



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1080727  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1080727

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Casing				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:      Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing     Pumping     Gas Lift     Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Grand Mesa Operating Company
Well Name	CSC 1-21
Doc ID	1080727

Tops

Name	Top	Datum
Stone Corral	2382	+511
Bs/Stone Corral	2404	+489
Heebner	3901	-1008
Lansing	3946	-1053
Muncie Creek	4089	-1196
Stark	4177	-1284
Marmaton	4281	-1388
Excello	4428	-1535
Mississippian	4546	-1653
LTD	4641	



**CONSOLIDATED**  
Oil Well Services, LLC

SS

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

TICKET NUMBER 33945  
LOCATION Oakley  
FOREMAN Fuzzy

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
4-14-12	3372	CSC 1-21	21	135	31W	Goose
CUSTOMER Grand Mesa Operating Co. Inc			OKLEY			
MAILING ADDRESS			TRUCK #	DRIVER	TRUCK #	DRIVER
CITY			463	COY D		
STATE			439	WY S F		
ZIP CODE						

JOB TYPE SURFACE HOLE SIZE 12 1/4 HOLE DEPTH 214' CASING SIZE & WEIGHT 8 5/8  
CASING DEPTH 213' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
SLURRY WEIGHT 14.7 SLURRY VOL 1.36 WATER gal/sk 6.5 CEMENT LEFT IN CASING \_\_\_\_\_  
DISPLACEMENT 12.2 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting on Monday #24. Rig up and circulate  
Mix 1655Ks CLASS 'A' 390cc 29cc. Displace 12 1/4" and  
shot in  
Cemented circ approx 1345 to pit

Thanks Fuzzy crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401S	1	PUMP CHARGE	1085.00	1085.00
5406	20	MILEAGE	5.00	100.00
5407	7.76	Tow Mileage Delivery (comm)	410.00	410.00
1104S	1655Ks	CLASS 'A'	17.65	2912.25
1102	465#	Calcium Chloride	1.89	413.85
1118B	310#	Bentonite	.25	77.50
		subtotal		4998.60
		less 1090 discount		499.86
		subtotal		4498.74
		SALES TAX		246.59
		ESTIMATED TOTAL		4745.33

Ravin 3737

AUTHORIZATION [Signature] TITLE Pusher Rig #24 DATE 4-14-12

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



**CONSOLIDATED**  
Oil Well Services, LLC

TICKET NUMBER 34498  
LOCATION Oakley Ks  
FOREMAN Walt Dinkel

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
4-25-12	3372	CSC 1-21	21	13 <sup>s</sup>	31 <sup>W</sup>	Goose
CUSTOMER <u>Grand Mesa</u>			Oakley			
MAILING ADDRESS			TRUCK #	DRIVER	TRUCK #	DRIVER
CITY			115			
STATE			46	399	Damon White	
ZIP CODE			55	460	Josh Gurdle, Carl Ratz	
			1 <sup>W</sup> N15			

JOB TYPE PTA HOLE SIZE 7 7/8" HOLE DEPTH 4640' CASING SIZE & WEIGHT \_\_\_\_\_  
CASING DEPTH \_\_\_\_\_ DRILL PIPE 4 1/2" X 4 TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
SLURRY WEIGHT \_\_\_\_\_ SLURRY VOL \_\_\_\_\_ WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING \_\_\_\_\_  
DISPLACEMENT \_\_\_\_\_ DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety Meeting, Rig up on MurFin #24, Plug as ordered

25 sks @ 2390'  
100 sks @ 1465'  
40 sks @ 265'      220 sks 6 3/4" pup, 4 1/2" cel, 1/4" Flo-Seal  
10 sks @ 40'  
15 RS in Well  
30 sks in R.H.

Thank You  
Walt + crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5405N	1	PUMP CHARGE	1,325. <sup>00</sup>	1,325. <sup>00</sup>
5406	20	MILEAGE	5. <sup>00</sup>	100. <sup>00</sup>
1131	220 sks	6 3/4" pup	15. <sup>10</sup>	3,322. <sup>00</sup>
1118B	756 #	cel	.25	189. <sup>00</sup>
1107	55 #	Flo-Seal	2.82	155. <sup>10</sup>
5407	9.46	Ton Mileage Delivery	16?	410. <sup>00</sup>
4432	1	8 7/8 Wooden Plug	96. <sup>00</sup>	96. <sup>00</sup>
				5,597. <sup>10</sup>
		Less 10% Disc		559. <sup>71</sup>
				5,037. <sup>39</sup>
			SALES TAX	272. <sup>57</sup>
			ESTIMATED TOTAL	5309. <sup>96</sup>

Ravin 3737

AUTHORIZATION Anthony Mart TITLE Pusher Rig #24 DATE \_\_\_\_\_

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**

**CSC #1-21**

Job Ticket: 46498

**DST#: 1**

Test Start: 2012.04.19 @ 08:57:05

## GENERAL INFORMATION:

Formation: "H"  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 11:07:15  
Time Test Ended: 17:00:14  
Interval: **4084.00 ft (KB) To 4116.00 ft (KB) (TVD)**  
Total Depth: 4116.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Mike Roberts  
Unit No: 48  
Reference Elevations: 2893.00 ft (KB)  
2889.00 ft (CF)  
KB to GR/CF: 4.00 ft

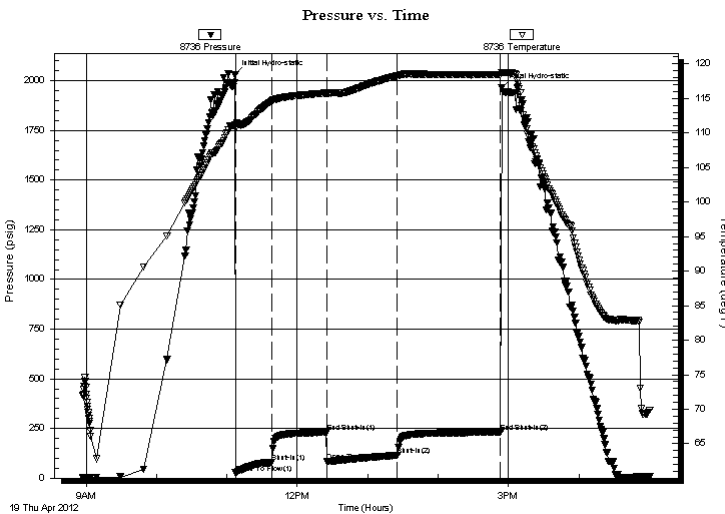
## Serial #: 8736

Inside

Press @ Run Depth: 114.89 psig @ 4085.00 ft (KB)  
Start Date: 2012.04.19 End Date: 2012.04.19  
Start Time: 08:57:05 End Time: 17:00:14  
Capacity: 8000.00 psig  
Last Calib.: 2012.04.19  
Time On Btm: 2012.04.19 @ 11:07:00  
Time Off Btm: 2012.04.19 @ 14:54:14

TEST COMMENT: IF: Built to 6" blow  
IS: No return blow  
FF: Built to 9" blow  
FS: No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2031.43	111.13	Initial Hydro-static
1	25.78	110.70	Open To Flow (1)
32	80.13	114.66	Shut-In(1)
78	230.48	115.77	End Shut-In(1)
78	83.40	115.72	Open To Flow (2)
139	114.89	118.28	Shut-In(2)
227	230.80	118.42	End Shut-In(2)
228	1966.92	118.74	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
121.00	mcw 20%m 80%w	0.60
62.00	w cm 30%w 70%m	0.87
10.00	free oil	0.14
20.00	mud 100%m	0.28
0.00	30 FT GIP	0.00

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**  
**CSC #1-21**  
Job Ticket: 46498      **DST#: 1**  
Test Start: 2012.04.19 @ 08:57:05

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 13000 ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.39 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2500.00 ppm		
Filter Cake: 1.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
121.00	mcw 20%m 80%w	0.595
62.00	w cm 30%w 70%m	0.870
10.00	free oil	0.140
20.00	mud 100%m	0.281
0.00	30 FT GIP	0.000

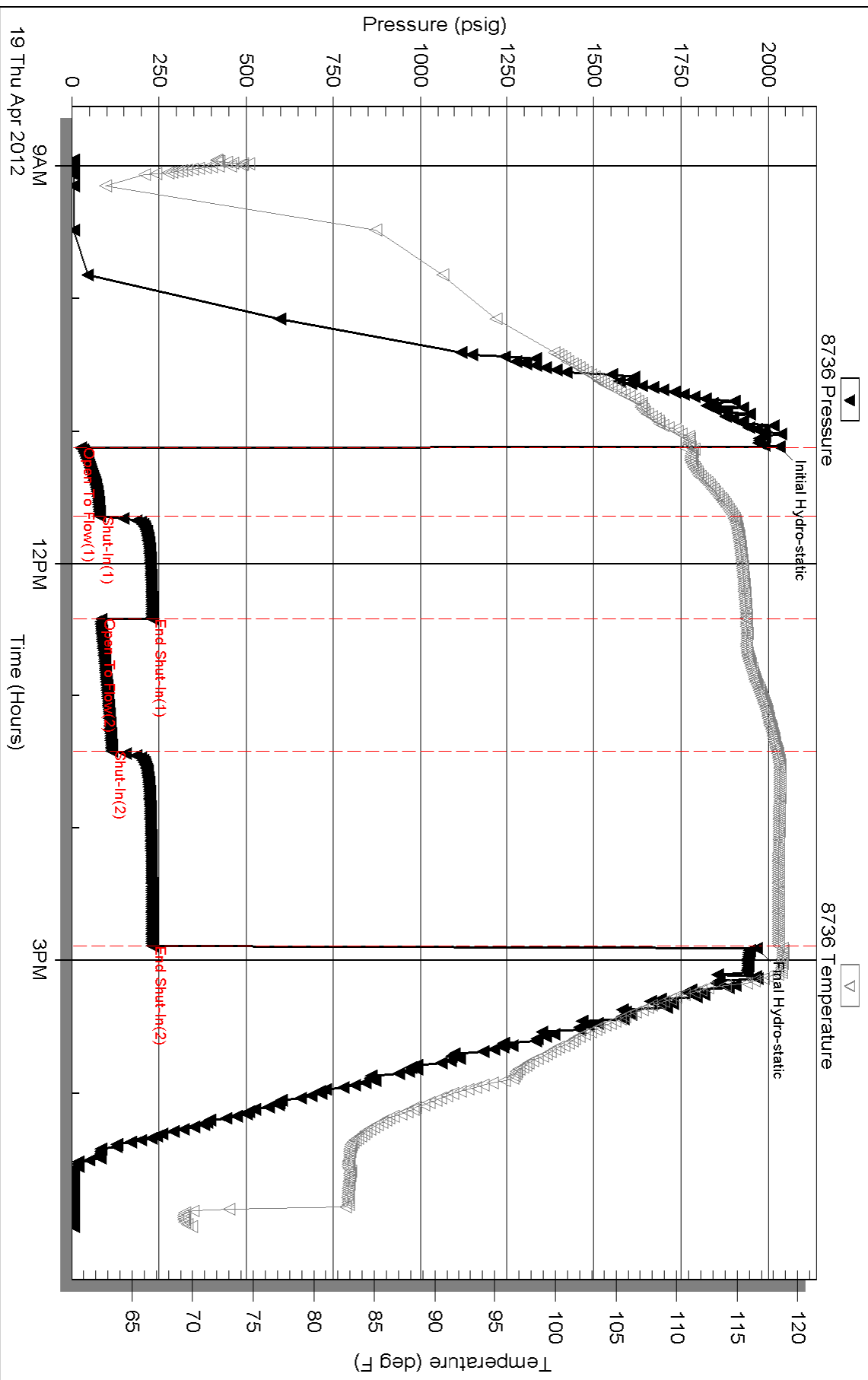
Total Length: 213.00 ft      Total Volume: 1.886 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

