

1308340

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 <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No 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: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
--	---

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
--	---	---

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Heier-Racette 1-34
Doc ID	1308340

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated

Summary of Changes

Lease Name and Number: Heier-Racette 1-34

API/Permit #: 15-109-21257-00-00

Doc ID: 1308340

Correction Number: 1

Approved By: Karen Ritter

Field Name	Previous Value	New Value
Approved By	NAOMI JAMES	Karen Ritter
Approved Date	06/30/2014	06/02/2016
Perf_Material_3	250g 15% MCA, 750g 15% NEFE	
Perf_Record_3	4625-4631 Johnson Zn	
Perf_Shots_3	4	
Producing Formation	LKC, Johnson	LKC
Production Interval #1	4258-4631	4258-4284
Save Link	../../kcc/detail/operatorE ditDetail.cfm?docID=12 12403	../../kcc/detail/operatorE ditDetail.cfm?docID=13 08340 see attachment
TopsDatum1		see attachment
TopsDepth1		see attachment

Summary of changes for correction 1 continued

Field Name	Previous Value	New Value
Tubing Packer At		4344



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1212403
OIL & GAS CONSERVATION DIVISION

Form ACO-1
August 2013

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

CONFIDENTIAL 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
-----------------------------------	-----------------	---

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: _____

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

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				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
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)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <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>	PRODUCTION INTERVAL: Top Bottom
---	---	------------------------------------

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
----------------	-------	---------	------------	--

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Heier-Racette 1-34
Doc ID	1212403

All Electric Logs Run

Dual Induction
Dual Compensated
Microresistivity
Borehole Compensated

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Heier-Racette 1-34
Doc ID	1212403

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	4258-4266 LKC I	250g 15% MCA	
4	4278-4284 LKC J	250g 15% MCA	
4	4625-4631 Johnson Zn	250g 15% MCA, 750g 15% NEFE	



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Heier- Racette #1-34

34 12s 33 Logan KS

Start Date: 2014.03.09 @ 23:15:00

End Date: 2014.03.10 @ 07:58:15

Job Ticket #: 56767 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.19 @ 18:03:28

Murfin Drilling
34 12s 33 Logan KS
Heier- Racette #1-34
DST # 1
LKC "H & I"
2014.03.09



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N Water STE 300
Wichita KS 67202
ATTN: Tom Funk

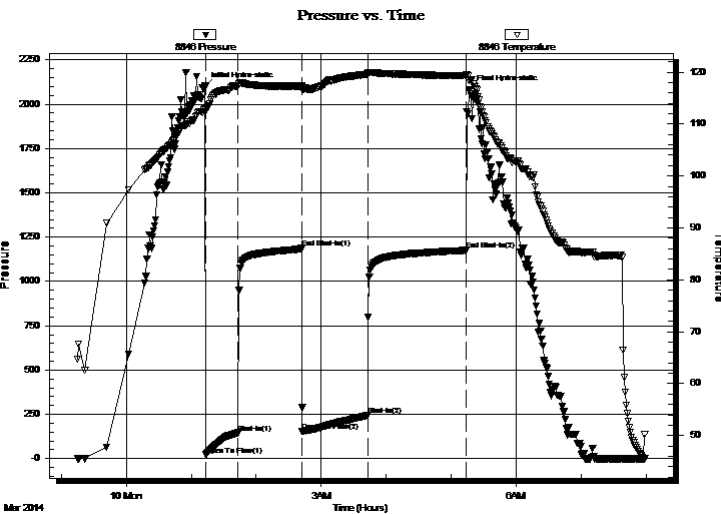
34 12s 33 Logan KS
Heier- Racette #1-34
Job Ticket: 56767 **DST#: 1**
Test Start: 2014.03.09 @ 23:15:00

GENERAL INFORMATION:

Formation: **LKC "H & I"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:13:15
Time Test Ended: 07:58:15
Interval: **4198.00 ft (KB) To 4260.00 ft (KB) (TVD)**
Total Depth: 4260.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Robert Zodrow
Unit No: 65
Reference Elevations: 3104.00 ft (KB)
3094.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8846 **Inside**
Press@RunDepth: 244.07 psig @ 4199.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.03.09 End Date: 2014.03.10 Last Calib.: 2014.03.10
Start Time: 23:15:15 End Time: 07:58:15 Time On Btm: 2014.03.10 @ 01:12:45
Time Off Btm: 2014.03.10 @ 05:17:00

TEST COMMENT: 30-IF-BOB In 22 min
60-ISI-Blow back Built To 1/2" Died Back To Surface Blow
60-FF-BOB In 30 min
90-FSI-Blow back Built To 1/4" Died Back To Surface Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2096.39	112.88	Initial Hydro-static
1	20.79	112.38	Open To Flow (1)
31	145.09	117.45	Shut-In(1)
90	1186.43	117.28	End Shut-In(1)
90	152.40	116.94	Open To Flow (2)
150	244.07	119.63	Shut-In(2)
241	1175.34	119.28	End Shut-In(2)
245	2084.15	118.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
240.00	gow cm 3%g 2%o 40%w 55%m	1.20
216.00	ocm 30%o 67%m 3%g	3.16
45.00	clean oil 95%o 5%g	0.66

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56767

DST#: 1

ATTN: Tom Funk

Test Start: 2014.03.09 @ 23:15:00

Tool Information

Drill Pipe:	Length: 3944.00 ft	Diameter: 3.88 inches	Volume: 57.68 bbl	Tool Weight:	2500.00 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: 238.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose:	72000.00 lb
			<u>Total Volume: 58.85 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	4198.00 ft			Final	70000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	62.00 ft				
Tool Length:	83.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4178.00	
Shut In Tool	5.00			4183.00	
Hydraulic tool	5.00			4188.00	
Packer	5.00			4193.00	21.00 Bottom Of Top Packer
Packer	5.00			4198.00	
Stubb	1.00			4199.00	
Recorder	0.00	8846	Inside	4199.00	
Recorder	0.00			4199.00	
Perforations	23.00			4222.00	
Change Over Sub	1.00			4223.00	
Drill Pipe	31.00			4254.00	
Change Over Sub	1.00			4255.00	
Bullnose	5.00			4260.00	62.00 Bottom Packers & Anchor

Total Tool Length: 83.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56767

DST#: 1

ATTN: Tom Funk

Test Start: 2014.03.09 @ 23:15:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
240.00	gow cm 3%g 2%o 40%w 55%m	1.200
216.00	ocm 30%o 67%m 3%g	3.159
45.00	clean oil 95%o 5%g	0.658

