

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b.)

1. OGCC Operator Number: 10316
2. Name of Operator: Mesa Energy Partners, LLC
3. Address: 1001 Seventeenth Street, Suite 1140
4. Contact Name: Dave Cesark
5. API Number: 05-103-11603
6. Well/Facility Name: Buckhorn Draw Unit
7. Well/Facility Number: 66068 F11 199
8. Location (Qtr/Sec, Twp, Rng, Meridian): Lot 6 Section 11 Township 1S Range 99W
9. County: Rio Blanco
10. Field Name: Canary #10112
11. Federal, Indian or State Lease Number:
Survey Plat, Directional Survey, Surface Egmt Diagram, Technical Info Page, Other

General Notice

CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit)
Change of Surface Footage from Exterior Section Lines:
Change of Surface Footage to Exterior Section Lines:
Change of Bottomhole Footage from Exterior Section Lines:
Change of Bottomhole Footage to Exterior Section Lines:
GPS DATA: Date of Measurement, PDOP Reading, Instrument Operator's Name
CHANGE SPACING UNIT: Formation, Spacing order number, Unit Acreage, Unit configuration
CHANGE OF OPERATOR (prior to drilling): Effective Date, Plugging Bond
CHANGE WELL NAME: From, To, Effective Date
ABANDONED LOCATION: Was location ever built? Is site ready for inspection?
NOTICE OF CONTINUED SHUT IN STATUS: Date well shut in or temporarily abandoned? Has Production Equipment been removed from site?
SPUD DATE:
SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK: Method used, Cementing tool setting/perf depth, Cement volume, Cement top, Cement bottom, Date
RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004.

Technical Engineering/Environmental Notice

Notice of Intent: Approximate Start Date, Report of Work Done: Date Work Completed
Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)
Intent to Recomplete (submit form 2), Change Drilling Plans, Gross Interval Changed?, Casing/Cementing Program Change, Request to Vent or Flare, Repair Well, Rule 502 variance requested, Other: Data Submitted, E&P Waste Disposal, Beneficial Reuse of E&P Waste, Status Update/Change of Remediation Plans for Spills and Releases

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete

Signed: [Signature] Date: 1/11/13 Email: dcesark@mesa-energy.net
Print Name: David Cesark Title: VP-Environmental & Regulatory Affairs

COGCC Approved: [Signature] Title: Oil & Gas Location Assessment Specialist Date: 2-7-14

CONDITIONS OF APPROVAL, IF ANY:

Location Assessment Specialist

FORM
4
Rev 12/05

Page 2

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

- | | | | |
|--|--|-----------------------|---------------|
| 1. OGCC Operator Number: | 10316 | API Number: | 05-103-11603 |
| 2. Name of Operator: | Mesa Energy Partners, LLC | OGCC Facility ID # | 414142 |
| 3. Well/Facility Name: | Buckhorn Draw Unit | Well/Facility Number: | 6606B F11 199 |
| 4. Location (QtrQtr, Sec, Twp, Rng, Meridian): | Lot 6 Section 11 Township 1S Range 99W | | |

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

5. **DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

Please see attached report and data.

[Faint handwritten notes at the bottom of the page, possibly including "attached report and data"]

Mesa Energy Partners, LLC
Drilling Pit Closure Report
Buckhorn Draw Unit F11 Pit Closure

Prepared For:



1001 Seventeenth Street, Suite 1140
Denver, CO 80202

Prepared By:



826 21 ½ Road
Grand Junction, CO 81504
Phone: 970.263.7800
Fax: 970.263.7456

Introduction

This report details the closure of the drilling pit associated with the Mesa Energy Partners, LLC (Mesa Energy) BDU #6606B F11X 199, identified hereafter as the F11, and provides an analysis of results and summary of actions taken during the pit closure process. This report also provides the documentation necessary to show that Mesa Energy has conducted an investigation of the pit and surrounding area in accordance with COGCC Pit Closure rules.

Closure activities began on June 28, 2012 and were concluded on December 10, 2012. Information included in this report includes: field screening results, laboratory analytical results, soil disposal and complete backfilling of the drill cuttings pit.

Site Location

The site is located in Rio Blanco County, Colorado. The site legal location is Lot 6, Section 11, Township 1 South, Range 99 West of the 6th PM. Please refer to **Figure 1** for the site location.

Evacuation of Cuttings and Pit Liner Removal

The pit was emptied of all drill cuttings using excavation equipment on July 27, 2012. Due to the consistency of the pit contents, the liner was slowly peeled back and used to contain the cuttings during removal. The remainder of the liner was removed once the pit was empty. The cuttings were spread within a bermed containment for drying per COGCC Rule 1003d(2).

The liner from the pit was removed and is currently awaiting waste characterization data for disposal at the Rio Blanco County Landfill in accordance with COGCC Rule 905b(3)A.

Please see the attached **Appendix A** for a photographic log of excavation activities.

Sampling Activities

A sample of the cuttings was collected by Olsson Associates (Olsson) personnel on June 28, 2012, prior to cuttings removal, and was analyzed according to COGCC Rule 910 and Table 910-1. Please refer to **Table 3** for the results of these samples.

Following excavation of the drill cuttings and removal of the liner, a visual inspection of the pit was conducted by Olsson personnel on August 6, 2012. The pit was surveyed for any visual indications of soil contamination. Those areas which were identified as having staining were screened using a PID. The PID screening indicated low level hydrocarbon impact. Please refer to **Table 1** for the results of this field screening. Please refer to **Figure 2** for a schematic of screening results and locations. The soil which contained staining was then removed with the track hoe.

Ten grab samples were collected on August 6, 2012 from the excavated area to confirm that all contaminated soil had been removed. **Figure 3** shows a schematic of the sampling locations. A sample was taken from each sidewall and the lowest point on either side of the pit. These samples were analyzed for COGCC Rule 910 compliance. Please see **Table 2** for the results of these confirmation samples.

The results of the confirmation samples for locations **MESA F11 SS1, MESA F11 SS2, MESA F11 SS4, MESA F11 SS6** and **MESA F11 SS7** exceed the COGCC allowable concentration for background arsenic. However, the background sample collected at depth on October 24, 2012 indicates that the sample data is within natural ranges. In addition several of the confirmation samples exceeded one or all of the Table 910-1 standards for sodium adsorption ratio and pH. These exceedances are not expected to present an issue with revegetation success as these soils are buried below three feet of native soil.

The natural soil characteristics of the area were analyzed by collecting four grab samples from undisturbed ground within the vicinity of the pad. **Figure 4** shows the collection locations of the background samples. Four of the samples were collected at a depth of approximately 1 foot below ground surface on September 20, 2012. The other background sample was collected at a depth of approximately 5 feet below ground surface on 10/24/2012. All background samples were analyzed for arsenic only. Please refer to **Table 4** for the results of this sampling.

Each sample was collect in laboratory supplied sample containers, labeled, logged on the chain-of-custody form and packed on ice for preservation.

All samples were submitted, via overnight delivery and under strict chain-of-custody protocol, to Accutest Laboratories of Wheat Ridge, CO for analysis. All samples arrived in good condition, and within the appropriate temperature range and holding time.

The laboratory data reports, including the chain-of-custody forms for the samples collected during the activities described above are attached to this report in **Appendix B**.

Management of Stockpiled Material

The pit liner was separated from the contents of the pit and stored on site. The impacted soil excavated from below the liner was stockpiled on site, until it was mixed with the stockpiled cuttings. The impacted soil and cuttings from the pit were mixed and sampled in order to determine if they could be backfilled into the pit. Three grab samples were collected and analyzed according to COGCC Rule 910. These samples were collected on September 20, 2012. Please refer to **Table 3** for the results of this sampling.

The laboratory analysis indicated that the stockpiled soil would meet Table 910-1 standards, with the exception of pH, Sodium Adsorption Ratio and Specific Conductivity. Soil sample **F11 SS3** had an arsenic range between 10.5 and 15.6 mg/L. This hotspot does not reflect the overall level of arsenic in the cuttings and has been mixed and thus diluted.

Backfilling Activities

Interim reclamation and backfilling operations were completed on December 10, 2012. The results from the stock pile material samples show that the cuttings/soils were mixed to acceptable levels, within Table 910-1 standards except pH and SAR. However, these exceedances are not expected to present an issue for revegetation success, as these soils are buried below three feet of native soil.

FIGURES

Sample Location Maps



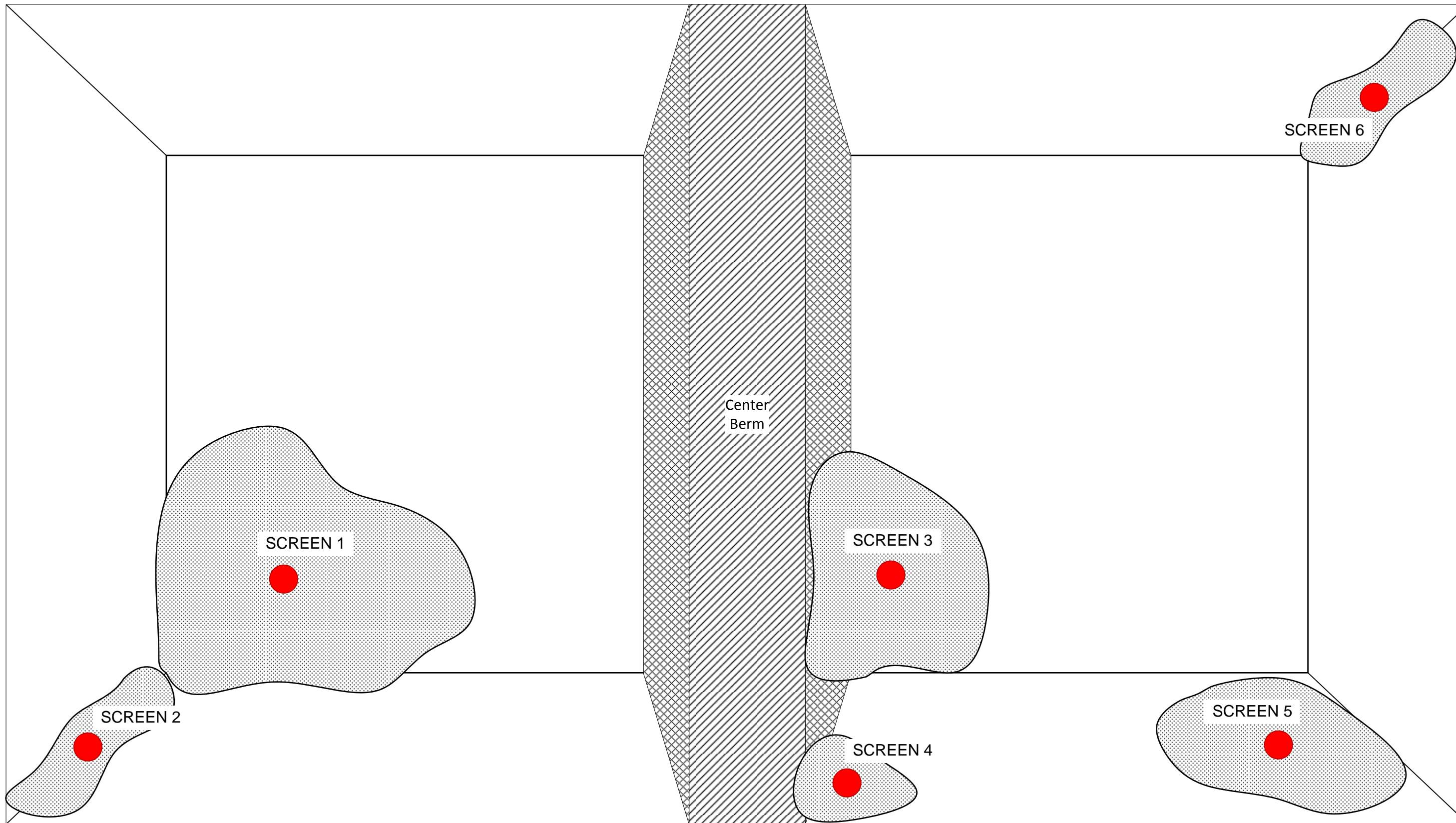
PROJECT NO: 012-1435
 DRAWN BY: JLS
 DATE: 10/9/12

