EC, and SAR was added to samples SS4B@6.0ft and SS5W@5.0ft.

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: YB10425

Client: Olsson

Client Project ID: GWOG - Colorado State #2

Checklist Completed by: JG

Shipped Via: HD

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

Date/time completed: 10/29/2018

Airbill #: N/A

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

Cooler Number/Temperature: 1 10.6 °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"/> | | <u>Same Day</u> |
| Is there ice present (document if blue ice is used) | <input checked="" type="checkbox"/> | | | |
| Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact) | | <input checked="" type="checkbox"/> | | |
| Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact) | | <input checked="" type="checkbox"/> | | |
| Were all samples received intact ^{(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 Na ₂ SO 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) JG

Date/Time Reviewed 10/30/18

Origins Laboratory, Inc.



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Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS1N@5.5ft
10/29/2018 12:15:00PM

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

Origins Laboratory, Inc.
Y810425-01 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|-------------|------|-------|---|---------|-----|------------|------------|--|
| Diesel (C10-C28) | 5760 | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/29/2018 | |
| Residual Range Organics (C28-C40) | 2300 | 200 | " | " | " | KDK | " | " | |

Surrogate: *o*-Terphenyl 122 % 59-131 " " "

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 482 | 5.00 | mg/kg | 25 | B8J2904 | KDK | 10/29/2018 | 10/29/2018 | |
| Benzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Toluene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Ethylbenzene | 0.163 | 0.050 | " | " | " | KDK | " | " | |
| Xylenes, total | 0.828 | 0.050 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 94.4 % 70-130 " " "
 Surrogate: Toluene-d8 102 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 102 % 70-130 " " "

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Olsson Associates
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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS2S@5.5ft
10/29/2018 12:20:00PM

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

Origins Laboratory, Inc.
Y810425-02 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|----|------|-------|---|---------|-----|------------|------------|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/29/2018 | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | " | " | KDK | " | " | U |

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

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|------|-------|-------|----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 37.3 | 5.00 | mg/kg | 25 | B8J2904 | KDK | 10/29/2018 | 10/29/2018 | |
| Benzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Toluene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Ethylbenzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Xylenes, total | ND | 0.050 | " | " | " | KDK | " | " | U |

Surrogate: 1,2-Dichloroethane-d4 85.8 % 70-130 " " "
 Surrogate: Toluene-d8 106 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 94.8 % 70-130 " " "

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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS3E@5.5ft
10/29/2018 12:30:00PM

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

Origins Laboratory, Inc.
Y810425-03 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|----|------|-------|---|---------|-----|------------|------------|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/30/2018 | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | " | " | KDK | " | " | U |

Surrogate: *o*-Terphenyl 74.3 % 59-131 " " "

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|------|-------|-------|----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 19.3 | 5.00 | mg/kg | 25 | B8J2904 | KDK | 10/29/2018 | 10/30/2018 | |
| Benzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Toluene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Ethylbenzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Xylenes, total | ND | 0.050 | " | " | " | KDK | " | " | U |

Surrogate: 1,2-Dichloroethane-d4 83.9 % 70-130 " " "
 Surrogate: Toluene-d8 106 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 94.1 % 70-130 " " "

Origins Laboratory, Inc.



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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS4B@6.0ft
10/29/2018 12:35:00PM

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

Origins Laboratory, Inc.
Y810425-04 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|-------------|------|-------|---|---------|-----|------------|------------|--|
| Diesel (C10-C28) | 6700 | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/30/2018 | |
| Residual Range Organics (C28-C40) | 2270 | 200 | " | " | " | KDK | " | " | |

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

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|-----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 1550 | 50.0 | mg/kg | 250 | B8J2904 | KDK | 10/29/2018 | 10/30/2018 | |
| Benzene | ND | 0.050 | " | 25 | " | KDK | " | 10/30/2018 | U |
| Toluene | 0.368 | 0.050 | " | " | " | KDK | " | " | |
| Ethylbenzene | 0.546 | 0.050 | " | " | " | KDK | " | " | |
| Xylenes, total | 9.53 | 0.050 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 92.3 % 70-130 " " "

Surrogate: Toluene-d8 83.4 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 130 % 70-130 " " "

