



**ACCUTEST**  
Mountain States

10/14/16

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*e-Hardcopy 2.0*  
*Automated Report*

**Technical Report for**

**Renegade Oil & Gas**

**Bird State 32-1 Pit**

**SGS Accutest Job Number: D87345**

**Sampling Date: 09/30/16**

**Report to:**

**Renegade Oil & Gas  
P.O. Box 460413  
Aurora, CO 80046  
jbcrog@aol.com**

**ATTN: JB Condill**

**Total number of pages in report: 42**



Test results contained within this data package meet the requirements  
of the National Environmental Laboratory Accreditation Program  
and/or state specific certification programs as applicable.

**Scott Heideman**  
**Laboratory Director**

**Client Service contact: Cristina Araujo 303-425-6021**

Certifications: CO (CO00049), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942)  
UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

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Test results relate only to samples analyzed.



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Sample Summary

Renegade Oil & Gas  
Bird State 32-1 Pit

Job No: D87345

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D87345-1	09/30/16	10:00 EI	09/30/16	SO	Soil	CENTRAL DRILLING PIT
D87345-1A	09/30/16	10:00 EI	09/30/16	SO	Soil	CENTRAL DRILLING PIT

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## CASE NARRATIVE / CONFORMANCE SUMMARY

2

**Client:** Renegade Oil & Gas

**Job No** D87345

**Site:** Bird State 32-1 Pit

**Report Date** 10/14/2016 5:40:29 P

On 09/30/2016, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D87345 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** SO

**Batch ID:** V5V2211

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87345-1MS, D87345-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method SW846 8015B

**Matrix:** SO

**Batch ID:** GGA1759

- All samples were analyzed within the recommended method holding time.
- Sample(s) D87414-1MS, D87414-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846-8015B

**Matrix:** SO

**Batch ID:** OP14159

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87414-1MS, D87414-1MSD were used as the QC samples indicated.

### Metals By Method SW846 6010C

**Matrix:** AQ

**Batch ID:** MP19982

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87358-1AMS, D87358-1AMSD, D87358-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Magnesium, Sodium are outside control limits for sample MP19982-SD1. Probable cause due to sample homogeneity.
- MP19982-SD1 for Magnesium and Sodium: Serial dilution indicates possible matrix interference.

### Wet Chemistry By Method SM2540G-2011 M

**Matrix:** SO

**Batch ID:** GN36282

- The data for SM2540G-2011 M meets quality control requirements.

### Wet Chemistry By Method SW846 9045D

**Matrix:** SO

**Batch ID:** GN36240

- The following samples were run outside of holding time for method SW846 9045D: D87345-1

Friday, October 14, 2016

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## Wet Chemistry By Method USDA HANDBOOK 60

**Matrix:** SO

**Batch ID:** MP19982

- D87345-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Friday, October 14, 2016

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## Summary of Hits

Page 1 of 1

**Job Number:** D87345  
**Account:** Renegade Oil & Gas  
**Project:** Bird State 32-1 Pit  
**Collected:** 09/30/16



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

### D87345-1 CENTRAL DRILLING PIT

Specific Conductivity	769	1.0	umhos/cm	SM 2510B-2011 MOD
pH	9.52		su	SW846 9045D

### D87345-1A CENTRAL DRILLING PIT

Calcium	8.87	2.0	mg/l	SW846 6010C
Magnesium	1.25	1.0	mg/l	SW846 6010C
Sodium	125	2.0	mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>	10.4		ratio	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

**Sample Results**

**Report of Analysis**

## Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.7
<b>Method:</b>	SW846 8260B		
<b>Project:</b>	Bird State 32-1 Pit		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V38590.D	1	10/12/16	MB	n/a	n/a	V5V2211
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.53	ug/kg	
108-88-3	Toluene	ND	2.1	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	2.1	0.53	ug/kg	
1330-20-7	Xylene (total)	ND	2.2	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		70-130%
2037-26-5	Toluene-D8	105%		64-130%
460-00-4	4-Bromofluorobenzene	98%		62-131%
17060-07-0	1,2-Dichloroethane-D4	110%		70-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



## Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.7
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	Bird State 32-1 Pit		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA35046.D	1	10/06/16	AK	n/a	n/a	GGA1759
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	87%		60-140%		

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

# Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT			<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1			<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	94.7
<b>Method:</b>	SW846-8015B SW846 3546				
<b>Project:</b>	Bird State 32-1 Pit				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI45506.D	1	10/07/16	CH	10/05/16	OP14159	GFI1966
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	11	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	79%		41-134%		