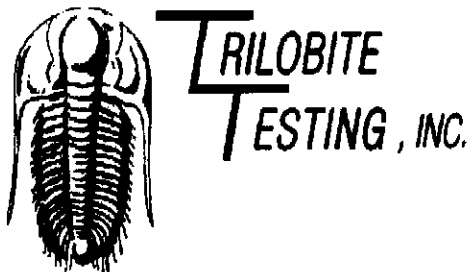
Laboratory Name:      Laboratory Location:

Recovery Comments: RW= .501 @ 70.9\*= 13,000 ppm

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Grand Mesa Operating Comp.**

1700 North Waterfront Pkwy  
Bldg 600  
Wichita KS 67206

ATTN: John Goldsmith

**CSC #1-21**

**21-13s-31w Gove,KS**

Start Date: 2012.04.21 @ 04:28:05

End Date: 2012.04.21 @ 08:57:29

Job Ticket #: 46499                      DST #: 2

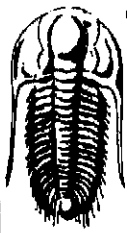
Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.04.27 @ 15:22:33

Grand Mesa Operating Comp.    21-13s-31w Gove,KS    CSC #1-21    DST # 2    Ft. Scott-Vandegriff    2012.04.21



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

21-13s-31w Gove, KS

1700 North Waterfront Pkwy  
 Bldg 600  
 Wichita KS 67206  
 ATTN: John Goldsmith

CSC #1-21

Job Ticket: 46499

DST#: 2

Test Start: 2012.04.21 @ 04:28:05

## GENERAL INFORMATION:

Formation: **Ft. Scott-Vendegris**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 08:57:29

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 48

Interval: 4395.00 ft (KB) To 4456.00 ft (KB) (TVD)

Total Depth: 4456.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2893.00 ft (KB)

2889.00 ft (CF)

KB to GR/CF: 4.00 ft

Serial #: 8736

Inside

Press@RunDepth: psig @ 4398.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.21

End Date:

2012.04.21

Last Calib.:

2012.04.21

Start Time:

04:28:05

End Time:

08:57:29

Time On Btm:

2012.04.21 @ 06:14:00

Time Off Btm:

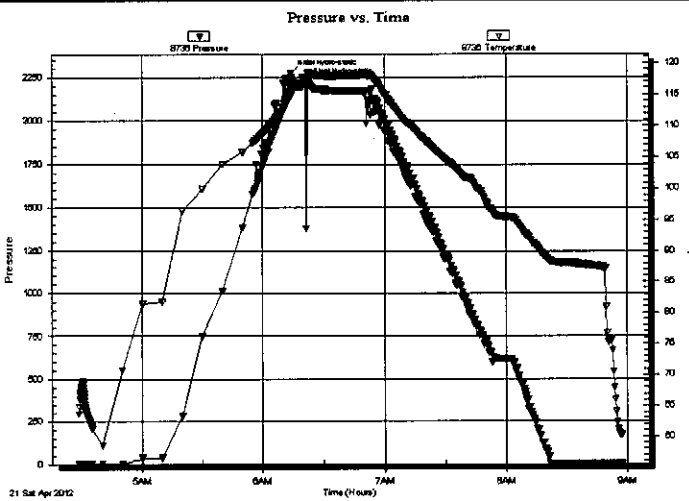
2012.04.21 @ 06:22:15

TEST COMMENT: IF:PACKER FAILURE

IS:

FF:

FS:



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2274.01	114.70	Initial Hydro-static
9	2223.31	118.44	Final Hydro-static

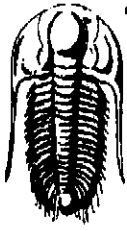
## Recovery

Length (ft)	Description	Volume (bbl)
245.00	mud 100%	2.33

\* Recovery from multiple tests

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Grand Mesa Operating Comp.  
1700 North Waterfront Pkwy  
Bldg 600  
Wichita KS 67206  
ATTN: John Goldsmith

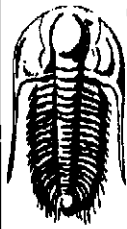
**21-13s-31w Gove,KS**  
**CSC #1-21**  
Job Ticket: 46499      DST#: 2  
Test Start: 2012.04.21 @ 04:28:05

**Tool Information**

Drill Pipe:	Length: 4276.00 ft	Diameter: 3.80 inches	Volume: 59.98 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 121.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 70000.00 lb
			<b>Total Volume: 60.58 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	4395.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	89.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4368.00	
Shut In Tool	5.00			4373.00	
Hydraulic tool	5.00			4378.00	
Jars	5.00			4383.00	
Safety Joint	3.00			4386.00	
Packer	5.00			4391.00	28.00      Bottom Of Top Packer
Packer	4.00			4395.00	
Stubb	1.00			4396.00	
Perforations	2.00			4398.00	
Recorder	0.00	8736	Inside	4398.00	
Recorder	0.00	6668	Outside	4398.00	
Change Over Sub	1.00			4399.00	
Drill Pipe	31.00			4430.00	
Change Over Sub	1.00			4431.00	
Perforations	20.00			4451.00	
Bullnose	5.00			4456.00	61.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>89.00</b>				



**TRILOBITE**  
**TESTING, INC**

## DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating Comp.

**21-13s-31w Gove,KS**

1700 North Waterfront Pkwy  
Bldg 600  
Wichita KS 67206  
ATTN: John Goldsmith

**CSC #1-21**

Job Ticket: 46499

**DST#: 2**

Test Start: 2012.04.21 @ 04:28:05

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 74.00 sec/qt

Water Loss: 6.76 in<sup>3</sup>

Resistivity: 0.00 ohm.m

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

0 deg API

Water Salinity:

0 ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
245.00	mud 100%	2.334

Total Length: 245.00 ft      Total Volume: 2.334 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

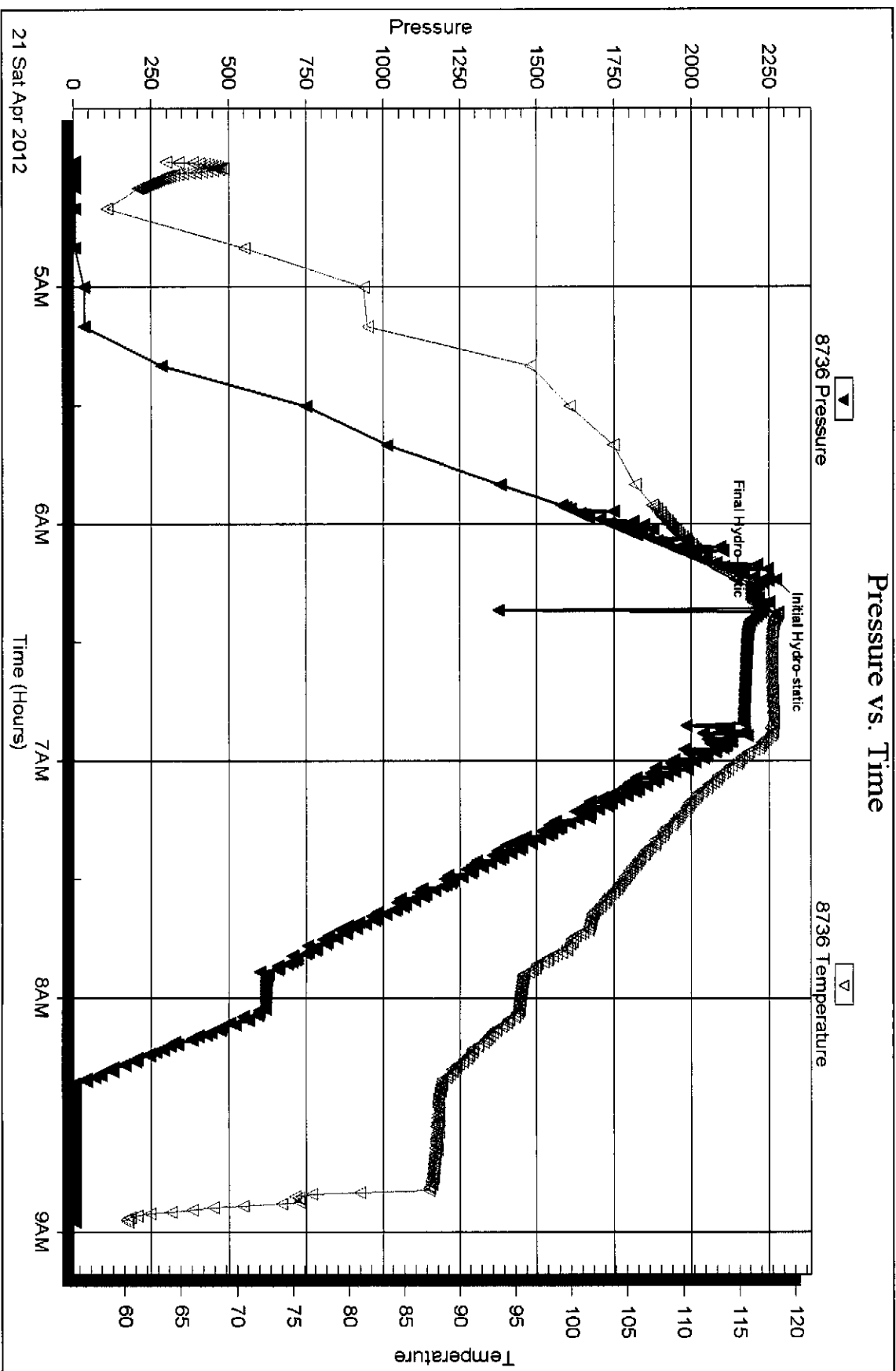
Serial #: 8736

Inside

Grand Mesa Operating Corp.