Total Length: 501.00 ft

Total Volume: 5.017 bbl

Num Fluid Samples: 0

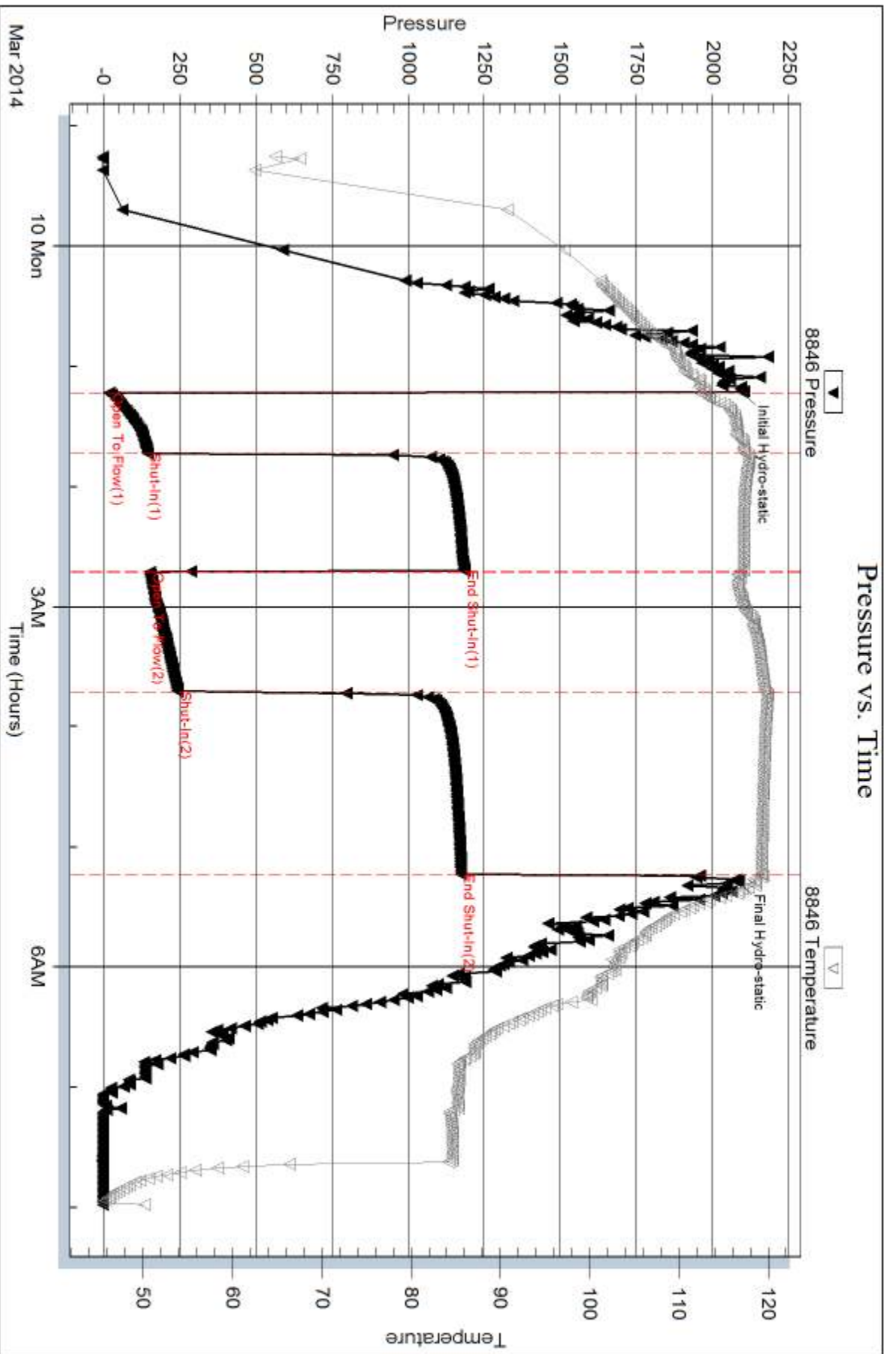
Num Gas Bombs: 0

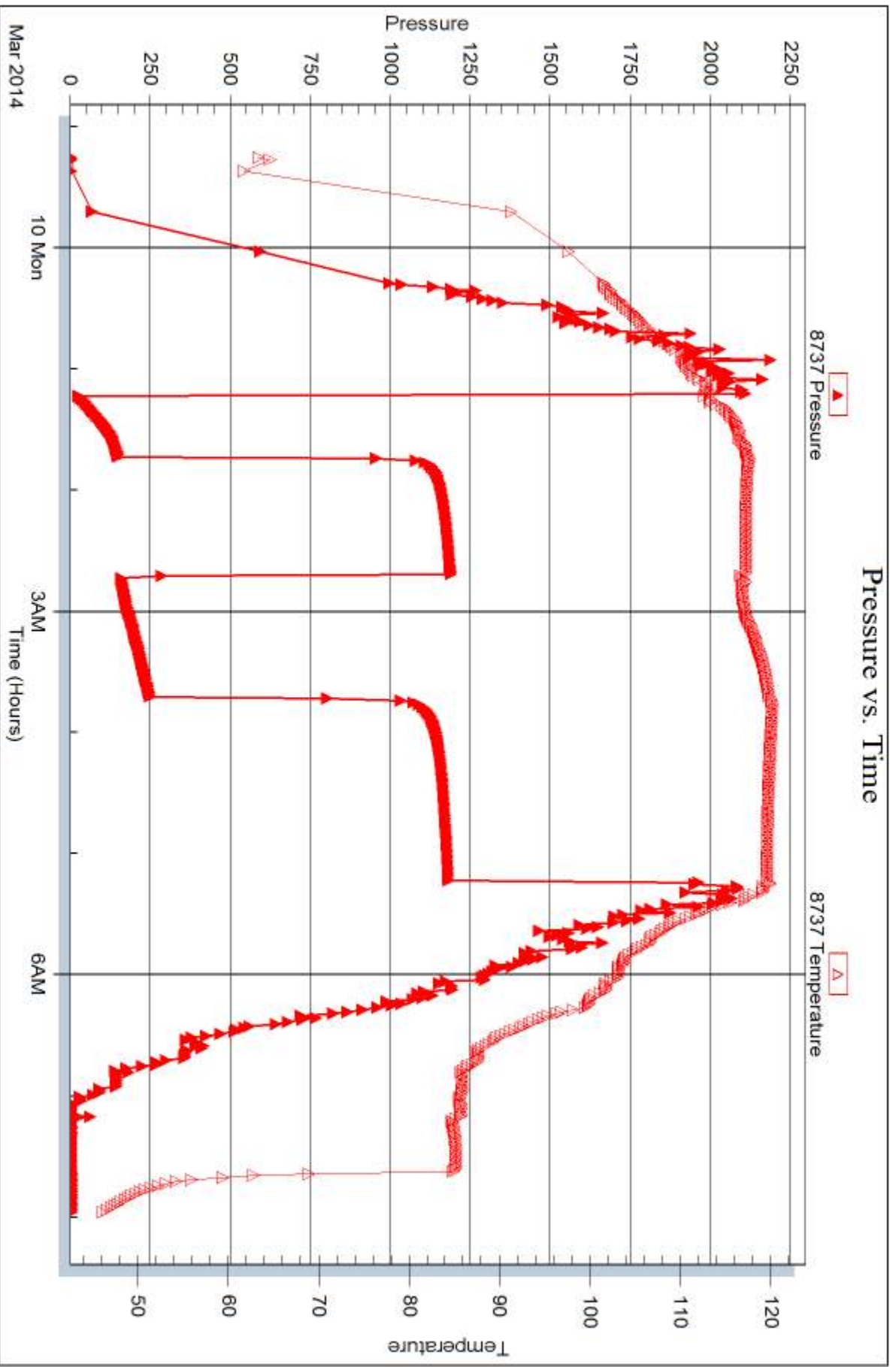
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Heier- Racette #1-34

34 12s 33 Logan KS

Start Date: 2014.03.10 @ 14:52:00

End Date: 2014.03.11 @ 00:12:45

Job Ticket #: 56768 DST #: 2

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.19 @ 18:03:04

Murfin Drilling
34 12s 33 Logan KS
Heier- Racette #1-34
DST # 2
LKC "J"
2014.03.10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N Water STE 300
Wichita KS 67202
ATTN: Tom Funk

34 12s 33 Logan KS
Heier- Racette #1-34
Job Ticket: 56768 **DST#: 2**
Test Start: 2014.03.10 @ 14:52:00

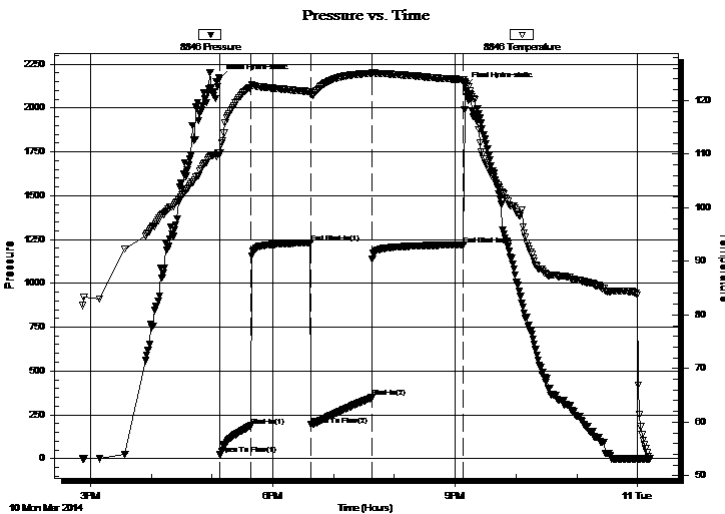
GENERAL INFORMATION:

Formation: **LKC "J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:07:45
Time Test Ended: 00:12:45
Interval: **4260.00 ft (KB) To 4283.00 ft (KB) (TVD)**
Total Depth: 4260.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Robert Zodrow
Unit No: 65
Reference Elevations: 3104.00 ft (KB)
3094.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8846 **Inside**
Press@RunDepth: 347.50 psig @ 4261.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.03.10 End Date: 2014.03.11 Last Calib.: 2014.03.11
Start Time: 14:52:15 End Time: 00:12:45 Time On Btm: 2014.03.10 @ 17:07:30
Time Off Btm: 2014.03.10 @ 21:09:45

TEST COMMENT: 30-IF- BoB In 10 min
60-ISI-Return Built To 2 3/4"
60-FF-BOB In 15 min
90-FSI-Return Built To 3 3/4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2167.21	110.28	Initial Hydro-static
1	22.50	109.85	Open To Flow (1)
31	187.42	122.45	Shut-In(1)
90	1231.42	121.62	End Shut-In(1)
90	192.47	121.10	Open To Flow (2)
150	347.50	125.04	Shut-In(2)
241	1219.48	123.84	End Shut-In(2)
243	2124.69	123.27	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
548.00	MW 8% <i>m</i> 92% <i>w</i>	5.70
60.00	gw <i>mco</i> 5% <i>g</i> 15% <i>w</i> 20% <i>m</i> 50% <i>o</i>	0.88
196.00	clean oil 5% <i>g</i> 95% <i>o</i>	2.87

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56768

DST#: 2

ATTN: Tom Funk

Test Start: 2014.03.10 @ 14:52:00

Tool Information

Drill Pipe:	Length: 4006.00 ft	Diameter: 3.88 inches	Volume: 58.58 bbl	Tool Weight: 2500.00 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: 238.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 88000.00 lb
			<u>Total Volume: 59.75 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4260.00 ft			Final 80000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	44.00 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			4240.00	
Shut In Tool	5.00			4245.00	
Hydraulic tool	5.00			4250.00	
Packer	5.00			4255.00	21.00 Bottom Of Top Packer
Packer	5.00			4260.00	
Stubb	1.00			4261.00	
Recorder	0.00	8846	Inside	4261.00	
Recorder	0.00			4261.00	
Perforations	17.00			4278.00	
Bullnose	5.00			4283.00	23.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56768

DST#: 2

ATTN: Tom Funk

Test Start: 2014.03.10 @ 14:52:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

34 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

26000 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
548.00	MW 8%m 92%w	5.704
60.00	gw mco 5%g 15%w 20%m 50%o	0.877
196.00	clean oil 5%g 95%o	2.866

Total Length: 804.00 ft Total Volume: 9.447 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .36@54deg f = 26000

