

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1245145  
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
-----------------------------------	-----------------	---

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: \_\_\_\_\_

1245145

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> _____ _____
--	---	---

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Ruda 'C' 1-13
Doc ID	1245145

All Electric Logs Run

DIL
DUCP
MEL
BHCS



**OPERATOR**

Company: Murfin Drilling Company  
 Address: 250 N. Water  
 Suite 300  
 Wichita, KS 67202  
 Contact Geologist: Shauna Gunzelman  
 Contact Phone Nbr: 316-267-3241  
 Well Name: Ruda C #1-13  
 Location: Sec. 13 - T4S - R33W  
 API: 15-153-21099-0000  
 Pool:  
 State: Kansas

Field: Wildcat  
 Country: USA



Scale 1:240 Imperial

Well Name: Ruda C #1-13  
 Surface Location: Sec. 13 - T4S - R33W  
 Bottom Location:  
 API: 15-153-21099-0000  
 License Number: 30606  
 Spud Date: 1/23/2015  
 Region: Rawlins County  
 Drilling Completed: 1/31/2015  
 Surface Coordinates: 330' FSL & 330' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 3005.00ft  
 K.B. Elevation: 3010.00ft  
 Logged Interval: 3600.00ft  
 Total Depth: 4504.00ft  
 Formation: Cherokee  
 Drilling Fluid Type: Chemical/Fresh Water Gel

Time: 4:15 PM  
 Time: 1:50 PM  
 To: 4504.00ft

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude:  
 Latitude:  
 N/S Co-ord: 330' FSL  
 E/W Co-ord: 330' FWL

**LOGGED BY**

***Keith Reavis***  
*Consulting Geologist*

Company: Keith Reavis, Inc.  
 Address: 3420 22nd Street  
 Great Bend, KS 67530

Phone Nbr: 620-617-4091  
 Logged By: KLG #136

Name: Keith Reavis

**CONTRACTOR**

Contractor: Murfin Drilling Company  
 Rig #: 7  
 Rig Type: mud rotary  
 Spud Date: 1/23/2015  
 TD Date: 1/31/2015  
 Rig Release:

Time: 4:15 PM  
 Time: 1:50 PM  
 Time:

### ELEVATIONS

K.B. Elevation: 3010.00ft  
K.B. to Ground: 5.00ft

Ground Elevation: 3005.00ft

### NOTES

Due to negative drill stem testing and electrical log analysis, it was determined that the Ruda C #1-13 be plugged and abandoned as a dry test.

The samples were saved and will be available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully submitted,  
Keith Reavis


## Murfin Drilling Company daily drilling report

DATE	7:00 AM DEPTH	REMARKS
01/26/2015	3581	Geologist Keith Reavis on location @ 250 hrs, 3581 ft, bit trip, out w/PDC in with button, ctch, resume drilling, Topeka, Deer Creek, Lecompton, show in Lecompton warrants test, short trip, TOH w/bit
01/27/2015	3863	TIH w/tools, conduct DST #1, successful test, back in hole w/bit, resume drilling, Oread, Heebner, Toronto, Lansing, show in Toronto and A zone warrants test, TOH w/bit & in w/tools, conducting DST #2
01/28/2015	3954	complete DST #2, TIH w/bit, drill ahead, shows in C and D zones warrant test, TOH w/bit and in with tools, conduct DST #3, successful test, TIH w/bit
01/29/2015	4046	resume drilling, shows in F and G zones warrant test, TOH w/bit, conduct DST #4, successful test, out with tool, in w/bit, resume drilling
01/30/2015	4217	drilling, BKC, Marmaton, Pawnee, show in lower Pawnee warrants test, short trip, TOH w/bit, TIH w/tools, conducting DST #5
01/31/2015	4353	complete DST #5, successful test, TIH w/bit, resume drilling, Cherokee TD @ 4504 ft. 1350 hrs, TOH, conduct logging operations, off loc @ 2220 hrs

## Murfin Drilling Company well comparison sheet

DRILLING WELL					COMPARISON WELL			
Ruda #1-13 330' FSL & 330' FWL Sec 13-T4S-R33W					Murfin - Samson #1-24 330' FNL & 330' FWL Sec 24-T4S-R33W			
3010 KB					3024 KB		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log
Topeka	3721	-711	3721	-711	3730	-706	-5	-5
Deer Creek	3761	-751	3768	-758	3773	-749	-2	-9
Lecompton	3829	-819	3824	-814	3834	-810	-9	-4
Heebner	3891	-881	3888	-878	3896	-872	-9	-6
Lansing	3935	-925	3932	-922	3940	-916	-9	-6
Muncie Creek	4039	-1029	4037	-1027	4044	-1020	-9	-7
Stark Shale	4115	-1105	4112	-1102	4120	-1096	-9	-6
Base KC	4163	-1153	4164	-1154	4167	-1143	-10	-11
Pawnee	4289	-1279	4292	-1282	4291	-1267	-12	-15
Cherokee	4370	-1360	4361	-1351	4368	-1344	-16	-7
Mississippian	np				4522	-1498		
Total Depth	4504	-1494	4504	-1494	4590	-1566	72	72

DST #1

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N Water STE #300 Wichita, KS 67202 ATTN: Keith Reavis	13-43-33W - Rawlins, KS Ruda C #1-13 Job Ticket: 61123      DST#: 1 Test Start: 2015.01.27 @ 02:02:00

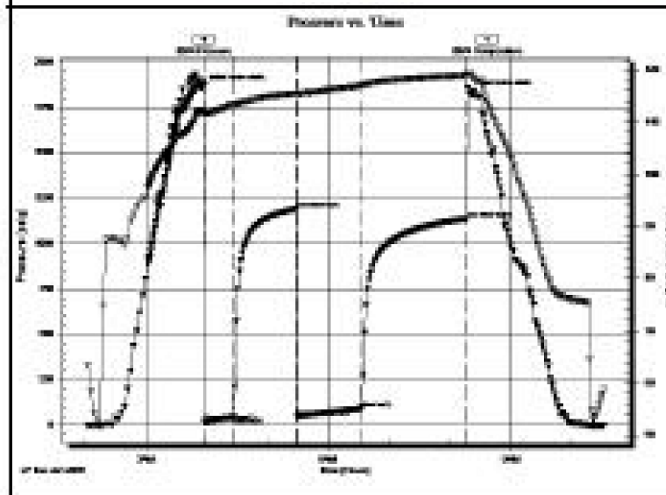
**GENERAL INFORMATION:**

Formation: Lecompton	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock:      ft (KB)	Tester: Kevin Mack
Time Tool Opened: 03:57:40	Unit No: 62
Time Test Ended: 10:31:30	Reference Elevations: 3010.00 ft (KB)
Interval: 3800.00 ft (KB) To 3863.00 ft (KB) (TVD)	3005.00 ft (CF)
Total Depth: 3863.00 ft (KB) (TVD)	KB to GRFCF: 5.00 ft
Hole Diameter: 7.88 inches Hole Condition: Good	

**Serial #: 8874      Inside**

Press@RunDepth: 87.96 psig @ 3801.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2015.01.27      End Date: 2015.01.27	Last Callb.: 2015.01.27
Start Time: 02:03:00      End Time: 10:31:30	Time On Btm: 2015.01.27 @ 03:58:20
	Time Off Btm: 2015.01.27 @ 08:18:30

**TEST COMMENT:** 30 - F- 10" Blow built to 3 1/2"  
 60 - B- No Return  
 60 - FF- Surface Blow Built to 4"  
 90 - FS- Weak Surface Return started at 33 min. Built to 1 1/4"




PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1858.59	111.77	Initial Hydro-static
2	18.34	111.44	Open To Flow (1)
31	43.03	113.01	Shut-in (1)
62	1189.98	115.34	End Shut-in (1)
94	48.44	115.18	Open To Flow (2)
158	87.96	118.84	Shut-in (2)
260	1138.48	118.90	End Shut-in (2)
264	1828.23	119.19	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
62.00	MV 50W 50W	0.30
62.00	VM 20W 80M	0.30
30.00	Mud 100M	0.15

Gas Rates			
	Core (inches)	Pressure (psig)	Gas Rate (scf/D)

DST #2

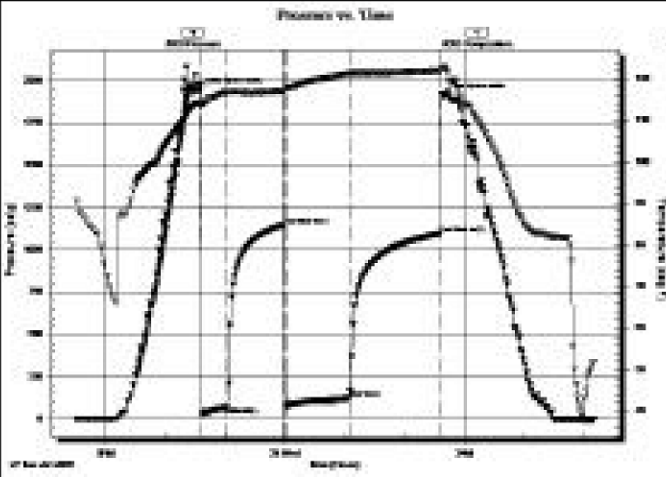
	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N Water STE #300 Wichita, KS 67202 ATTN: Keith Reavis	13-43-33W - Rawlins, KS Ruda C #1-13 Job Ticket: 61124      DST#: 2 Test Start: 2015.01.27 @ 20:30:00

**GENERAL INFORMATION:**

Formation: Toronto - LKC "A"  
 Deviated: No Whipstock ft (KB)  
 Time Tool Opened: 22:38:30  
 Time Test Ended: 05:09:30  
 Interval: 3892.00 ft (KB) To 3954.00 ft (KB) (TVD)  
 Total Depth: 3954.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Kevin Mack  
 Unit No: 82  
 Reference Elevations: 3010.00 ft (KB)  
 3005.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8853** Outside  
 Press@RunDepth: 121.73 psig @ 3893.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.01.27 End Date: 2015.01.28 Last Calib.: 2015.01.28  
 Start Time: 20:31:00 End Time: 05:09:30 Time On Btm: 2015.01.27 @ 22:34:30  
 Time Off Btm: 2015.01.28 @ 02:38:30

**TEST COMMENT:** 30 - IF- 1/2" Blow built to 5"  
 60 - IS- No Return  
 60 - FF- Blow started at 13 min. Built to 5 1/4"  
 90 - FS- No Return



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1039.84	114.10	Initial Hydro-static
2	28.14	113.88	Open To Flow (1)
28	69.14	116.90	Shut-in(1)
85	1147.58	117.10	End Shut-in(1)
86	78.40	117.70	Open To Flow (2)
149	121.73	121.25	Shut-in(2)
241	1095.91	121.89	End Shut-in(2)
244	1010.36	122.85	Final Hydro-static