Buckhorn Draw Unit F11 Site Location
Mesa Energy Partners, LLC
 SECTION 11, TOWNSHIP 1S, RANGE 99W, 6th PM
 RIO BLANCO COUNTY, CO



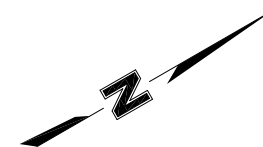
826 21½ Road
 Grand Junction, CO 81505
 TEL 970.263.7800
 FAX 970.263.7456

Figure
 1



PROJECT NO:	012-1435
DRAWN BY:	JLS
DATE:	10/9/12

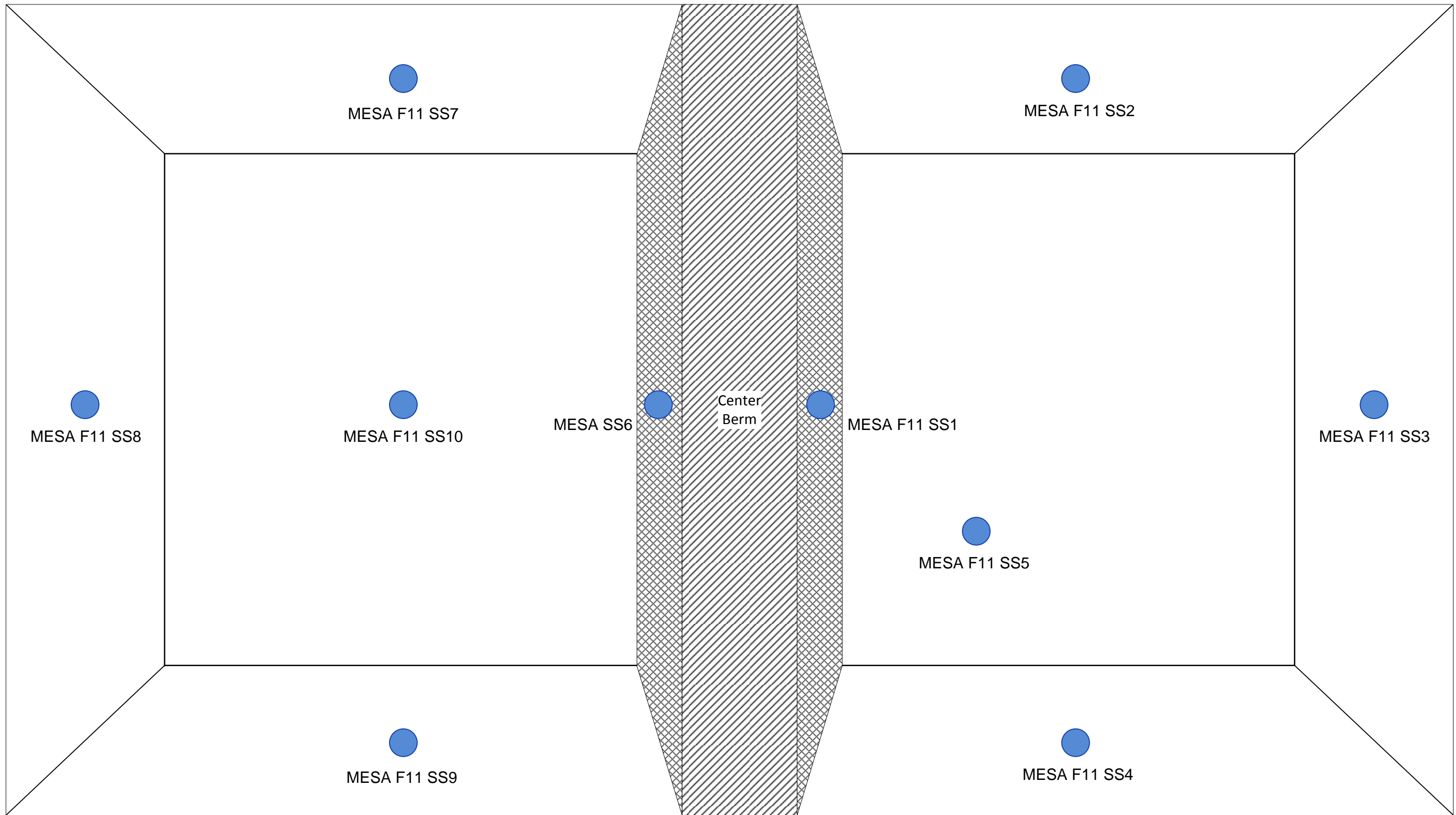
Buckhorn Draw Unit F1
Field Screening Schematic
 Mesa Energy Partners, LLC



826 21½ Road
 Grand Junction, CO 81505
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE

2



PROJECT NO:	012-1435
DRAWN BY:	JLS
DATE:	8/16/2012

Buckhorn Draw Unit F11
Confirmation Sampling Schematic
 Mesa Energy Partners, LLC



826 21½ Road
 Grand Junction, CO 81505
 TEL 970.263.7800
 FAX 970.263.7456

FIGURE

3

LEGEND

● Background Sampling Location



PROJECT NO:	012-1435
DRAWN BY:	JLS
DATE:	10/11/12

**Buckhorn Draw Unit F11
Background Sampling Schematic**
Mesa Energy Partners, LLC



826 21½ Road
Grand Junction, CO 81505
TEL 970.263.7800
FAX 970.263.7456

FIGURE

4

TABLES

Analytical Summary

Table 1
Buckhorn Draw Unit F11
Field Screening Summary
Mesa Energy Partners LLC

FIELD SCREENING SUMMARY (ppm)	
SCREEN 1	117.3
SCREEN 2	180.7
SCREEN 3	0.9
SCREEN 4	1.4
SCREEN 5	67.2
SCREEN 6	0.3

ppm - parts per million

Table 2
Buckhorn Draw Unit F11
Soil Sample Summary
Mesa Energy Partners LLC

SAMPLE SUMMARY	
Location Description	Buckhorn Draw Unit F11
Sample Type	Soil Confirmation

LABORATORY DATA SUMMARY												
Sample ID	MESA F11 SS1	MESA F11 SS2	MESA F11 SS3	MESA F11 SS4	MESA F11 SS5	MESA F11 SS6	MESA F11 SS7	MESA F11 SS8	MESA F11 SS9	MESA F11 SS10	ALLOWABLE LIMITS	UNITS
Sample Date	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012	8/6/2012		
Analytical Parameters												
TPH												
TPH-GRO	U	U	U	U	U	U	U	U	U	U	NA	mg/kg
TPH-DRO	U	U	U	U	146	U	U	128	U	199	NA	mg/kg
Total TPH	U	U	U	U	146	U	U	144.5	U	199	500	mg/kg
BTEX												
Benzene	U	U	U	U	U	U	U	U	U	U	0.17	mg/kg
Toluene	U	U	U	U	U	U	U	U	U	U	85	mg/kg
Ethylbenzene	U	U	U	U	U	U	U	0.0460	U	U	100	mg/kg
Total Xylene	U	U	U	U	0.167	U	U	U	U	U	175	mg/kg
Metals												
Chromium, Hexavalent	U	U	U	U	U	U	U	U	U	U	23	mg/kg
Chromium, Trivalent	24.5	26.3	10.6	10.8	25.0	27.7	26.3	10.5	9.3	26.4	120,000	mg/kg
Arsenic	9.1	7.8	3.5	7.7	6.8	7.8	9.3	3.9	6.0	4.9	0.39	mg/kg
Barium	523	542	694	819	1160	494	900	830	887	540	15,000	mg/kg
Boron	9.0	8.9	8.9	9.4	10.7	9.4	10	9.1	8.5	10.2	NA	mg/kg
Cadmium	U	U	U	U	U	U	U	U	U	U	70	mg/kg
Chromium	24.5	26.3	10.6	10.8	25.0	27.7	26.3	10.5	9.3	26.4	NA	mg/kg
Copper	15.8	16.9	4.1	5.3	20.5	18.7	18.5	4.8	3.9	17.6	3100	mg/kg
Lead	8.1	8.3	U	U	12.7	10	10.4	U	U	8.0	400	mg/kg
Mercury	U	U	U	U	U	U	U	U	U	U	23	mg/kg
Nickel	20.9	20.6	4.3	5.5	19.4	24.3	22.7	4.5	4.2	19.9	1,600	mg/kg
Selenium	U	U	U	U	U	U	U	U	U	U	390	mg/kg
Silver	U	U	U	U	U	U	U	U	U	U	390	mg/kg
Zinc	39.7	40.4	19.9	19.9	49.0	41.1	39.7	15.0	12.8	39.4	23000	mg/kg
Polynuclear Aromatic Hydrocarbons												
Anthracene	U	U	U	U	U	U	U	U	U	U	1,000	mg/kg
Acenaphthene	U	U	U	U	U	U	U	U	U	U	1,000	mg/kg
Benzo(a)anthracene	U	U	U	U	U	U	U	U	U	U	0.22	mg/kg
Benzo(a)pyrene	U	U	U	U	U	U	U	U	U	U	0.022	mg/kg
Benzo(b)fluoranthene	U	U	U	U	U	U	U	U	U	U	0.22	mg/kg
Benzo(k)fluoranthene	U	U	U	U	U	U	U	U	U	U	2.2	mg/kg
Chrysene	U	U	U	U	U	U	U	0.0057	U	U	22	mg/kg
Dibenzo(a,h)anthracene	U	U	U	U	U	U	U	U	U	U	0.022	mg/kg
Fluoranthene	U	U	U	U	U	U	U	U	U	U	1,000	mg/kg
Fluorene	U	U	U	U	U	U	U	U	U	U	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	U	U	U	U	0.22	mg/kg
Napthalene	U	U	U	U	0.0181	U	U	U	U	U	23	mg/kg
Pyrene	U	U	U	U	U	U	U	0.0050	U	U	1,000	mg/kg
General Chemistry												
pH	9.60	9.56	10.06	10.02	10.04	9.81	9.75	9.90	10.01	9.69	6-9	SU
Sodium Adsorption Ratio	58.4	10.9	7.10	67.5	17.5	9.94	4.53	6.92	8.25	12.0	<12	
Specific Conductivity	3.660	1.420	1.120	3.730	.978	.851	.707	.769	1.230	1.400	<4	mmhos/cm