ND = Not detected      MDL = Method Detection Limit      J = Indicates an estimated value  
 RL = Reporting Limit      B = Indicates analyte found in associated method blank  
 E = Indicates value exceeds calibration range      N = Indicates presumptive evidence of a compound

Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.7
<b>Project:</b>	Bird State 32-1 Pit		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
<b>%solids</b>							
Solids, Percent	94.7		%	1	10/06/16	SWT	SM2540G-2011 M
<b>prep: DEPT.OF AG, BOOK N9</b>							
Specific Conductivity	769	1.0	umhos/cm	1	10/10/16	MM	SM 2510B-2011 MOD
pH	9.52		su	1	10/03/16 12:15	JD	SW846 9045D

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1A	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.7
<b>Project:</b>	Bird State 32-1 Pit		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	8.87	2.0	mg/l	1	10/10/16	10/12/16 JM	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>
Magnesium	1.25	1.0	mg/l	1	10/10/16	10/10/16 JM	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>
Sodium	125	2.0	mg/l	1	10/10/16	10/10/16 JM	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>

- (1) Instrument QC Batch: MA7803
- (2) Instrument QC Batch: MA7813
- (3) Prep QC Batch: MP19982

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	CENTRAL DRILLING PIT	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87345-1A	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	94.7
<b>Project:</b>	Bird State 32-1 Pit		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	10.4		ratio	1	10/12/16 15:32	JM	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

4.2  
4

## Misc. Forms

5

## Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL: 303-425-6021 FAX: 303-425-6854  
[www.auricul.com](http://www.auricul.com)

		4036 Youngfield Street, Wheat Ridge, CO 80033 TEL: 303-425-6021 FAX: 303-425-6854 <a href="http://www.accutest.com">www.accutest.com</a>		FED-EX Tracking # _____ SGS Account Code # _____		Studio Order Contact # _____ SGS Account Job # <b>D 87345</b>			
Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)				Matrix Codes	
Company Name <b>Renegade Oil &amp; Gas Co</b> Street Address <b>6155 S. Main St. Suite 210</b> City <b>Aurora</b> Project Contact <b>JB Cordill</b> Phone # <b>(303) 460-4725</b> Email <b>JB@RenegadeOil.com</b>		Project Name <b>Bird state 32-1 Pit</b> Street _____ City, State _____ Project # _____ Client Purchase Order # _____ Project Manager _____		Billing Information (if different from Report to) Company Name _____ Street Address _____ City, State ZIP _____ Attention: _____				X5AR, 3CON, PH 88D15 DR V820B TX V8015 GAD	
Sample(s) Name(s) <b>Edward Inye</b> Field ID / Point of Collection <b>Central Drilling Pit</b> MEQ/High vol # _____		Collection Date <b>9/30/2014</b> Time <b>10 AM</b> Sampled by _____ Matrix _____ # of bottles <b>3</b>		Number of preservation codes HQ _____ NICH _____ HNO3 _____ H2SO4 _____ NONE _____ DI Water _____ MEQ _____ ENCORE _____				DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SL - Soil SED - Sediment O - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Turnaround Time (Business days) <input type="checkbox"/> Std. 15 Business Days <input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency		Approved By (SGS Accutest Phil): _____ _____ _____ _____ _____		Date Deliverable Information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMEN <input type="checkbox"/> COMMEN+ <input type="checkbox"/> _____ Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial B+ = Results/QC Narrative (+ chromatograms)				Comments / Special Instructions _____ _____ _____ _____	
Relinquished by Sampler: _____ Relinquished by Sampler: _____ Relinquished by: _____		Date Time: <b>9/30/14 12:20</b> Date Time: _____ Date Time: _____		Relinquished By: <b>1</b> Relinquished By: <b>3</b> Relinquished By: <b>3</b>		Relinquished By: <b>2</b> Relinquished By: <b>4</b> Custody Seal # <b>HO</b>		Date Time: <b>2</b> Date Time: <b>4</b> Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/>	
Emergency & Rush T/A data available via Loharik		Sample Custody must be documented below each time samples change possession, including courier delivery.		Preserved where applicable <input checked="" type="checkbox"/>				On Ice <input checked="" type="checkbox"/> Cooler Temp. <b>2.0</b>	

5.15

## D87345: Chain of Custody

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# SGS Accutest Sample Receipt Summary

Job Number: D87345

Client: RENEGADE

Project: BIRD

Date / Time Received: 9/30/2016 12:20:00 PM

Delivery Method:

Airbill #'s: HD

Cooler Temps (Initial/Adjusted): #1: (2/2):