CSC #1-21

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 46499

Printed: 2012.04.27 @ 15:22:35



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**

**CSC #1-21**

Job Ticket: 46500

**DST#: 3**

Test Start: 2012.04.21 @ 09:17:05

## GENERAL INFORMATION:

Formation: **Ft. Scott- Verdigris**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:18:00

Time Test Ended: 15:28:44

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 48

**Interval: 4385.00 ft (KB) To 4456.00 ft (KB) (TVD)**

Total Depth: 4456.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2893.00 ft (KB)

2889.00 ft (CF)

KB to GR/CF: 4.00 ft

**Serial #: 8736**

**Inside**

Press @ Run Depth: 45.46 psig @ 4388.00 ft (KB)

Start Date: 2012.04.21

End Date:

2012.04.21

Start Time: 09:17:05

End Time:

15:28:44

Capacity: 8000.00 psig

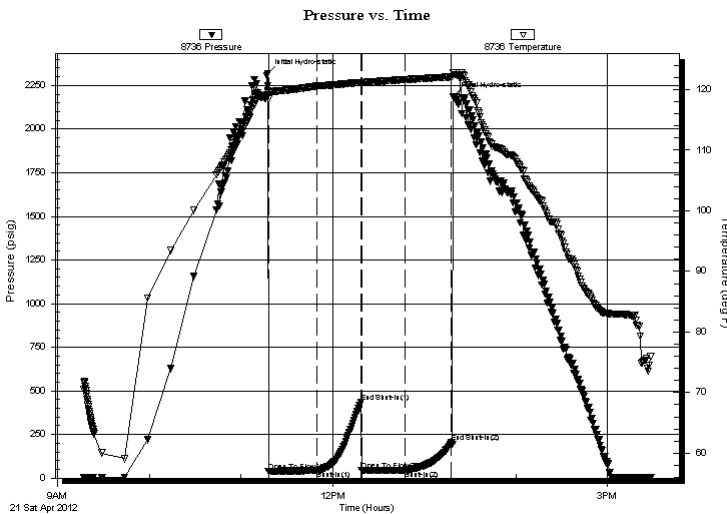
Last Calib.: 2012.04.21

Time On Btm: 2012.04.21 @ 11:17:30

Time Off Btm: 2012.04.21 @ 13:19:15

**TEST COMMENT:** IF: Built to 1" blow  
IS: No return blow  
FF: No blow  
FS: No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2320.33	119.69	Initial Hydro-static
1	39.49	118.44	Open To Flow (1)
33	43.00	120.59	Shut-In(1)
61	435.64	121.21	End Shut-In(1)
62	44.03	121.11	Open To Flow (2)
90	45.46	121.66	Shut-In(2)
121	202.95	122.14	End Shut-In(2)
122	2184.20	122.73	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud 100% mud	0.05

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**  
**CSC #1-21**  
Job Ticket: 46500      **DST#: 3**  
Test Start: 2012.04.21 @ 09:17:05

## Mud and Cushion Information

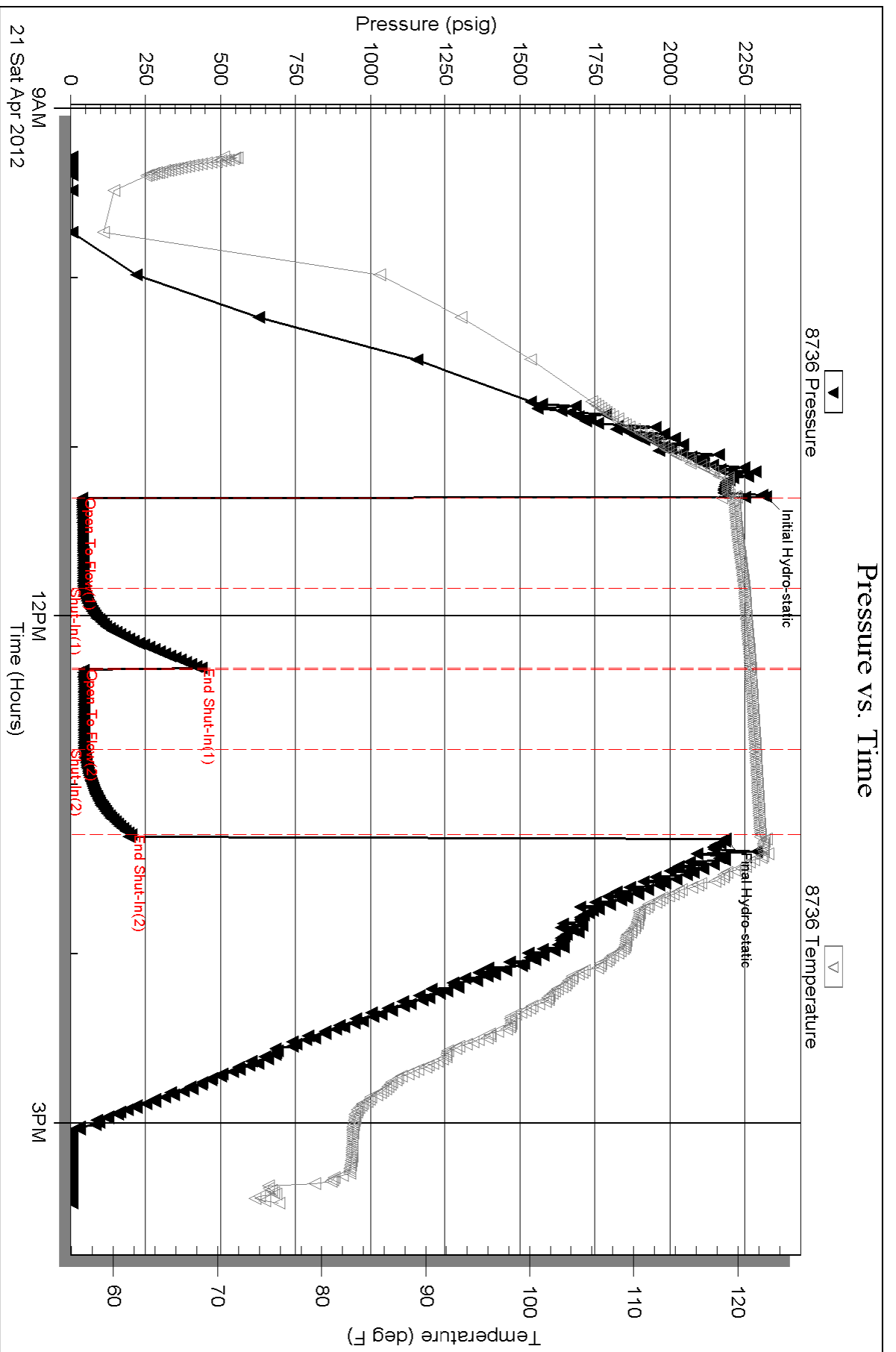
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 74.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.80 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2800.00 ppm			
Filter Cake: 1.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	mud 100% mud	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.  
 1700 North Waterfront PKWY  
 BLDG 600  
 Wichita KS 67206  
 ATTN: John Goldsmith

**21-13s-31w Gove KS**

**CSC #1-21**

Job Ticket: 46551

**DST#: 4**

Test Start: 2012.04.22 @ 05:15:05

## GENERAL INFORMATION:

Formation: **Krebs- Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:35:30

Time Test Ended: 13:10:59

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 48

**Interval: 4448.00 ft (KB) To 4513.00 ft (KB) (TVD)**

Total Depth: 4513.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2893.00 ft (KB)

2889.00 ft (CF)

KB to GR/CF: 4.00 ft

**Serial #: 8736**

**Inside**

Press @ Run Depth: 700.27 psig @ 4451.00 ft (KB)

Start Date: 2012.04.22

End Date: 2012.04.22

Start Time: 05:15:05

End Time: 13:10:59

Capacity: 8000.00 psig

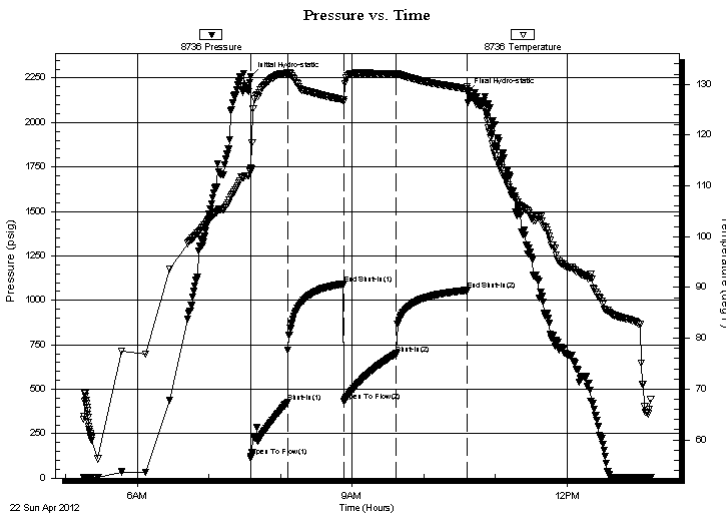
Last Calib.: 2012.04.22

Time On Btm: 2012.04.22 @ 07:35:00

Time Off Btm: 2012.04.22 @ 10:36:14

**TEST COMMENT:** IF:BOB in 3 min.  
 IS:Built to weak surface blow and died in 10 min.  
 FF:BOB in 3 min.  
 FS:No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2260.26	113.46	Initial Hydro-static
1	120.92	113.35	Open To Flow (1)
31	427.10	132.19	Shut-In(1)
78	1092.12	126.96	End Shut-In(1)
78	432.01	126.60	Open To Flow (2)
122	700.27	132.04	Shut-In(2)
181	1056.09	129.07	End Shut-In(2)
182	2170.29	129.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
121.00	sw 100% sw	0.60
1299.00	w cm 50%w 50%m	18.22
0.00	GIP= 124	0.00

\* Recovery from multiple tests

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.