mg/kg - milligrams per kilogram
BDL - parameter was below the detection limit
umhos/cm - micromhos per centimeter
su - standard units
mv - millivolts
NA - not applicable

Indicates a result which is over the allowable limit and but below background levels
Indicates a result which is over the allowable limit and background levels
Indicates a result which is over the allowable limit

Table 3
Buckhorn Draw Unit F11
Cuttings Sample Summary
Mesa Energy Partners LLC

SAMPLE SUMMARY	
Location Description	Buckhorn Draw Unit F11
Sample Type	Pit Fill

LABORATORY DATA SUMMARY								
Sample ID	SS1 F11	F11 SS1	F11 SS2	F11 SS3	F11 SS3-2	F11 SS3-3	ALLOWABLE LIMITS	UNITS
Sample Date	6/28/2012	9/20/2012	9/20/2012	9/20/2012	9/20/2012	9/20/2012		
Analytical Parameters								
TPH								
TPH-GRO	16.8	U	17.2	51.6	NT	NT	NA	mg/kg
TPH-DRO	15400	124	124	405	NT	NT	NA	mg/kg
Total TPH	15416.8	124	141.2	456.6	NT	NT	500	mg/kg
BTEX								
Benzene	U	U	0.0657	0.105	NT	NT	0.17	mg/kg
Toluene	0.216	U	0.414	0.647	NT	NT	85	mg/kg
Ethylbenzene	U	U	0.0800	0.187	NT	NT	100	mg/kg
Total Xylene	0.419	U	0.882	1.390	NT	NT	175	mg/kg
Metals								
Chromium, Hexavalent	NT	U	U	U	NT	NT	23	mg/kg
Chromium, Trivalent	NT	30.1	27.9	18.1	NT	NT	120,000	mg/kg
Arsenic	6.1	6.3	5.7	15.6	10.5	13.6	0.39	mg/kg
Barium	NT	1350	3000	1390	NT	NT	15,000	mg/kg
Cadmium	NT	U	U	U	NT	NT	70	mg/kg
Chromium	NT	30.1	27.9	18.1	NT	NT	NA	mg/kg
Copper	NT	15.3	67.4	36.0	NT	NT	3100	mg/kg
Lead	NT	11.2	15.8	19.0	NT	NT	400	mg/kg
Mercury	NT	U	U	U	NT	NT	23	mg/kg
Nickel	NT	15.4	14.0	16.0	NT	NT	1,600	mg/kg
Selenium	NT	U	U	U	NT	NT	390	mg/kg
Silver	NT	U	U	U	NT	NT	390	mg/kg
Zinc	NT	61.3	203	75.5	NT	NT	23000	mg/kg
Polynuclear Aromatic Hydrocarbons								
Anthracene	NT	U	U	U	NT	NT	1,000	mg/kg
Acenaphthene	NT	U	U	U	NT	NT	1,000	mg/kg
Benzo(a)anthracene	NT	U	U	U	NT	NT	0.22	mg/kg
Benzo(a)pyrene	NT	U	U	U	NT	NT	0.022	mg/kg
Benzo(b)fluoranthene	NT	U	U	U	NT	NT	0.22	mg/kg
Benzo(k)fluoranthene	NT	U	U	U	NT	NT	2.2	mg/kg
Chrysene	NT	0.0082 J	0.0464	0.0387	NT	NT	22	mg/kg
Dibenzo(a,h)anthracene	NT	U	U	U	NT	NT	0.022	mg/kg
Fluoranthene	NT	U	0.0150	U	NT	NT	1,000	mg/kg
Fluorene	NT	U	0.0566	0.112	NT	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	NT	U	U	U	NT	NT	0.22	mg/kg
Naphthalene	NT	0.0788	0.315	0.303	NT	NT	23	mg/kg
Pyrene	NT	0.0079 J	0.0273	0.0306	NT	NT	1,000	mg/kg
General Chemistry								
pH	10.58	9.88	9.63	9.68	NT	NT	6-9	SU
Sodium Adsorption Ratio	28.4	24.6	12.0	18.3	NT	NT	<12	RATIO
Specific Conductivity	NT	6.130	3.260	4.190	NT	NT	<4 or 2 times the background	mmhos/cm

mg/kg - milligrams per kilogram
BDL - parameter was below the detection limit
umhos/cm - micromhos per centimeter
su - standard units
mv - millivolts
NA - not applicable

Indicates a result which is over the allowable limit and but below background levels
Indicates a result which is over the allowable limit and background levels
Indicates a result which is over the allowable limit

Table 4
Buckhorn Draw Unit F11
Background Sample Summary
Mesa Energy Partners LLC

SAMPLE SUMMARY	
Location Description	Buckhorn Draw Unit F11
Sample Type	Background

LABORATORY DATA SUMMARY							
Sample ID	F11 BG1	F11 BG2	F11 BG3	F11 BG4	F11 BG5	ALLOWABLE LIMITS	UNITS
Sample Date	9/20/2012	9/20/2012	9/20/2012	9/20/2012	10/24/2012		
Sample Depth	0-12"	0-12"	0-12"	0-12"	10-12'		
Analytical Parameters							
Metals							
Arsenic	6.3	6.6	5.9	6.4	9.4	0.39	mg/kg

mg/kg - milligrams per kilogram
BDL - parameter was below the detection limit
umhos/cm - micromhos per centimeter
su - standard units
mv - millivolts
NA - not applicable

Indicates a result which is over the allowable limit and but below background levels

Indicates a result which is over the allowable limit and background levels

Indicates a result which is over the allowable limit

APPENDIX A

Photographic Log

PHOTOGRAPHIC LOG
Buckhorn Draw Unit F11 Pit Closure
Mesa Energy Partners, LLC



Photo 1 – View of the eastern end of the pit after removal of the liner. Photo is taken from the southeast corner looking northwest. Photo taken on 8/6/2012.



Photo 2 – View of the western end of the pit after removal of the liner. Photo is taken from the southeast corner looking northwest. Photo taken on 8/6/12.



Photo 3 – View of pit contents after removal. Photo taken on 8/6/12.



Photo 4 – View of the western end of the pit after removal of the contaminated soil. Photo is taken from the northwest corner looking southeast. Photo taken on 8/6/2012.



Photo 5 – View of the eastern end of the pit after removal of the contaminated soil. Photo is taken from the southwest corner looking northeast. Photo taken on 8/6/2012.

APPENDIX B

Laboratory Analytical Results

Technical Report for

Olsson Associates

Mesa Energy F11 Pit Sampling

PO #012-1435

Accutest Job Number: D36033

Sampling Date: 06/28/12

Report to:

Olsson Associates


jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: 17



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


Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.

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4.2: D36033-1A: SS1 F11	13
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1

2

3

4

5



Sample Summary

Olsson Associates

Job No: D36033

Mesa Energy F11 Pit Sampling
Project No: PO #012-1435

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D36033-1	06/28/12	14:10 SG	06/30/12	SO	Soil	SS1 F11
D36033-1A	06/28/12	14:10 SG	06/30/12	SO	Soil	SS1 F11

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D36033

Site: Mesa Energy F01 Pit Sampling

Report Date 7/17/2012 8:04:14 AM

On 06/30/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 3.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D36033 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: V3V1104
------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36036-6MS, D36036-6MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO	Batch ID: GGB915
------------------	-------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) D35919-1MS, D35919-1MSD 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: OP6163
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36006-1MS, D36006-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ	Batch ID: MP7836
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC11920-12MS, MC11920-12MSD, MC11920-12SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Sodium are outside control limits for sample MP7836-SD1. Probable cause due to sample homogeneity.
- MP7836-SD1 for Sodium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO	Batch ID: MP7870
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D36215-1MS, D36215-1MSD, D36215-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN15670
------------------	--------------------------

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 9045D

Matrix SO	Batch ID: GN15666
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D36033-1

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO	Batch ID: MP7836
------------------	-------------------------

- D36033-1A 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.