Length (ft)	Description	Volume (bbl)
62.00	OSMN 40M 50W (oil spots)	0.30
62.00	OSMN 50M 50W (oil spots)	0.30
62.00	OSMN 40W 60M (oil spots)	0.30
30.00	VSOOM 5c 95M	0.41

Flow (inches)	Pressure (psig)	Gas Rate (scf/D)

**DST #3**



**DRILL STEM TEST REPORT**

Murfin Drilling Co., Inc. 13-48-33W - Rawlins, K8  
 250 N Water STE#300 Ruda C #1-13  
 Wichita, KS 67202 Job Ticket: 61125 DST#: 3  
 ATTN: Keith Reavis Test Start: 2015.01.28 @ 14:15:00

**GENERAL INFORMATION:**

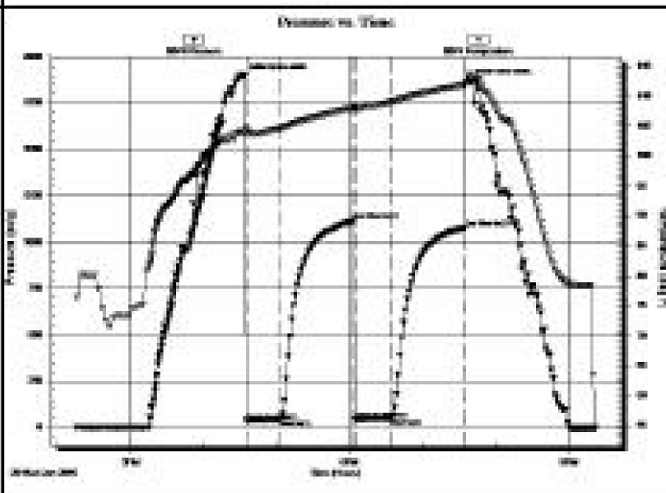
Formation: LKC "B-D"  
 Deviated: No Whipstock ft (KB)  
 Time Tool Opened: 18:35:00  
 Time Test Ended: 21:22:00  
 Interval: 3950.00 ft (KB) To 3990.00 ft (KB) (TVD)  
 Total Depth: 3990.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Real-Time)  
 Tester: Kevin Mack  
 Unit No: 82  
 Reference Elevations: 3010.00 ft (KB)  
 3005.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8874** Inside



Press@RunDepth: 48.51 psig @ 3051.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.01.28 End Date: 2015.01.28 Last Calib.: 2015.01.28  
 Start Time: 14:18:00 End Time: 21:22:00 Time On Btm: 2015.01.28 @ 18:33:30  
 Time Off Btm: 2015.01.28 @ 19:38:00

**TEST COMMENT:** 30 - F- 1 1/4" Blow died in 5 min.  
 60 - BS- No Return  
 30 - FF- No Blow - Flushed tool at 5 min - 1/4" Blow died to surface blow. Surface Blow died at 7 min.  
 60 - FS- No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1890.81	103.83	Initial Hydro-static
2	38.87	104.84	Open To Flow (1)
30	42.81	104.84	Shut-in(1)
90	1114.98	108.00	End Shut-in(1)
91	43.52	107.71	Open To Flow (2)
121	49.51	109.00	Shut-in(2)
181	1077.50	111.85	End Shut-in(2)
185	1883.59	113.66	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
65.00	Mud 100M	0.32

Gas Rates			
	Core (inches)	Pressure (psig)	Gas Rate (scfd)

**DST #4**

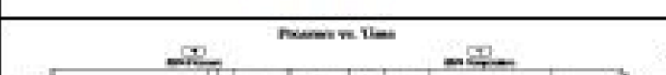


**DRILL STEM TEST REPORT**  
 Murfin Drilling Co., Inc. 13-48-33W - Rawlins, KS  
 250 N Water STE#300 Ruda C #1-13  
 Wichita, KS 67202 Job Ticket: 60877 DST# 4  
 ATTN: Keith Reavis Test Start: 2015.01.29 @ 08:28:00

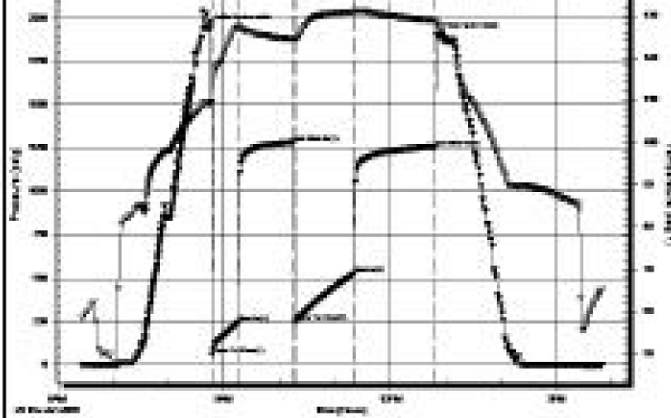
**GENERAL INFORMATION:**  
 Formation: LKC "F-G"  
 Deviated: No Whipstock ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 08:47:30 Tester: Kevin Meek  
 Time Test Ended: 15:49:00 Unit No: 82  
 Interval: 3988.00 ft (KB) To 4046.00 ft (KB) (TVD) Reference Elevations: 3010.00 ft (KB)  
 Total Depth: 4046.00 ft (KB) (TVD) 3005.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GRCP: 5.00 ft

**Serial #: 8874 Inside**  
 Press@RunDepth: 524.00 psig @ 3087.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.01.29 End Date: 2015.01.29 Last Calib.: 2015.01.29  
 Start Time: 08:27:00 End Time: 15:49:00 Time On Btm: 2015.01.29 @ 08:44:30  
 Time Off Btm: 2015.01.29 @ 12:51:00

**TEST COMMENT:** 30 - F- BoB in 12 min.  
 60 - BS- No Return  
 60 - FF- BoB in 10 min.  
 90 - FS- No Return



PRESSURE SUMMARY			
Time	Pressure	Temp	Annotation



(Min.)	(psig)	(deg F)	
0	1043.48	109.08	Initial Hydro-static
3	58.61	109.40	Open To Flow (1)
32	244.86	127.23	Shut-in(1)
62	1285.62	124.41	End Shut-in(1)
93	240.46	124.38	Open To Flow(2)
158	524.90	130.81	Shut-in(2)
245	1256.40	128.77	End Shut-in(2)
247	1900.22	127.81	Final Hydro-static


**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	Mud (heavy) 100M	0.02
371.00	MW 5M 95 W	3.55
252.00	OSMW 10M 90W (oil spots)	3.53
189.00	OSMW 30M 70W (oil spots)	2.85
204.00	OSMW 50M 50W (oil spots)	2.88

**Gas Rates**

	Flow (inches)	Pressure (psig)	Gas Rate (scfd)
--	---------------	-----------------	-----------------

**DST #5**



**TRILOBITE TESTING, INC**

**DRILL STEM TEST REPORT**

Murfin Drilling Co., Inc.

250 N Water STE#300  
Wichita, KS 67202

ATTN: Keith Reavis

**13-43-33W - Rawlins, KS**

**Ruda C #1-13**

Job Ticket: 60878      DST# 5

Test Start: 2015.01.30 @ 19:08:00

**GENERAL INFORMATION:**

Formation: Pawnee  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:15:30  
 Time Test Ended: 02:55:00  
 Interval: 4310.00 ft (KB) To 4341.00 ft (KB) (TVD)  
 Total Depth: 4341.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Initial)  
 Tester: Kevin Mack  
 Unit No: 82  
 Reference Elevations: 3010.00 ft (KB)  
 3005.00 ft (CF)  
 KB to GRVCF: 5.00 ft

**Serial #: 8874**      Inside

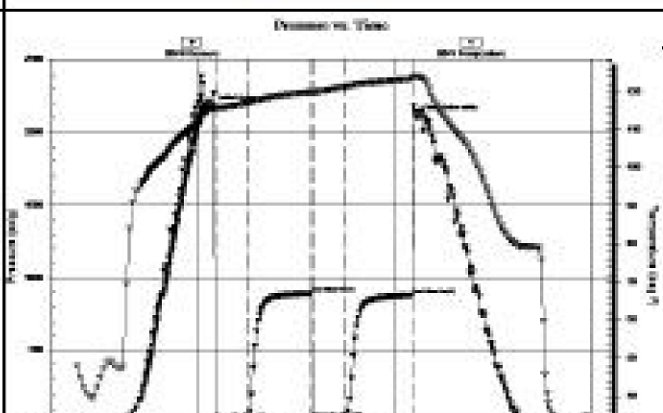
Press@RunDepth: 20.96 psig @ 4311.00 ft (KB)      Capacity: 8000.00 psig

Start Date: 2015.01.30      End Date: 2015.01.31      Last Calls: 2015.01.31

Start Time: 19:09:00      End Time: 02:55:00      Time On Btm: 2015.01.30 @ 21:14:00

Time Off Btm: 2015.01.31 @ 00:21:00

**TEST COMMENT:** 30 - IF- 1/2" Blow built to 1 1/2"  
 60 - IS- No Return  
 30 - FF- Weak Surface Blow started at 5 min. built to 1/2"  
 60 - FS- No Return



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2165.77	115.42	Initial Hydro-static
2	17.38	115.24	Open To Flow (1)
31	22.23	116.94	Shut-in(1)
60	893.10	119.87	End Shut-in(1)
91	24.37	119.48	Open To Flow(2)
121	29.96	121.23	Shut-in(2)
182	879.96	123.32	End Shut-in(2)
187	2099.58	123.98	Final Hydro-static



**Recovery**

Length (ft)	Description	Volume (bar)
20.00	OSM 100M (oil spots)	0.10

**Gas Rates**

Core (inches)	Pressure (psig)	Gas Rate (cc/200)

**ROCK TYPES**

sdy lmst	shale, grn	shale, red	Sltst
Lmst fw<7	shale, gry	Shcol	
Lmst fw>7	Carbon Sh	Ss	