Metals (Saturated Paste Prep)

| | | | | | | | | | |
|-----------|---------------|--|------|---|----------|--|------------|------------|--|
| Calcium | 8.74 | | me/L | 1 | '[none]' | | 11/01/2018 | 11/05/2018 | |
| Magnesium | 3.45 | | " | " | " | | " | " | |
| Sodium | 138.50 | | " | " | " | | " | " | |

pH in Soil by EPA 9045D

| | | | | | | | | | |
|----|-------------|--|----------|---|---------|------|------------|------------|--|
| pH | 8.14 | | pH Units | 1 | B8J3003 | OLAB | 10/30/2018 | 10/30/2018 | |
|----|-------------|--|----------|---|---------|------|------------|------------|--|

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Denver CO 80204

James Hix
Project Number: 018-
Project: GWOG - Colorado State #2

SS4B@6.0ft

10/29/2018 12:35:00PM

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

Origins Laboratory, Inc.
Y810425-04 (Soil)

SAR by 20B Saturated Paste

| | | | | | | | | | |
|-----|-------|--|--|---|----------|--|------------|------------|--|
| SAR | 56.10 | | | 1 | '[none]' | | 11/01/2018 | 11/05/2018 | |
|-----|-------|--|--|---|----------|--|------------|------------|--|

Specific Conductance by Modified 9050A

| | | | | | | | | | |
|---------------------------|-------|---------|----------|---|---------|------|------------|------------|--|
| Specific Conductance (EC) | 0.806 | 0.00500 | mmhos/cm | 1 | B8J3004 | OLAB | 10/30/2018 | 10/30/2018 | |
|---------------------------|-------|---------|----------|---|---------|------|------------|------------|--|

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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS5W@5.0ft
10/29/2018 12:40:00PM

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

Origins Laboratory, Inc.
Y810425-05 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|-------------|------|-------|---|---------|-----|------------|------------|--|
| Diesel (C10-C28) | 2650 | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/30/2018 | |
| Residual Range Organics (C28-C40) | 835 | 200 | " | " | " | KDK | " | " | |

Surrogate: *o*-Terphenyl 129 % 59-131 " " "

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|-----|---------|-----|------------|------------|--|
| Gasoline Range Hydrocarbons | 1020 | 50.0 | mg/kg | 250 | B8J2904 | KDK | 10/29/2018 | 10/30/2018 | |
| Benzene | 0.098 | 0.050 | " | 25 | " | KDK | " | 10/30/2018 | |
| Toluene | 0.464 | 0.050 | " | " | " | KDK | " | " | |
| Ethylbenzene | 1.09 | 0.050 | " | " | " | KDK | " | " | |
| Xylenes, total | 7.23 | 0.050 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 92.9 % 70-130 " " "
 Surrogate: Toluene-d8 94.1 % 70-130 " " "
 Surrogate: 4-Bromofluorobenzene 103 % 70-130 " " "

Metals (Saturated Paste Prep)

| | | | | | | | | | |
|-----------|---------------|--|------|---|----------|--|------------|------------|--|
| Calcium | 4.12 | | me/L | 1 | '[none]' | | 11/01/2018 | 11/05/2018 | |
| Magnesium | 4.98 | | " | " | " | | " | " | |
| Sodium | 353.47 | | " | " | " | | " | " | |

pH in Soil by EPA 9045D

| | | | | | | | | | |
|----|-------------|--|----------|---|---------|------|------------|------------|--|
| pH | 8.79 | | pH Units | 1 | B8J3003 | OLAB | 10/30/2018 | 10/30/2018 | |
|----|-------------|--|----------|---|---------|------|------------|------------|--|

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1525 Raleigh St, Suite 400
Denver CO 80204

James Hix
Project Number: 018-
Project: GWOG - Colorado State #2

SS5W@5.0ft

10/29/2018 12:40:00PM

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

Origins Laboratory, Inc.
Y810425-05 (Soil)

SAR by 20B Saturated Paste

| | | | | | | | | | |
|-----|--------|--|--|---|----------|--|------------|------------|--|
| SAR | 165.71 | | | 1 | '[none]' | | 11/01/2018 | 11/05/2018 | |
|-----|--------|--|--|---|----------|--|------------|------------|--|