## Cooler Security

Y or N

Y or N

- |                           |                                     |                          |                       |                                     |                          |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Cooler Temperature

Y or N

- |                              |                                     |                          |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | Bar Therm;                          |                          |
| 3. Cooler media:             | Ice (Bag)                           |                          |
| 4. No. Coolers:              | 1                                   |                          |

## Quality Control Preservation

Y or N

N/A

- |                                 |                                     |                          |                          |
|---------------------------------|-------------------------------------|--------------------------|--------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

Comments

## Sample Integrity - Documentation

Y or N

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Sample Integrity - Condition

Y or N

- |                                  |                                     |                          |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample:          | Intact                              |                          |

## Sample Integrity - Instructions

Y or N N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Bottles received for unspecified tests | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 3. Sufficient volume recvd for analysis:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Compositing instructions clear:        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

D87345: Chain of Custody

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## GC/MS Volatiles

## QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** D87345  
**Account:** RENOGCOA Renegade Oil & Gas  
**Project:** Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-MB	5V38588.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87345-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	110	50	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	97% 70-130%
2037-26-5	Toluene-D8	107% 64-130%
460-00-4	4-Bromofluorobenzene	97% 62-131%
17060-07-0	1,2-Dichloroethane-D4	97% 70-130%

## Method Blank Summary

Page 1 of 1

**Job Number:** D87345  
**Account:** RENOGCOA Renegade Oil & Gas  
**Project:** Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-MB	5V38589.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87345-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	2.1	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	101% 70-130%
2037-26-5	Toluene-D8	104% 64-130%
460-00-4	4-Bromofluorobenzene	96% 62-131%
17060-07-0	1,2-Dichloroethane-D4	103% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D87345

**Account:** RENOGCOA Renegade Oil & Gas

**Project:** Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-BS	5V38587.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87345-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	40.3	81	70-130
100-41-4	Ethylbenzene	50	40.7	81	70-130
108-88-3	Toluene	50	42.3	85	70-130
1330-20-7	Xylene (total)	150	123	82	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	70-130%
2037-26-5	Toluene-D8	109%	64-130%
460-00-4	4-Bromofluorobenzene	97%	62-131%
17060-07-0	1,2-Dichloroethane-D4	104%	70-130%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D87345-1MS	5V38591.D	1	10/12/16	MB	n/a	n/a	V5V2211
D87345-1MSD	5V38592.D	1	10/12/16	MB	n/a	n/a	V5V2211
D87345-1	5V38590.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples: Method: SW846 8260B

D87345-1

CAS No.	Compound	D87345-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		53	41.1	78	52	42.6	82	4	64-139/30
100-41-4	Ethylbenzene	ND		53	41.4	78	52	43.0	83	4	68-136/30
108-88-3	Toluene	ND		53	43.6	82	52	45.4	87	4	60-130/30
1330-20-7	Xylene (total)	ND		159	123	77	156	129	83	5	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D87345-1	Limits
1868-53-7	Dibromofluoromethane	101%	103%	108%	70-130%
2037-26-5	Toluene-D8	106%	106%	105%	64-130%
460-00-4	4-Bromofluorobenzene	99%	99%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	110%	70-130%

\* = Outside of Control Limits.

## GC Volatiles

## QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1759-MB	GA35034.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87345-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	96% 60-140%

Blank Spike Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1759-BS	GA35035.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87345-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	125	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	60-140%

\* = Outside of Control Limits.



Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D87414-1MS	GA35037.D	1	10/06/16	AK	n/a	n/a	GGA1759
D87414-1MSD	GA35038.D	1	10/06/16	AK	n/a	n/a	GGA1759
D87414-1	GA35036.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87345-1

CAS No.	Compound	D87414-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		150	162	108	150	170	113	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D87414-1	Limits
120-82-1	1,2,4-Trichlorobenzene	94%	102%	99%	60-140%

\* = Outside of Control Limits.

## GC Semi-volatiles

## QC Data Summaries



---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-MB	FI45456.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87345-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	10	9.5	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	84% 41-134%

8.1.1  
8

Blank Spike Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-BS	FI45458.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87345-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	250	149	60	35-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	85%	41-134%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87345  
Account: RENOGCOA Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-MS	FI45460.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964
OP14159-MSD	FI45462.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964
D87414-1	FI45464.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87345-1

CAS No.	Compound	D87414-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		294	162	55	294	146	50	10	10-171/30

CAS No.	Surrogate Recoveries	MS	MSD	D87414-1	Limits
84-15-1	o-Terphenyl	74%	69%	59%	41-134%

\* = Outside of Control Limits.

## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	55	65		
Antimony	150	11	44		
Arsenic	130	19	60		
Barium	50	1	2		
Beryllium	50	4.5	8		
Boron	250	4	18		
Cadmium	50	1	4		
Calcium	2000	12	50	12.5	<2000
Chromium	50	1.5	3.5		
Cobalt	25	2.5	6		
Copper	50	4	19		
Iron	350	7.5	35		
Lead	250	11	25		
Lithium	25	2	3.5		
Magnesium	1000	34	200	39.0	<1000
Manganese	25	2.5	4.5		
Molybdenum	50	2	18		
Nickel	150	2.5	14		
Phosphorus	500	75	170		
Potassium	5000	500	360		
Selenium	250	36	50		
Silicon	250	24	42		
Silver	150	1.5	3		
Sodium	2000	37	70	-14	<2000
Strontium	25	.05	1.5		
Thallium	50	9	40		
Tin	250	60	60		
Titanium	50	.5	14		
Uranium	250	15	22		
Vanadium	50	2	3		
Zinc	150	2	18		

Associated samples MP19982: D87345-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

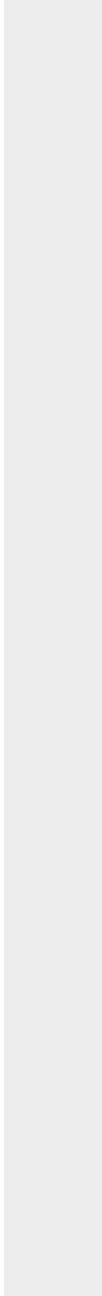
QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	RL	IDL	MDL	MB raw	final
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(anr) Analyte not requested





MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D87345  
 Account: RENOGCOA - Renegade Oil & Gas  
 Project: Bird State 32-1 Pit

QC Batch ID: MP19982  
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
 Units: ug/l

Prep Date: 10/10/16

Metal	D87358-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	84800	209000	125000	99.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	73000	191000	125000	94.4	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	220000	341000	125000	96.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP19982: D87345-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

	D87358-1A	Spikelot	QC
Metal	Original MS	ICPALL2 % Rec	Limits

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	D87358-1A Original	MSD	SpikeLot ICPAL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	84800	210000	125000	100.2	0.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	73000	199000	125000	100.8	4.1	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	220000	364000	125000	115.2	6.5	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP19982: D87345-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

10/10/16

	D87358-1A	Spikelot	MSD	QC
Metal	Original MSD	ICPALL2 % Rec	RPD	Limit

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Prep Date: 10/10/16

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	126000	125000	100.8	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	119000	125000	95.2	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	126000	125000	100.8	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP19982: D87345-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D87345

Account: RENOGCOA - Renegade Oil & Gas

Project: Bird State 32-1 Pit

QC Batch ID: MP19982

Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60

Units: ug/l

Prep Date:

10/10/16

Metal	BSP Result	Spikelot ICPALL2 % Rec	QC Limits
-------	---------------	---------------------------	--------------

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D87345  
 Account: RENOGCOA - Renegade Oil & Gas  
 Project: Bird State 32-1 Pit

QC Batch ID: MP19982  
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
 Units: ug/l

Prep Date: 10/10/16

D87358-1A		QC	
Metal	Original	SDL 1:5	%DIF Limits
Aluminum			
Antimony			
Arsenic			
Barium			
Beryllium			
Boron			
Cadmium			
Calcium	13900	17200	1.7 0-10
Chromium			
Cobalt			
Copper			
Iron			
Lead			
Lithium			
Magnesium	14600	12300	16.0*(a) 0-10
Manganese			
Molybdenum			
Nickel			
Phosphorus			
Potassium			
Selenium			
Silicon			
Silver			
Sodium	44000	37200	15.5*(a) 0-10
Strontium			
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc			

Associated samples MP19982: D87345-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

9.1.4  
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SERIAL DILUTION RESULTS SUMMARY

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

	D87358-1A		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested  
(a) Serial dilution indicates possible matrix interference.

9.1.4

9



## General Chemistry

### QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D87345  
Account: RENOGCOA - Renegade Oil & Gas  
Project: Bird State 32-1 Pit

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP18983/GN36324			umhos/cm	101	105	105.0	90-110%
Specific Conductivity	GP18983/GN36324			umhos/cm	9992	10100	101.0	90-110%
Specific Conductivity	GP18983/GN36324			umhos/cm	998	1070	108.0	90-110%
pH	GN36240			su	8.00	7.98	99.8	99.1-100.9%

Associated Samples:  
Batch GN36240: D87345-1  
Batch GP18983: D87345-1  
(\*) Outside of QC limits

### Technical Report for

Renegade Oil & Gas

SE Reclaimed Mud Sample

SGS Accutest Job Number: D87346

Sampling Date: 09/30/16

Report to:

Renegade Oil & Gas  
P.O. Box 460413  
Aurora, CO 80046  
jbcrog@aol.com

ATTN: JB Condill

Total number of pages in report: 42



Test results contained within this data package meet the requirements  
of the National Environmental Laboratory Accreditation Program  
and/or state specific certification programs as applicable.