**21-13s-31w Gove KS**

1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**CSC #1-21**

Job Ticket: 46551

**DST#: 4**

Test Start: 2012.04.22 @ 05:15:05

## GENERAL INFORMATION:

Formation: **Krebs- Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:35:30

Time Test Ended: 13:10:59

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 48

**Interval: 4448.00 ft (KB) To 4513.00 ft (KB) (TVD)**

Reference Elevations: 2893.00 ft (KB)

Total Depth: 4513.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 4.00 ft

**Serial #: 6668 Outside**

Press @ RunDepth: psig @ 4451.00 ft (KB)

Start Date: 2012.04.22

End Date: 2012.04.22

Capacity: 8000.00 psig

Last Calib.: 2012.04.22

Start Time: 05:15:15

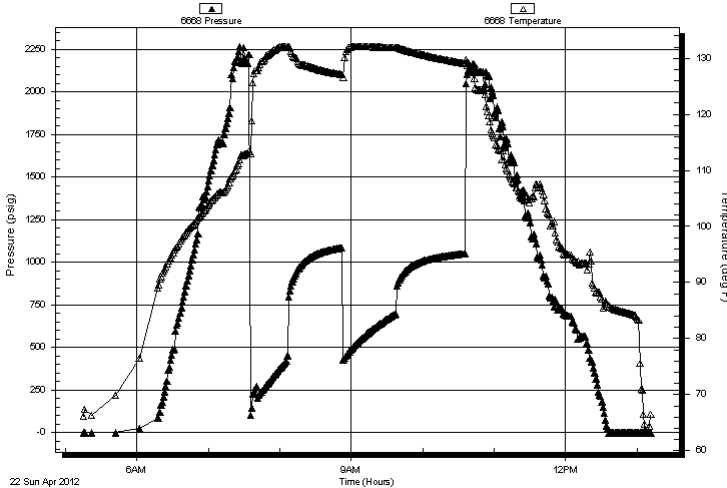
End Time: 13:11:15

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:BOB in 3 min.  
IS:Built to weak surface blow and died in 10 min.  
FF:BOB in 3 min.  
FS:No return blow

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

## Recovery

Length (ft)	Description	Volume (bbl)
121.00	sw 100% sw	0.60
1299.00	w cm 50%w 50%m	18.22
0.00	GIP= 124	0.00

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**  
**CSC #1-21**  
Job Ticket: 46551      **DST#: 4**  
Test Start: 2012.04.22 @ 05:15:05

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 25000 ppm
Viscosity: 74.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.78 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2800.00 ppm		
Filter Cake: 1.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
121.00	sw 100% sw	0.595
1299.00	w cm 50%w 50%m	18.222
0.00	GIP= 124	0.000

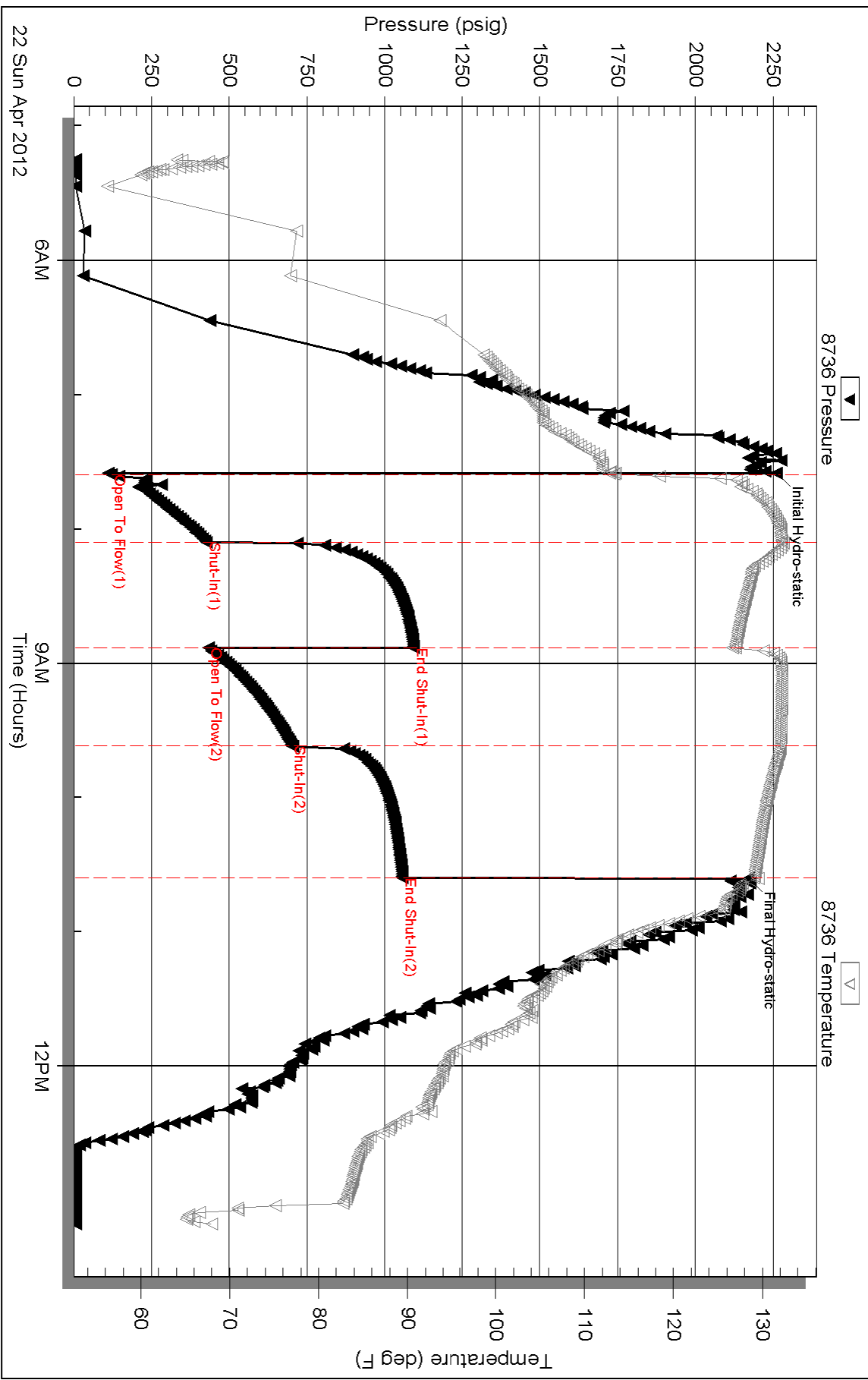
Total Length: 1420.00 ft      Total Volume: 18.817 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: RW= .338@ 63\*=25,000 ppm

### Pressure vs. Time

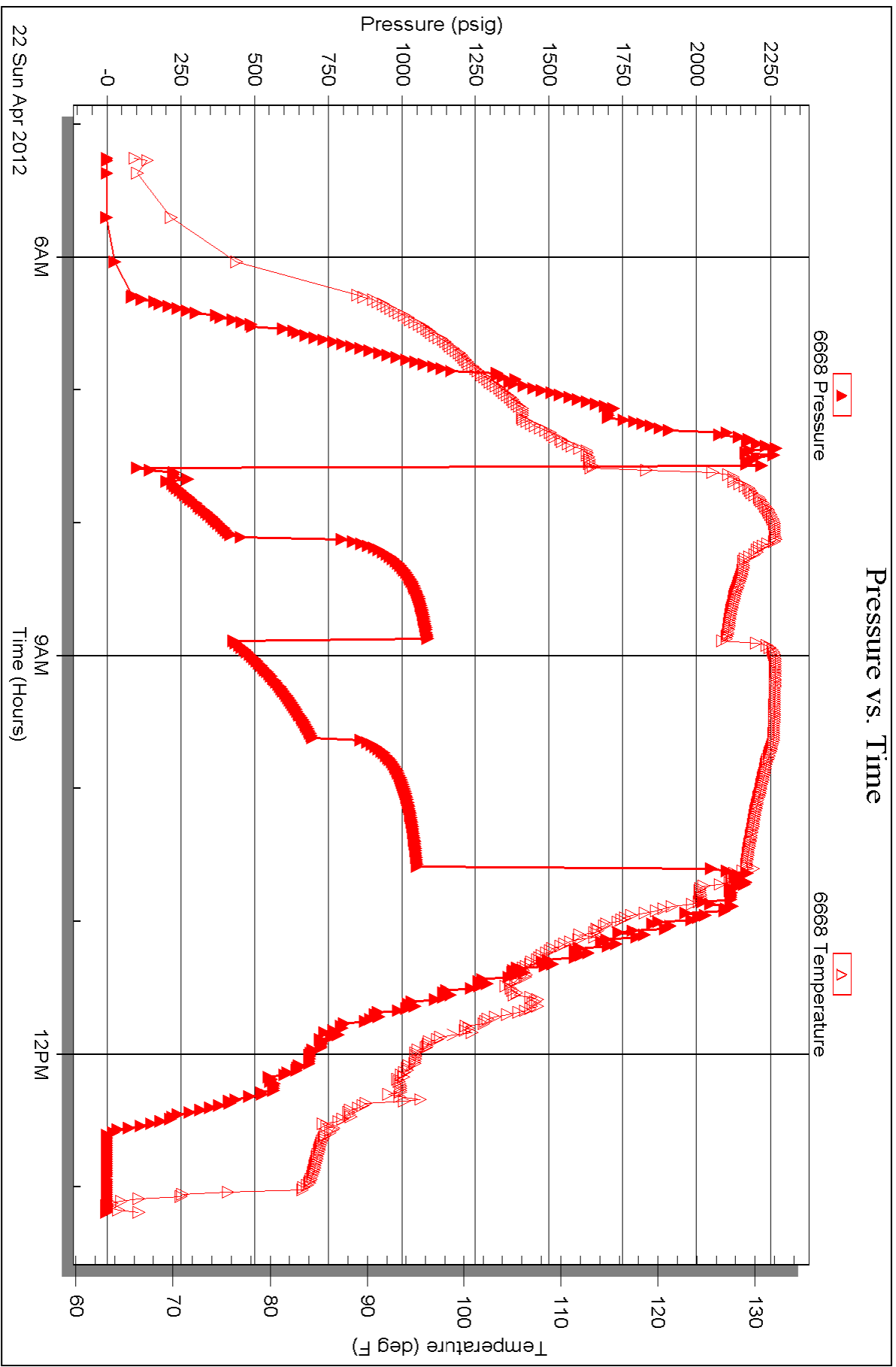


Serial #: 6668

Outside Grand Mesa Operating Comp.