Specific Conductance by Modified 9050A

| | | | | | | | | | |
|---------------------------|------|---------|----------|---|---------|------|------------|------------|--|
| Specific Conductance (EC) | 1.57 | 0.00509 | mmhos/cm | 1 | B8J3004 | OLAB | 10/30/2018 | 10/30/2018 | |
|---------------------------|------|---------|----------|---|---------|------|------------|------------|--|

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Jen Pellegrini, Project Manager

Olsson Associates
 1525 Raleigh St, Suite 400
 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS6NW@2.5ft
10/29/2018 12:50:00PM

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

Origins Laboratory, Inc.
Y810425-06 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|--------------|------|-------|----|---------|-----|------------|------------|--|
| Diesel (C10-C28) | 11000 | 500 | mg/kg | 10 | B8J2901 | KDK | 10/29/2018 | 10/30/2018 | |
| Residual Range Organics (C28-C40) | 4470 | 2000 | " | " | " | KDK | " | " | |

Surrogate: o-Terphenyl 193 % 59-131 " " " S-02

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|-----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 692 | 50.0 | mg/kg | 250 | B8J2904 | KDK | 10/29/2018 | 10/30/2018 | |
| Benzene | ND | 0.050 | " | 25 | " | KDK | " | 10/30/2018 | U |
| Toluene | 0.097 | 0.050 | " | " | " | KDK | " | " | |
| Ethylbenzene | 0.447 | 0.050 | " | " | " | KDK | " | " | |
| Xylenes, total | 3.86 | 0.050 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 94.3 % 70-130 " " "

Surrogate: Toluene-d8 91.8 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 80.5 % 70-130 " " 10/30/2018

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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #2

SS7W@1.0ft
10/29/2018 1:00:00PM

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

Origins Laboratory, Inc.
Y810425-07 (Soil)

DRO/RRO by EPA8015C

| | | | | | | | | | |
|-----------------------------------|-------------|------|-------|---|---------|-----|------------|------------|--|
| Diesel (C10-C28) | 7890 | 50.0 | mg/kg | 1 | B8J2901 | KDK | 10/29/2018 | 10/30/2018 | |
| Residual Range Organics (C28-C40) | 2630 | 200 | " | " | " | KDK | " | " | |

Surrogate: *o*-Terphenyl 148 % 59-131 " " " S-02

GBTEX by EPA 8260C

| | | | | | | | | | |
|-----------------------------|--------------|-------|-------|-----|---------|-----|------------|------------|---|
| Gasoline Range Hydrocarbons | 445 | 50.0 | mg/kg | 250 | B8J2904 | KDK | 10/29/2018 | 10/30/2018 | |
| Benzene | ND | 0.050 | " | 25 | " | KDK | " | 10/30/2018 | U |
| Toluene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Ethylbenzene | ND | 0.050 | " | " | " | KDK | " | " | U |
| Xylenes, total | 0.258 | 0.050 | " | " | " | KDK | " | " | |

Surrogate: 1,2-Dichloroethane-d4 90.7 % 70-130 " " "

Surrogate: Toluene-d8 100 % 70-130 " " "

Surrogate: 4-Bromofluorobenzene 104 % 70-130 " " "

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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #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 B8J2904 - EPA 5030 (soil)

Blank (B8J2904-BLK1)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|----------------------------------|----|-------|-------|------|--|------|--------|--|--|---|
| 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 | | 91.5 | 70-130 | | | |
| Surrogate: Toluene-d8 | 65 | | " | 62.5 | | 105 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 62 | | " | 62.5 | | 98.7 | 70-130 | | | |

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 Denver CO 80204

James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #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 B8J2904 - EPA 5030 (soil)

LCS (B8J2904-BS1)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|----------------------------------|-------|-------|-------|-------|--|------|----------|--|--|--|
| Benzene | 0.096 | 0.002 | mg/kg | 0.100 | | 96.2 | 77.1-124 | | | |
| Toluene | 0.110 | 0.002 | " | 0.100 | | 110 | 74.5-128 | | | |
| Ethylbenzene | 0.099 | 0.002 | " | 0.100 | | 99.0 | 66.4-127 | | | |
| m,p-Xylene | 0.203 | 0.004 | " | 0.200 | | 101 | 76.6-124 | | | |
| o-Xylene | 0.102 | 0.002 | " | 0.100 | | 102 | 76.6-124 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 56 | | ug/kg | 62.5 | | 89.4 | 70-130 | | | |
| Surrogate: Toluene-d8 | 65 | | " | 62.5 | | 104 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 60 | | " | 62.5 | | 95.6 | 70-130 | | | |