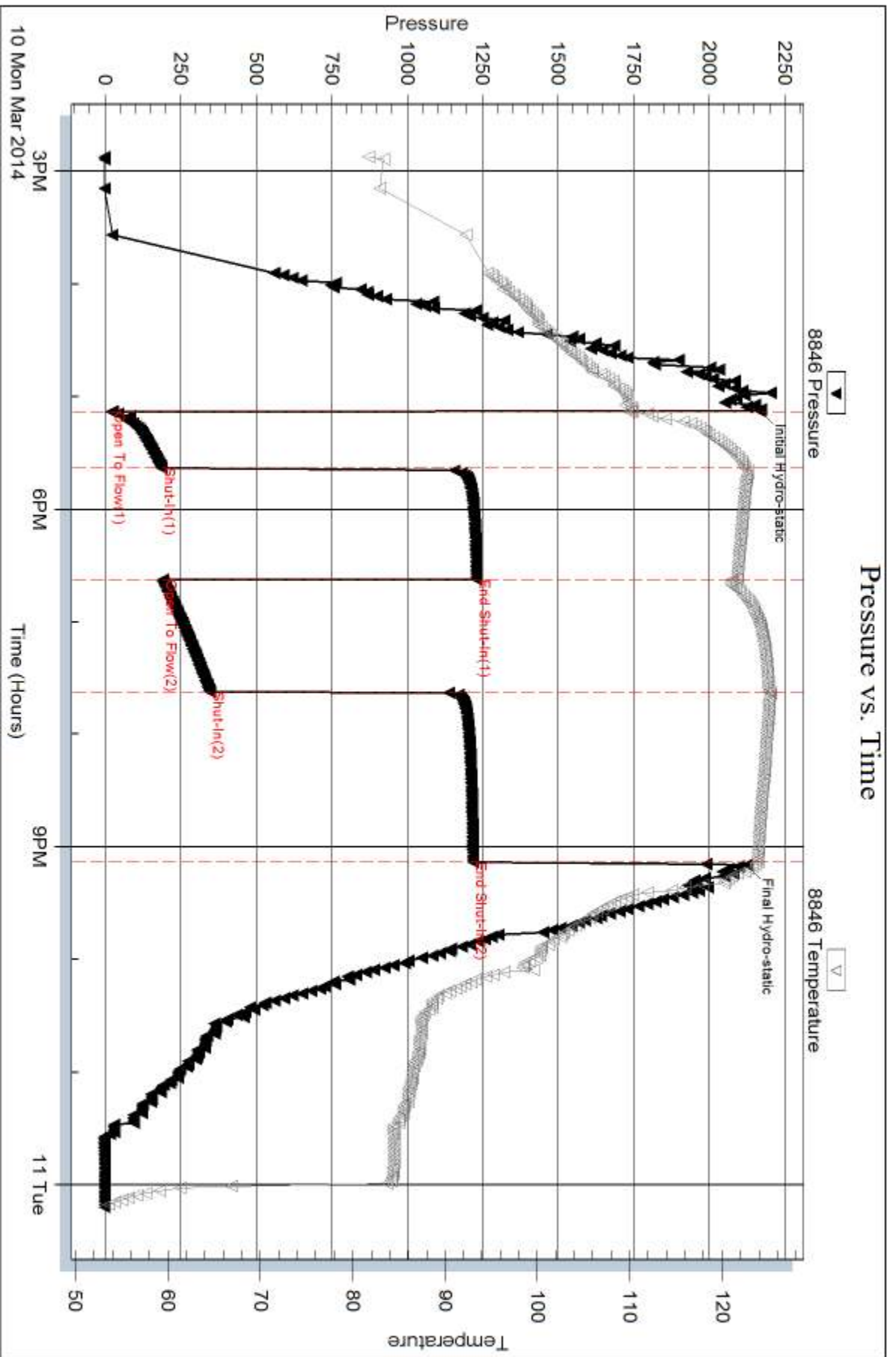
Serial #: 8846

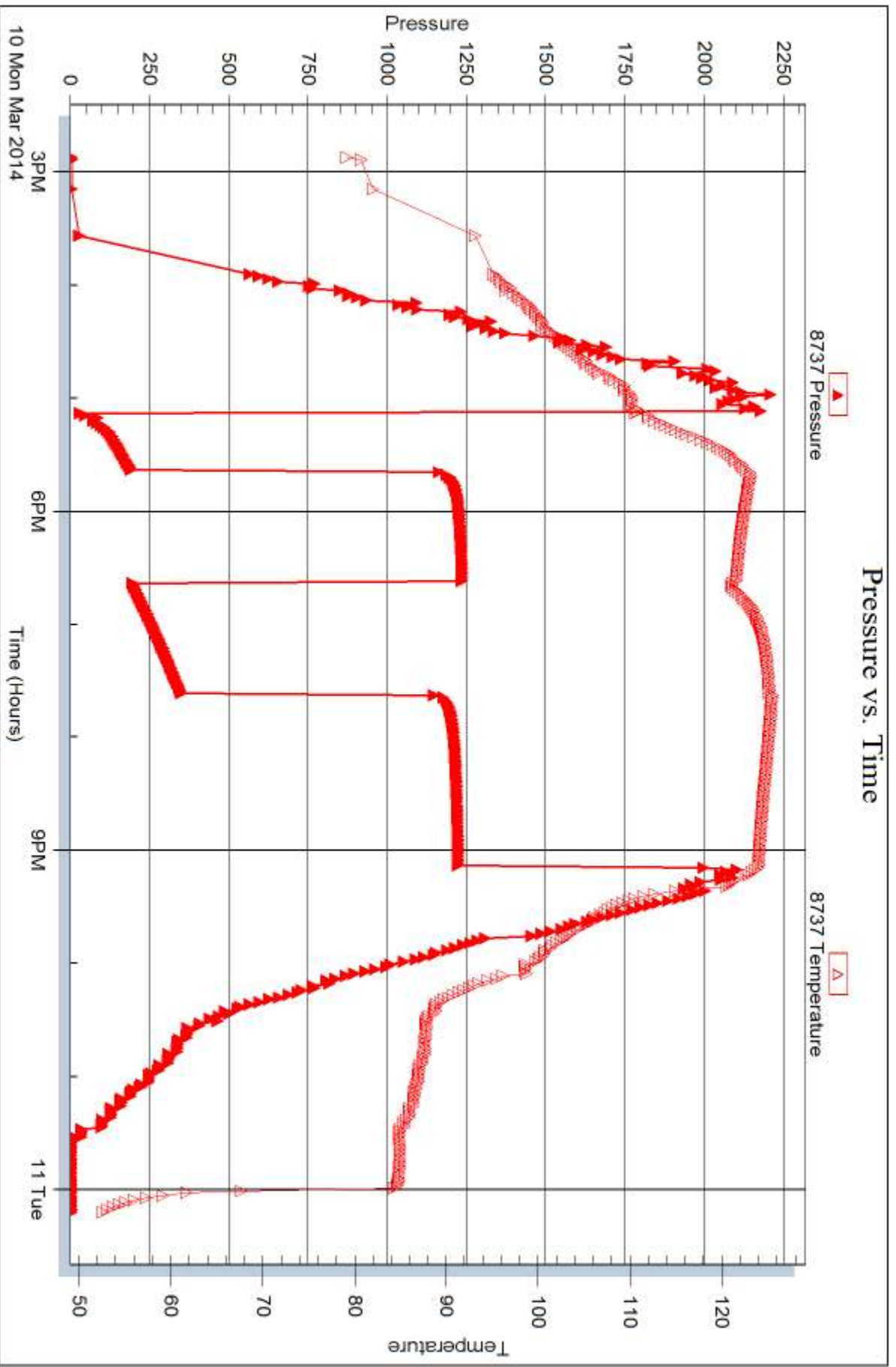
Inside

Murfin Drilling

Heier - Racette #1-34

DST Test Number: 2







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Heier- Racette #1-34

34 12s 33 Logan KS

Start Date: 2014.03.11 @ 08:50:15

End Date: 2014.03.11 @ 17:32:00

Job Ticket #: 56769 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.19 @ 18:02:35

Murfin Drilling
34 12s 33 Logan KS
Heier- Racette #1-34
DST # 3
LKC
"K"
2014.03.11



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling
 250 N Water STE 300
 Wichita KS 67202
 ATTN: Tom Funk

34 12s 33 Logan KS
Heier- Racette #1-34
 Job Ticket: 56769 **DST#: 3**
 Test Start: 2014.03.11 @ 08:50:15

GENERAL INFORMATION:

Formation: **LKC "K"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:56:15
 Time Test Ended: 17:32:00
 Interval: **4287.00 ft (KB) To 4310.00 ft (KB) (TVD)**
 Total Depth: 4260.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Robert Zodrow
 Unit No: 65
 Reference Elevations: 3104.00 ft (KB)
 3094.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8846

Inside

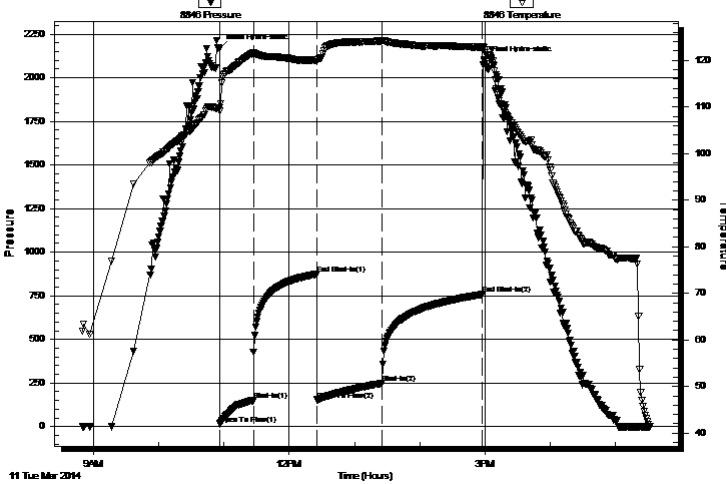
Press@RunDepth: 247.81 psig @ 4287.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.03.11 End Date: 2014.03.11 Last Calib.: 2014.03.11
 Start Time: 08:50:15 End Time: 17:32:00 Time On Btm: 2014.03.11 @ 10:56:00
 Time Off Btm: 2014.03.11 @ 14:59:30