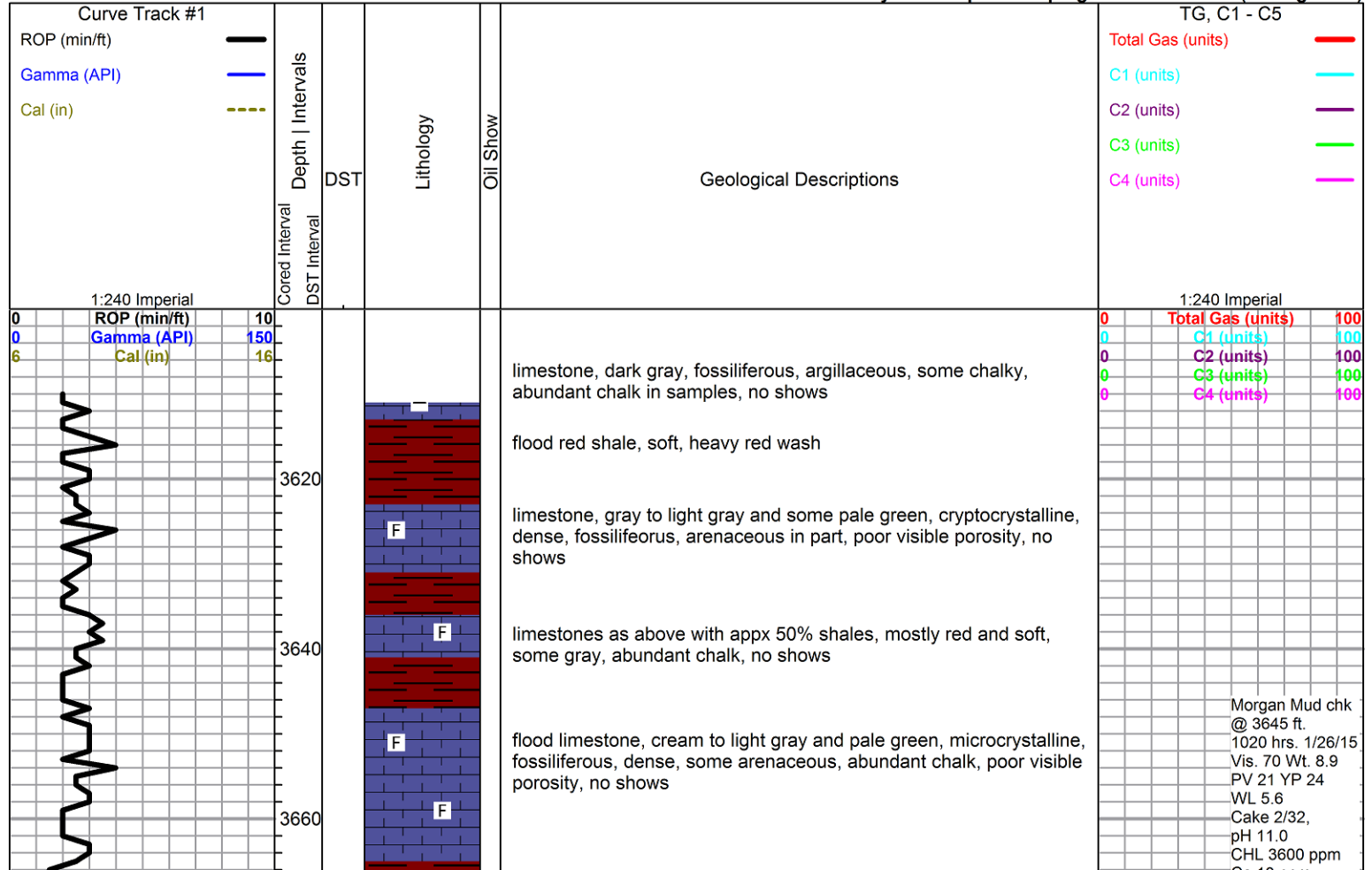
**ACCESSORIES**

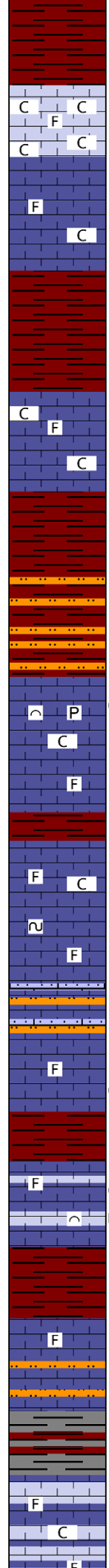
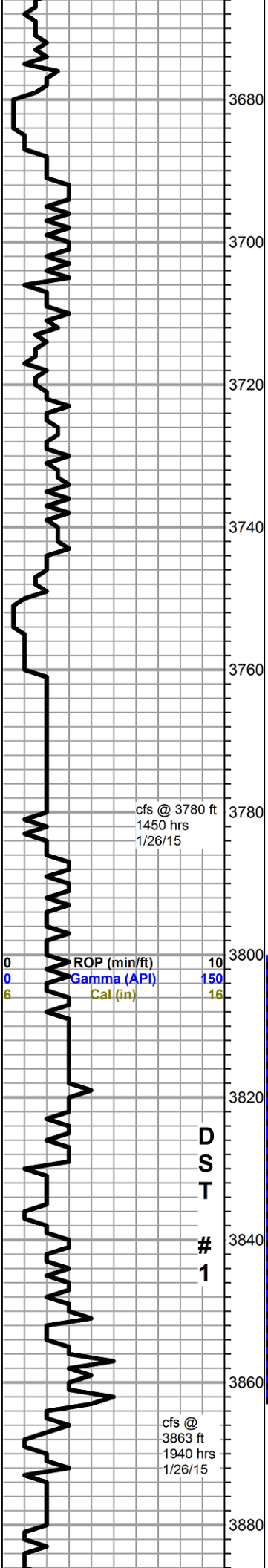
<b>MINERAL</b>	<b>FOSSIL</b>	<b>STRINGER</b>	<b>TEXTURE</b>
- Argillaceous	∩ Bioclastic or Fragments	Limestone	C Chalky
∩ Glauconite	F Fossils < 20%	Sandstone	L Lithogr
P Pyrite	∅ Oolite	Siltstone	

**OTHER SYMBOLS**

<b>Oil Show</b>	<b>DST</b>
● Good Show	DST Int
● Fair Show	DST alt
● Poor Show	Core
○ Spotted or Trace	tail pipe
○ Questionable Stn	
D Dead Oil Stn	
■ Fluorescence	
* Gas	

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)





flood red soft shale, some green, mushy

3700 sample, flood chalk, appx 50% plus, limestone, light gray to cream, microcrystalline, grainy to chalky fossiliferous, poor visible porosity, no shows

grading to pale green limestone, dense fossiliferous, abundant chalk

3720 a.a. influx red shale, still abundant chalk

3730 red shale

**Topeka 3721 -711**  
 limestone, light gray to cream to gray/green, some with maroon cast, microcrystalline, fossiliferous, abundant chalk and red soft silty shale

3760-70 red mushy shale and clay, silty, with light gray/green dirty siltstone, well cemented, abundant silt grains in tray

**Deer Creek 3761 -751**  
 limestone, white to cream, chalky, bioclastic to fossiliferous, some pyritic, some interclast porosity, spotty to fair black staining, clingy tar on specimens, slightly gassy on break, no free oil, no odor, fair even fluorescence, slow milky streaming cut - 30 min sample, influx pale green limestones, marked decrease in show

limestone, white to light gray, microcrystalline, grainy fossiliferous, chalky in part, glauconitic in part, some scattered porosity, no shows

3820 sample, limestone, brown to tan mottled, fossiliferous, chalky, with dense argillaceous limestone, gray, with gray siltstone, no shows

3830 sample, flood soft pink shale, with limestone, white, microcrystalline, fossiliferous, some interclast porosity, black flakey stain, no free oil, good fluorescence, good cut, no odor

**Lecompton 3829 -819**  
 limestone, white to light gray, microcrystalline, fossiliferous to bioclastic, some fair interclast porosity, spotty black to brown stain, bleeding free oil, good even fluorescence, good bright streaming cut, slight odor heating under lamp

3850 sample - flood red shale

3860 sample - limestone, light gray, microcrystalline, abundant secondary calcite crystals, fossiliferous, some intercrystalline and interclast porosity, spotty black stain, show gas on break, slight sheen, spotty fluorescence, slight cut, no odor - 30 min sample grades to limestone, cream with maroon cast, fossiliferous, and arenaceous, chalky, poor visible porosity, no shows, some maroon siltstone

3870 sample, trip trash

3880 sample, red and gray shale

limestone, white to cream and light gray, microcrystalline, fossiliferous, chalky, grainy, some interclast porosity, barren, abundant chalk in samples

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk  
 @ 3863 ft.  
 0730 hrs. 1/27/15  
 Vis. 57 Wt. 9.3  
 PV 18 YP 18  
 WL 6.0  
 Cake 2/32,  
 pH 11.0  
 CHL 3500 ppm  
 Ca 10 ppm  
 Sol 7.1 LCM 2#

**Heebner 3891 -881**

gray and black shale

D few pieces light gray fossiliferous limestone, black dead spotty stain, no free oil or odor

grades to variable shales with mixed limestone stringers

**Toronto 3922 -912**

● limestone, light gray to white, microcrystalline, fossiliferous, partially recrystallized, good solution etching and vugs, mostly dense, heavy sheen with slight to fair show free oil on break, strong odor, slow but bright streaming cut

**Lansing 3935 -925**

○ limestone, mostly white, some cream and gray, cryptocrystalline, fossiliferous, some oolitic, chalky, some scattered porosity, fair to spotty black tarry stain, no show free oil, no odor, light even fluorescence, slight cut fluorescence, some chalky in samples

● limestone, cream, oolitic to micro-oolitic, some recrystallization, good pinpoint and inter-oolite porosity, faint odor, spotty to saturated light stain, heavy sheen in tray and rocks bleeding oil, good bright fluorescence and cut

● limestone, cream to light gray, bioclastic to oolitic (from above?) some recrystallized and cherty, good pinpoint and interclast porosity, no odor, spotty to fair stain, heavy sheen, slight bleeding, yellow to green fluorescence, faint cut, grades to: limestone, mostly white, cryptocrystalline, fossiliferous to lithographic, chalky in part, mostly barren with some show rocks a.a. slight sheen in tray, pale bluish fluorescence

● limestone, gray, cryptocrystalline, fossiliferous, cherty recrystallized, some fair pinpoint to slight solution vug porosity, light interclast staining, heavy sheen, slight show free oil, possible fleeting odor, fair fluorescence, poor to fair cut

○ flood chalk at least 50%, with limestone, light gray to pale gray/green, micro-cryptocrystalline, fossiliferous, dense recrystallized to chalky, some arenaceous, some pinpoint porosity, scattered light stain, few pieces bleeding sheen, few pieces show stringy brown oil on break, fair fluorescence, light cut, no odor

○ chalk and show drop out in 4040 and 4046 samples, 30 min sample few scattered pieces gray fossiliferous, recrystallized, dense, some pinpoint porosity, bleeding sheen, slight stain, poor fluorescence, slow streaming cut with slight halo, no odor

**Muncie Creek 4039 -1029**

● limestone, light gray to white, micro-cryptocrystalline, fossiliferous, chalky, poor visible porosity, barren, flood chalk in samples, heavy chalky wash