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Jen Pellegrini, Project Manager

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James Hix
 Project Number: 018-
 Project: GWOG - Colorado State #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 B8J2904 - EPA 5030 (soil)

| Matrix Spike (B8J2904-MS1) | Source: Y810424-01 | | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|--------|------|----------|--|--|-------|
| Benzene | 0.052 | 0.002 | mg/kg | 0.100 | ND | 51.5 | 71.8-126 | | | QM-07 |
| Toluene | 0.056 | 0.002 | " | 0.100 | ND | 56.4 | 65.1-130 | | | QM-07 |
| Ethylbenzene | 0.049 | 0.002 | " | 0.100 | ND | 49.1 | 62.2-130 | | | QM-07 |
| m,p-Xylene | 0.101 | 0.004 | " | 0.200 | 0.001 | 50.0 | 46.5-137 | | | |
| o-Xylene | 0.050 | 0.002 | " | 0.100 | 0.0006 | 49.5 | 54.2-134 | | | QM-07 |
| Surrogate: 1,2-Dichloroethane-d4 | 58 | | ug/kg | 62.5 | | 92.1 | 70-130 | | | |
| Surrogate: Toluene-d8 | 64 | | " | 62.5 | | 103 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 60 | | " | 62.5 | | 96.5 | 70-130 | | | |

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James Hix
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 Project: GWOG - Colorado State #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 B8J2904 - EPA 5030 (soil)

| Matrix Spike Dup (B8J2904-MSD1) | Source: Y810424-01 | | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | | |
|----------------------------------|--------------------|-------|-------|---|--------|------|----------|------|------|-------|
| Benzene | 0.098 | 0.002 | mg/kg | 0.100 | ND | 97.9 | 71.8-126 | 62.1 | 11.3 | QR-01 |
| Toluene | 0.109 | 0.002 | " | 0.100 | ND | 109 | 65.1-130 | 63.3 | 15.4 | QR-01 |
| Ethylbenzene | 0.094 | 0.002 | " | 0.100 | ND | 94.1 | 62.2-130 | 62.8 | 19.6 | QR-01 |
| m,p-Xylene | 0.194 | 0.004 | " | 0.200 | 0.001 | 96.2 | 46.5-137 | 62.8 | 19.2 | QR-01 |
| o-Xylene | 0.098 | 0.002 | " | 0.100 | 0.0006 | 97.5 | 54.2-134 | 64.9 | 17.9 | QR-01 |
| Surrogate: 1,2-Dichloroethane-d4 | 58 | | ug/kg | 62.5 | | 92.8 | 70-130 | | | |
| Surrogate: Toluene-d8 | 64 | | " | 62.5 | | 102 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 59 | | " | 62.5 | | 93.8 | 70-130 | | | |

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

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

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 B8J2901 - EPA 3550B

Blank (B8J2901-BLK1)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|-----------------------------------|----|------|-------|------|--|------|--------|--|--|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | | | | | | | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | | | | | | | U |
| Surrogate: o-Terphenyl | 36 | | " | 50.0 | | 71.8 | 59-131 | | | |

Blank (B8J2901-BLK2)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|-----------------------------------|----|------|-------|------|--|------|--------|--|--|---|
| Diesel (C10-C28) | ND | 50.0 | mg/kg | | | | | | | U |
| Residual Range Organics (C28-C40) | ND | 200 | " | | | | | | | U |
| Surrogate: o-Terphenyl | 36 | | " | 50.0 | | 72.8 | 59-131 | | | |

LCS (B8J2901-BS1)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|-----------------------------------|------|------|-------|------|--|------|--------|--|--|--|
| Diesel (C10-C28) | 1020 | 50.0 | mg/kg | 1000 | | 102 | 64-121 | | | |
| Residual Range Organics (C28-C40) | 915 | 200 | " | 1000 | | 91.5 | 58-124 | | | |
| Surrogate: o-Terphenyl | 45 | | " | 50.0 | | 91.0 | 59-131 | | | |