CSC #1-21

DST Test Number: 4





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Grand Mesa Operating Comp.  
 1700 North Waterfront PKWY  
 BLDG 600  
 Wichita KS 67206  
 ATTN: John Goldsmith

**21-13s-31w Gove KS**

**CSC #1-21**

Job Ticket: 46552

**DST#: 5**

Test Start: 2012.04.23 @ 00:50:05

## GENERAL INFORMATION:

Formation: **Morrow**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:48:15

Time Test Ended: 08:34:29

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 48

**Interval: 4510.00 ft (KB) To 4553.00 ft (KB) (TVD)**

Reference Elevations: 2893.00 ft (KB)

Total Depth: 4553.00 ft (KB) (TVD)

2889.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 4.00 ft

**Serial #: 8736**

**Inside**

Press @ Run Depth: 58.99 psig @ 4515.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.04.23

End Date:

2012.04.23

Last Calib.:

2012.04.24

Start Time: 00:50:05

End Time:

08:34:29

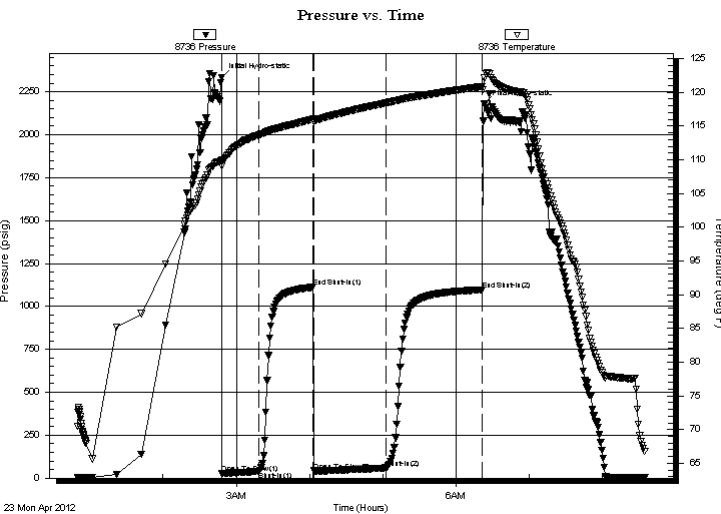
Time On Btm:

2012.04.23 @ 02:48:00

Time Off Btm:

2012.04.23 @ 06:23:14

**TEST COMMENT:** IF: Built to 1" blow  
 IS: No return blow  
 FF: Built to weak surface blow  
 FS: No return blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2331.06	110.05	Initial Hydro-static
1	26.48	109.05	Open To Flow (1)
31	40.91	113.71	Shut-In(1)
75	1111.76	116.01	End Shut-In(1)
76	41.95	115.73	Open To Flow (2)
135	58.99	118.43	Shut-In(2)
214	1097.26	120.87	End Shut-In(2)
216	2178.20	122.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	sw 100%sw	0.34

\* Recovery from multiple tests

## Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Grand Mesa Operating Comp.  
1700 North Waterfront PKWY  
BLDG 600  
Wichita KS 67206  
ATTN: John Goldsmith

**21-13s-31w Gove KS**  
**CSC #1-21**  
Job Ticket: 46552      **DST#: 5**  
Test Start: 2012.04.23 @ 00:50:05

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 25000 ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl	
Water Loss: 8.77 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 3000.00 ppm		
Filter Cake: 1.00 inches		

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	sw 100%sw	0.344

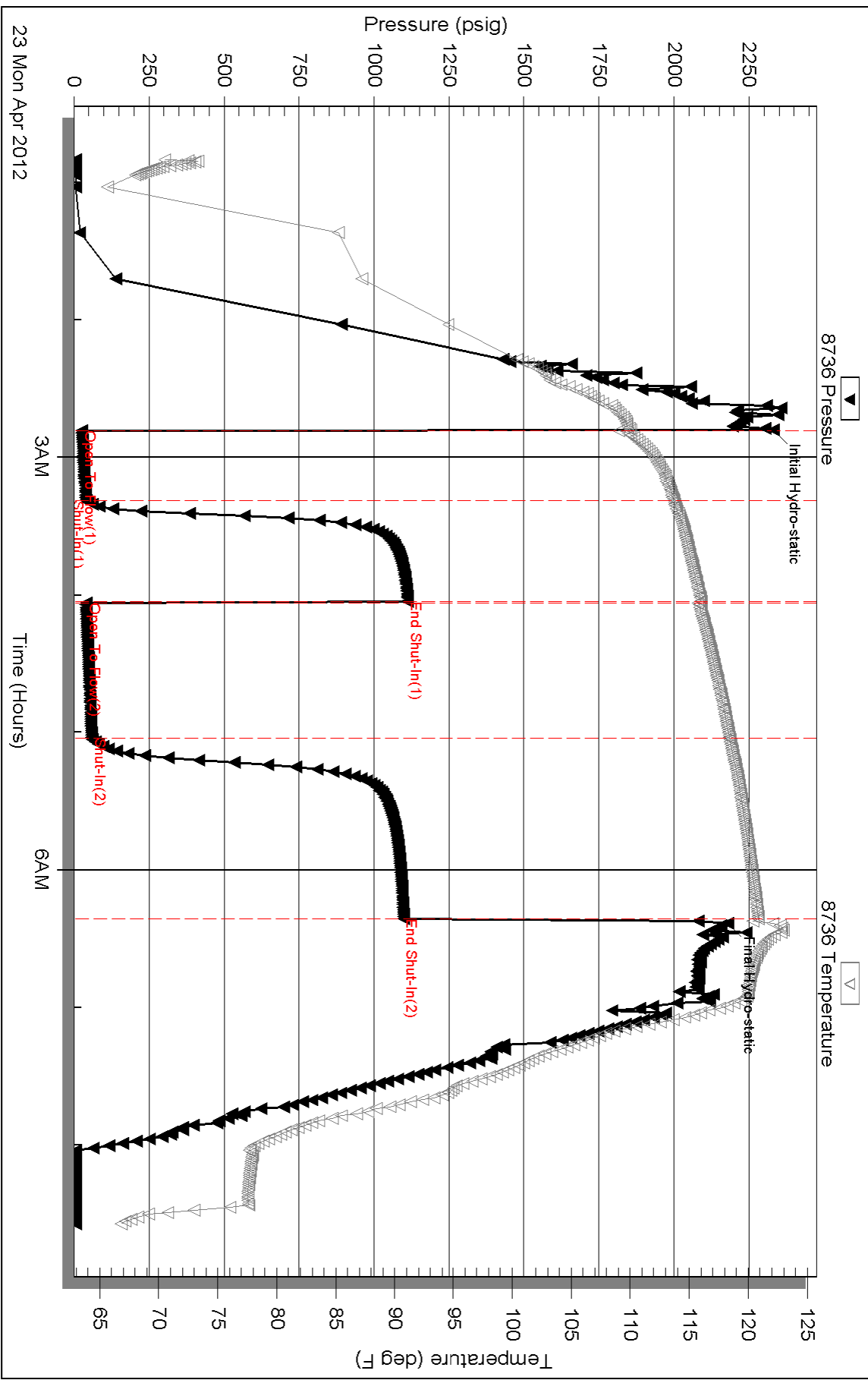
Total Length: 70.00 ft      Total Volume: 0.344 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

Laboratory Name:      Laboratory Location:

Recovery Comments: RW= .334@65\*=25,000ppm

### Pressure vs. Time





# GRAND MESA OPERATING COMPANY

(316) 265-3000  
FAX: (316) 265-3455

1700 N. WATERFRONT PARKWAY  
BLDG. 600  
WICHITA, KANSAS 67208-5514

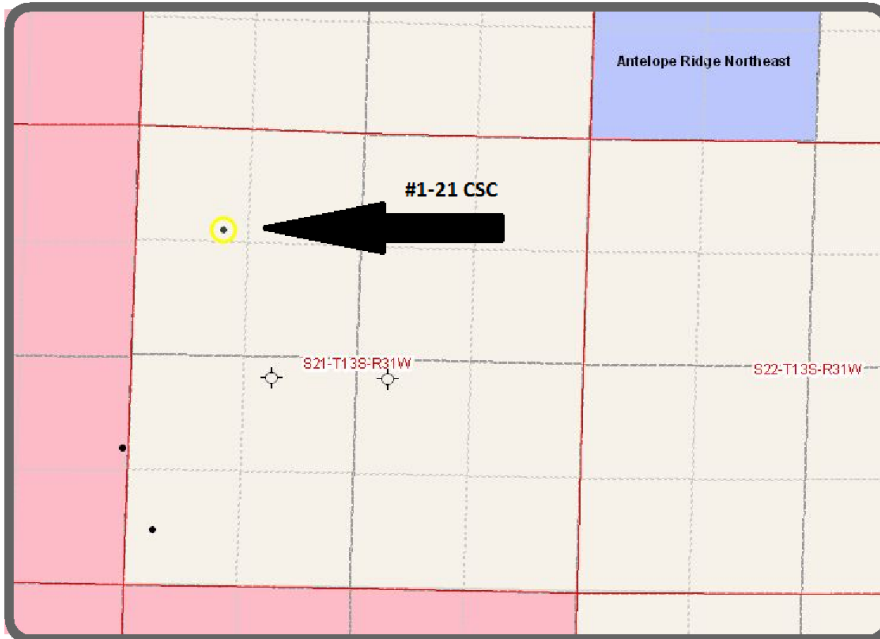
Scale 1:240 (5"=100') Imperial  
Measured Depth Log

Well Name: #1-21 CSC  
 Location: 1200' FNL, 1040' FWL, SECTION 21-13S-31W  
 License Number: API: 15-063-21983      Region: Gove County  
 Spud Date: 04/14/2012      Drilling Completed: 04/25/2012  
 Surface Coordinates: LAT 38.9138785  
    LONG -100.7751647  
 Bottom Hole Coordinates: Vertical hole  
 Ground Elevation (ft): 2888'      K.B. Elevation (ft): 2893'  
 Logged Interval (ft): 3700'      To: RTD      Total Depth (ft): 4640'  
 Formation: Mississippi at RTD  
 Type of Drilling Fluid: Chemical