TEST COMMENT: 30-IF- BOB In 20 min
 60-ISI-No Return
 60-FF-BOB In 32 min
 90-FSI-No Return

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2168.61	109.91	Initial Hydro-static
1	16.12	109.12	Open To Flow (1)
31	151.16	121.56	Shut-In(1)
90	874.54	120.04	End Shut-In(1)
90	153.78	119.74	Open To Flow (2)
150	247.81	124.22	Shut-In(2)
242	757.97	122.79	End Shut-In(2)
244	2100.10	122.37	Final Hydro-static

Pressure vs. Time



Recovery

Length (ft)	Description	Volume (bbl)
516.00	msw 23% m 77% w	5.24

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56769

DST#: 3

ATTN: Tom Funk

Test Start: 2014.03.11 @ 08:50:15

Tool Information

Drill Pipe:	Length: 4037.00 ft	Diameter: 3.88 inches	Volume: 59.04 bbl	Tool Weight: 2500.00 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: 238.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 86000.00 lb
			<u>Total Volume: 60.21 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4287.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	44.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4267.00	
Shut In Tool	5.00			4272.00	
Hydraulic tool	5.00			4277.00	
Packer	5.00			4282.00	21.00 Bottom Of Top Packer
Packer	5.00			4287.00	
Recorder	0.00	8846	Inside	4287.00	
Recorder	0.00			4287.00	
Perforations	17.00			4304.00	
Change Over Sub	1.00			4305.00	
Bullnose	5.00			4310.00	23.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56769

DST#: 3

ATTN: Tom Funk

Test Start: 2014.03.11 @ 08:50:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

28000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
516.00	msh 23% _m 77% _w	5.236

Total Length: 516.00 ft Total Volume: 5.236 bbl

Num Fluid Samples: 0

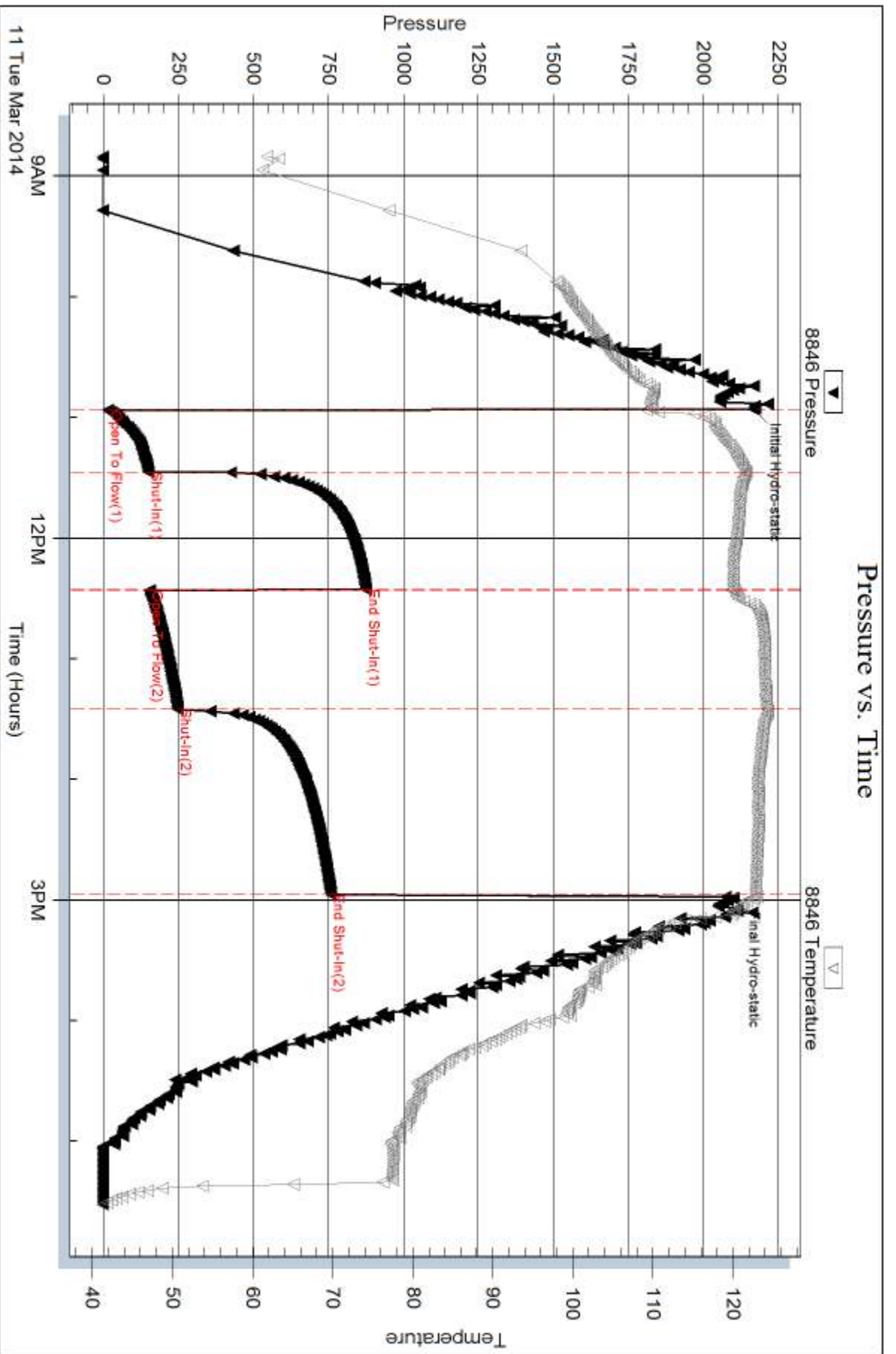
Num Gas Bombs: 0

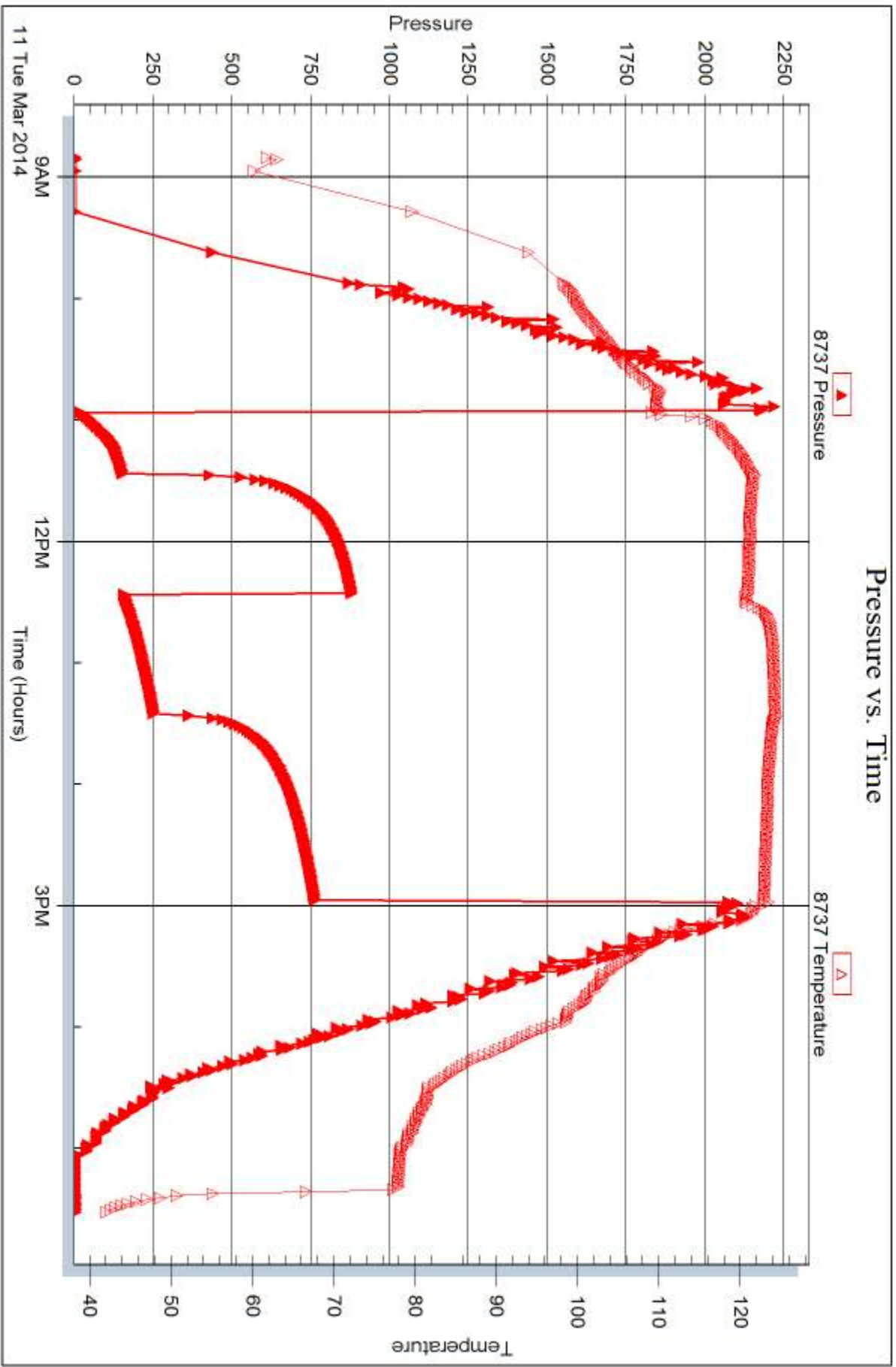
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .41 @ 56deg F = 28000