D 4110 sample few pieces white chalky limestone, with slight dead black flakey stain, no odor or free oil, mostly shale in samples

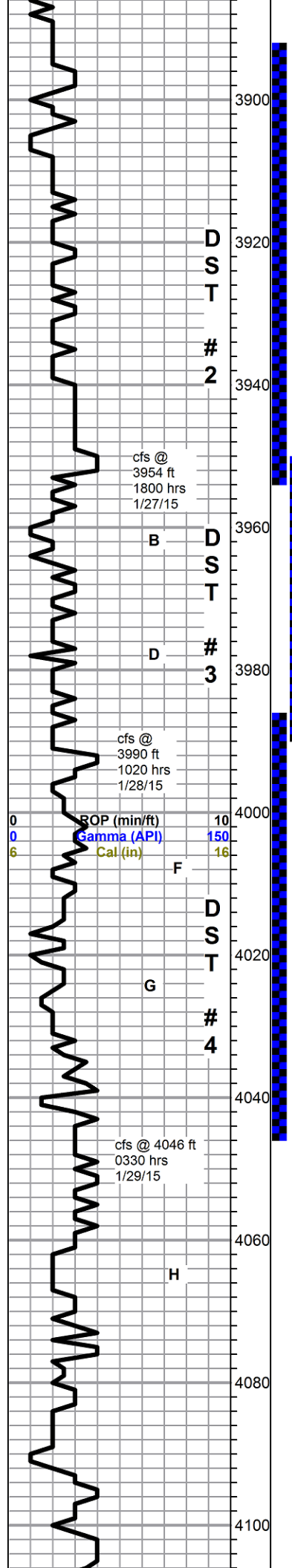
● limestone, white to gray, mixed crystalline, fossiliferous, some lithographic, found 3 small gray pieces with black dead flakey

**samples gassed up mud**

Morgan Mud chk @ 3954 ft.  
0630 hrs. 1/28/15  
Vis. 65 Wt. 9.4  
PV 20 YP 22  
WL 6.4  
Cake 2/32,  
pH 10.5  
CHL 6200 ppm  
Ca 20 ppm  
Sol 7.8 LCM 2#  
DMC \$1621.00  
CMC \$14293.00

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk @ 4046 ft.  
0730 hrs. 1/29/15  
Vis. 53 Wt. 9.1  
PV 17 YP 17  
WL 5.6  
Cake 2/32,  
pH 11.5  
CHL 6000 ppm  
Ca 10 ppm  
Sol 5.7 LCM 3#  
DMC \$1181.00  
CMC \$15474.00



lithographic, round 2 small grainy pieces with black dead flakey stain, no free oil or odor, even fair bluish fluorescence in tray, no cut

**Stark Shale 4115 -1105**

limestone, white to light gray, microcrystalline, chalky fossiliferous to dense, poor visible porosity, barren

limestone, similar to above, no shows

**Base KC 4163 -1153**

mixed red and gray shales with limestone stringers, variable gray to green, mostly cryptocrystalline, dense, fossiliferous, abundant chalk, no shows

shales a.a. abundant red sticky shale, heavy red wash, abun limestones a.a.

limestone a.a.

flood soft gray shale and clay

limestone, gray to cream, green, some brown mottled, mixed crystalline and fossiliferous, poor visible porosity, some soft and arenaceous (weathered), no shows, flood chalky in samples, heavy chalky wash

4280 sample a.a.

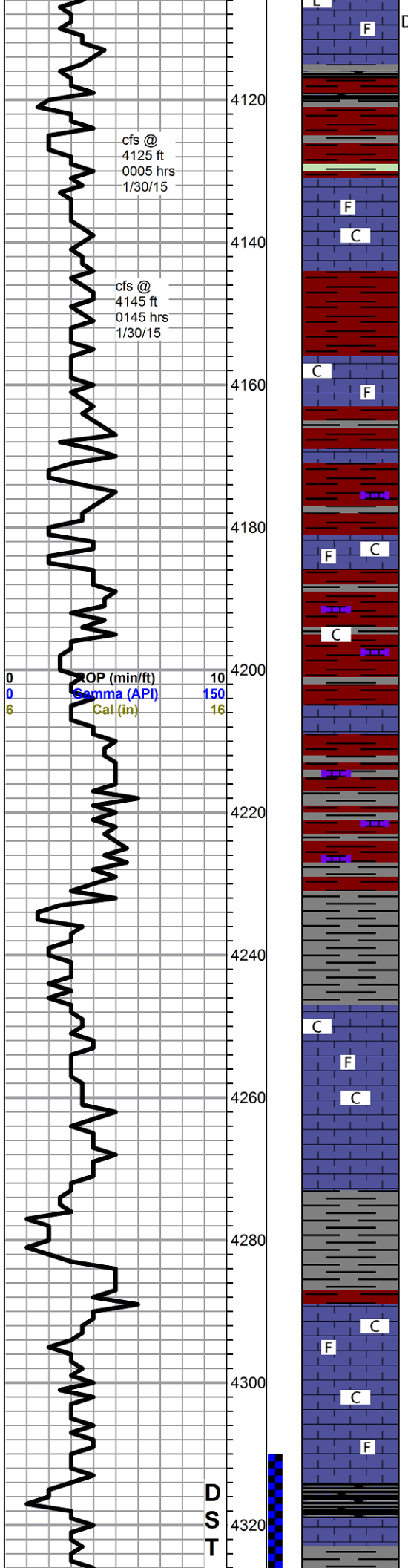
**Pawnee 4289 -1279 Log top 4292 -1282**

4390 sample, mostly soft gray shales and light gray sticky clay, with limestone, gray to light gray, microcrystalline, grainy in part, some secondary calcite, dense, no shows

4300 sample, flood red shales, influx abundant chalk, variable gray fossiliferous limestones - 4310 sample, limestone, cream to light gray, micro-cryptocrystalline, fossiliferous, some grainy, some secondary calcite, still abundant chalk

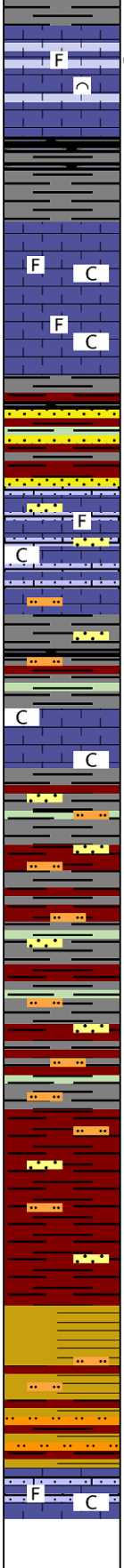
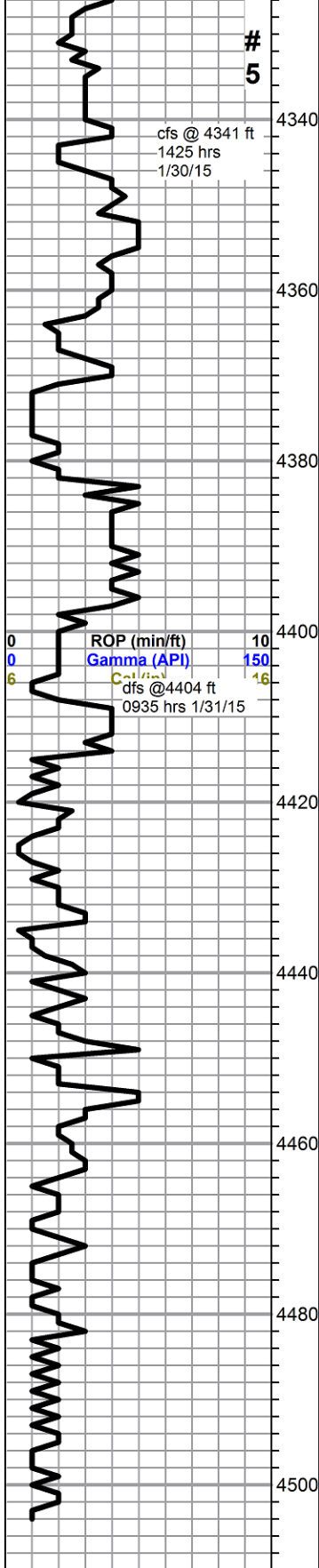
4320 sample limestone a.a. abundant chalk

4330 sample, influx black carbonaceous shale and limestone, brown, mottled, fossiliferous, secondary calcite, slightly weathered, poor visible porosity, no shows, no fluorescence



0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100

Morgan Mud chk @ 4214 ft. 0645 hrs. 1/30/15  
 Vis. 62 Wt. 9.2  
 PV 18 YP 22  
 WL 6.8  
 Cake 2/32,  
 pH 11.5  
 CHL 6500 ppm  
 Ca 20 ppm  
 Sol 6.4 LCM 4#  
 DMC \$950.00  
 CMC \$16424.00



limestone, light gray, cryptocrystalline, bioclastic to fossiliferous, recrystallized, cherty, fair interclast solution porosity, light staining, good sheen and slight show free oil, fair odor in wet cup, slow streaming bright cut with halo

trip trash

black carbonaceous, brown and gray shale

limestone, light gray to cream and tan, mostly cryptocrystalline, fossiliferous, dense, very abundant chalk in samples, no shows

**Cherokee Log Top 4361 -1351**

**Cherokee 4370 -1360**

4390 sample, mixed shales, with limestone cream, microcrystalline, slightly fossiliferous, some sandy, sandstone, quartz, very fine to medium grain, well rounded to angular, fair to poor sorting, well cemented, barren, pyritic, trace orange chert, pyrite in samples

grades to limestone, light gray to cream, microcrystalline, fossiliferous, some large clasts, some sandy to very sandy, chalky in part, abundant chalk, with mixed sandstones a.a., no shows

shales, mixed, red, gray, olive, maroon, abundant loose sand and silt grains in tray, stil abundant limestone from above

limestone, cream to light gray, dense cryptocrystalline, slightly fossiliferous, abundant chalk, abundant shales a.a.

starting 4450 sample, almost all shale a.a., increase in red shales, limestone drops out, some scattered siltstone and mixed sandstone clusters, abundant loose grains in tray, heavy red wash

4470 thru 4590 samples, basically red mush with some scattered green to gray limestones, abundant loose grains bottom of tray

4500 sample, flood soft olive shale and mushy olive clay

30 min cfs sample, red and olive shale and clay, abundant soft white chalky siltstones

60 min sample, limestone, white to light gray, fossiliferous to sandy, chalky in part, trace chert, abundant chalk, no shows

**Rotary TD 4504 ft @ 1350 hrs 1/31/15**

Morgan Mud chk  
@ 4361 ft.  
0730 hrs. 1/31/15  
Vis. 62 Wt. 9.4  
PV 18 YP 21  
WL 7.2  
Cake 2/32,  
pH 10.5  
CHL 6400 ppm  
Ca 40 ppm  
Sol 7.8 LCM 3#  
DMC \$0.00  
CMC \$16424.00