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

## GEOLOGIST

Name: John Goldsmith  
 Company: John Goldsmith Wellsite Service  
 Address: 322 Greenwood Ct.  
           Cheney, KS 67025  
           316-640-0236



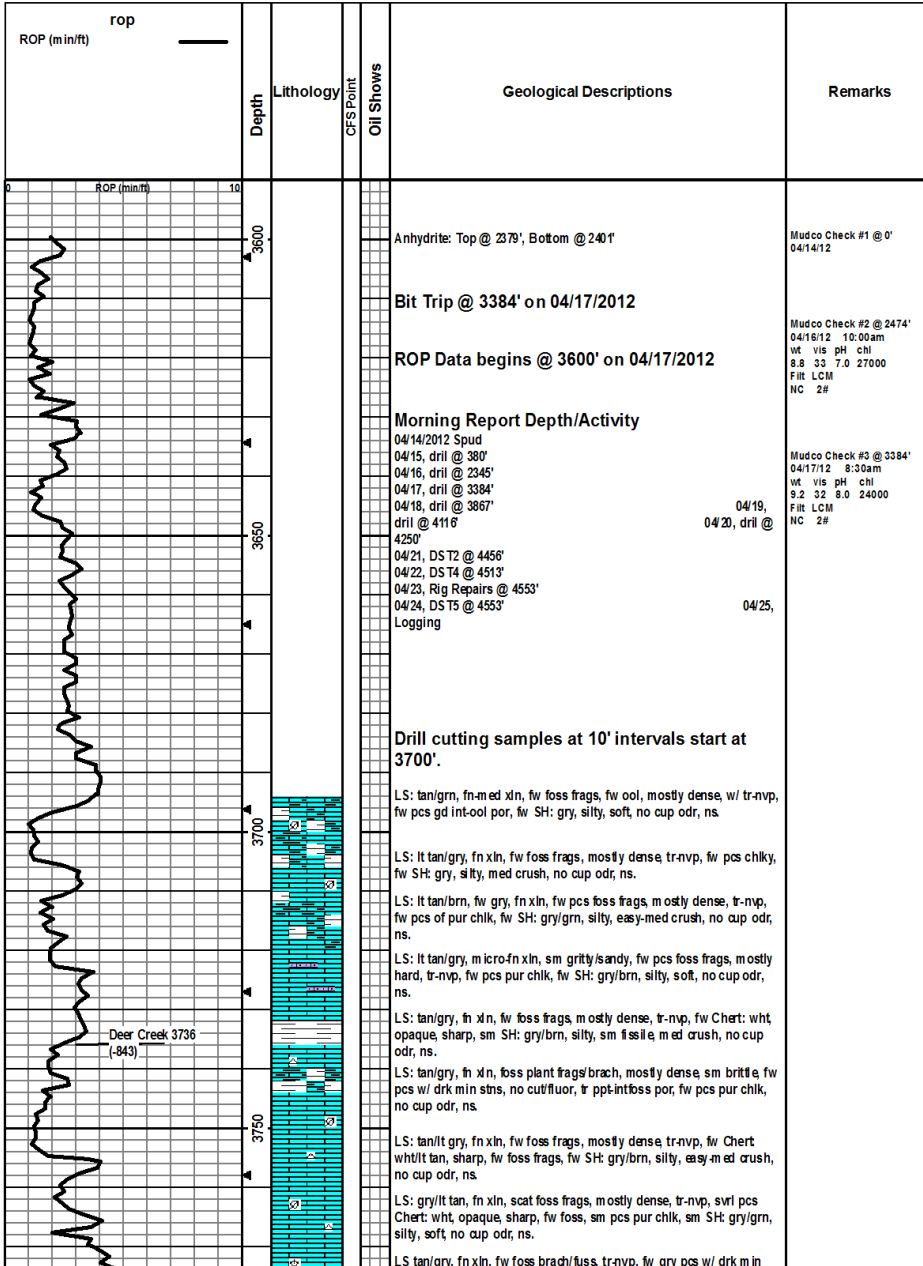
## COMMENTS

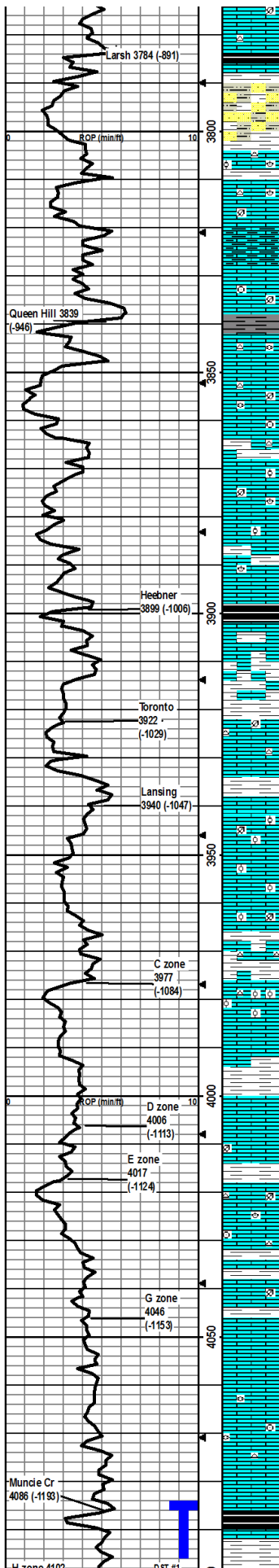
Contractor: Murfin Drilling Company Rig #24  
 Pusher: Tony Martin  
 Surface Casing: 5 joints of 8 5/8" set at 204'  
 Production Casing: No production casing was installed.  
 Mud by: MudCo  
 DST's by: Tribolite Testing  
 Logs by: Weatherford (DIL, CN-CD, ML, CS)  
 RTD=4640'  
 LTD=4644'

## FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Queen Hill	3839'	-946	3842'	-949
Heebner Shale	3899'	-1006	3902'	-1009

Toronto	3922'	-1029	3926'	-1033
Lansing	3940'	-1047	3946'	-1053
Muncie Creek Shale	4086'	-1193	4089'	-1196
Stark Shale	4174'	-1281	4177'	-1284
Hushpuckney Shale	4211'	-1318	4213'	-1320
Marmaton	4279'	-1386	4282'	-1389
Upper Fort Scott	4376'	-1483	4381'	-1488
Little Osage Shale	4398'	-1505	4400'	-1507
Excello Shale	4424'	-1531	4428'	-1535
Johnson Zone	4498'	-1605	4501'	-1608
Morrow	4518'	-1625	4521'	-1628
Mississippian	4543'	-1650	4547'	-1654
RTD	4640'	-1747		
LTD			4644'	-1751





stn, no cut/fluor, svrl Chert: wht opaque foss sharp, svrl SH: gry/grn/brn, silty, soft, no cup odr, ns.

LS: tan, fn xln, mostly dense, sm hard, tr-nvp, svrl Chert: gry/wht, sharp, fw SH: gry/grn/blk, silty, easy-med crush, fw carb, no cup odr, ns.

SS: gry/brn, vfn grn, silty, arg, easy crush, ppt int-grn por, sm SH: brn, silty, muddy, very soft, fw SH: gry/grn, silty, sm waxy, med crush, no cup odr, ns.

LS: gry/tan, fn xln, foss brach/crin, fw ool, tr-nvp, fw Chert: gry/wht, semi-trans, sharp, foss, fw SH: gry/grn, silty, sm waxy, med crush, no cup odr, ns, muddy dirty smpl.

LS: tan, fn xln, foss brach/crin/abund frags, mostly uniform, tr-nvp, fw pcs pur chlk, fw Chert: wht, opaque, foss, sharp, no cup odr, ns.

LS: tan/lt gry, fn xln, sm foss brach/frags, sm pcs dense/hard, tr-nvp, fw SH: gry/brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: gry/tan, fn-med xln, sm foss crin/frags, sm pcs hard, tr-nvp, fw SH: drk gry/grn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: tan/lt gry, fn xln, foss brach/fuss, tr-nvp, fw pcs chlk, fw Chert: wht, opaque, foss, sharp, sm SH: gry/grn/drk gry, silty, fw fissile, easy-med crush, no cup odr, ns.

LS: tan, micro-fn xln, rare foss frags, mostly dense, tr-nvp, fw Chert: wht/grn, foss, sharp, sm SH: gry/grn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: tan/lt tan, fn xln, foss fuss/crin/frags, rare scat pr int-foss por, fw Chert: wht, opaque, sm SH: gry/grn/drk gry, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: gry/tan, fn-med xln, fw foss brach/frags, sm ool, mostly hard, tr-nvp, fw pcs of chlk, fw SH: gry/grn, silty, easy-med crush, no cup odr, ns.

LS: gry/tan, fn xln, sm foss brach/ool, fw hard, mostly brittle, w/ sm chiky, tr-nvp, fw SH: gry/brn, silty, med crush, sm fissile, no cup odr, ns.

LS: tan/lt gry, fn xln, fw foss frags, mostly brittle sm chiky, tr-nvp, abund SH: gry/grn/blk, silty, sm fissile sm carb, no cup odr, ns.

LS: tan/gry, fn xln, fw foss frags, fw ool, sm brittle, chiky, tr-nvp, sm SH: gry/brn/blk, silty, sm soft fw carb, no cup odr, ns.

LS: lt tan/lt gry, fn xln, fw foss brach/ool, fw brittle sm chiky, scat pr int-xln por, 1-2 pcs w/ drk stn, no cut/fluor, abund SH: gry/grn/brn, silty, soft, no cup odr, smpl muddy/dirty.

LS: lt tan/lt gry, fn xln, fw foss frags, sm brittle sm chiky, scat pr int-xln por, fw pcs Chert: wht, opaque, foss, sharp, svrl SH: gry/brn/brn, silty, med crush, no cup odr, ns.

LS: lt tan, fn-med xln, sm brittle, fw chiky, scat pr int-xln por, fw SH: gry/brn/brn, silty, med crush, no cup odr, ns.

LS: lt tan/gry, fn-med xln, sm foss, mostly brittle fw hard, tr-nvp, sm SH: gry/grn/brn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: tan/gry, fn xln, fw foss frags, sm vry ool, mostly brittle rare pr int-ool por, svrl SH: gry/grn/brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: tan, fn-crs xln, sm vry ool, mostly brittle, sm chiky, rare pr int-ool por, sm SH: gry/grn/brn, silty, sm fissile, easy-med crush, no cup odr, ns.