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling**

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Heier- Racette #1-34

34 12s 33 Logan KS

Start Date: 2014.03.13 @ 15:00:15

End Date: 2014.03.13 @ 22:59:30

Job Ticket #: 56412 DST #: 4

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.03.19 @ 18:02:01



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling
250 N Water STE 300
Wichita KS 67202
ATTN: Tom Funk

34 12s 33 Logan KS
Heier- Racette #1-34
Job Ticket: 56412 **DST#: 4**
Test Start: 2014.03.13 @ 15:00:15

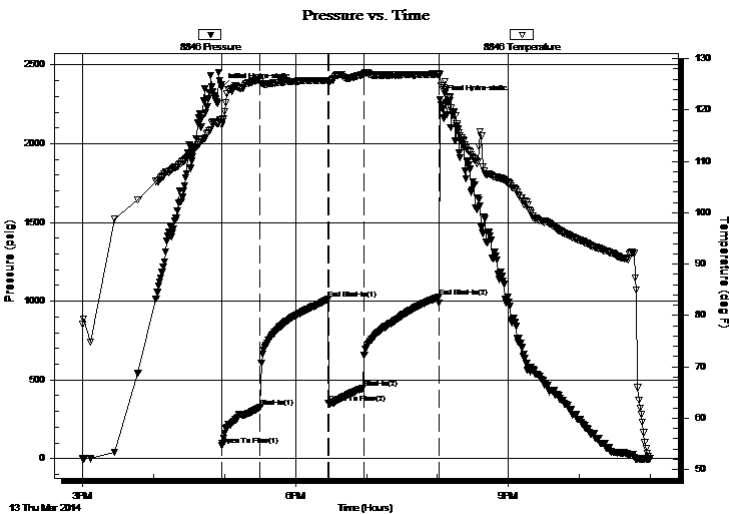
GENERAL INFORMATION:

Formation: **Ft. Scott-Johnson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:58:00
Time Test Ended: 22:59:30
Interval: **4541.00 ft (KB) To 4640.00 ft (KB) (TVD)**
Total Depth: 4541.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65
Reference Elevations: 3104.00 ft (KB)
3094.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8846 **Inside**
Press@RunDepth: 448.58 psig @ 4543.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.03.13 End Date: 2014.03.13 Last Calib.: 2014.03.13
Start Time: 15:00:15 End Time: 22:59:30 Time On Btm: 2014.03.13 @ 16:57:45
Time Off Btm: 2014.03.13 @ 20:02:15

TEST COMMENT: IF:BOB in 4 min.
IS:BOB in 11 min.
FF:BOB in 4 min.
FS:BOB in 13 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2358.01	118.08	Initial Hydro-static
1	85.71	117.06	Open To Flow (1)
33	326.33	125.56	Shut-In(1)
90	1011.23	125.76	End Shut-In(1)
91	350.99	125.64	Open To Flow (2)
120	448.58	126.93	Shut-In(2)
184	1024.34	126.97	End Shut-In(2)
185	2280.93	126.85	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 744 feet	0.00
238.00	mcgo 5%m 40%g 55%o	1.17
620.00	mcgo 10%m 30%g 60%o	9.07
154.00	gcmo 10%g 10%m 80%o	2.25

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling
 250 N Water STE 300
 Wichita KS 67202
 ATTN: Tom Funk

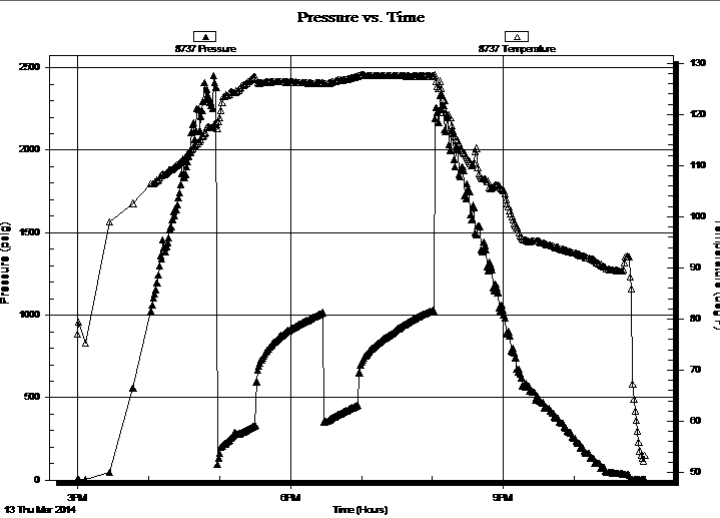
34 12s 33 Logan KS
Heier- Racette #1-34
 Job Ticket: 56412 **DST#: 4**
 Test Start: 2014.03.13 @ 15:00:15

GENERAL INFORMATION:

Formation: **Ft. Scott-Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:58:00
 Time Test Ended: 22:59:30
 Interval: **4541.00 ft (KB) To 4640.00 ft (KB) (TVD)**
 Total Depth: 4541.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 3104.00 ft (KB)
 3094.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8737 Outside
 Press@RunDepth: psig @ 4543.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.03.13 End Date: 2014.03.13 Last Calib.: 2014.03.13
 Start Time: 15:00:15 End Time: 22:59:45 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:BOB in 4 min.
 IS:BOB in 11 min.
 FF:BOB in 4 min.
 FS:BOB in 13 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 744 feet	0.00
238.00	mcgo 5%m 40%g 55%o	1.17
620.00	mcgo 10%m 30%g 60%o	9.07
154.00	gcmo 10%g 10%m 80%o	2.25

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56412

DST#: 4

ATTN: Tom Funk

Test Start: 2014.03.13 @ 15:00:15

Tool Information

Drill Pipe:	Length: 4288.00 ft	Diameter: 3.88 inches	Volume: 62.71 bbl	Tool Weight: 2500.00 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: 238.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 63.88 bbl</u>	Tool Chased 9.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	4541.00 ft			Final 82000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	99.00 ft			
Tool Length:	119.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4522.00	
Shut In Tool	5.00			4527.00	
Hydraulic tool	5.00			4532.00	
Packer	5.00			4537.00	20.00 Bottom Of Top Packer
Packer	4.00			4541.00	
Stubb	1.00			4542.00	
Perforations	1.00			4543.00	
Recorder	0.00	8846	Inside	4543.00	
Recorder	0.00	8737	Outside	4543.00	
Change Over Sub	1.00			4544.00	
Blank Spacing	63.00			4607.00	
Change Over Sub	1.00			4608.00	
Perforations	27.00			4635.00	
Bullnose	5.00			4640.00	99.00 Bottom Packers & Anchor

Total Tool Length: 119.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling

34 12s 33 Logan KS

250 N Water STE 300
Wichita KS 67202

Heier- Racette #1-34

Job Ticket: 56412

DST#: 4

ATTN: Tom Funk

Test Start: 2014.03.13 @ 15:00:15

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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.38 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 8500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	GIP= 744 feet	0.000
238.00	mcgo 5%m 40%g 55%o	1.170
620.00	mcgo 10%m 30%g 60%o	9.067
154.00	gcmo 10%g 10%m 80%o	2.252

Total Length: 1012.00 ft

Total Volume: 12.489 bbl

Num Fluid Samples: 0

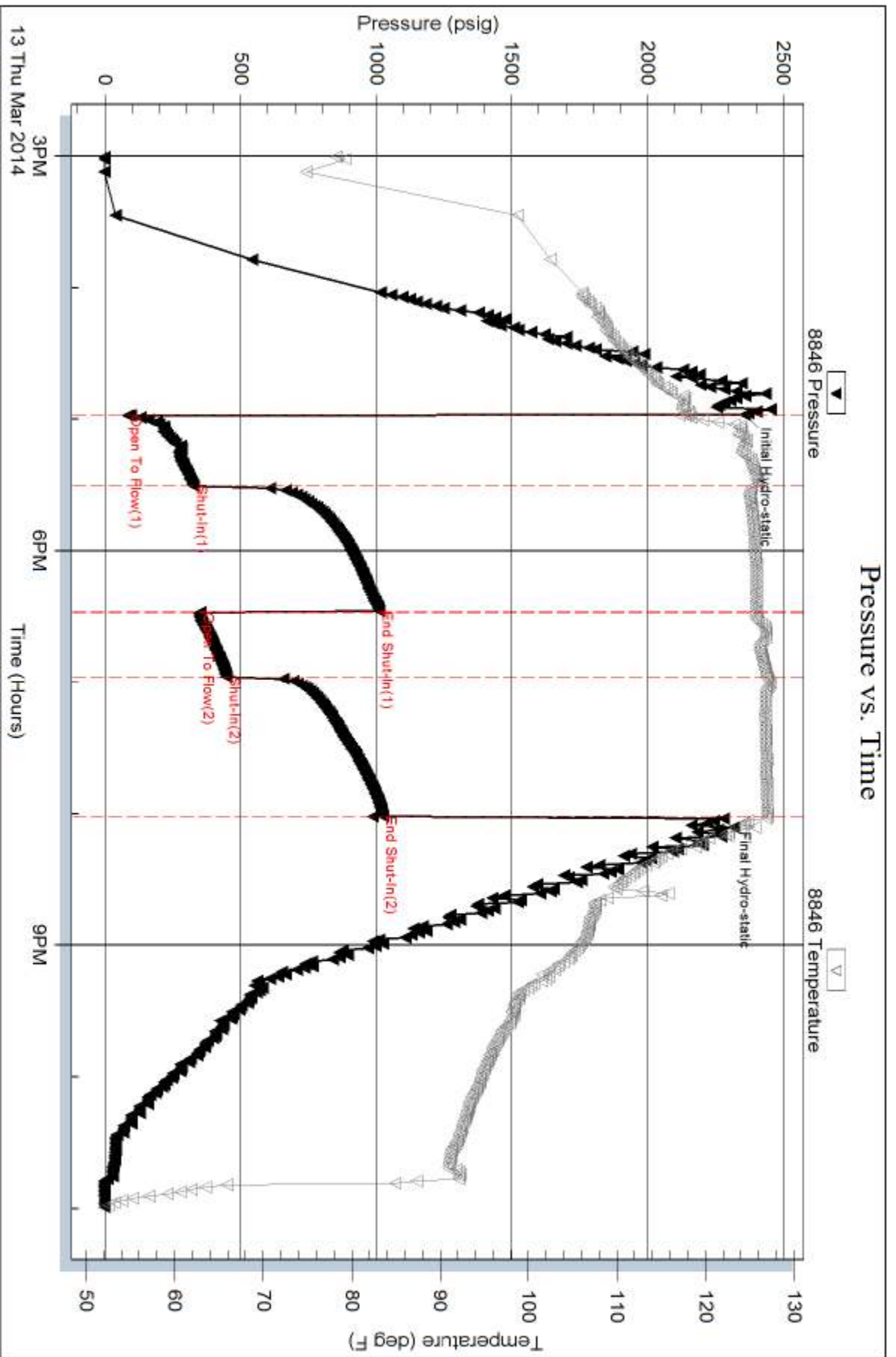
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