0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Ruda C #1-13**

#### **13-4s-33w Rawlins,KS**

Start Date: 2015.01.27 @ 02:02:00

End Date: 2015.01.27 @ 10:31:30

Job Ticket #: 61123                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.02.03 @ 14:05:42





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.  
 250 N Water STE #300  
 Wichita, KS 67202  
 ATTN: Keith Reavis

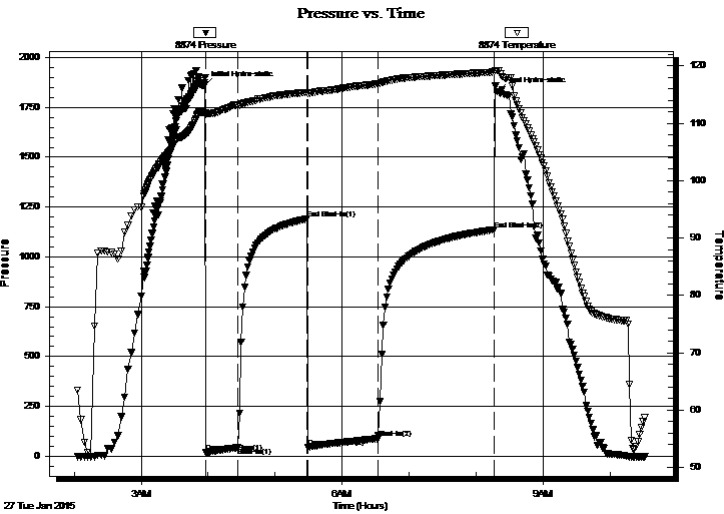
**13-4s-33w Rawlins, KS**  
**Ruda C #1-13**  
 Job Ticket: 61123 **DST#: 1**  
 Test Start: 2015.01.27 @ 02:02:00

## GENERAL INFORMATION:

Formation: **Lecompton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:57:40  
 Time Test Ended: 10:31:30  
 Interval: **3800.00 ft (KB) To 3863.00 ft (KB) (TVD)**  
 Total Depth: 3863.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Kevin Mack  
 Unit No: 82  
 Reference Elevations: 3010.00 ft (KB)  
 3005.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8874 Inside**  
 Press@RunDepth: 87.96 psig @ 3801.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2015.01.27 End Date: 2015.01.27 Last Calib.: 2015.01.27  
 Start Time: 02:03:00 End Time: 10:31:30 Time On Btm: 2015.01.27 @ 03:56:20  
 Time Off Btm: 2015.01.27 @ 08:19:30

**TEST COMMENT:** 30 - IF- 1/2" Blow built to 3 1/2"  
 60 - IS- No Return  
 60 - FF- Surface Blow Built to 4"  
 90 - FS- Weak Surface Return started at 33 min. Built to 1/4"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1858.59	111.77	Initial Hydro-static
2	18.24	111.44	Open To Flow (1)
31	43.03	113.01	Shut-In(1)
92	1189.56	115.34	End Shut-In(1)
94	46.44	115.18	Open To Flow (2)
156	87.96	116.84	Shut-In(2)
260	1136.48	118.90	End Shut-In(2)
264	1828.23	119.19	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	MW 50M 50W	0.30
62.00	WM 20W 80M	0.30
30.00	Mud 100M	0.15

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61123

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2015.01.27 @ 02:02:00

## Tool Information

Drill Pipe:	Length: 3615.00 ft	Diameter: 3.80 inches	Volume: 50.71 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: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 51.63 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3800.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	63.00 ft			
Tool Length:	91.00 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			3773.00	
Shut In Tool	5.00			3778.00	
Hydraulic tool	5.00			3783.00	
Jars	5.00			3788.00	
Safety Joint	3.00			3791.00	
Packer	5.00			3796.00	28.00 Bottom Of Top Packer
Packer	4.00			3800.00	
Stubb	1.00			3801.00	
Recorder	0.00	8653	Outside	3801.00	
Recorder	0.00	8874	Inside	3801.00	
Perforations	23.00			3824.00	
Change Over Sub	1.00			3825.00	
Drill Pipe	32.00			3857.00	
Change Over Sub	1.00			3858.00	
Bullnose	5.00			3863.00	63.00 Bottom Packers & Anchor

**Total Tool Length: 91.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61123

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2015.01.27 @ 02:02:00

## 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:

4900 ppm

Viscosity: 70.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	MW 50M 50W	0.305
62.00	WM 20W 80M	0.305
30.00	Mud 100M	0.148

Total Length: 154.00 ft      Total Volume: 0.758 bbl

Num Fluid Samples: 0

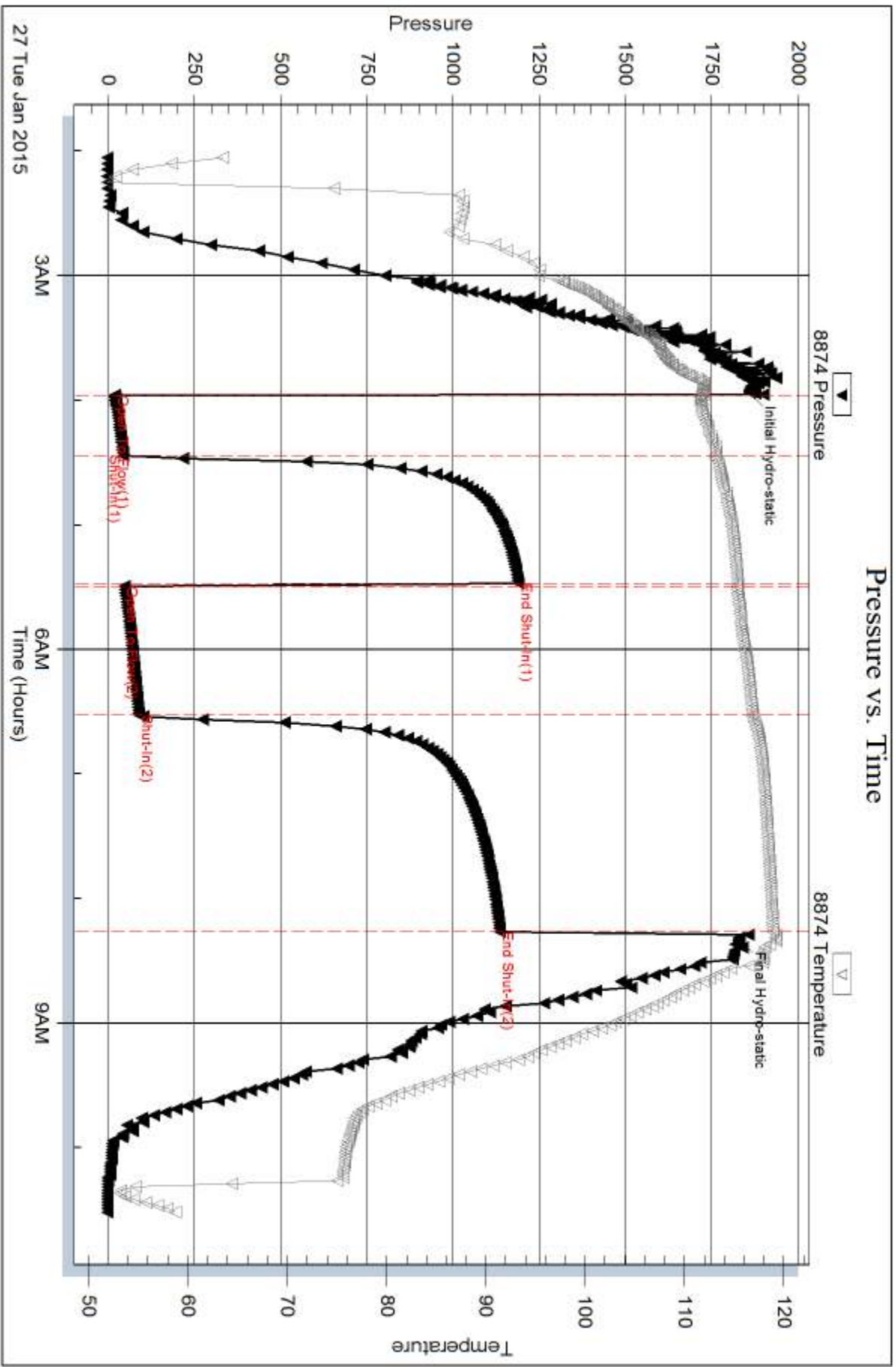
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW 1.58 @ 51 deg = 4,900ppm