Scott Heideman  
Laboratory Director

Client Service contact: Cristina Araujo 303-425-6021

Certifications: CO (CO00049), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942)  
UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

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Test results relate only to samples analyzed.

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Sample Summary

Renegade Oil & Gas  
SE Reclaimed Mud Sample

Job No: D87346

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D87346-1	09/30/16	10:00 EI	09/30/16	SO	Soil	RECLAIMED MUD SAMPLE
D87346-1A	09/30/16	10:00 EI	09/30/16	SO	Soil	RECLAIMED MUD SAMPLE

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## CASE NARRATIVE / CONFORMANCE SUMMARY

2

**Client:** Renegade Oil & Gas

**Job No** D87346

**Site:** SE Reclaimed Mud Sample

**Report Date** 10/14/2016 5:41:37 P

On 09/30/2016, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D87346 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix:** SO

**Batch ID:** V5V2211

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87345-1MS, D87345-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method SW846 8015B

**Matrix:** SO

**Batch ID:** GGA1759

- All samples were analyzed within the recommended method holding time.
- Sample(s) D87414-1MS, D87414-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Extractables by GC By Method SW846-8015B

**Matrix:** SO

**Batch ID:** OP14159

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87414-1MS, D87414-1MSD were used as the QC samples indicated.

### Metals By Method SW846 6010C

**Matrix:** AQ

**Batch ID:** MP19982

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D87358-1AMS, D87358-1AMSD, D87358-1ASDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Magnesium, Sodium are outside control limits for sample MP19982-SD1. Probable cause due to sample homogeneity.
- MP19982-SD1 for Magnesium and Sodium: Serial dilution indicates possible matrix interference.

### Wet Chemistry By Method SM2540G-2011 M

**Matrix:** SO

**Batch ID:** GN36282

- The data for SM2540G-2011 M meets quality control requirements.

### Wet Chemistry By Method SW846 9045D

**Matrix:** SO

**Batch ID:** GN36240

- The following samples were run outside of holding time for method SW846 9045D: D87346-1

Friday, October 14, 2016

Page 1 of 2

## Wet Chemistry By Method USDA HANDBOOK 60

**Matrix:** SO

**Batch ID:** MP19982

- D87346-1A for Sodium Adsorption Ratio: Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Friday, October 14, 2016

Page 2 of 2

## Summary of Hits

Page 1 of 1

**Job Number:** D87346  
**Account:** Renegade Oil & Gas  
**Project:** SE Reclaimed Mud Sample  
**Collected:** 09/30/16



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

### D87346-1 RECLAIMED MUD SAMPLE

Toluene	4.4	2.1	1.0	ug/kg	SW846 8260B
Ethylbenzene	1.5 J	2.1	0.51	ug/kg	SW846 8260B
Xylene (total)	14.8	2.2	1.0	ug/kg	SW846 8260B
TPH-DRO (C10-C28)	1140	10	9.8	mg/kg	SW846-8015B
Specific Conductivity	2820	1.0		umhos/cm	SM 2510B-2011 MOD
pH	9.28			su	SW846 9045D

### D87346-1A RECLAIMED MUD SAMPLE

Calcium	70.3	2.0		mg/l	SW846 6010C
Magnesium	3.08	1.0		mg/l	SW846 6010C
Sodium	581	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio <sup>a</sup>	18.4			ratio	USDA HANDBOOK 60

(a) Calculated as:  $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$





Sample Results

Report of Analysis

## Report of Analysis

<b>Client Sample ID:</b>	RECLAIMED MUD SAMPLE			<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87346-1			<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil			<b>Percent Solids:</b>	96.9
<b>Method:</b>	SW846 8260B				
<b>Project:</b>	SE Reclaimed Mud Sample				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V38598.D	1	10/12/16	MB	n/a	n/a	V5V2211
Run #2							