LS: tan/gry, fn xln, sm vry ool, sm foss frags, mostly brittle, fw pcs pur chlk, abund SH: gry/brn/brn, silty, sm fissile easy-med crush, no cup odr, ns.

LS: tan, fn xln, sm vry ool, sm scat foss, rare scat int-foss/int-ool por, fw Chert: wht, opaque, foss, sharp, mostly SH: gry/grn/brn, silty, fissile, med crush, no cup odr, ns.

LS: tan, fn xln, mostly ool, mostly dense matrix, rare scat int-ool por, abund SH: gry/grn/brn, silty, sm fissile easy-med crush, no cup odr, ns.

LS: lt tan, fn xln, fw ool, mostly dense/brittle, sm chiky, tr-nvp, 1-2 pcs LS: lt tan, fn xln, brittle, w/ pr vug por in 2nd rxn facies, vry lght stns, does not cut most likely from "C" above, abund SH: gry/grn/brn, silty, sm fissile, med crush, no cup odr, ns.

LS: lt tan, fn xln, mostly dense/brittle, mostly tr-nvp, 1-2 pcs w/ gd scat vug por with lght brn stn, wk cut, no cup odr, ns, abund SH: lke disc above.

LS: lt tan/gry, fn-crs xln, sm foss, mostly dense/brittle mostly tr-nvp, fw pcs w/ pr-fr int-xln por/ppt por, w/ lght stns, wk cut vsslo, fw Chert: wht, opaque, foss, sm SH: gry/brn/brn, silty, no cup odr.

LS: tan, fn xln, fw foss brach/crin/frags, mostly dense, fw chiky, tr-nvp, fw Chert: wht, opaque, foss, sharp, fw SH: gry/brn/brn, silty, fw waxy, no cup odr, ns.

LS: lt tan, micro-fn xln, fw foss, mostly dense, sm brittle, sm chiky, tr-nvp, sm SH: gry/grn, silty, easy-med crush, no cup odr, ns.

LS: lt tan/lt gry, fn-med xln, dense, brittle mostly uniform, sm chiky, tr-nvp, fw SH: brn/gry/grn, silty, sm fissile, med crush, fw waxy, no cup odr, ns.

LS: lt tan/crm, fn xln, dense, mostly brittle, mostly uniform, fw chiky, tr-nvp, fw SH: grn/gry/brn, silty, sm fissile easy-med crush, no cup odr, ns.

LS: crm/lt tan, micro-fn xln, fw foss crin/fuss, dense, mostly brittle, mostly uniform, fw pcs pur chlk, tr-nvp, fw SH: gry/brn/brn, silty, med crush, no cup odr, ns.

LS: gry/lt tan, fn-med xln, fw pcs flakey/mealy, mostly dense, mostly uniform, tr-nvp, fw Chert: gry, smoke trans, foss, sharp, no cup odr, ns.

LS: lt tan, fn-med xln, mostly dense, fw brittle, tr-nvp, mostly SH: gry/grn/blk, silty, sm fissile sm carb, med crush, no cup odr, ns.

LS: gry/tan, fn-crs xln, mostly hard, sm flakey/mealy, tr-nvp, sm pcs w/ drk m in stns, no cut/fluor, abund SH: gry/grn/blk, silty, sm fissile, med crush, no cup odr, ns.

Mudco Check #4 @ 3872'  
04/18/12 7:30am  
WF VIS pH CHL  
8.9 54 10.0 2000  
FIT LCM  
6.4 4#

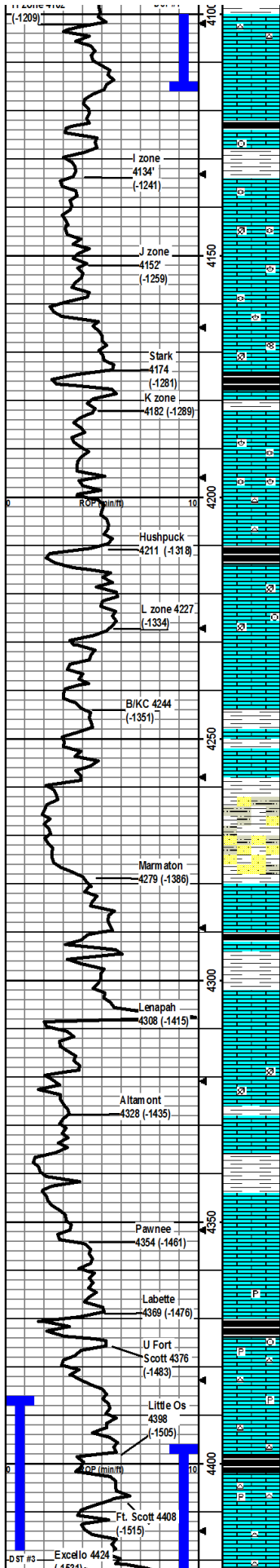
CF 3 @ 3867'  
30°/60°

CF 3 @ 3935'  
30°/60°

CF 3 @ 3990'  
30°/60°

CF 3 @ 4025'  
30°/60°

**DST1) 4084-4116**  
20456000  
1st) WK Surface built to 6"  
2nd) WK Surface built to 9"  
IFP 25-80#  
ISP 230#  
FFP 23-14# F SP  
230#  
HP 2031-1966#



LS: lt tan, micro-fn xln, mostly dense, scat tr vug por, patchy stns in vugs w/ light filmy oil, dul yel fluor, stream cut pal blu, vsfo, sm Chert: gry/wht, semi trans, sharp, fr cup odr.

LS: lt tan/crm/lt gry, micro-fn xln, dense, mostly hard, fw pcs flakey/mealy, tr-nvp, sm Chert: wht opaque, foss, sharp, faint cup odr, 1 pcs w/ sho like disc above.

SH: gry/grn/brn, silty, easy-med crush.

LS: tan/grn, fn-med xln, foss crin/frags, mostly dense, sm hard, fw chiky, tr-nvp, abund SH: gry/brn, silty, med crush, fw fissile, no cup odr, ns.

LS: tan, fn xln, fw foss fusts/frags, sm hard, fw flakey/mealy, tr-nvp, sm SH: gry/grn/brn, silty, sm waxy, med crush, no cup odr, ns.

LS: tan/lt tan, fn xln, foss fusts/brach/frags, fw ool, sm brittle, scat vug int-foss por, patchy stning, dul yel fluor, cut pal blu, vsfo 1-2 pcs/try, v faint cup odr.

LS: crm/lt tan, fn xln, mostly dense/brittle, sm chiky, fw hard, tr-nvp, fw SH: gry/grn, silty, easy-med crush, no cup odr, ns.

LS: lt tan, fn xln, profus foss fusts/brach/frags, svrl ool, mostly brittle, fr-gd int-foss/ool por, 4-5 pcs/try w/ scat dul yel fluor, cut pal blu, vsfo, gd sulfur cup odr, no much hydrocarbon odr.

LS: tan/gry, fn xln, foss frags/bram, mostly hard, sm flakey/mealy, tr-nvp, abund SH: blk/gray/brn, silty, sm fissile, mostly carb, med crush, no cup odr, ns.

LS: tan/gry, sm ool, fn-crs xln, foss brach/fusts, sm ool, 2-3 pcs/try w/ crs fr inbdn por, scat dul yel fluor, stream cut pal wht/blu, gd sulfuric cup odr, vsfo, abund SH: blk/gry, carb.

LS: tan/lt gry, fn xln, foss brach/fusts/crin, 1-2 pcs w/ fr intxln por w/ sho as disc above, fw SH: gry/grn, silty, easy-med crush, fr gd sulfuric cup odr, vsfo.

LS: gry/tan, fn xln, sm flakey/mealy, mostly dense/hard, tr-nvp, fw Chert: wht/gry, sharp, fw SH: gry/grn, silty, no cup odr, ns.

LS: much like disc above, abund SH: gry/grn/blk, silty, med crush, mostly carb, no cup odr, ns.

LS: tan/gry, sm ool, fn xln, sm foss frags, sm flakey/mealy, mostly dense/hard, tr-nvp, abund SH: gry/drk gry, silty, sm waxy, med crush, no cup odr, ns.

LS: tan/gry, fn xln, foss brach/crin/frags, mostly dense, sm brittle, sm chiky, sm patchy stns w/ drk dead oil, 2-3 pcs/try, dul yel fluor, nsfo, no cup odr, ns.

LS: lt tan/gry, fn xln, sm foss brach/frags, mostly dense/hard, fw chiky, tr-nvp, sm SH: gry/grn/brn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: lt tan/gry, fn-med xln, fw foss frags, mostly dense, sm chiky, tr-nvp, svrl SH: gry/brn, silty, easy-med crush, no cup odr, ns.

LS: gry/lt tan, fn-crs xln, fw foss brach/frags, mostly dense, sm chiky, tr-nvp, svrl SH: gry/grn/brn, silty, sm waxy, easy-med crush, no cup odr, ns.

SitStn: blu/gry, silty, arg, muddy, v soft, tr-nvp, sm SH: gry/drk gry, silty, soft, fw LS: tan, fn xln, sm ool, mostly dense, sm hard, tr-nvp, fw SH: gry, silty, no cup odr, ns.

SS: gry, vln grn, silty, arg, med crush, tr-nvp, sm SitStn: blu/gry, silty, muddy, v soft, sm SH: gry/grn, silty, sm waxy, easy-med crush, no cup odr, ns.

LS: lt gry/tan, fn xln, mostly dense, sm hard, fw chiky, fw pcs flakey/mealy, tr-nvp, fw pos of pur chl, no cup odr, ns.

LS: gry/tan, fn xln, mostly dense, mostly hard, fw pcs chiky/brittle, tr-nvp, abund SH: gry/grn/brn, silty, sm waxy, fw carb, easy-med crush, no cup odr, ns.

LS: tan/gry, sm ool, mostly dense, sm hard, sm flakey/mealy, tr-nvp, sm SH: gry/grn/brn, silty, easy-med crush, no cup odr, ns, sampl muddy/dirty.

LS: gry/tan/brn, sm ool, fn-crs xln, mostly dense, sm hard, sm flakey/mealy, scat pr intxln por, abund SH: gry/brn, silty, med crush, no cup odr, ns.

LS: tan/gry/brn, fn-crs xln, fw foss frags, sm ool, mostly dense, mostly hard, scat pr intxln por, abund SH: brn/grn/gry, silty, sm waxy, easy-med crush, no cup odr, ns.