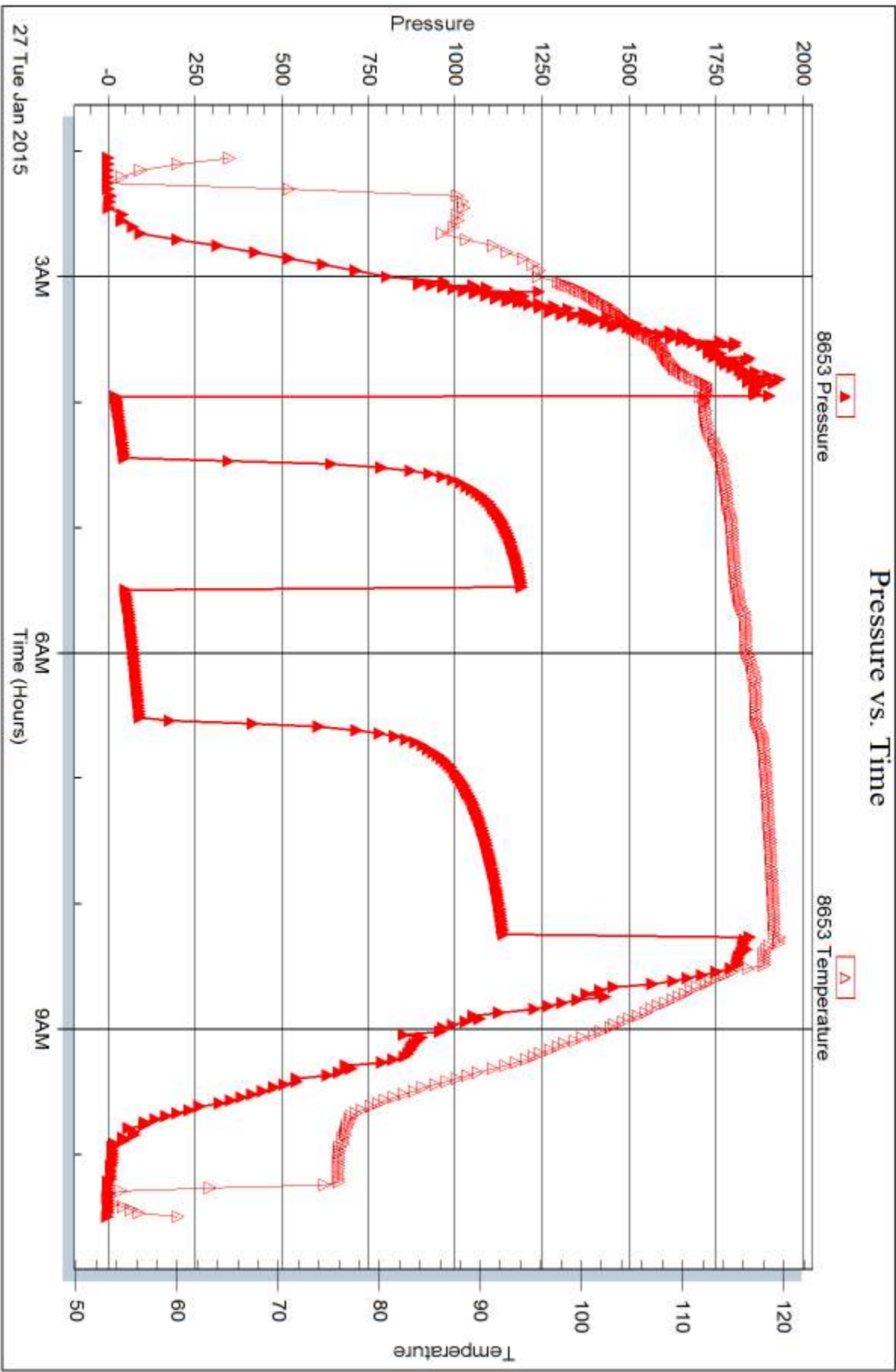


Serial #: 8653

Outside Murfin Drilling Co., Inc.

Ruda C#1-13

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 61123

Printed: 2015.02.03 @ 14:05:43



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Ruda C #1-13**

#### **13-4s-33w Rawlins,KS**

Start Date: 2015.01.27 @ 20:30:00

End Date: 2015.01.28 @ 05:09:30

Job Ticket #: 61124                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.02.03 @ 13:58:54

Murfin Drilling Co., Inc.

13-4s-33w Rawlins,KS

Ruda C #1-13

DST # 2

Toronto - LKC "A"

2015.01.27



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61124

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2015.01.27 @ 20:30:00

## GENERAL INFORMATION:

Formation: **Toronto - LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:36:30

Time Test Ended: 05:09:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 82

**Interval: 3892.00 ft (KB) To 3954.00 ft (KB) (TVD)**

Reference Elevations: 3010.00 ft (KB)

Total Depth: 3954.00 ft (KB) (TVD)

3005.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8653 Outside**

Press@RunDepth: 121.73 psig @ 3893.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.01.27 End Date: 2015.01.28

Last Calib.: 2015.01.28

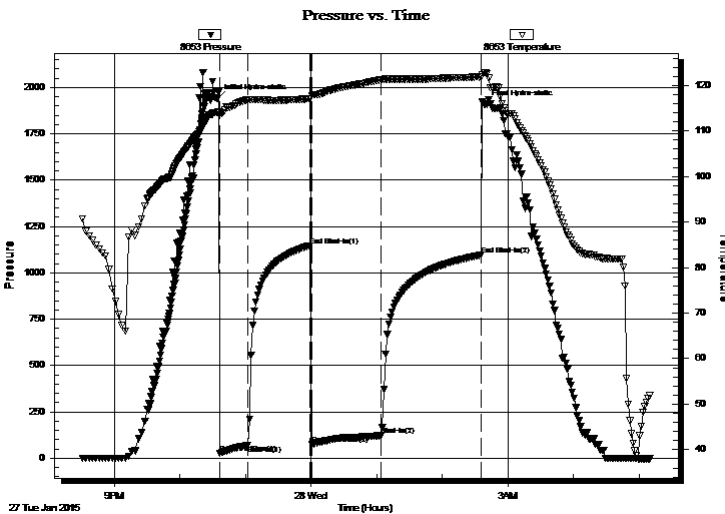
Start Time: 20:31:00 End Time: 05:09:30

Time On Btm: 2015.01.27 @ 22:34:30

Time Off Btm: 2015.01.28 @ 02:38:30

**TEST COMMENT:** 30 - IF- 1/2" Blow built to 5"  
60 - IS- No Return  
60 - FF- Blow started at 13 min. Built to 5 1/4"  
90 - FS- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1939.84	114.10	Initial Hydro-static
2	26.14	113.66	Open To Flow (1)
28	69.14	116.90	Shut-In(1)
85	1147.56	117.10	End Shut-In(1)
86	76.40	117.70	Open To Flow (2)
149	121.73	121.25	Shut-In(2)
241	1095.91	121.89	End Shut-In(2)
244	1910.36	122.85	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	OSMW 40M 60W (oil spots)	0.30
62.00	OSMW 50M 50W (oil spots)	0.30
62.00	OSWM 40W 60M (oil spots)	0.30
30.00	VSOCM 5o 95M	0.41

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61124

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2015.01.27 @ 20:30:00

## Tool Information

Drill Pipe:	Length: 3709.00 ft	Diameter: 3.80 inches	Volume: 52.03 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: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 52.95 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3892.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	90.00 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			3865.00	
Shut In Tool	5.00			3870.00	
Hydraulic tool	5.00			3875.00	
Jars	5.00			3880.00	
Safety Joint	3.00			3883.00	
Packer	5.00			3888.00	28.00 Bottom Of Top Packer
Packer	4.00			3892.00	
Stubb	1.00			3893.00	
Recorder	0.00	8653	Outside	3893.00	
Recorder	0.00	8874	Inside	3893.00	
Perforations	22.00			3915.00	
Change Over Sub	1.00			3916.00	
Drill Pipe	32.00			3948.00	
Change Over Sub	1.00			3949.00	
Bullnose	5.00			3954.00	62.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61124

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2015.01.27 @ 20:30:00

## 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:

40000 ppm

Viscosity: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
62.00	OSMW 40M 60W (oil spots)	0.305
62.00	OSMW 50M 50W (oil spots)	0.305
62.00	OSWM 40W 60M (oil spots)	0.305
30.00	VSOCM 5o 95M	0.412

Total Length: 216.00 ft      Total Volume: 1.327 bbl

Num Fluid Samples: 0

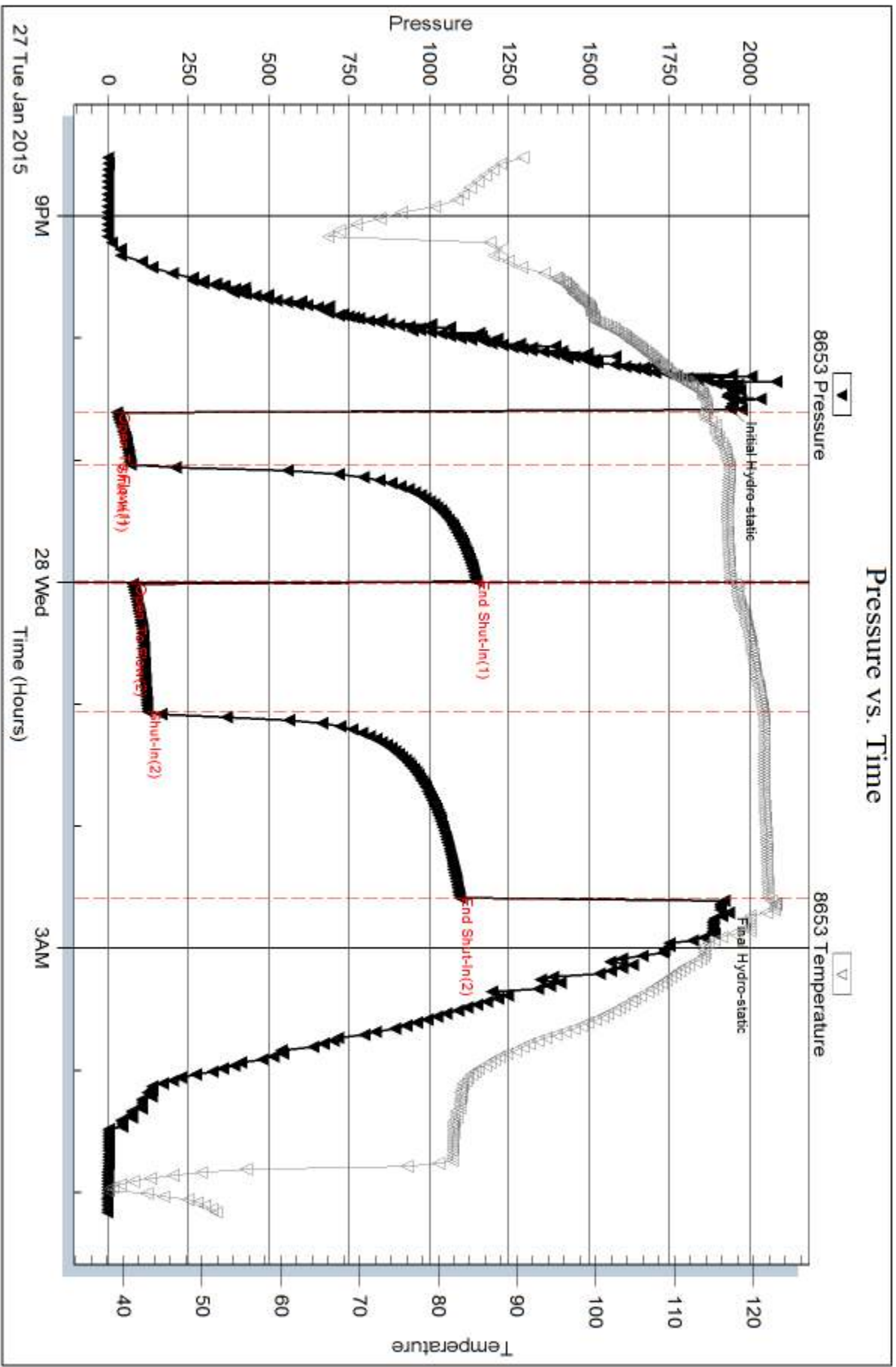
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw = .18 @ 70 deg = 40,000ppm