	Initial Weight	Final Volume
Run #1	5.02 g	5.0 ml
Run #2		

## Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.51	ug/kg	
108-88-3	Toluene	4.4	2.1	1.0	ug/kg	
100-41-4	Ethylbenzene	1.5	2.1	0.51	ug/kg	J
1330-20-7	Xylene (total)	14.8	2.2	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		70-130%
2037-26-5	Toluene-D8	107%		64-130%
460-00-4	4-Bromofluorobenzene	112%		62-131%
17060-07-0	1,2-Dichloroethane-D4	111%		70-130%

ND = Not detected

MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RECLAIMED MUD SAMPLE	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87346-1	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	96.9
<b>Method:</b>	SW846 8015B		
<b>Project:</b>	SE Reclaimed Mud Sample		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA35048.D	1	10/06/16	AK	n/a	n/a	GGA1759
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	139%		60-140%		

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	RECLAIMED MUD SAMPLE					<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87346-1					<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil					<b>Percent Solids:</b>	96.9
<b>Method:</b>	SW846-8015B SW846 3546						
<b>Project:</b>	SE Reclaimed Mud Sample						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI45635.D	1	10/09/16	CH	10/05/16	OP14159	GFI1967
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1140	10	9.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	87%		41-134%		

ND = Not detected      MDL = Method Detection Limit  
RL = Reporting Limit  
E = Indicates value exceeds calibration range

J = Indicates an estimated value  
B = Indicates analyte found in associated method blank  
N = Indicates presumptive evidence of a compound

Report of Analysis

**Client Sample ID:** RECLAIMED MUD SAMPLE  
**Lab Sample ID:** D87346-1  
**Matrix:** SO - Soil  
**Project:** SE Reclaimed Mud Sample

**Date Sampled:** 09/30/16  
**Date Received:** 09/30/16  
**Percent Solids:** 96.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	96.9		%	1	10/06/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	2820	1.0	umhos/cm	1	10/10/16	MM	SM 2510B-2011 MOD
pH	9.28		su	1	10/03/16 12:15	JD	SW846 9045D

RL = Reporting Limit

Report of Analysis

Client Sample ID: RECLAIMED MUD SAMPLE

Lab Sample ID: D87346-1A

Matrix: SO - Soil

Project: SE Reclaimed Mud Sample

Date Sampled: 09/30/16

Date Received: 09/30/16

Percent Solids: 96.9

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	70.3	2.0	mg/l	1	10/10/16	10/12/16 JM	SW846 6010C <sup>2</sup>	SW846 3010A/M <sup>3</sup>
Magnesium	3.08	1.0	mg/l	1	10/10/16	10/10/16 JM	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>
Sodium	581	2.0	mg/l	1	10/10/16	10/10/16 JM	SW846 6010C <sup>1</sup>	SW846 3010A/M <sup>3</sup>

(1) Instrument QC Batch: MA7803

(2) Instrument QC Batch: MA7813

(3) Prep QC Batch: MP19982

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	RECLAIMED MUD SAMPLE	<b>Date Sampled:</b>	09/30/16
<b>Lab Sample ID:</b>	D87346-1A	<b>Date Received:</b>	09/30/16
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	96.9
<b>Project:</b>	SE Reclaimed Mud Sample		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio <sup>a</sup>	18.4		ratio	1	10/12/16 15:37	JM	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

4.2  
4

## Misc. Forms

5

## Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL: 303-425-6021 FAX: 303-425-6854  
[www.seoulrest.com](http://www.seoulrest.com)

FED-EX Tracking #		Billie Order Contract #	
SGS Analytical Code #		SGS Analytical Job # <b>D87346</b>	
Requested Analysis (see TEST CODE sheet)			Matrix Codes
<b>XSAR, SCON, PH</b> <b>B0615 PRO</b> <b>V0260 BTX, V0015 GRO</b>			DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquids AIR - Air SOL - Other Solids WP - Wipes FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
			LAB USE ONLY
			<b>01</b>
Comments / Special Instructions			
Required to State of at (signature) Prior delivery.			
Date Time:		Received By:	
		<b>2</b>	
Date Time:		Received By:	
		<b>4</b>	
<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not intact		On Ice <input checked="" type="checkbox"/> Cooler Temp. <b>2.0</b>	
Preserved where applicable <input checked="" type="checkbox"/>			

5.1

# SGS Accutest Sample Receipt Summary

Job Number: D87346

Client: RENEGADE

Project: SE

Date / Time Received: 9/30/2016 12:20:00 PM

Delivery Method:

Airbill #'s: HD

Cooler Temps (Initial/Adjusted): #1: (2/2):

## Cooler Security

Y or N

Y or N

- |                           |                                     |                          |                       |                                     |                          |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Cooler Temperature