Summary of Hits

Job Number: D36033
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 06/28/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D36033-1	SS1 F11					
Toluene		216 J	310	160	ug/kg	SW846 8260B
Xylene (total)		419 J	620	310	ug/kg	SW846 8260B
TPH-GRO (C6-C10)		16.8 J	31	16	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		15400	160	100	mg/kg	SW846-8015B
Arsenic		6.1	0.19		mg/kg	SW846 6020A
pH		10.58			su	SW846 9045D
D36033-1A	SS1 F11					
Calcium		25.1	2.0		mg/l	SW846 6010C
Magnesium		1.63	1.0		mg/l	SW846 6010C
Sodium		544	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^a		28.4			ratio	USDA HANDBOOK 60

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

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V19024.D	1	07/03/12	BD	n/a	n/a	V3V1104
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	160	59	ug/kg	
108-88-3	Toluene	216	310	160	ug/kg	J
100-41-4	Ethylbenzene	ND	310	59	ug/kg	
1330-20-7	Xylene (total)	419	620	310	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	96%		61-130%
460-00-4	4-Bromofluorobenzene	107%		53-131%
17060-07-0	1,2-Dichloroethane-D4	93%		62-130%

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

4.1
4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16511.D	1	07/03/12	SK	n/a	n/a	GGB915
Run #2							

Run #	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)	16.8	31	16	mg/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	108%		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

4.1
4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD15118.D	1	07/06/12	AW	07/02/12	OP6163	GFD783
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.2 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	15400	160	100	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	81%		43-136%		

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

4.1
4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.1	0.19	mg/kg	5	07/11/12	07/17/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2615

(2) Prep QC Batch: MP7870

RL = Reporting Limit

4.1
 4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Solids, Percent	48.4		%	1	07/03/12	SWT	SM19 2540B M
pH	10.58		su	1	07/02/12 15:10	CT	SW846 9045D

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1A	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	25.1	2.0	mg/l	1	07/06/12	07/09/12 JM	SW846 6010C ¹	EPA 200.7 ²
Magnesium	1.63	1.0	mg/l	1	07/06/12	07/09/12 JM	SW846 6010C ¹	EPA 200.7 ²
Sodium	544	2.0	mg/l	1	07/06/12	07/09/12 JM	SW846 6010C ¹	EPA 200.7 ²

(1) Instrument QC Batch: MA2587

(2) Prep QC Batch: MP7836

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: SS1 F11	Date Sampled: 06/28/12
Lab Sample ID: D36033-1A	Date Received: 06/30/12
Matrix: SO - Soil	Percent Solids: 48.4
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	28.4		ratio	1	07/09/12 23:39	JM	USDA HANDBOOK 60

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

RL = Reporting Limit

4.2
 4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D36033

Client: OLSSON ASSOC

Immediate Client Services Action Required: No

Date / Time Received: 6/30/2012 9:30:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MESA ENERGY F11 PIT SAMPLING

Airbill #'s: FedEx

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
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"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:			Infrared gun
3. Cooler media:			Ice (bag)

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<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 checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
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"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
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

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
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 rec'd 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"/>

Comments

Accutest Laboratories
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4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

5.1
5

Technical Report for

Olsson Associates

Mesa Energy F11 Pit Sampling

Accutest Job Number: D37153

Sampling Date: 08/06/12

Report to:

Olsson Associates

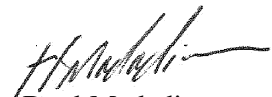
jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **99**



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



Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D37153

Mesa Energy F11 Pit Sampling

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D37153-1	08/06/12	10:40 JS	08/07/12	SO	Soil	MESA F11 SS1
D37153-1A	08/06/12	10:40 JS	08/07/12	SO	Soil	MESA F11 SS1
D37153-2	08/06/12	10:45 JS	08/07/12	SO	Soil	MESA F11 SS2
D37153-2A	08/06/12	10:45 JS	08/07/12	SO	Soil	MESA F11 SS2
D37153-3	08/06/12	10:50 JS	08/07/12	SO	Soil	MESA F11 SS3
D37153-3A	08/06/12	10:50 JS	08/07/12	SO	Soil	MESA F11 SS3
D37153-4	08/06/12	10:55 JS	08/07/12	SO	Soil	MESA F11 SS4
D37153-4A	08/06/12	10:55 JS	08/07/12	SO	Soil	MESA F11 SS4
D37153-5	08/06/12	11:00 JS	08/07/12	SO	Soil	MESA F11 SS5
D37153-5A	08/06/12	11:00 JS	08/07/12	SO	Soil	MESA F11 SS5
D37153-6	08/06/12	12:05 JS	08/07/12	SO	Soil	MESA F11 SS6
D37153-6A	08/06/12	12:05 JS	08/07/12	SO	Soil	MESA F11 SS6
D37153-7	08/06/12	12:10 JS	08/07/12	SO	Soil	MESA F11 SS7

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



Sample Summary

(continued)

Olsson Associates

Job No: D37153

Mesa Energy F11 Pit Sampling

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D37153-7A	08/06/12	12:10 JS	08/07/12	SO	Soil	MESA F11 SS7
D37153-8	08/06/12	12:15 JS	08/07/12	SO	Soil	MESA F11 SS8
D37153-8A	08/06/12	12:15 JS	08/07/12	SO	Soil	MESA F11 SS8
D37153-9	08/06/12	12:20 JS	08/07/12	SO	Soil	MESA F11 SS9
D37153-9A	08/06/12	12:20 JS	08/07/12	SO	Soil	MESA F11 SS9
D37153-10	08/06/12	12:25 JS	08/07/12	SO	Soil	MESA F11 SS10
D37153-10A	08/06/12	12:25 JS	08/07/12	SO	Soil	MESA F11 SS10

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D37153

Site: Mesa Energy F11 Pit Sampling

Report Date 8/21/2012 8:05:48 AM

On 08/07/2012, 10 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.0 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D37153 was assigned to the project. The lab sample IDs, client sample IDs, 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:** V5V1408

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-1MS, D37153-1MSD were used as the QC samples indicated.

Matrix SO **Batch ID:** V5V1414

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-10MS, D37153-10MSD were used as the QC samples indicated.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP6390

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37154-3MS, D37154-3MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB937

- All samples were analyzed within the recommended method holding time.
- Sample(s) D37123-1MS, D37123-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix SO **Batch ID:** GGB939

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37318-1MS, D37318-1MSD were used as the QC samples indicated.

Extractables by GC By Method SW846-8015B

Matrix SO	Batch ID: OP6391
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D37153-7MS, D37153-7MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix SO	Batch ID: OP6404
------------------	-------------------------

- All samples were extracted and analyzed within the recommended method holding time.
- Sample(s) D37153-9MS, D37153-9MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Metals By Method SW846 6010C

Matrix AQ	Batch ID: MP8120
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-2AMS, D37153-2AMSD, D37153-2ASDL were used as the QC samples for the metals analysis.

Matrix AQ	Batch ID: MP8141
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC13032-1AMS, MC13032-1AMSD, MC13032-1ASDL were used as the QC samples for the metals analysis.

Matrix SO	Batch ID: MP8101
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-1MS, D37153-1MSD, D37153-1SDL were used as the QC samples for the metals analysis.
- The matrix spike duplicate (MSD) recovery(s) of Barium are outside control limits. Probable cause due to matrix interference.
- The serial dilution RPD(s) for Cadmium, Lead, Selenium, Barium, Boron, Chromium, Nickel, Zinc are outside control limits for sample MP8101-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP8101-SD1 for Boron: Serial dilution indicates possible matrix interference.
- MP8101-SD1 for Zinc: Serial dilution indicates possible matrix interference.
- MP8101-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP8101-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP8101-SD1 for Barium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO	Batch ID: MP8102
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-1MS, D37153-1MSD, D37153-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO	Batch ID: MP8132
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-1MS, D37153-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method SW846 3060/7196A M

Matrix SO **Batch ID:** R13923

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13924

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13925

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-3 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13926

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-4 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13927

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-5 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13928

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-6 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13929

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-7 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13930

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-8 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13931

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-9 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix SO **Batch ID:** R13939

- The data for SW846 3060/7196A M meets quality control requirements.
- D37153-10 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 3060A/7196A

Matrix SO **Batch ID:** GP7913

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D37153-9DUP, D37153-9MSD were used as the QC samples for the Chromium, Hexavalent analysis.
- The matrix spike (MS) recovery(s) of Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Chromium, Hexavalent are outside control limits. Probable cause due to matrix interference.

Wet Chemistry By Method SW846 9045D

Matrix SO	Batch ID: GN16215
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D37153-3, D37153-4, D37153-5, D37153-9

Matrix SO	Batch ID: GN16216
------------------	--------------------------

- The following samples were run outside of holding time for method SW846 9045D: D37153-1, D37153-10, D37153-2, D37153-6, D37153-7, D37153-8

Wet Chemistry By Method USDA HANDBOOK 60

Matrix SO	Batch ID: MP8120
------------------	-------------------------

- D37153-5A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-4A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-3A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-1A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-2A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-6A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-7A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$

Matrix SO	Batch ID: MP8141
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- D37153-8A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-9A for Sodium Adsorption Ratio: Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L})+(\text{Mg meq/L})/2]}$
- D37153-10A 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.

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D37153-1 MESA F11 SS1

Arsenic		9.1	0.12		mg/kg	SW846 6020A
Barium		523	1.2		mg/kg	SW846 6010C
Boron		9.0	6.0		mg/kg	SW846 6010C
Chromium		24.5	1.2		mg/kg	SW846 6010C
Copper		15.8	1.2		mg/kg	SW846 6010C
Lead		8.1	6.0		mg/kg	SW846 6010C
Nickel		20.9	3.6		mg/kg	SW846 6010C
Zinc		39.7	3.6		mg/kg	SW846 6010C
Chromium, Trivalent ^a		24.5	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		326			mv	ASTM D1498-76M
Specific Conductivity		3660	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		9.60			su	SW846 9045D

D37153-1A MESA F11 SS1

Calcium		7.86	2.0		mg/l	SW846 6010C
Magnesium		4.12	1.0		mg/l	SW846 6010C
Sodium		812	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		58.4			ratio	USDA HANDBOOK 60

D37153-2 MESA F11 SS2

Arsenic		7.8	0.11		mg/kg	SW846 6020A
Barium		542	1.1		mg/kg	SW846 6010C
Boron		8.9	5.5		mg/kg	SW846 6010C
Chromium		26.3	1.1		mg/kg	SW846 6010C
Copper		16.9	1.1		mg/kg	SW846 6010C
Lead		8.3	5.5		mg/kg	SW846 6010C
Nickel		20.6	3.3		mg/kg	SW846 6010C
Zinc		40.4	3.3		mg/kg	SW846 6010C
Chromium, Trivalent ^a		26.3	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		325			mv	ASTM D1498-76M
Specific Conductivity		1420	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		9.56			su	SW846 9045D

D37153-2A MESA F11 SS2

Calcium		12.1	2.0		mg/l	SW846 6010C
Magnesium		16.1	1.0		mg/l	SW846 6010C
Sodium		246	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		10.9			ratio	USDA HANDBOOK 60