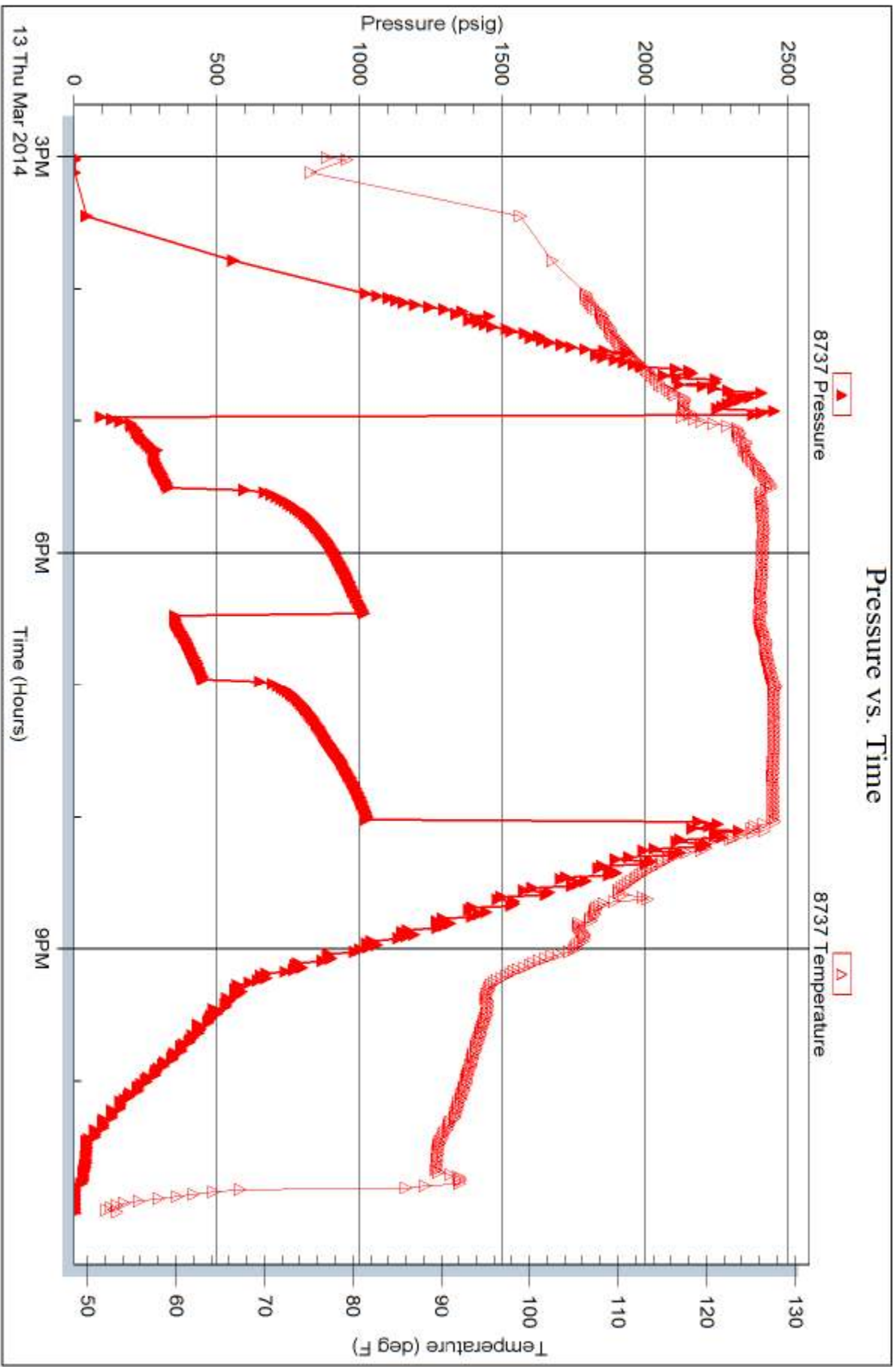


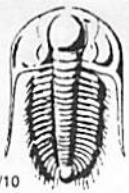
Serial #: 8737

Outside Murfin Drilling

Heier - Racette #1-34

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56767

Well Name & No. Heier-Racette # 1-34 Test No. 1 Date _____
 Company Murfin Drilling Elevation 3104 KB 3094 GL _____
 Address 250 N water STE 300 Wichita KS, 67202
 Co. Rep / Geo. Tom Funk Rig _____
 Location: Sec. 34 Twp. 12 S Rge. 33 Co. Logan State KS.

Interval Tested 4198 - 4260 Zone Tested LKC "H + I"
 Anchor Length 62 Drill Pipe Run 3944 Mud Wt. 9.1
 Top Packer Depth 4194 Drill Collars Run 238 Vis 57
 Bottom Packer Depth 4198 Wt. Pipe Run 0 WL 6.0
 Total Depth 4260 Chlorides 5,500 ppm System LCM 8.0

Blow Description IF - Bob in 22 min
ISE - Blowback built to 1/2" died back to surface blow
FF - Bob in 30 min
FSE - Blowback built to 1/4" died back to surface blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>clean oil</u>	<u>5</u>	<u>95</u>		
<u>216</u>	<u>OCM</u>	<u>3</u>	<u>30</u>	<u>67</u>	
<u>240</u>	<u>90 wcm</u>	<u>3</u>	<u>2</u>	<u>40</u>	<u>55</u>
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 501 BHT 119 Gravity 31 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2096 Test 1250 T-On Location 10:15 pm 3-9
 (B) First Initial Flow 21 Jars _____ T-Started 11:15 pm 3-9
 (C) First Final Flow 145 Safety Joint _____ T-Open 1:15 am 3-10
 (D) Initial Shut-In 1186 Circ Sub _____ T-Pulled 5:15 am 3-10
 (E) Second Initial Flow 152 Hourly Standby _____ T-Out 7:45 am 3-10
 (F) Second Final Flow 244 Mileage 82 RT 127.10
 (G) Final Shut-In 1175 Sampler _____
 (H) Final Hydrostatic 2084 Straddle _____

Initial Open 30 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 60 Extra Packer _____ Ruined Packer _____
 Final Flow 60 Extra Recorder _____
 Final Shut-In 90 Day Standby _____
 Sub Total 1377.10 Accessibility _____
 Total 1377.10 MP/DST Disc't _____

Approved By [Signature] Our Representative Robert Zoolow

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56768

Well Name & No. Heier - Racette # 1-34 Test No. 2 Date 3-10-2014
 Company Murfin Drilling Elevation 3104 KB 3094 GL
 Address 250 N. water st E 300 Wichita KS, 67202
 Co. Rep / Geo. Tom Funk Rig Murfin #22
 Location: Sec. 34 Twp. 12 S Rge. 33 Co. Logan State KS

Interval Tested 4260-4283 Zone Tested LKC "J"
 Anchor Length 23 Drill Pipe Run 4006 Mud Wt. 9.1
 Top Packer Depth 4256 Drill Collars Run 238 Vis 64
 Bottom Packer Depth 4260 Wt. Pipe Run 0 WL 6.8
 Total Depth 4283 Chlorides 7,300 ppm System LCM 7.0

Blow Description IF - Bob In 10 min
ISI - Return built to 2 3/4"
FF - Bob In 15 min
FSI - Return built to 3 3/4"

Rec	Feet of	%gas	%oil	%water	%mud
196	<u>4IP 248'</u>				
<u>196</u>	<u>Clean Oil</u>	<u>5</u>	<u>95</u>		
<u>60</u>	<u>gumco</u>	<u>5</u>	<u>50</u>	<u>15</u>	<u>20</u>
<u>548</u>	<u>MW</u>			<u>92</u>	<u>8</u>

Rec Total 804 BHT 124 Gravity 34 API RW .36 @ 54 °F Chlorides 26,000 ppm

(A) Initial Hydrostatic 2167 Test 1250 T-On Location 2:06 pm 3-10
 (B) First Initial Flow 23 Jars T-Started 2:52 pm 3-10
 (C) First Final Flow 187 Safety Joint T-Open 5:07 pm 3-10
 (D) Initial Shut-In 1231 Circ Sub T-Pulled 9:07 pm 3-10
 (E) Second Initial Flow 192 Hourly Standby T-Out 11:00 AM 3-11
 (F) Second Final Flow 348 Mileage 82 Rt 127.10 Comments _____
 (G) Final Shut-In 1219 Sampler _____
 (H) Final Hydrostatic 2125 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