SH: gry/grn/brn, silty, sm fissile, fw waxy, easy-med crush, fw LS: tan, fn xln, mostly dense, fw hard, sm brittle, scat pr intxln por, no cup odr, ns.

SH: gry/grn/brn, silty, fw fissile, sm waxy, easy-med crush, fw LS: gry/tan, fn xln, mostly dense, sm brittle, tr-nvp, no cup odr, ns.

LS: lt tan, fn xln, foss brach/crin/frags, mostly dense, mostly brittle, tr-nvp, sm SH: gry/brn/grn, silty, easy-med crush, no cup odr, ns.

LS: crm/lt-med gry, micro-fn xln, min foss frags, some vry silty, stly pyritic, min frac por, no odor, ns.

SH: dk gry/blk, carb, firm, brittle, fissile.

LS: crm/lt gry/lt brn, micro-fn xln, min foss frags/crin, wht chert, some silty, stly pyritic, min frac por, no odor, ns.

LS: crm-lt brn, micro-fn xln, min foss frags, wht chert, some silty, stly pyritic, min frac/ppt in-xln por, no odor, ns.

LS: crm-brn, micro-fn xln, min foss frags, wht/brn chert, no vis por, no odor, ns.

SH: blk, carb, firm, fissile.

LS: crm-lt brn, micro-fn xln, foss frags, wht/lt brn chert, stly pyritic, no odor, mostly dense 2 tray pcs w/ fn-med in-xln por w/ sho, yel floriyel cut, sfo.

LS: crm/lt gry, micro-fn xln, foss frags, some wht chert, mostly dense w/ 3 tray pos w/ fn-med in-xln por w/ sho, yel floriyel cut, sty cup odr, sfo.

Recvd: 30' GP, 10' CFO, 20' Mud, 62' WCM, 121' MCW

CFS @ 411' 30" 60"

Mudco Check #5 @ 4116' 04/19/12 7:30am wt vis pH chl 9.1 57 10.5 2500 Filt LCM 6.4 6#

CFS @ 4165' 30" 60"

CFS @ 4214' 30" 60"

Mudco Check #6 @ 4260' 04/20/12 9:15am wt vis pH chl 9.2 74 11.0 2800 Filt LCM 6.8 5#

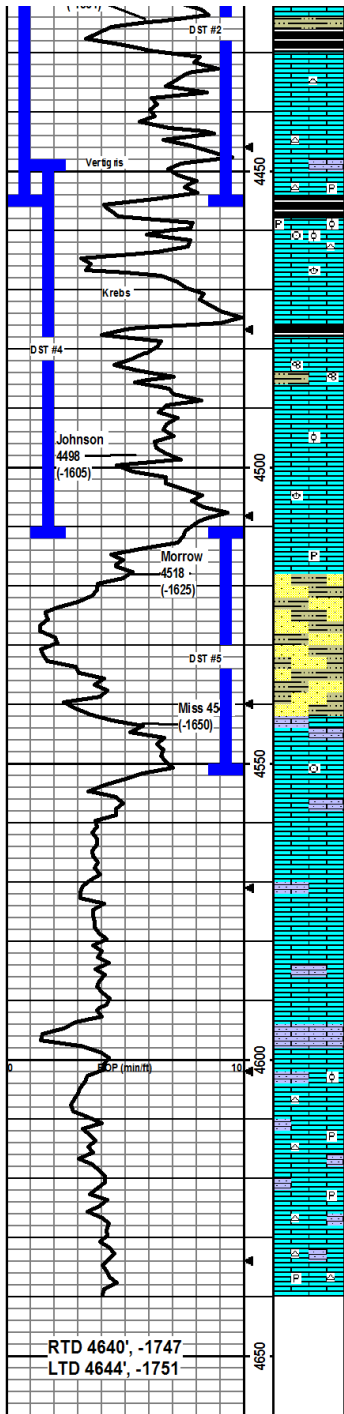
7" & 10" ft the brakes on rig were on and the bit was slowed down by accident.

Sample Returns were not good, mainly shale.

JG  
KM

DST2) 4395-4456  
PACKER FAILURE upon attempting to seat packer; made two attempts. Upon removal lower packer was split. Tester said tear was caused by mud pressure.

DST3) 4385-4456  
30303030  
1st) 1 1/4" built to 1", no BB;  
2nd) No blow, no BB;  
IFP 39-43#  
ISP 435#  
FFP 44-45# F SIP



SH: med-dk gry/blk, some vry silty, some e qtz sand clusters, blk is stly carb, soft to firm/brittle.

LS: crm/lt-med brn, micro-fn xtal, min foss frags, min in wht chert, no vis por, no odor, ns.

LS: crm/lt brn/gryish brn, micro-fn xtal, min in foss frags, some vry silty/sdy, m in wht flt brn chert, no vis por, no odor, ns.

LS: crmit-med brnlt gry, micro-fn xtal, min foss frags, some pyritc, min it gry chert, no vis por, no odor, ns.

SH: blk carb, firm, fissile.

LS: crmit-dk brn/gry, foss frags min crin a bund ool, wht flt brn cherts some sty pyritc, min ppt-fn por, strg odor, 1 tray pce wdk brn thick fo in vug in-xtal por, yel flr, sfo.

LS: crmit-dk brn, micro-fn xtal, foss frags/brac, ppt-med in-xtal frac por, strg odor, yel flr, apprx 30t tray pcs wifo, vgsfo.

LS: crm/dk brn, micro-fn xtal, foss frags, ppt-vug in-xtal por, strg odor, apprx 25 tray pcs w/yel flr wifo, vgsfo.

SH: dk gry/blk, carb, some stly silty, firm, fissile.

LS: crm/lt gry/lt-med brn, micro-fn xtal, foss frags/fusin, some lt gry/dk gryish brn soft-firm silty SH, some ppt-fn in-xtal por, slit odor, 4 tray pcs w/yel flr wifo, sfo.

LS: crm/lt brn/lt gry, micro-fn xtal, foss frags/in ool, ppt-vug in-xtal por, strg odor, yel flr, apprx 10% of tray w/sfo, vgsfo.

LS: crm/lt brn, micro-fn xtal, foss frags/brac, ppt-vug por, strg odor, yel flr, apprx 10% of tray w/sfo, fo in tray, vgsfo.

LS: crm/lt brn, gryish brn, micro-fn xtal, foss frags, some stly pyritc, some ppt-vug por, strg odor, yel flr/yel cut, 10 tray pcs w/dk brn thk oil, sfo.

SS/SH mix: SH is lt-dk gry/brn, soft-firm, some vry silty; SS is gry, pred qtz, fn-med grd, well sorted, friable, sr-wr, no eff, strg odor, numerous pcs w/dk brn/blk thk oil, cuts yel, sfo.

SS/SH mix as above: SS is wht/gry/greenish gry, cont show dk brn/blk fo.

LS: crm/lt-med brn, micro-med xtal, min foss frag/crin, some vry sandy, min ppt-fn in-xtal frac por, 4 pcs w/dk brn fo in 4553 60" smpl, yel flr, slit odor, ns.

LS: crm/lt brn/gry, micro-fn xtal, some e foss frags, some silty, m in frac por, no odor, ns.

LS: lt gryish brn, micro xtal, no vis foss, m in frac por, no odor, ns.

LS: crm/lt gryish brn, micro-fn xtal, some silty, m in frac por, no odor, ns.

LS: crm/lt brn/gryish brn, micro-fn xtal, some vry silty/sndy, mostly dense w/3 tray pcs w/ppt-med in-xtal por w/sfo, no odor, yel flr/out, sfo.

LS: wht/crm/lt brn, micro-fn xtal, vry silty/sndy, some chaly, easily crushed, no vis por, no odor, ns.

LS: crm/lt brn/lt gryish brn, micro-fn xtal, some vry silty/sndy, some wht/lt gry chert, min dense ool pcs, no vis por, no odor, ns.

LS: wht/crm/lt-med brn, gryish brn, micro-fn xtal, some vry silty/sndy, min wht chert, stly pyritc, no vis por, no odor, ns.

LS: lt-med brn, micro-fn xtal, some silty/sndy, stly pyritc, some e wht chert, no vis por, no odor, ns.

LS: crm/lt gry/lt-dk brn, micro-fn xtal, foss frags, wht/lt gry chert, some silty/sndy, m in pyritc, no vis por, no odor, ns.

202#  
HP 2320-2184#  
Recvd: 10' Mud.

Mudco Check #7 @ 4456'  
0421/12, 9:00am  
wt vis pH chl  
9.3 57 11.0 3000  
Filt LCM  
7.2 4#

CFS @ 4456'  
30°/60"

**DST4) 4448-4513**  
30454860  
1st) BOB in 3 min, BB built to wk surface blowed in 10 min;  
2nd) BOB in 3 min, no BB;  
IFP 120-427# F SIP  
ISP 1092#  
FFP 432-700#  
HP 2260-2170#  
Recvd: 12' GIP, 1299' WCM, 121' W

Mudco Check #8 @ 4513'  
0422/12, 10:00am  
wt vis pH chl  
9.3 64 10.5 2500  
Filt LCM  
8.0 4#

CFS @ 4513'  
30°/60"

Mudco Check #9 @ 4553'  
0423/12, 08:33am  
wt vis pH chl  
9.4 57 10.0 3000  
Filt LCM  
8.8 4#

CFS @ 4553'  
30°/60"

NOTE: Drilling rig was out of commission from the evening of 04/22 thru the evening of 4/23 due to replacement of rig engine transmission torque converter, intercooler and turbo charger.

**DST5) 4510-4553**  
30455075  
1st) built to 1" blow, no BB;  
2nd) built to weak surface blow, no BB;  
IFP 26-40# F SIP  
ISP 1111#  
FFP 41-58#  
1097#  
HP 2331-2176#  
Recvd: 70' W

CFS @ 4608'  
30°/60"

Mudco Check #10 @ 4553'  
0424/12, 09:10am  
wt vis pH chl  
9.3 56 10.0 4400  
Filt LCM  
8.0 4#

CFS @ 4640', TD,  
30°/60', total 1.5 hr

Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Ward Loyd, Commissioner  
Thomas E. Wright, Commissioner

Sam Brownback, Governor

May 16, 2012

Ronald N. Sinclair  
Grand Mesa Operating Company  
1700 N WATERFRONT PKWY BLDG 600  
WICHITA, KS 67206-5514

Re: ACO1  
API 15-063-21983-00-00  
CSC 1-21  
NW/4 Sec.21-13S-31W  
Gove County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Ronald N. Sinclair