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D37153-3	MESA F11 SS3					
Arsenic		3.5	0.11		mg/kg	SW846 6020A
Barium		694	1.1		mg/kg	SW846 6010C
Boron		8.9	5.6		mg/kg	SW846 6010C
Chromium		10.6	1.1		mg/kg	SW846 6010C
Copper		4.1	1.1		mg/kg	SW846 6010C
Nickel		4.3	3.4		mg/kg	SW846 6010C
Zinc		19.9	3.4		mg/kg	SW846 6010C
Chromium, Trivalent ^a		10.6	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		306			mv	ASTM D1498-76M
Specific Conductivity		1120	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		10.06			su	SW846 9045D
D37153-3A	MESA F11 SS3					
Calcium		25.1	2.0		mg/l	SW846 6010C
Magnesium		13.0	1.0		mg/l	SW846 6010C
Sodium		176	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		7.10			ratio	USDA HANDBOOK 60
D37153-4	MESA F11 SS4					
Arsenic		7.7	0.12		mg/kg	SW846 6020A
Barium		819	1.2		mg/kg	SW846 6010C
Boron		9.4	6.0		mg/kg	SW846 6010C
Chromium		10.8	1.2		mg/kg	SW846 6010C
Copper		5.3	1.2		mg/kg	SW846 6010C
Nickel		5.5	3.6		mg/kg	SW846 6010C
Zinc		19.9	3.6		mg/kg	SW846 6010C
Chromium, Trivalent ^a		10.8	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		299			mv	ASTM D1498-76M
Specific Conductivity		3730	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		10.02			su	SW846 9045D
D37153-4A	MESA F11 SS4					
Calcium		4.63	2.0		mg/l	SW846 6010C
Magnesium		3.15	1.0		mg/l	SW846 6010C
Sodium		768	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		67.5			ratio	USDA HANDBOOK 60
D37153-5	MESA F11 SS5					
Xylene (total)		167 J	280	140	ug/kg	SW846 8260B

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method	
		Naphthalene	18.1	14	13	ug/kg	SW846 8270C BY SIM
		TPH-DRO (C10-C28)	146	16	11	mg/kg	SW846-8015B
		Arsenic	6.8	0.12		mg/kg	SW846 6020A
		Barium	1160	1.2		mg/kg	SW846 6010C
		Boron	10.7	6.1		mg/kg	SW846 6010C
		Chromium	25.0	1.2		mg/kg	SW846 6010C
		Copper	20.5	1.2		mg/kg	SW846 6010C
		Lead	12.7	6.1		mg/kg	SW846 6010C
		Nickel	19.4	3.7		mg/kg	SW846 6010C
		Zinc	49.0	3.7		mg/kg	SW846 6010C
		Chromium, Trivalent ^a	25.0	2.2		mg/kg	SW846 3060/7196A M
		Redox Potential Vs H2	294			mv	ASTM D1498-76M
		Specific Conductivity	978	1.0		umhos/cm	DEPT.OF AG, BOOK N9
		pH	10.04			su	SW846 9045D
D37153-5A		MESA F11 SS5					
		Calcium	9.09	2.0		mg/l	SW846 6010C
		Magnesium	2.06	1.0		mg/l	SW846 6010C
		Sodium	225	2.0		mg/l	SW846 6010C
		Sodium Adsorption Ratio ^b	17.5			ratio	USDA HANDBOOK 60
D37153-6		MESA F11 SS6					
		Arsenic	7.8	0.12		mg/kg	SW846 6020A
		Barium	494	1.2		mg/kg	SW846 6010C
		Boron	9.4	6.2		mg/kg	SW846 6010C
		Chromium	27.7	1.2		mg/kg	SW846 6010C
		Copper	18.7	1.2		mg/kg	SW846 6010C
		Lead	10	6.2		mg/kg	SW846 6010C
		Nickel	24.3	3.7		mg/kg	SW846 6010C
		Zinc	41.1	3.7		mg/kg	SW846 6010C
		Chromium, Trivalent ^a	27.7	2.2		mg/kg	SW846 3060/7196A M
		Redox Potential Vs H2	293			mv	ASTM D1498-76M
		Specific Conductivity	851	1.0		umhos/cm	DEPT.OF AG, BOOK N9
		pH	9.81			su	SW846 9045D
D37153-6A		MESA F11 SS6					
		Calcium	22.4	2.0		mg/l	SW846 6010C
		Magnesium	3.74	1.0		mg/l	SW846 6010C
		Sodium	193	2.0		mg/l	SW846 6010C
		Sodium Adsorption Ratio ^b	9.94			ratio	USDA HANDBOOK 60

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D37153-7 MESA F11 SS7

Arsenic	9.3	0.11			mg/kg	SW846 6020A
Barium	900	1.1			mg/kg	SW846 6010C
Boron	10	5.5			mg/kg	SW846 6010C
Chromium	26.3	1.1			mg/kg	SW846 6010C
Copper	18.5	1.1			mg/kg	SW846 6010C
Lead	10.4	5.5			mg/kg	SW846 6010C
Nickel	22.7	3.3			mg/kg	SW846 6010C
Zinc	39.7	3.3			mg/kg	SW846 6010C
Chromium, Trivalent ^a	26.3	2.1			mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	321				mv	ASTM D1498-76M
Specific Conductivity	707	1.0			umhos/cm	DEPT.OF AG, BOOK N9
pH	9.75				su	SW846 9045D

D37153-7A MESA F11 SS7

Calcium	13.4	2.0			mg/l	SW846 6010C
Magnesium	16.1	1.0			mg/l	SW846 6010C
Sodium	104	2.0			mg/l	SW846 6010C
Sodium Adsorption Ratio ^b	4.53				ratio	USDA HANDBOOK 60

D37153-8 MESA F11 SS8

Ethylbenzene	46.0 J	120	22		ug/kg	SW846 8260B
Chrysene	5.7 J	9.0	4.7		ug/kg	SW846 8270C BY SIM
Pyrene	5.0 J	9.0	4.7		ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)	16.5	12	5.8		mg/kg	SW846 8015B
TPH-DRO (C10-C28)	128	14	9.4		mg/kg	SW846-8015B
Arsenic	3.9	0.11			mg/kg	SW846 6020A
Barium	830	1.1			mg/kg	SW846 6010C
Boron	9.1	5.3			mg/kg	SW846 6010C
Chromium	10.5	1.1			mg/kg	SW846 6010C
Copper	4.8	1.1			mg/kg	SW846 6010C
Nickel	4.5	3.2			mg/kg	SW846 6010C
Zinc	15.0	3.2			mg/kg	SW846 6010C
Chromium, Trivalent ^a	10.5	2.1			mg/kg	SW846 3060/7196A M
Redox Potential Vs H2	318				mv	ASTM D1498-76M
Specific Conductivity	769	1.0			umhos/cm	DEPT.OF AG, BOOK N9
pH	9.90				su	SW846 9045D

D37153-8A MESA F11 SS8

Calcium	9.17	2.0			mg/l	SW846 6010C
Magnesium	7.82	1.0			mg/l	SW846 6010C

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Analyte	RL	MDL	Units	Method
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Sodium		118	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		6.92			ratio	USDA HANDBOOK 60

D37153-9 MESA F11 SS9

Arsenic		6.0	0.11		mg/kg	SW846 6020A
Barium		887	1.1		mg/kg	SW846 6010C
Boron		8.5	5.6		mg/kg	SW846 6010C
Chromium		9.3	1.1		mg/kg	SW846 6010C
Copper		3.9	1.1		mg/kg	SW846 6010C
Nickel		4.2	3.3		mg/kg	SW846 6010C
Zinc		12.8	3.3		mg/kg	SW846 6010C
Chromium, Trivalent ^a		9.3	2.1		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		294			mv	ASTM D1498-76M
Specific Conductivity		1230	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		10.01			su	SW846 9045D

D37153-9A MESA F11 SS9

Calcium		13.0	2.0		mg/l	SW846 6010C
Magnesium		16.8	1.0		mg/l	SW846 6010C
Sodium		191	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^b		8.25			ratio	USDA HANDBOOK 60

D37153-10 MESA F11 SS10

TPH-DRO (C10-C28)		199	16	10	mg/kg	SW846-8015B
Arsenic		4.9	0.12		mg/kg	SW846 6020A
Barium		540	1.2		mg/kg	SW846 6010C
Boron		10.2	6.0		mg/kg	SW846 6010C
Chromium		26.4	1.2		mg/kg	SW846 6010C
Copper		17.6	1.2		mg/kg	SW846 6010C
Lead		8.0	6.0		mg/kg	SW846 6010C
Nickel		19.9	3.6		mg/kg	SW846 6010C
Zinc		39.4	3.6		mg/kg	SW846 6010C
Chromium, Trivalent ^a		26.4	2.2		mg/kg	SW846 3060/7196A M
Redox Potential Vs H2		304			mv	ASTM D1498-76M
Specific Conductivity		1400	1.0		umhos/cm	DEPT.OF AG, BOOK N9
pH		9.69			su	SW846 9045D

D37153-10A MESA F11 SS10

Calcium		11.8	2.0		mg/l	SW846 6010C
Magnesium		8.26	1.0		mg/l	SW846 6010C
Sodium		219	2.0		mg/l	SW846 6010C

Summary of Hits

Job Number: D37153
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 08/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
		Sodium Adsorption Ratio ^b	12.0		ratio	USDA HANDBOOK 60

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

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

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23072.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	71	27	ug/kg	
108-88-3	Toluene	ND	140	71	ug/kg	
100-41-4	Ethylbenzene	ND	140	27	ug/kg	
1330-20-7	Xylene (total)	ND	280	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		61-130%
460-00-4	4-Bromofluorobenzene	91%		53-131%
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%

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

Client Sample ID: MESA F11 SS1		Date Sampled: 08/06/12
Lab Sample ID: D37153-1		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 82.4
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10542.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	10	5.3	ug/kg	
120-12-7	Anthracene	ND	10	5.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	10	5.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	10	5.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	10	5.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	10	5.3	ug/kg	
218-01-9	Chrysene	ND	10	5.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	10	5.3	ug/kg	
206-44-0	Fluoranthene	ND	10	5.3	ug/kg	
86-73-7	Fluorene	ND	10	5.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10	5.3	ug/kg	
91-20-3	Naphthalene	ND	14	13	ug/kg	
129-00-0	Pyrene	ND	10	5.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	52%		10-145%
321-60-8	2-Fluorobiphenyl	55%		10-130%
1718-51-0	Terphenyl-d14	58%		22-130%

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

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17013.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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	14	7.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	94%		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

4.1
4

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16294.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		43-136%		