Y or N

- |                              |                                     |                          |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | Bar Therm;                          |                          |
| 3. Cooler media:             | Ice (Bag)                           |                          |
| 4. No. Coolers:              | 1                                   |                          |

## Quality Control Preservation

Y or N

N/A

- |                                 |                                     |                          |                          |
|---------------------------------|-------------------------------------|--------------------------|--------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                          |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> |

Comments

## Sample Integrity - Documentation

Y or N

- |  |                                     |                          |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## Sample Integrity - Condition

Y or N

- |                                  |                                     |                          |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample:          | Intact                              |                          |

## Sample Integrity - Instructions

Y or N N/A

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Bottles received for unspecified tests | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 3. Sufficient volume recvd for analysis:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Compositing instructions clear:        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

D87346: Chain of Custody

Page 2 of 2

## GC/MS Volatiles

## QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

## Method Blank Summary

Page 1 of 1

**Job Number:** D87346

**Account:** RENOGCOA Renegade Oil & Gas

**Project:** SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-MB	5V38588.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87346-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	110	50	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	97% 70-130%
2037-26-5	Toluene-D8	107% 64-130%
460-00-4	4-Bromofluorobenzene	97% 62-131%
17060-07-0	1,2-Dichloroethane-D4	97% 70-130%

## Method Blank Summary

Page 1 of 1

**Job Number:** D87346

**Account:** RENOGCOA Renegade Oil & Gas

**Project:** SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-MB	5V38589.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87346-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	2.1	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	101% 70-130%
2037-26-5	Toluene-D8	104% 64-130%
460-00-4	4-Bromofluorobenzene	96% 62-131%
17060-07-0	1,2-Dichloroethane-D4	103% 70-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D87346

**Account:** RENOGCOA Renegade Oil & Gas

**Project:** SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V2211-BS	5V38587.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples:

Method: SW846 8260B

D87346-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	40.3	81	70-130
100-41-4	Ethylbenzene	50	40.7	81	70-130
108-88-3	Toluene	50	42.3	85	70-130
1330-20-7	Xylene (total)	150	123	82	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	105%	70-130%
2037-26-5	Toluene-D8	109%	64-130%
460-00-4	4-Bromofluorobenzene	97%	62-131%
17060-07-0	1,2-Dichloroethane-D4	104%	70-130%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D87345-1MS	5V38591.D	1	10/12/16	MB	n/a	n/a	V5V2211
D87345-1MSD	5V38592.D	1	10/12/16	MB	n/a	n/a	V5V2211
D87345-1	5V38590.D	1	10/12/16	MB	n/a	n/a	V5V2211

The QC reported here applies to the following samples: Method: SW846 8260B

D87346-1

CAS No.	Compound	D87345-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		53	41.1	78	52	42.6	82	4	64-139/30
100-41-4	Ethylbenzene	ND		53	41.4	78	52	43.0	83	4	68-136/30
108-88-3	Toluene	ND		53	43.6	82	52	45.4	87	4	60-130/30
1330-20-7	Xylene (total)	ND		159	123	77	156	129	83	5	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D87345-1	Limits
1868-53-7	Dibromofluoromethane	101%	103%	108%	70-130%
2037-26-5	Toluene-D8	106%	106%	105%	64-130%
460-00-4	4-Bromofluorobenzene	99%	99%	98%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	101%	110%	70-130%

\* = Outside of Control Limits.

## GC Volatiles

## QC Data Summaries

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Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



Method Blank Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1759-MB	GA35034.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87346-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	96% 60-140%

Blank Spike Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA1759-BS	GA35035.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87346-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	125	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	60-140%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D87414-1MS	GA35037.D	1	10/06/16	AK	n/a	n/a	GGA1759
D87414-1MSD	GA35038.D	1	10/06/16	AK	n/a	n/a	GGA1759
D87414-1	GA35036.D	1	10/06/16	AK	n/a	n/a	GGA1759

The QC reported here applies to the following samples: Method: SW846 8015B

D87346-1

CAS No.	Compound	D87414-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		150	162	108	150	170	113	5	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D87414-1	Limits
120-82-1	1,2,4-Trichlorobenzene	94%	102%	99%	60-140%

\* = Outside of Control Limits.