LCS (B8J2901-BS2)

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|-----------------------------------|-----|------|-------|------|--|------|--------|--|--|--|
| Diesel (C10-C28) | 983 | 50.0 | mg/kg | 1000 | | 98.3 | 64-121 | | | |
| Residual Range Organics (C28-C40) | 912 | 200 | " | 1000 | | 91.2 | 58-124 | | | |
| Surrogate: o-Terphenyl | 45 | | " | 50.0 | | 90.7 | 59-131 | | | |

Matrix Spike (B8J2901-MS1)

Source: Y810418-01

Prepared: 10/29/2018 Analyzed: 10/29/2018

| | | | | | | | | | | |
|-----------------------------------|------|------|-------|------|------|------|--------|--|--|--|
| Diesel (C10-C28) | 1120 | 50.0 | mg/kg | 1000 | 168 | 95.6 | 53-125 | | | |
| Residual Range Organics (C28-C40) | 1050 | 200 | " | 1000 | 57.9 | 99.4 | 47-133 | | | |

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 Project: GWOG - Colorado State #2

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 B8J2901 - EPA 3550B | | | | | | | | | | |
| Matrix Spike (B8J2901-MS1) | | | Source: Y810418-01 | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | |
| Surrogate: o-Terphenyl | 52 | | mg/kg | 50.0 | | 104 | 59-131 | | | |
| Matrix Spike (B8J2901-MS2) | | | Source: Y810426-01 | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | |
| Diesel (C10-C28) | 1170 | 50.0 | mg/kg | 1000 | ND | 117 | 53-125 | | | |
| Residual Range Organics (C28-C40) | 1100 | 200 | " | 1000 | 26.3 | 107 | 47-133 | | | |
| Surrogate: o-Terphenyl | 56 | | " | 50.0 | | 111 | 59-131 | | | |
| Matrix Spike Dup (B8J2901-MSD1) | | | Source: Y810418-01 | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | |
| Diesel (C10-C28) | 982 | 50.0 | mg/kg | 1000 | 168 | 81.3 | 53-125 | 16.1 | 20 | |
| Residual Range Organics (C28-C40) | 947 | 200 | " | 1000 | 57.9 | 88.9 | 47-133 | 11.2 | 20 | |
| Surrogate: o-Terphenyl | 46 | | " | 50.0 | | 92.7 | 59-131 | | | |
| Matrix Spike Dup (B8J2901-MSD2) | | | Source: Y810426-01 | | Prepared: 10/29/2018 Analyzed: 10/29/2018 | | | | | |
| Diesel (C10-C28) | 1040 | 50.0 | mg/kg | 1000 | ND | 104 | 53-125 | 11.4 | 20 | |
| Residual Range Organics (C28-C40) | 1000 | 200 | " | 1000 | 26.3 | 97.6 | 47-133 | 9.47 | 20 | |
| Surrogate: o-Terphenyl | 47 | | " | 50.0 | | 94.7 | 59-131 | | | |

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James Hix
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 Project: GWOG - Colorado State #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 B8J3003 - NO PREP | | | | | | | | | | |
| Duplicate (B8J3003-DUP1) | | Source: Y810428-01 | | | Prepared: 10/30/2018 Analyzed: 10/30/2018 | | | | | |
| pH | 7.17 | | pH Units | | 7.35 | | | 2.48 | 25 | |
| Batch B8J3004 - NO PREP | | | | | | | | | | |
| Blank (B8J3004-BLK1) | | Prepared: 10/30/2018 Analyzed: 10/30/2018 | | | | | | | | |
| Specific Conductance (EC) | 0.00280 | 0.00500 | mmhos/cm | | | | | | | |
| Duplicate (B8J3004-DUP1) | | Source: Y810428-01 | | | Prepared: 10/30/2018 Analyzed: 10/30/2018 | | | | | |
| Specific Conductance (EC) | 0.0383 | 0.00501 | mmhos/cm | | 0.0360 | | | 6.19 | 25 | |

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Notes and Definitions

- U Sample is Non-Detect.
- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- QR-01 Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit. QC batch accepted based on LCS and/or LCSD QC results.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- All soil results are reported at a wet weight basis.

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Jen Pellegrini, Project Manager