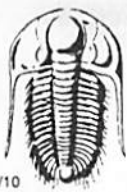
Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 60 Extra Recorder _____ Sub Total 0
 Final Flow 60 Day Standby _____ Total 1377.10
 Final Shut-In 90 Accessibility _____ MP/DST Disc't _____

Sub Total 1377.10

Approved By _____

Our Representative Robert Zedner

TriLOBITE TESTING Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56769

Well Name & No. Heier - Racette #1-34 Test No. 3 Date 3-11-2014
 Company Murfin Drilling Elevation 3104 KB 3094 GL
 Address 250 N Water St E 300 Wichita KS, 67202
 Co. Rep / Geo. Tom Funk Rig Murfin 22
 Location: Sec. 34 Twp. 12 S Rge. 33 Co. Logan State KS

Interval Tested 4287 - 4310 Zone Tested LKC "K"
 Anchor Length 23 Drill Pipe Run 4037 Mud Wt. 9.1
 Top Packer Depth 4283 Drill Collars Run 238 Vis 57
 Bottom Packer Depth 4287 Wt. Pipe Run 0 WL 6.0
 Total Depth 4310 Chlorides 7,300 ppm System LCM 7
 Blow Description IF - Bob In 20 min
ISI - NO Return
FF - Bob In 32 min
FSI - NO Return

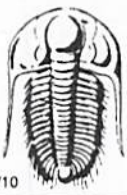
Rec	Feet of	%gas	%oil	%water	%mud
<u>516</u>	<u>MSW</u>			<u>77</u>	<u>23</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total _____ BHT 123 Gravity _____ API RW 41 @ 56 °F Chlorides 28,008 ppm

(A) Initial Hydrostatic 2169 Test 1250 T-On Location 8:30 Am 3-11
 (B) First Initial Flow 16 Jars _____ T-Started 8:50 Am 3-11
 (C) First Final Flow 151 Safety Joint _____ T-Open 10:56 Am 3-11
 (D) Initial Shut-In 874 Circ Sub _____ T-Pulled 12:56 pm 3-11
 (E) Second Initial Flow 154 Hourly Standby _____ T-Out 5:20 pm 3-11
 (F) Second Final Flow 248 Mileage 82 Rt 127.10 Comments _____
 (G) Final Shut-In 758 Sampler _____
 (H) Final Hydrostatic 2100 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 60 Day Standby _____ Total 1377.10
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total 1377.10

Approved By [Signature] Our Representative Robert Zedlow

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56412

Well Name & No. Heier Racette 1-34 Test No. 4 Date 3-13-14
 Company Martin Drilling Elevation 3104 KB 3094 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Martin 22
 Location: Sec. 34 Twp. 12S Rge. 3E Co. Logan State KS

Interval Tested 4541-4640 Zone Tested Fort Scott - Johnson
 Anchor Length 99 Drill Pipe Run 4288 Mud Wt. 9.2
 Top Packer Depth 4536 Drill Collars Run 238 Vis 55
 Bottom Packer Depth 4541 Wt. Pipe Run Ø WL 8.4
 Total Depth 4640 Chlorides 800 ppm System LCM 7
 Blow Description IF: BOB in 4 Min
IS: BOB in 11 Min
FF: BOB in 4 Min
FS: BOB in 13 Min

Rec	Feet of	%gas	%oil	%water	%mud
<u>154</u>	<u>gcmo</u>	<u>10</u>	<u>80</u>	<u>10</u>	<u>10</u>
<u>20</u>	<u>mcgo</u>	<u>30</u>	<u>60</u>	<u>10</u>	<u>10</u>
<u>238</u>	<u>mcgo</u>	<u>40</u>	<u>55</u>	<u>5</u>	<u>10</u>
<u>Ø</u>	<u>GIP = 744'</u>	<u>100</u>			
		%gas	%oil	%water	%mud

Rec Total 1012 BHT 126 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2358 Test 1250 T-On Location 14:43
 (B) First Initial Flow 85 Jars — T-Started 15:00
 (C) First Final Flow 326 Safety Joint — T-Open 16:57
 (D) Initial Shut-In 1011 Circ Sub NC T-Pulled 19:57
 (E) Second Initial Flow 350 Hourly Standby — T-Out —
 (F) Second Final Flow 448 Mileage 100 RT 127.10 Comments Day Standby
 (G) Final Shut-In 1024 Sampler — Between Robert +
 (H) Final Hydrostatic 2280 Straddle — Mike?
 Ruined Shale Packer —
 Shale Packer —
 Extra Packer —
 Extra Recorder —
 Day Standby 1d 21.25h
 Accessibility —
 Sub Total 1377.10

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60

Sub Total 708.33
 Total 2085.43
 MP/DST Disc't —

Approved By [Signature] Our Representative [Signature]

Triobite Testing Inc. shall not be liable for damaged or any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

Thomas J. Funk
Petroleum Geologist

Geologists Report
Drilling Time and Sample Log

OPERATOR **Murfin Drilling Co., Inc**

LEASE **Heier-Racette** WELL NO #1-34
FIELD **Wildcat** API **45-09-21257**
LOCATION **1900' FSL & 660' FEL**
SEC. **34** TWP **12S** RGE **33W**
COUNTY **Logan** STATE **Kansas**

ELEVATION
KB **3105'**
DF
GL **3094'**
Measurements Are All
From **KB**

CASING RECORD
SURFACE
8 5/8" at 225' KB w/1655x
RTD 4800'

CONTRACTOR **Murfin Drilling Co** Reg #22
COMM 3/5/2014 COMP 3/15/14
RTD 4800' LOG TD 4800'

SAMPLES SAVED FROM 3680' TO 4800'
DRILLING TIME KEPT FROM 3680' TO 4800'
SAMPLES EXAMINED FROM 3680' TO 4800'
GEOLOGICAL SUPERVISION FROM 3760' TO 4800'
MUD UP 3400' TYPE MUD **Chemical**

FORMATION LOG SAMPLE
TOP DATUM TOP DATUM
Anhydrite 2835 (+320) 2894 (+321)
Barhydrite 2806 (+489) 2806 (+489)
Toppekka 3804 (+699) 3800 (+695)
Heaberer Sh 4020 (-915) 4016 (-911)
Lansing 4063 (-958) 4060 (-955)
Maurice Creek 4207 (-1102) 4203 (-1098)
Start Sh 4297 (-1187) 4294 (-1184)
Marmaton 4395 (-1233) 4394 (-1233)
Pawnee 4497 (-1382) 4493 (-1388)
Cherokee Sh 4580 (-1475) 4575 (-1470)
Johnson Zone 4623 (-1518) 4619 (-1514)
Mississippian 4700 (-1595) 4695 (-1590)

ELECTRICAL SURVEYS
Pioneer Energy Services
DIL
MEL
DUOP
BHCS

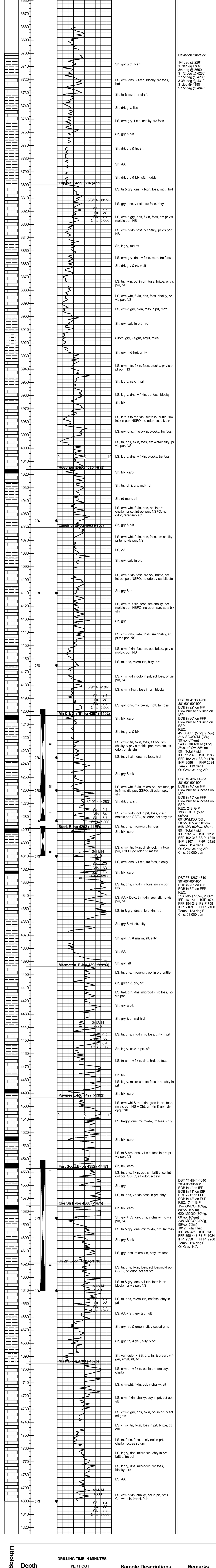
Date	Progress	NO. Size	Make	Tag	Bit Record	Out	Feet	Hours
3/5/14	Spud	1	12 1/4" HTC	RR	226		226	3
3/6/14		500'						
3/7/14		2840'	7 7/8" HTC	DI-5096F	2650		3424	39
3/8/14		3725'	7 7/8" HTC	GX20c	4280		610	33
3/9/14		4120'	7 7/8" HTC	GX20c	4800		540	54

Remarks And Recommendations:
Based upon log analysis, DST recovery, and sample examination, it was decided to set production casing on the #1-34 Heier-Racette.