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

4.1
4

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.1	0.12	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	523	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	9.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.2	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	24.5	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	15.8	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	8.1	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	20.9	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 6.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.6	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	39.7	3.6	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	24.5	2.2	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	326		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	82.4		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	3660	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	9.60		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	7.86	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	4.12	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	812	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: MESA F11 SS1	Date Sampled: 08/06/12
Lab Sample ID: D37153-1A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.4
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	58.4		ratio	1	08/13/12 09:33	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS2		Date Sampled: 08/06/12
Lab Sample ID: D37153-2		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 86.2
Method: SW846 8260B		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23078.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	66	25	ug/kg	
108-88-3	Toluene	ND	130	66	ug/kg	
100-41-4	Ethylbenzene	ND	130	25	ug/kg	
1330-20-7	Xylene (total)	ND	260	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		61-130%
460-00-4	4-Bromofluorobenzene	92%		53-131%
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%

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

Client Sample ID: MESA F11 SS2		
Lab Sample ID: D37153-2		Date Sampled: 08/06/12
Matrix: SO - Soil		Date Received: 08/07/12
Method: SW846 8270C BY SIM SW846 3546		Percent Solids: 86.2
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10543.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.6	5.0	ug/kg	
120-12-7	Anthracene	ND	9.6	5.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.6	5.0	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.6	5.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.6	5.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.6	5.0	ug/kg	
218-01-9	Chrysene	ND	9.6	5.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.6	5.0	ug/kg	
206-44-0	Fluoranthene	ND	9.6	5.0	ug/kg	
86-73-7	Fluorene	ND	9.6	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.6	5.0	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	ND	9.6	5.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	54%		10-145%
321-60-8	2-Fluorobiphenyl	56%		10-130%
1718-51-0	Terphenyl-d14	62%		22-130%

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

Client Sample ID: MESA F11 SS2	Date Sampled: 08/06/12
Lab Sample ID: D37153-2	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17014.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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	13	6.6	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	96%		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

4.3
4

Report of Analysis

Client Sample ID: MESA F11 SS2	Date Sampled: 08/06/12
Lab Sample ID: D37153-2	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.2
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16296.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		43-136%		

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

4.3
4

Report of Analysis

Client Sample ID: MESA F11 SS2	Date Sampled: 08/06/12
Lab Sample ID: D37153-2	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.2
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.8	0.11	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	542	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	8.9	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	26.3	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	16.9	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	8.3	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	20.6	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 5.5	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.3	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	40.4	3.3	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS2	Date Sampled: 08/06/12
Lab Sample ID: D37153-2	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.2
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	26.3	2.1	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	325		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	86.2		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	1420	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	9.56		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS2	Date Sampled: 08/06/12
Lab Sample ID: D37153-2A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.2
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	12.1	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	16.1	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	246	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

4.4
 4

Report of Analysis

Client Sample ID: MESA F11 SS2		Date Sampled: 08/06/12
Lab Sample ID: D37153-2A		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 86.2
Project: Mesa Energy F11 Pit Sampling		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	10.9		ratio	1	08/13/12 09:06	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23079.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	65	25	ug/kg	
108-88-3	Toluene	ND	130	65	ug/kg	
100-41-4	Ethylbenzene	ND	130	25	ug/kg	
1330-20-7	Xylene (total)	ND	260	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		61-130%
460-00-4	4-Bromofluorobenzene	92%		53-131%
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%

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

4.5
4

Report of Analysis

Client Sample ID: MESA F11 SS3		
Lab Sample ID: D37153-3		Date Sampled: 08/06/12
Matrix: SO - Soil		Date Received: 08/07/12
Method: SW846 8270C BY SIM SW846 3546		Percent Solids: 86.9
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10544.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.6	5.0	ug/kg	
120-12-7	Anthracene	ND	9.6	5.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.6	5.0	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.6	5.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.6	5.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.6	5.0	ug/kg	
218-01-9	Chrysene	ND	9.6	5.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.6	5.0	ug/kg	
206-44-0	Fluoranthene	ND	9.6	5.0	ug/kg	
86-73-7	Fluorene	ND	9.6	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.6	5.0	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	ND	9.6	5.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	71%		10-145%
321-60-8	2-Fluorobiphenyl	76%		10-130%
1718-51-0	Terphenyl-d14	76%		22-130%

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

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17015.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	95%		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

4.5
4

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16298.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	83%		43-136%		

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

4.5
4

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.5	0.11	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	694	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	8.9	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	10.6	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	4.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	< 5.6	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	4.3	3.4	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 5.6	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.4	3.4	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	19.9	3.4	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	10.6	2.1	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	306		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	86.9		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	1120	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	10.06		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	25.1	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	13.0	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	176	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS3	Date Sampled: 08/06/12
Lab Sample ID: D37153-3A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.9
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	7.10		ratio	1	08/13/12 09:39	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS4		Date Sampled: 08/06/12
Lab Sample ID: D37153-4		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 84.5
Method: SW846 8260B		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23080.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.07 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	26	ug/kg	
108-88-3	Toluene	ND	140	68	ug/kg	
100-41-4	Ethylbenzene	ND	140	26	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		61-130%
460-00-4	4-Bromofluorobenzene	91%		53-131%
17060-07-0	1,2-Dichloroethane-D4	98%		62-130%

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

Client Sample ID: MESA F11 SS4		Date Sampled: 08/06/12
Lab Sample ID: D37153-4		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 84.5
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10545.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.8	5.1	ug/kg	
120-12-7	Anthracene	ND	9.8	5.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.8	5.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.8	5.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.8	5.1	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.8	5.1	ug/kg	
218-01-9	Chrysene	ND	9.8	5.1	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.8	5.1	ug/kg	
206-44-0	Fluoranthene	ND	9.8	5.1	ug/kg	
86-73-7	Fluorene	ND	9.8	5.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.8	5.1	ug/kg	
91-20-3	Naphthalene	ND	14	12	ug/kg	
129-00-0	Pyrene	ND	9.8	5.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	69%		10-145%
321-60-8	2-Fluorobiphenyl	73%		10-130%
1718-51-0	Terphenyl-d14	81%		22-130%

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

Client Sample ID: MESA F11 SS4	Date Sampled: 08/06/12
Lab Sample ID: D37153-4	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.5
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17017.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	94%		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

4.7
4

Report of Analysis

Client Sample ID: MESA F11 SS4	Date Sampled: 08/06/12
Lab Sample ID: D37153-4	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.5
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16300.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		43-136%		

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

4.7
4

Report of Analysis

Client Sample ID: MESA F11 SS4	Date Sampled: 08/06/12
Lab Sample ID: D37153-4	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.5
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.7	0.12	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	819	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	9.4	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.2	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	10.8	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	5.3	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	< 6.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	5.5	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 6.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.6	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	19.9	3.6	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS4	Date Sampled: 08/06/12
Lab Sample ID: D37153-4	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.5
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	10.8	2.2	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	299		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	84.5		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	3730	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	10.02		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS4 Lab Sample ID: D37153-4A Matrix: SO - Soil Project: Mesa Energy F11 Pit Sampling	Date Sampled: 08/06/12 Date Received: 08/07/12 Percent Solids: 84.5
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SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	4.63	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	3.15	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	768	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: MESA F11 SS4	Date Sampled: 08/06/12
Lab Sample ID: D37153-4A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.5
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	67.5		ratio	1	08/13/12 09:46	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23081.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.07 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	71	27	ug/kg	
108-88-3	Toluene	ND	140	71	ug/kg	
100-41-4	Ethylbenzene	ND	140	27	ug/kg	
1330-20-7	Xylene (total)	167	280	140	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		61-130%
460-00-4	4-Bromofluorobenzene	93%		53-131%
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%

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

Client Sample ID: MESA F11 SS5		Date Sampled: 08/06/12
Lab Sample ID: D37153-5		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 82.2
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10546.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	10	5.3	ug/kg	
120-12-7	Anthracene	ND	10	5.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	10	5.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	10	5.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	10	5.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	10	5.3	ug/kg	
218-01-9	Chrysene	ND	10	5.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	10	5.3	ug/kg	
206-44-0	Fluoranthene	ND	10	5.3	ug/kg	
86-73-7	Fluorene	ND	10	5.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10	5.3	ug/kg	
91-20-3	Naphthalene	18.1	14	13	ug/kg	
129-00-0	Pyrene	ND	10	5.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	63%		10-145%
321-60-8	2-Fluorobiphenyl	68%		10-130%
1718-51-0	Terphenyl-d14	79%		22-130%

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

4.9
4

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17018.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	7.1	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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

4.9
4

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16302.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	146	16	11	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	91%		43-136%		

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

4.9
4

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.8	0.12	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	1160	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	10.7	6.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.2	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	25.0	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	20.5	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	12.7	6.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	19.4	3.7	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 6.1	6.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.7	3.7	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	49.0	3.7	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	25.0	2.2	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	294		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	82.2		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	978	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	10.04		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	9.09	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	2.06	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	225	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS5	Date Sampled: 08/06/12
Lab Sample ID: D37153-5A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 82.2
Project: Mesa Energy F11 Pit Sampling	

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4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	17.5		ratio	1	08/13/12 09:53	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS6		Date Sampled: 08/06/12
Lab Sample ID: D37153-6		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 83.2
Method: SW846 8260B		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23082.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	70	26	ug/kg	
108-88-3	Toluene	ND	140	70	ug/kg	
100-41-4	Ethylbenzene	ND	140	26	ug/kg	
1330-20-7	Xylene (total)	ND	280	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	95%		61-130%
460-00-4	4-Bromofluorobenzene	92%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		62-130%

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

Client Sample ID: MESA F11 SS6		Date Sampled: 08/06/12
Lab Sample ID: D37153-6		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 83.2
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10547.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	10	5.2	ug/kg	
120-12-7	Anthracene	ND	10	5.2	ug/kg	
56-55-3	Benzo(a)anthracene	ND	10	5.2	ug/kg	
50-32-8	Benzo(a)pyrene	ND	10	5.2	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	10	5.2	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	10	5.2	ug/kg	
218-01-9	Chrysene	ND	10	5.2	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	10	5.2	ug/kg	
206-44-0	Fluoranthene	ND	10	5.2	ug/kg	
86-73-7	Fluorene	ND	10	5.2	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10	5.2	ug/kg	
91-20-3	Naphthalene	ND	14	12	ug/kg	
129-00-0	Pyrene	ND	10	5.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	67%		10-145%
321-60-8	2-Fluorobiphenyl	71%		10-130%
1718-51-0	Terphenyl-d14	84%		22-130%

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

Client Sample ID: MESA F11 SS6	Date Sampled: 08/06/12
Lab Sample ID: D37153-6	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 83.2
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17019.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	14	7.0	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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