## GC Semi-volatiles

## QC Data Summaries

---

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-MB	FI45456.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87346-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	10	9.5	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	84% 41-134%

8.1.1  
8

Blank Spike Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-BS	FI45458.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87346-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	250	149	60	35-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	85%	41-134%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D87346  
Account: RENOGCOA Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP14159-MS	FI45460.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964
OP14159-MSD	FI45462.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964
D87414-1	FI45464.D	1	10/06/16	CH	10/05/16	OP14159	GFI1964

The QC reported here applies to the following samples: Method: SW846-8015B

D87346-1

CAS No.	Compound	D87414-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	Spike mg/kg	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		294	162	55	294	146	50	10	10-171/30

CAS No.	Surrogate Recoveries	MS	MSD	D87414-1	Limits
84-15-1	o-Terphenyl	74%	69%	59%	41-134%

\* = Outside of Control Limits.

## Metals Analysis

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	55	65		
Antimony	150	11	44		
Arsenic	130	19	60		
Barium	50	1	2		
Beryllium	50	4.5	8		
Boron	250	4	18		
Cadmium	50	1	4		
Calcium	2000	12	50	12.5	<2000
Chromium	50	1.5	3.5		
Cobalt	25	2.5	6		
Copper	50	4	19		
Iron	350	7.5	35		
Lead	250	11	25		
Lithium	25	2	3.5		
Magnesium	1000	34	200	39.0	<1000
Manganese	25	2.5	4.5		
Molybdenum	50	2	18		
Nickel	150	2.5	14		
Phosphorus	500	75	170		
Potassium	5000	500	360		
Selenium	250	36	50		
Silicon	250	24	42		
Silver	150	1.5	3		
Sodium	2000	37	70	-14	<2000
Strontium	25	.05	1.5		
Thallium	50	9	40		
Tin	250	60	60		
Titanium	50	.5	14		
Uranium	250	15	22		
Vanadium	50	2	3		
Zinc	150	2	18		

Associated samples MP19982: D87346-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

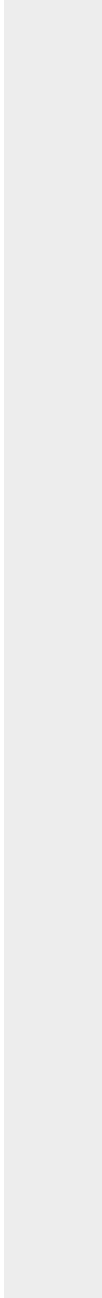
QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

(anr) Analyte not requested



MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	D87358-1A Original MS		Spikelot ICPAL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	84800	209000	125000	99.4	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	73000	191000	125000	94.4	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	220000	341000	125000	96.8	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP19982: D87346-1A

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

Metal	D87358-1A	Spikelot	QC
	Original MS	ICPALL2 % Rec	Limits

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D87346  
 Account: RENOGCOA - Renegade Oil & Gas  
 Project: SE Reclaimed Mud Sample

QC Batch ID: MP19982  
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
 Units: ug/l

Prep Date: 10/10/16

Metal	D87358-1A Original MSD		Spikelot ICPALL2 % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	84800	210000	125000	100.2	0.5	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	73000	199000	125000	100.8	4.1	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	220000	364000	125000	115.2	6.5	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP19982: D87346-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Prep Date: 10/10/16

(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Prep Date: 10/10/16

Results < IDL are shown as zero for calculation purposes  
(\*) Outside of QC limits

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
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SERIAL DILUTION RESULTS SUMMARY

Login Number: D87346  
 Account: RENOGCOA - Renegade Oil & Gas  
 Project: SE Reclaimed Mud Sample

QC Batch ID: MP19982  
 Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
 Units: ug/l

Prep Date: 10/10/16

D87358-1A			QC	
Metal	Original	SDL 1:5	%DIF	Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	13900	17200	1.7	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	14600	12300	16.0*(a)	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	44000	37200	15.5*(a)	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP19982: D87346-1A

Results < IDL are shown as zero for calculation purposes  
 (\*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

QC Batch ID: MP19982  
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60  
Units: ug/l

Prep Date: 10/10/16

	D87358-1A		QC
Metal	Original SDL 1:5	%DIF	Limits

(anr) Analyte not requested  
(a) Serial dilution indicates possible matrix interference.

## General Chemistry

### QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: D87346  
Account: RENOGCOA - Renegade Oil & Gas  
Project: SE Reclaimed Mud Sample

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Specific Conductivity	GP18983/GN36324			umhos/cm	101	105	105.0	90-110%
Specific Conductivity	GP18983/GN36324			umhos/cm	9992	10100	101.0	90-110%
Specific Conductivity	GP18983/GN36324			umhos/cm	998	1070	108.0	90-110%
pH	GN36240			su	8.00	7.98	99.8	99.1-100.9%

Associated Samples:  
Batch GN36240: D87346-1  
Batch GP18983: D87346-1  
(\*) Outside of QC limits