Thomas Funk
Petroleum Geologist

LEGEND

Anhydrite Salt Sandstone Shale Carb Shale Limestone Ool Limestone Chert Dolomite



COMPANY **Murfin Drilling Co., Inc** ELEVATION **3105'** KB
LEASE **#1-34 Heier-Racette**
LOCATION **1900' FSL & 660' FEL** Sec **34** TWP **12S** RGE **33W**
COUNTY **Logan** STATE **Kansas**



PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

not Prod-LH

Invoice Number: 141774
Invoice Date: Mar 5, 2014
Page: 1

Bill To:
Murfin Drlg. Co., Inc. 250 N. Water STE #300 Wichita, KS 67202

Customer ID	Field Ticket #	Payment Terms	
Murfin	62575	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Mar 5, 2014	4/4/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Heier-Ricette #1-34		
185.00	CEMENT MATERIALS	Class A Common	17.90	3,311.50
7.00	CEMENT MATERIALS	Chloride	64.00	448.00
194.34	CEMENT SERVICE	Cubic Feet Charge	2.48	481.96
181.01	CEMENT SERVICE	Ton Mileage Charge	2.60	470.63
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
20.00	CEMENT SERVICE	Pump Truck Mileage	7.70	154.00
1.00	CEMENT SERVICE	Manifold Rental	275.00	275.00
20.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	88.00
1.00	CEMENT SUPERVISOR	Alan Ryan		
1.00	EQUIPMENT OPERATOR	Kevin Ryan		

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 2,359.47 *35%*

ONLY IF PAID ON OR BEFORE

Mar 30, 2014

Subtotal	6,741.34
Sales Tax	287.60
Total Invoice Amount	7,028.94
Payment/Credit Applied	
TOTAL	7,028.94

OR

4669.47



P. O. Box 466
Ness City, KS 67560
Off: 785-798-2300



Invoice

DATE	INVOICE #
3/15/2014	25460

BILL TO
Murfin Drilling Co Inc P. O. Box 130 Hill City, KS 67642-0130

- Acidizing
- Cement
- Tool Rental

IC 103
JN TWM

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1-34	Heier-Racette	Logan	Company Tools	Oil	Development	Cement 5-1/2" LongString	Wayne
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				80	Miles	6.00	480.00
578D-L	Pump Charge - Long String - 4800 Feet				1	Job	1,500.00	1,500.00
221	Liquid KCL (Clayfix)				4	Gallon(s)	25.00	100.00T
280	Flocheck 21				500	Gallon(s)	3.00	1,500.00T
402-5	5 1/2" Centralizer				15	Each	70.00	1,050.00T
403-5	5 1/2" Cement Basket				2	Each	300.00	600.00T
404-5	5 1/2" Port Collar - Top Joint #53 - 2610 Feet				1	Each	2,900.00	2,900.00T
406-5	5 1/2" Latch Down Plug & Baffle				1	Each	275.00	275.00T
407-5	5 1/2" Insert Float Shoe With Auto Fill				1	Each	375.00	375.00T
413-5	5 1/2" Roto Wall Scratcher				30	Each	40.00	1,200.00T
419-5	5 1/2" Rotating Head Rental				1	Each	200.00	200.00T
325	Standard Cement				225	Sacks	14.50	3,262.50T
276	Flocele				56	Lb(s)	2.50	140.00T
283	Salt				1,150	Lb(s)	0.20	230.00T
284	Calseal				11	Sack(s)	35.00	385.00T
285	CFR-1				160	Lb(s)	4.50	720.00T
290	D-Air				3	Gallon(s)	42.00	126.00T
581D	Service Charge Cement				225	Sacks	2.00	450.00
583D	Drayage				944.64	Ton Miles	1.00	944.64
	Subtotal							16,438.14
	Sales Tax Logan County						7.65%	999.36
We Appreciate Your Business!						Total		\$17,437.50



CHARGE TO: MURKIN DALES Co. Inc
 ADDRESS _____
 CITY, STATE, ZIP CODE _____

TICKET 25460

PAGE 1 OF 2

SERVICE LOCATIONS
 1. Ness City, KS
 2. _____
 3. _____
 4. _____

WELL PROJECT NO. _____
 LEASE HESTER - PACETTE
 COUNTY/PARISH LOGAN
 STATE KS
 CITY _____

TICKET TYPE 1-314
 CONTRACTOR Co Tools
 RIG NAME/NO. _____
 SHIPPED VIA CT
 DELIVERED TO Logan

WELL TYPE Oil
 WELL CATEGORY Development
 JOB PURPOSE 5 1/2" LOGGING
 WELL PERMIT NO. _____

WELL LOCATION Oakley, KS - 5/6000 B.W. 1/20

DATE 3-15-14
 ORDER NO. _____
 OWNER SAME

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
\$75					MILEAGE # 114	80	MT			6.00	480.00
\$78					PUMP CHARGE	1	JOB	4800	FT	1500.00	1500.00
221					LEASER KEY	4	EA			25.00	100.00
280					FISHECK-21	500	GW			3.00	1500.00
402					CEMENT BAYERS	15	EA	5 1/2"		70.00	1050.00
403					CEMENT BAYERS	2	EA			300.00	600.00
404					PORT COVER FOOT # 53	1	EA	2610	FT	2900.00	2900.00
406					LATCH DOWN RIG - BATTLE	1	EA			275.00	275.00
407					TASSER HOIST SHOE W/AUTO FILL	1	EA			375.00	375.00
413					ROTO LEAK SUBCHARGES	30	EA			40.00	1200.00
419					ROTATING HEAD RENTAL	1	MOB			200.00	200.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED 3-15-14 TIME SIGNED 0700
 SIGNATURE Clode King

REMIT PAYMENT TO:
 SWIFT SERVICES, INC.
 P.O. BOX 466
 NESS CITY, KS 67560
 785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	AMOUNT
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				#1	10180.00
WE UNDERSTOOD AND MET YOUR NEEDS?					
OUR SERVICE WAS PERFORMED WITHOUT DELAY?				#2	6258.14
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?					
ARE YOU SATISFIED WITH OUR SERVICE?					
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND				TOTAL	17,437.50

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR Dave Wilson

APPROVAL _____

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 3-15-14 PAGE NO. 1

CUSTOMER: MURPHY DRILLING CO. WELL NO. 1-34 LEASE: HETER - PACETTE JOB TYPE: 5 1/2" LONGSTRING TICKET NO. 25460

CHART NO.	TIME	RATE (BPM)	VOLUME (BBLS)(GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0600							ON LOCATION
	0830							START 5 1/2" CASING IN WELL
								TD - 4800' SET = 4795'
								TP - 4797' 5 1/2" # 15.5
								ST - 22'
								CENTRALIZERS - 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 17, 52
								CMT BSKTS - 52, 53
								PORT COUNT = 2610 TOP JT # 53
	1200							DROP BALL - CIRCULATE ROTATE
	1310	6	15		✓		500	PUMP KCL SPACER
	1313	6	12		✓		500	PUMP 500 GAL FLOCHECK-21
	1315	6	5		✓		500	PUMP KCL SPACER
	1320		7-5					PLUG RH (30 SKS) MH (20 SKS)
	1330	4	42		✓		200	MIX CEMENT - 175 SKS EA-2 = 15.5 PPG
	1342							WASH OUT PUMP + LEWES
	1342							RELEASE LATCH DOWN PLUG
	1347	7	0		✓			DISPLACE PLUG - 1ST TANK KCL WATER
		7	110				850	SHUT OFF ROTATING
	1405	6 1/2	113.6				1500	PLUG DOWN - PSE UP LATCH IN PLUG
	1410						OK	RELEASE PSE - HELD WASH TRUCK
	1500							JOB COMPLETE

THANK YOU
WAYNE, DUSTY, JOHN

Heier-Racette #1-34

Daily Drilling Report

Page Two

- 3/12/14 Depth 4396'. Cut 86'. DT: None. CT: 13 hrs. Dev.: 3¾° @ 4310', 3½° @ 4384'. **DST #3 4287-4310 (LKC K):** 30-60-60-90. IF: BOB in 20mins. FF: BOB in 32 mins. Rec.: 516'MSW (23%M, 77%W). HP: 2169-2100. FP: 16/151, 154/248. SIP: 875-758. BHT: 123°.
- 3/13/14 Depth 4605'. Cut 209'. DT: None. CT: ¾ hr. Dev.: MR @ 4457', 3° @ 4490'. **Fort Scott:** SSFO, pr por. **Johnson Zn:** sme fos por, SSFO, sli odor. **DST #4 4541-4640 (Ft sct-Jns Zn):**
- 3/14/14 Depth 4705'. Cut 100'. DT: None. CT: 15½ hrs. Dev.: 2½° @ 4640'. **DST #4 4541-4640 (Ft sct-Jns Zn):** 30-60-30-60. IF: BOB in 4mins. ISI: BOB in 22mins. FF: BOB in 4mins. FSI: BOB in 13mins. Rec.: 744'GIP. 238'MCGO (5%M, 40%G, 55%O), 620'MCGO (10%M, 30%G, 60%O), 154'GCMO (10%G, 10%M, 80%O). HP: 2358-2281. FP: 86/326, 351/449. SIP: 1011-1024. BHT: 127°. Plan to TD @ 4800'.
- 3/15/14 RTD: 4800'. Cut: 95'. DT: None. CT: 16 hrs. Dev.: 2¾° @ 4800'. HC @ 3:00PM 3/14. Pioneer logged 6:45PM – 11:30PM 3/14. LTD: 4806'.
- 3/16/14 RTD: 4800'. CT: 11hrs. PC @ 2608'. Ran 115jts of 5 ½" prod csg, set @ 4795'. Swift cmt w/175sxs of EA-2. PD @ 2:00PM 3/15. 30sxs RH, 20sxs MH. RR @ 6:00PM 3/15.

Heier-Racette #1-34 1900' FSL 660' FEL Sec. 34-T12S-R33W 3105' KB							Ahrens #2 1320' FNL 1320' FEL Sec. 33-T12S-R33W 3138' KB	
Formation	SampleTops	Datum	Ref	Log Tops	Datum	Ref	Log Tops	Datum
Anhydrite	2584	+521	-11	2585	+520	-12	2606	+532
B/Anhydrite	2606	+499	-10	2606	+499	-10	2629	+509
Topeka	3800	-695	-14	3804	-699	-19	3819	-681
Heebner	4016	-911	-3	4020	-915	-7	4046	-908
Lansing	4060	-955	-1	4063	-958	-4	4092	-954
Stark	4289	-1184	+6	4292	-1187	+3	4328	-1190
Marmaton				4411	-1306	+11	4455	-1317
Pawnee	4490	-1385	+9	4497	-1392	+2	4532	-1394
Johnson	4619	-1514	+9	4623	-1518	+5	4661	-1523
Mississippi	4695	-1590	+20	4700	-1595	+15	4748	-1610
RTD	4800						4775	
LTD				4806			4776	