4.11
4

Report of Analysis

Client Sample ID: MESA F11 SS6	Date Sampled: 08/06/12
Lab Sample ID: D37153-6	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 83.2
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16304.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	92%		43-136%		

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

4.11 4

Report of Analysis

Client Sample ID: MESA F11 SS6 Lab Sample ID: D37153-6 Matrix: SO - Soil Project: Mesa Energy F11 Pit Sampling	Date Sampled: 08/06/12 Date Received: 08/07/12 Percent Solids: 83.2
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.8	0.12	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	494	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	9.4	6.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.2	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	27.7	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	18.7	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	10	6.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	24.3	3.7	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 6.2	6.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.7	3.7	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	41.1	3.7	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

4.11
4

Report of Analysis

Client Sample ID: MESA F11 SS6	Date Sampled: 08/06/12
Lab Sample ID: D37153-6	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 83.2
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	27.7	2.2	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	293		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	83.2		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	851	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	9.81		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS6	Date Sampled: 08/06/12
Lab Sample ID: D37153-6A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 83.2
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	22.4	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	3.74	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	193	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

4.12
 4

Report of Analysis

Client Sample ID: MESA F11 SS6	Date Sampled: 08/06/12
Lab Sample ID: D37153-6A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 83.2
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	9.94		ratio	1	08/13/12 10:20	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23083.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	65	25	ug/kg	
108-88-3	Toluene	ND	130	65	ug/kg	
100-41-4	Ethylbenzene	ND	130	25	ug/kg	
1330-20-7	Xylene (total)	ND	260	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		61-130%
460-00-4	4-Bromofluorobenzene	90%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		62-130%

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

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Method: SW846 8270C BY SIM SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10548.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.6	5.0	ug/kg	
120-12-7	Anthracene	ND	9.6	5.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.6	5.0	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.6	5.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.6	5.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.6	5.0	ug/kg	
218-01-9	Chrysene	ND	9.6	5.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.6	5.0	ug/kg	
206-44-0	Fluoranthene	ND	9.6	5.0	ug/kg	
86-73-7	Fluorene	ND	9.6	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.6	5.0	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	ND	9.6	5.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		10-145%
321-60-8	2-Fluorobiphenyl	76%		10-130%
1718-51-0	Terphenyl-d14	88%		22-130%

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

4.13
4

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17020.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	90%		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

4.13
4

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16264.D	1	08/08/12	AW	08/08/12	OP6391	GFD839
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	84%		43-136%		

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

4.13
4

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.3	0.11	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	900	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	10	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	26.3	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	18.5	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	10.4	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	22.7	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 5.5	5.5	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.3	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	39.7	3.3	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS7 Lab Sample ID: D37153-7 Matrix: SO - Soil Project: Mesa Energy F11 Pit Sampling	Date Sampled: 08/06/12 Date Received: 08/07/12 Percent Solids: 86.7
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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	26.3	2.1	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	321		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	86.7		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	707	1.0	umhos/cm	1	08/10/12	JD	DEPT.OF AG, BOOK N9
pH	9.75		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

4.13
4

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	13.4	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	16.1	1.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	104	2.0	mg/l	1	08/10/12	08/13/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2707

(2) Prep QC Batch: MP8120

RL = Reporting Limit

4.14
 4

Report of Analysis

Client Sample ID: MESA F11 SS7	Date Sampled: 08/06/12
Lab Sample ID: D37153-7A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.7
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	4.53		ratio	1	08/13/12 10:26	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23084.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	58	22	ug/kg	
108-88-3	Toluene	ND	120	58	ug/kg	
100-41-4	Ethylbenzene	46.0	120	22	ug/kg	J
1330-20-7	Xylene (total)	ND	230	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	94%		61-130%
460-00-4	4-Bromofluorobenzene	99%		53-131%
17060-07-0	1,2-Dichloroethane-D4	102%		62-130%

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

Client Sample ID: MESA F11 SS8		Date Sampled: 08/06/12
Lab Sample ID: D37153-8		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 92.1
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10549.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.0	4.7	ug/kg	
120-12-7	Anthracene	ND	9.0	4.7	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.0	4.7	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.0	4.7	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.0	4.7	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.0	4.7	ug/kg	
218-01-9	Chrysene	5.7	9.0	4.7	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	9.0	4.7	ug/kg	
206-44-0	Fluoranthene	ND	9.0	4.7	ug/kg	
86-73-7	Fluorene	ND	9.0	4.7	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.0	4.7	ug/kg	
91-20-3	Naphthalene	ND	13	11	ug/kg	
129-00-0	Pyrene	5.0	9.0	4.7	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	65%		10-145%
321-60-8	2-Fluorobiphenyl	73%		10-130%
1718-51-0	Terphenyl-d14	90%		22-130%

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

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17021.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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)	16.5	12	5.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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

4.15
4

Report of Analysis

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16306.D	1	08/09/12	AW	08/08/12	OP6391	GFD839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	128	14	9.4	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	78%		43-136%		

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

4.15
4

Report of Analysis

Client Sample ID: MESA F11 SS8 Lab Sample ID: D37153-8 Matrix: SO - Soil Project: Mesa Energy F11 Pit Sampling	Date Sampled: 08/06/12 Date Received: 08/07/12 Percent Solids: 92.1
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	3.9	0.11	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	830	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	9.1	5.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	10.5	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	4.8	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	< 5.3	5.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	4.5	3.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 5.3	5.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.2	3.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	15.0	3.2	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	10.5	2.1	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	318		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	92.1		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	769	1.0	umhos/cm	1	08/14/12	CJ	DEPT.OF AG, BOOK N9
pH	9.90		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	9.17	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	7.82	1.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	118	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2708

(2) Prep QC Batch: MP8141

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS8	Date Sampled: 08/06/12
Lab Sample ID: D37153-8A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 92.1
Project: Mesa Energy F11 Pit Sampling	

4.16
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	6.92		ratio	1	08/14/12 12:56	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846 8260B	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23085.D	1	08/09/12	BD	n/a	n/a	V5V1408
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.03 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	65	25	ug/kg	
108-88-3	Toluene	ND	130	65	ug/kg	
100-41-4	Ethylbenzene	ND	130	25	ug/kg	
1330-20-7	Xylene (total)	ND	260	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	93%		61-130%
460-00-4	4-Bromofluorobenzene	92%		53-131%
17060-07-0	1,2-Dichloroethane-D4	97%		62-130%

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

Client Sample ID: MESA F11 SS9		Date Sampled: 08/06/12
Lab Sample ID: D37153-9		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 86.4
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10550.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.6	5.0	ug/kg	
120-12-7	Anthracene	ND	9.6	5.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.6	5.0	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.6	5.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.6	5.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.6	5.0	ug/kg	
218-01-9	Chrysene	ND	9.6	5.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.6	5.0	ug/kg	
206-44-0	Fluoranthene	ND	9.6	5.0	ug/kg	
86-73-7	Fluorene	ND	9.6	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.6	5.0	ug/kg	
91-20-3	Naphthalene	ND	13	12	ug/kg	
129-00-0	Pyrene	ND	9.6	5.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	75%		10-145%
321-60-8	2-Fluorobiphenyl	80%		10-130%
1718-51-0	Terphenyl-d14	93%		22-130%

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

4.17
4

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17022.D	1	08/08/12	SK	n/a	n/a	GGB937
Run #2							

Run #	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	13	6.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	91%		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

4.17
4

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16323.D	1	08/09/12	AW	08/09/12	OP6404	GFD840
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	15	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	88%		43-136%		

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

4.17
4

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.0	0.11	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	887	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	8.5	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.1	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	9.3	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	3.9	1.1	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	< 5.6	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.12	0.12	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	4.2	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 5.6	5.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.3	3.3	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	12.8	3.3	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	9.3	2.1	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	294		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	86.4		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	1230	1.0	umhos/cm	1	08/14/12	CJ	DEPT.OF AG, BOOK N9
pH	10.01		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	13.0	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	16.8	1.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	191	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2708

(2) Prep QC Batch: MP8141

RL = Reporting Limit

4.18
4

Report of Analysis

Client Sample ID: MESA F11 SS9	Date Sampled: 08/06/12
Lab Sample ID: D37153-9A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 86.4
Project: Mesa Energy F11 Pit Sampling	

4.18
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	8.25		ratio	1	08/14/12 13:03	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS10		
Lab Sample ID: D37153-10		Date Sampled: 08/06/12
Matrix: SO - Soil		Date Received: 08/07/12
Method: SW846 8260B		Percent Solids: 84.3
Project: Mesa Energy F11 Pit Sampling		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V23171.D	1	08/11/12	BD	n/a	n/a	V5V1414
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	68	26	ug/kg	
108-88-3	Toluene	ND	140	68	ug/kg	
100-41-4	Ethylbenzene	ND	140	26	ug/kg	
1330-20-7	Xylene (total)	ND	270	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	90%		61-130%
460-00-4	4-Bromofluorobenzene	94%		53-131%
17060-07-0	1,2-Dichloroethane-D4	99%		62-130%

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

Client Sample ID: MESA F11 SS10		Date Sampled: 08/06/12
Lab Sample ID: D37153-10		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 84.3
Method: SW846 8270C BY SIM SW846 3546		
Project: Mesa Energy F11 Pit Sampling		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G10551.D	1	08/15/12	DC	08/08/12	OP6390	E3G485
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	9.9	5.1	ug/kg	
120-12-7	Anthracene	ND	9.9	5.1	ug/kg	
56-55-3	Benzo(a)anthracene	ND	9.9	5.1	ug/kg	
50-32-8	Benzo(a)pyrene	ND	9.9	5.1	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	9.9	5.1	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	9.9	5.1	ug/kg	
218-01-9	Chrysene	ND	9.9	5.1	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	9.9	5.1	ug/kg	
206-44-0	Fluoranthene	ND	9.9	5.1	ug/kg	
86-73-7	Fluorene	ND	9.9	5.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	9.9	5.1	ug/kg	
91-20-3	Naphthalene	ND	14	12	ug/kg	
129-00-0	Pyrene	ND	9.9	5.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	59%		10-145%
321-60-8	2-Fluorobiphenyl	66%		10-130%
1718-51-0	Terphenyl-d14	93%		22-130%

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

4.19
4

Report of Analysis

Client Sample ID: MESA F11 SS10	Date Sampled: 08/06/12
Lab Sample ID: D37153-10	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.3
Method: SW846 8015B	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB17051.D	1	08/10/12	SK	n/a	n/a	GGB939
Run #2							

Run #	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	14	6.8	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	98%		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

4.19
4

Report of Analysis

Client Sample ID: MESA F11 SS10	Date Sampled: 08/06/12
Lab Sample ID: D37153-10	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.3
Method: SW846-8015B SW846 3546	
Project: Mesa Energy F11 Pit Sampling	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD16325.D	1	08/09/12	AW	08/09/12	OP6404	GFD840
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	199	16	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	86%		43-136%		

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

4.19
4

Report of Analysis

Client Sample ID: MESA F11 SS10		Date Sampled: 08/06/12
Lab Sample ID: D37153-10		Date Received: 08/07/12
Matrix: SO - Soil		Percent Solids: 84.3
Project: Mesa Energy F11 Pit Sampling		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.9	0.12	mg/kg	5	08/09/12	08/14/12 JB	SW846 6020A ²	SW846 3050B ⁶
Barium	540	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Boron	10.2	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Cadmium	< 1.2	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Chromium	26.4	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Copper	17.6	1.2	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Lead	8.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Mercury	< 0.11	0.11	mg/kg	1	08/14/12	08/14/12 JB	SW846 7471B ⁴	SW846 7471B ⁷
Nickel	19.9	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Selenium	< 6.0	6.0	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Silver	< 3.6	3.6	mg/kg	1	08/09/12	08/11/12 JB	SW846 6010C ¹	SW846 3050B ⁵
Zinc	39.4	3.6	mg/kg	1	08/09/12	08/13/12 JB	SW846 6010C ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA2701
- (2) Instrument QC Batch: MA2706
- (3) Instrument QC Batch: MA2707
- (4) Instrument QC Batch: MA2710
- (5) Prep QC Batch: MP8101
- (6) Prep QC Batch: MP8102
- (7) Prep QC Batch: MP8132

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS10	Date Sampled: 08/06/12
Lab Sample ID: D37153-10	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.3
Project: Mesa Energy F11 Pit Sampling	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	08/13/12	CJ	SW846 3060A/7196A
Chromium, Trivalent ^a	26.4	2.2	mg/kg	1	08/13/12	CJ	SW846 3060/7196A M
Redox Potential Vs H2	304		mv	1	08/08/12 12:30	JK	ASTM D1498-76M
Solids, Percent	84.3		%	1	08/07/12	SWT	SM19 2540B M
Specific Conductivity	1400	1.0	umhos/cm	1	08/14/12	CJ	DEPT.OF AG, BOOK N9
pH	9.69		su	1	08/08/12 12:30	JK	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID: MESA F11 SS10	Date Sampled: 08/06/12
Lab Sample ID: D37153-10A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.3
Project: Mesa Energy F11 Pit Sampling	

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	11.8	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	8.26	1.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²
Sodium	219	2.0	mg/l	1	08/14/12	08/14/12 JB	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA2708

(2) Prep QC Batch: MP8141

RL = Reporting Limit

4.20
4

Report of Analysis

Client Sample ID: MESA F11 SS10	Date Sampled: 08/06/12
Lab Sample ID: D37153-10A	Date Received: 08/07/12
Matrix: SO - Soil	Percent Solids: 84.3
Project: Mesa Energy F11 Pit Sampling	

4.20
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	12.0		ratio	1	08/14/12 13:09	JB	USDA HANDBOOK 60

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

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D37153

Client: OLSSON ASSOCIATES

Immediate Client Services Action Required: No

Date / Time Received: 8/7/2012 10:20:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MESA ENERGY F11 PIT CLOSURE

Airbill #'s: FX

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
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. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<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 checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
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"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
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	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
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 rec'd 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"/>

Comments

5.1
5

Technical Report for

Olsson Associates

Mesa Energy F11 Pit Sampling

012-1436

Accutest Job Number: D39028R

Sampling Date: 09/20/12

Report to:

Olsson Associates

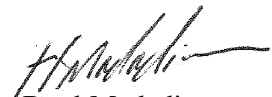
jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **11**



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



Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Sample Summary

Olsson Associates

Job No: D39028R

Mesa Energy F11 Pit Sampling
Project No: 012-1436

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D39028-3R	09/20/12	18:30 SG	09/22/12	SO	Soil	F11 SS3 -2
D39028-3RA	09/20/12	18:30 SG	09/22/12	SO	Soil	F11 SS3 -3

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D39028R

Site: Mesa Energy F11 Pit Sampling

Report Date 10/24/2012 2:33:45 PM

On 09/22/2012, 2 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D39028R 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.

Metals By Method SW846 6020A

Matrix SO	Batch ID: MP8698
------------------	-------------------------

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D39968-2MS, D39968-2MSD, D39968-2SDL were used as the QC samples for the metals analysis.

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.

Summary of Hits

Job Number: D39028R
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 09/20/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D39028-3R	F11 SS3 -2					
Arsenic		10.5	0.13		mg/kg	SW846 6020A
D39028-3RA	F11 SS3 -3					
Arsenic		13.6	0.13		mg/kg	SW846 6020A

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: F11 SS3 -2	Date Sampled: 09/20/12
Lab Sample ID: D39028-3R	Date Received: 09/22/12
Matrix: SO - Soil	Percent Solids: 75.9
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	10.5	0.13	mg/kg	5	10/19/12	10/22/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2918

(2) Prep QC Batch: MP8698

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: F11 SS3 -3		Date Sampled: 09/20/12
Lab Sample ID: D39028-3RA		Date Received: 09/22/12
Matrix: SO - Soil		Percent Solids: 75.9
Project: Mesa Energy F11 Pit Sampling		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	13.6	0.13	mg/kg	5	10/19/12	10/22/12 JM	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2918

(2) Prep QC Batch: MP8698

RL = Reporting Limit

4.2
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D39028

Client: OLSSON

Immediate Client Services Action Required: No

Date / Time Received: 9/22/2012 9:30:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MESA

Airbill #'s: FX

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>		
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. Smp'l Dates/Time OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<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 checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
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"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
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	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
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 rec'd 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"/>

Comments

5.1
5

Technical Report for

Olsson Associates

Mesa Energy F11 Pit Sampling

Accutest Job Number: D40321

Sampling Date: 10/24/12

Report to:

Olsson Associates

shall@oaconsulting.com

ATTN: Stuart Hall

Total number of pages in report: **10**



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



Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D40321

Mesa Energy F11 Pit Sampling

Sample Number	Collected		Matrix			Client Sample ID
	Date	Time By	Received	Code	Type	
D40321-1	10/24/12	12:30 JS	10/26/12	SO	Soil	F11 BG5

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



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D40321

Site: Mesa Energy F11 Pit Sampling

Report Date 11/12/2012 8:30:19 AM

On 10/26/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1.9 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40321 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.

Metals By Method SW846 6020A

Matrix SO	Batch ID: MP8773
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40329-1MS, D40329-1MSD, D40329-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN17434
------------------	--------------------------

- The data for SM19 2540B M meets quality control requirements.

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.

Summary of Hits

Job Number: D40321
Account: Olsson Associates
Project: Mesa Energy F11 Pit Sampling
Collected: 10/24/12



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

D40321-1	F11 BG5					
Arsenic		9.4	0.10		mg/kg	SW846 6020A

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: F11 BG5	Date Sampled: 10/24/12
Lab Sample ID: D40321-1	Date Received: 10/26/12
Matrix: SO - Soil	Percent Solids: 98.7
Project: Mesa Energy F11 Pit Sampling	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.4	0.10	mg/kg	5	10/30/12	11/09/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2981

(2) Prep QC Batch: MP8773

RL = Reporting Limit

4.1
4

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D40321

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)										Matrix Codes
Company Name Oregon Associates		Project Name Mission Energy #11 P.H. Closure				Arsenic										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address 826 W 12th		Street:														
City State Zip Grand Jct. CO 81505		Billing Information (If different from Report to)														
Project Contact S. Hall		Company Name														
Phone # 970.243.1800		Street Address														
E-mail shall@oregonassociates.com		City State Zip														
Fax #		Client PO#														
Project Manager S. Hall		Attention:														
PO#		PO#														
Sampler(s) Name(s) J. Sadina		Phone # same														
Field ID / Point of Collection F11 BGS		MECH/ID/ Vol #														LAB USE ONLY 01
Date		Time		Sampled by	Matrix	# of bottles	FECI	MECH	HW3	H3SO4	HNO3	H2O2	DI Water	MEOH	ENCORE	Bottle(s)
10/24/12		1230 JS		SU	2											

Turnaround Time (Business days)		Approved By (Accutest PMI): / Date:		Commercial "A" (Level 1)		State Forms	
<input checked="" type="checkbox"/> Std. 10 Business Days				<input type="checkbox"/> Commercial "A" (Level 1)	<input type="checkbox"/> State Forms		
<input type="checkbox"/> Std. 5 Business Days (By Contract only)				<input type="checkbox"/> Commercial "B" (Level 2)	<input type="checkbox"/> EDD Format		
<input type="checkbox"/> 5 Day SH				<input type="checkbox"/> Commercial "B" + Narrative	<input type="checkbox"/> PDF		
<input type="checkbox"/> 3 Day EMERGENC				<input type="checkbox"/> FULLT1 (Level 3+4)			
<input type="checkbox"/> 2 Day EMERGENC				Commercial "A" = Results Only			
<input type="checkbox"/> 1 Day EMERGENC				Commercial "B" = Results + QC Summary			

Emergency & Rush T/A data available upon Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: [Signature]	Date Time: 10/24/12 1445	Received By: [Signature]	Date Time: 10/24/12 1445	Relinquished By: [Signature]	Date Time: 10/26/12 1700	Received By: [Signature]	Date Time: 10/26/12 1700	
Relinquished by Sampler: [Signature]	Date Time: 10/24/12 1445	Received By: [Signature]	Date Time: 10/24/12 1445	Relinquished By: [Signature]	Date Time: 10/24/12 1445	Received By: [Signature]	Date Time: 10/24/12 1445	
Relinquished by: [Signature]	Date Time: 10/24/12 1445	Received By: [Signature]	Date Time: 10/24/12 1445	Custody Seal # 4900	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input checked="" type="checkbox"/>	On Ice <input checked="" type="checkbox"/>	Cooler Temp. 19

D40321: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D40321

Client: OLSSON ASSOC.

Immediate Client Services Action Required: No

Date / Time Received: 10/26/2012 1:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: MESA ENERGY F11 PTCLOSWE

Airbill #'s: HDCO

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
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. SmpI Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<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 checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
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"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
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	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
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 rec'd 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"/>

Comments

5.1
5