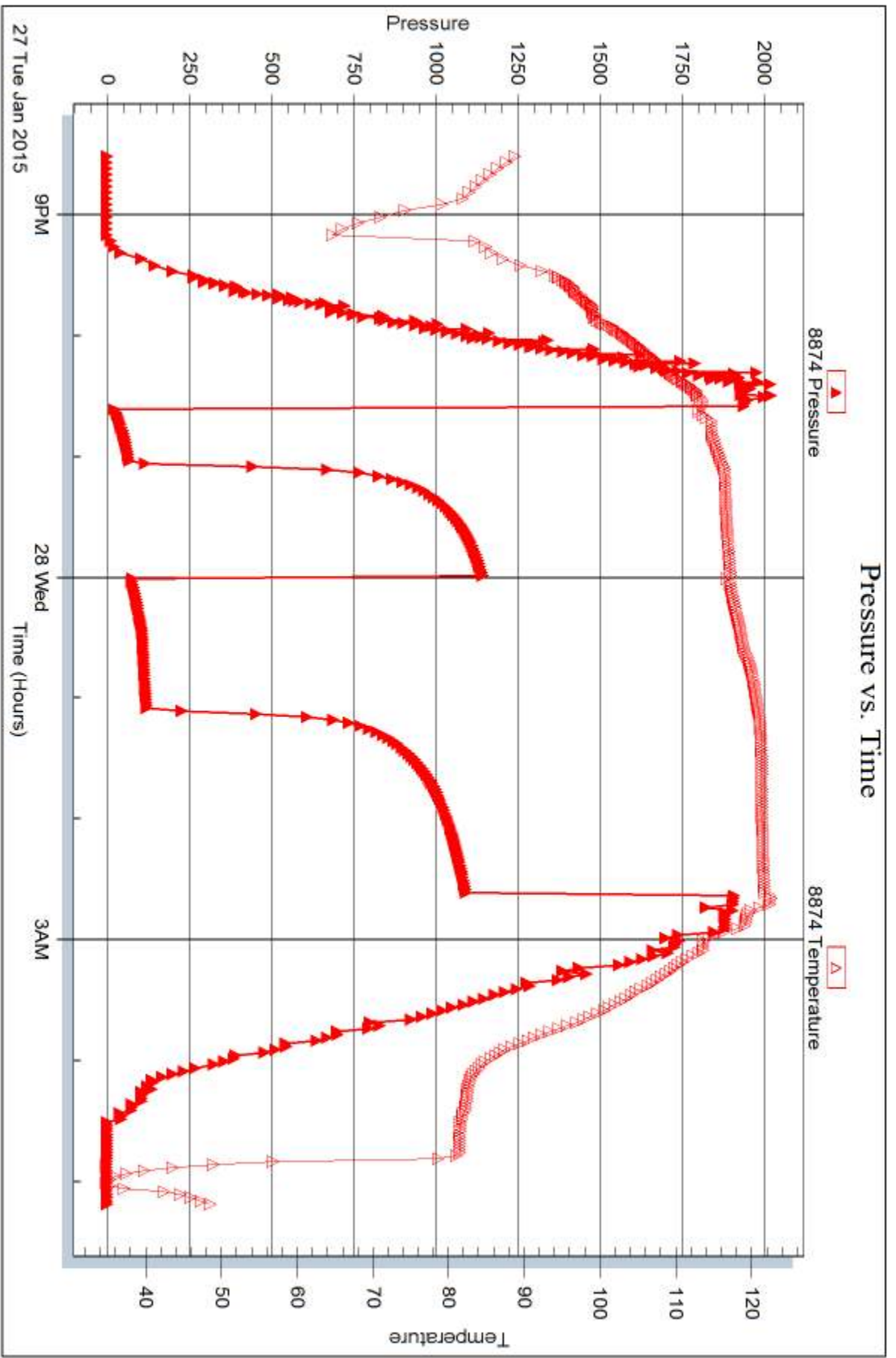
Serial #: 8874

Inside

Murfin Drilling Co., Inc.

Ruda C#1-13

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 61124

Printed: 2015.02.03 @ 13:58:55



## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Ruda C #1-13**

#### **13-4s-33w Rawlins,KS**

Start Date: 2015.01.28 @ 14:15:00

End Date: 2015.01.28 @ 21:22:00

Job Ticket #: 61125                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.02.03 @ 13:55:09









**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61125

**DST#: 3**

ATTN: Keith Reavis

Test Start: 2015.01.28 @ 14:15:00

## Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 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: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 53.38 bbl</u>	Tool Chased	4.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	3950.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	40.00 ft				
Tool Length:	68.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: chased tool approx 4' to bottom

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3923.00	
Shut In Tool	5.00			3928.00	
Hydraulic tool	5.00			3933.00	
Jars	5.00			3938.00	
Safety Joint	3.00			3941.00	
Packer	5.00			3946.00	28.00 Bottom Of Top Packer
Packer	4.00			3950.00	
Stubb	1.00			3951.00	
Recorder	0.00	8653	Outside	3951.00	
Recorder	0.00	8874	Inside	3951.00	
Perforations	1.00			3952.00	
Change Over Sub	1.00			3953.00	
Drill Pipe	31.00			3984.00	
Change Over Sub	1.00			3985.00	
Bullnose	5.00			3990.00	40.00 Bottom Packers & Anchor

**Total Tool Length: 68.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 61125

**DST#: 3**

ATTN: Keith Reavis

Test Start: 2015.01.28 @ 14:15:00

## 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: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6200.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	Mud 100M	0.320

Total Length: 65.00 ft      Total Volume: 0.320 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

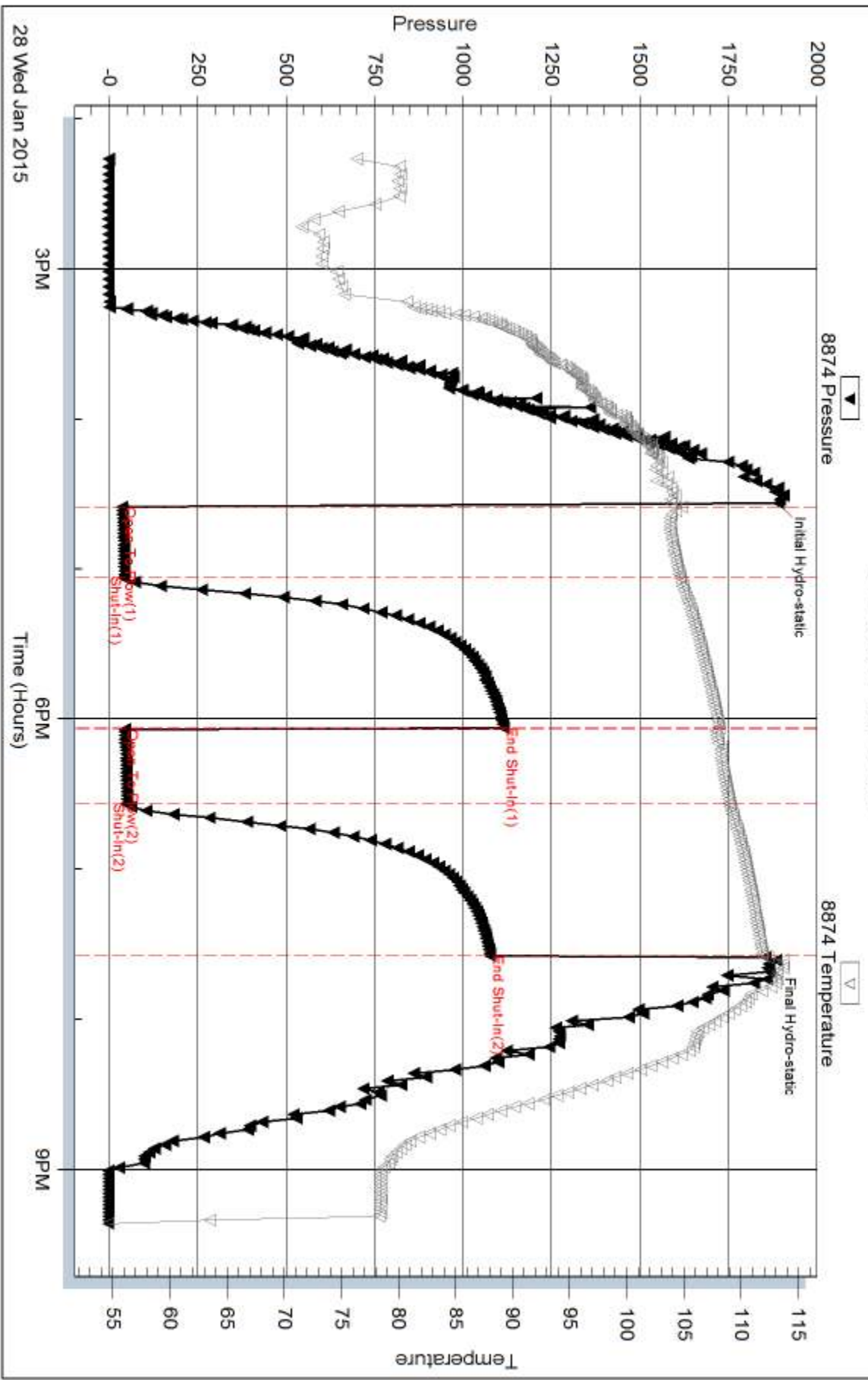
Serial #:

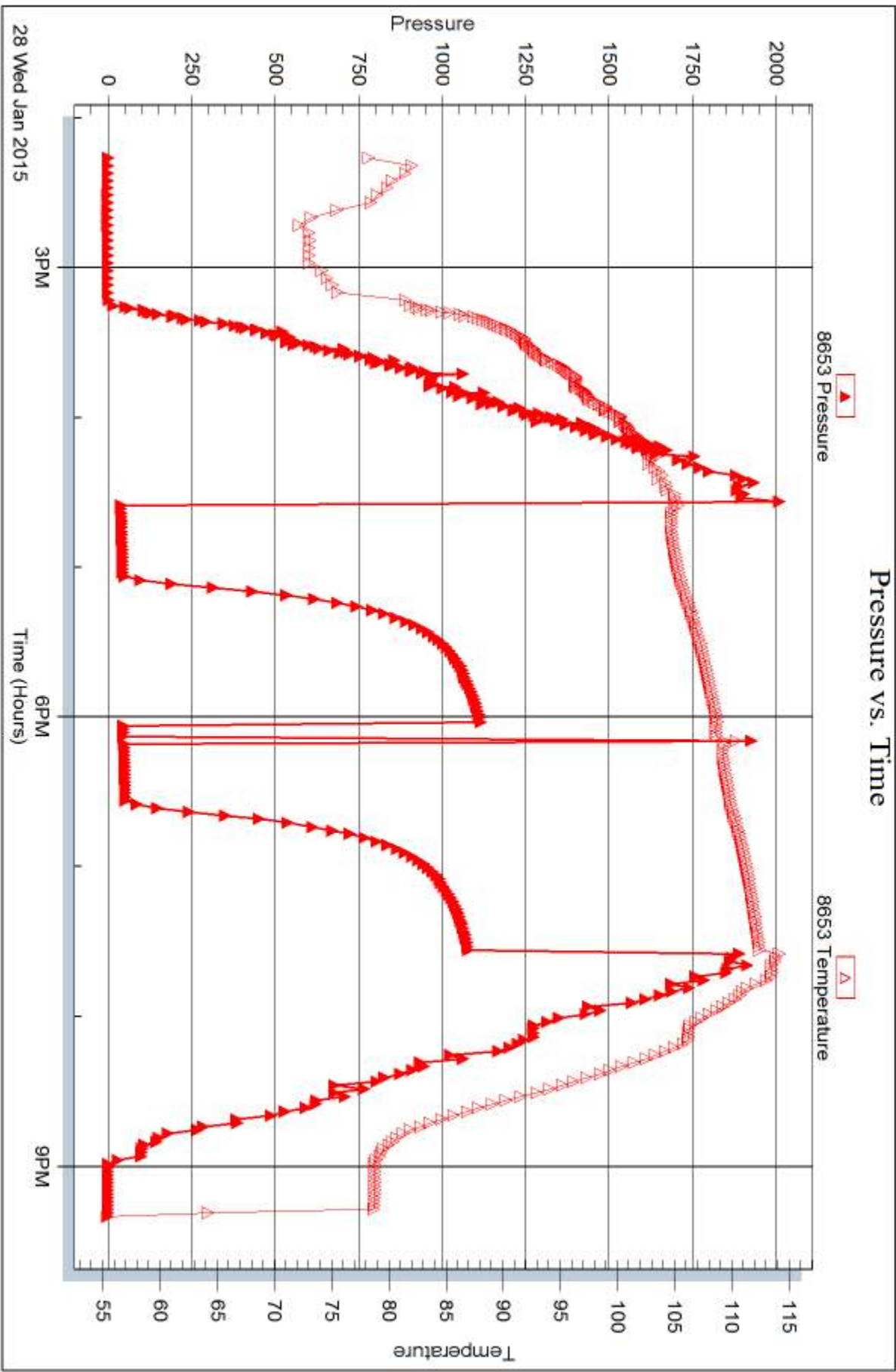
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Ruda C #1-13**

#### **13-4s-33w Rawlins,KS**

Start Date: 2015.01.29 @ 06:26:00

End Date: 2015.01.29 @ 15:49:00

Job Ticket #: 60877                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.02.03 @ 13:54:41



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.  
250 N Water STE #300  
Wichita, KS 67202  
ATTN: Keith Reavis

**13-4s-33w Rawlins,KS**  
**Ruda C #1-13**  
Job Ticket: 60877 **DST#: 4**  
Test Start: 2015.01.29 @ 06:26:00

## GENERAL INFORMATION:

Formation: **LKC "F-G"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 08:47:30  
Time Test Ended: 15:49:00  
Interval: **3986.00 ft (KB) To 4046.00 ft (KB) (TVD)**  
Total Depth: 4046.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Kevin Mack  
Unit No: 82  
Reference Elevations: 3010.00 ft (KB)  
3005.00 ft (CF)  
KB to GR/CF: 5.00 ft

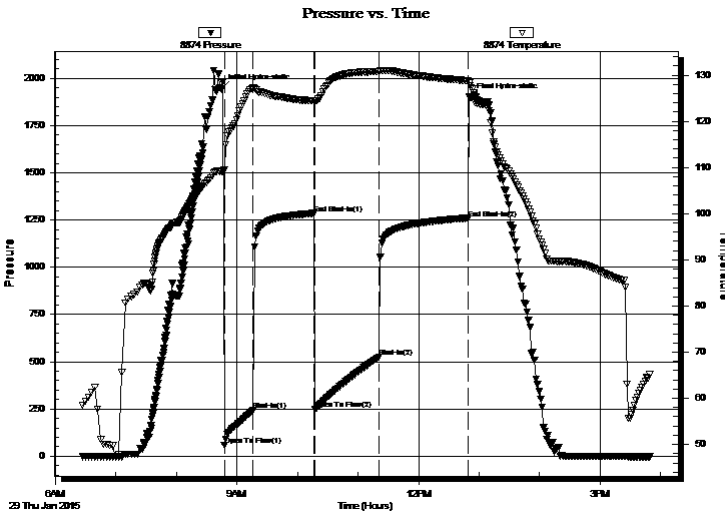
## Serial #: 8874

Inside

Press@RunDepth: 524.90 psig @ 3987.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2015.01.29 End Date: 2015.01.29 Last Calib.: 2015.01.29  
Start Time: 06:27:00 End Time: 15:49:00 Time On Btm: 2015.01.29 @ 08:44:30  
Time Off Btm: 2015.01.29 @ 12:51:00

TEST COMMENT: 30 - IF- BoB in 12 min.  
60 - IS- No Return  
60 - FF- BoB in 10 min.  
90 - FS- No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1943.48	109.08	Initial Hydro-static
3	58.61	109.49	Open To Flow (1)
32	244.86	127.23	Shut-In(1)
92	1285.82	124.41	End Shut-In(1)
93	249.46	124.38	Open To Flow (2)
156	524.90	130.81	Shut-In(2)
245	1256.49	128.77	End Shut-In(2)
247	1900.22	127.81	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud (heavy) 100M	0.02
371.00	MW 5M 95 W	3.55
252.00	OSMW 10M 90W (oil spots)	3.53
189.00	OSMW 30M 70W (oil spots)	2.65
204.00	OSMW 50M 50W (oil spots)	2.86

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 60877

**DST#: 4**

ATTN: Keith Reavis

Test Start: 2015.01.29 @ 06:26:00

## Tool Information

Drill Pipe:	Length: 3803.00 ft	Diameter: 3.80 inches	Volume: 53.35 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: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 73000.00 lb
			<u>Total Volume: 54.27 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	3986.00 ft			Final 69000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3959.00	
Shut In Tool	5.00			3964.00	
Hydraulic tool	5.00			3969.00	
Jars	5.00			3974.00	
Safety Joint	3.00			3977.00	
Packer	5.00			3982.00	28.00 Bottom Of Top Packer
Packer	4.00			3986.00	
Stubb	1.00			3987.00	
Recorder	0.00	8653	Outside	3987.00	
Recorder	0.00	8874	Inside	3987.00	
Perforations	20.00			4007.00	
Change Over Sub	1.00			4008.00	
Drill Pipe	32.00			4040.00	
Change Over Sub	1.00			4041.00	
Bullnose	5.00			4046.00	60.00 Bottom Packers & Anchor

**Total Tool Length: 88.00**





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 60877

**DST#: 4**

ATTN: Keith Reavis

Test Start: 2015.01.29 @ 06:26:00

## 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:

75000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
5.00	Mud (heavy) 100M	0.025
371.00	MW 5M 95 W	3.546
252.00	OSMW 10M 90W (oil spots)	3.535
189.00	OSMW 30M 70W (oil spots)	2.651
204.00	OSMW 50M 50W (oil spots)	2.862

Total Length: 1021.00 ft      Total Volume: 12.619 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

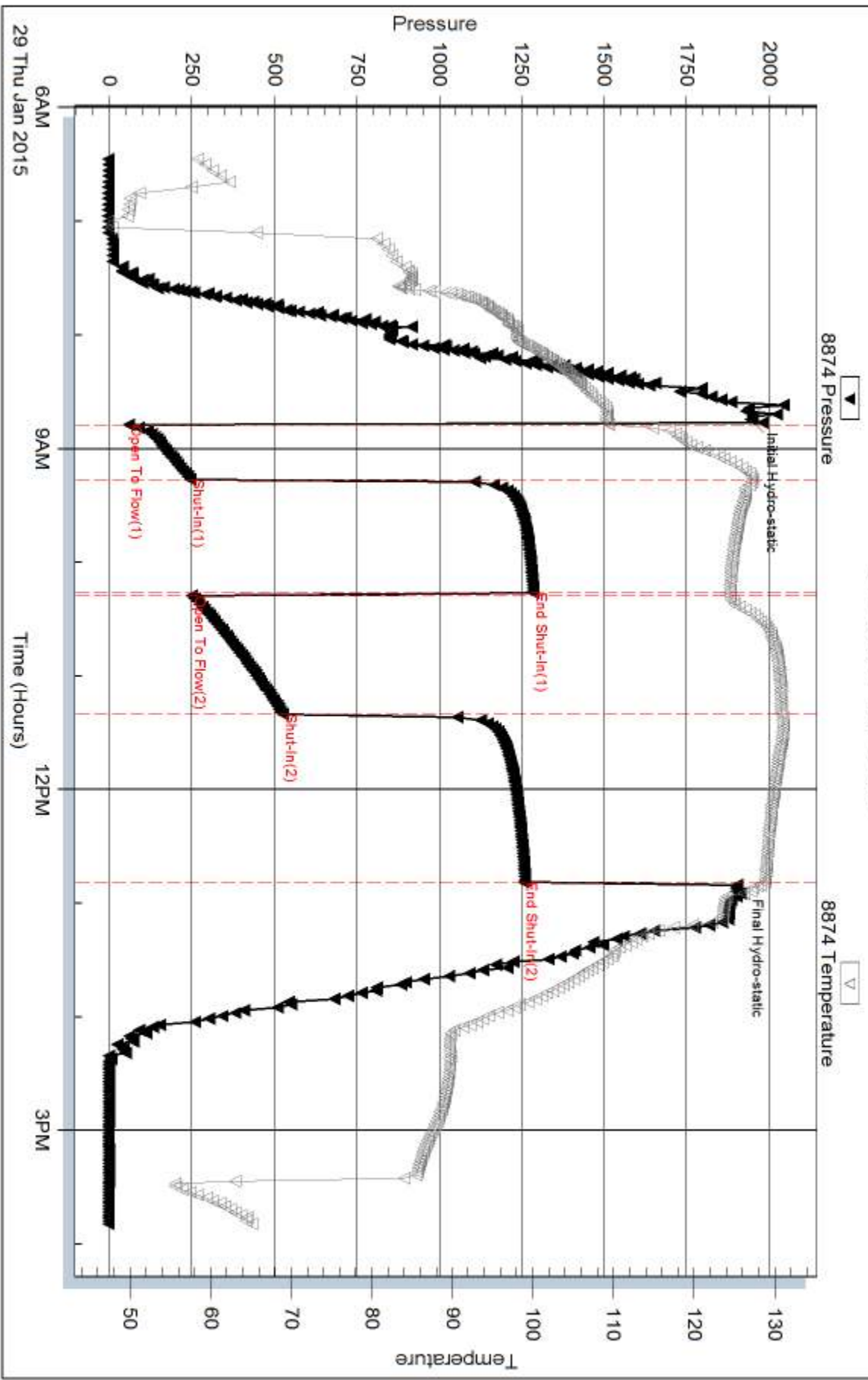
Serial #:

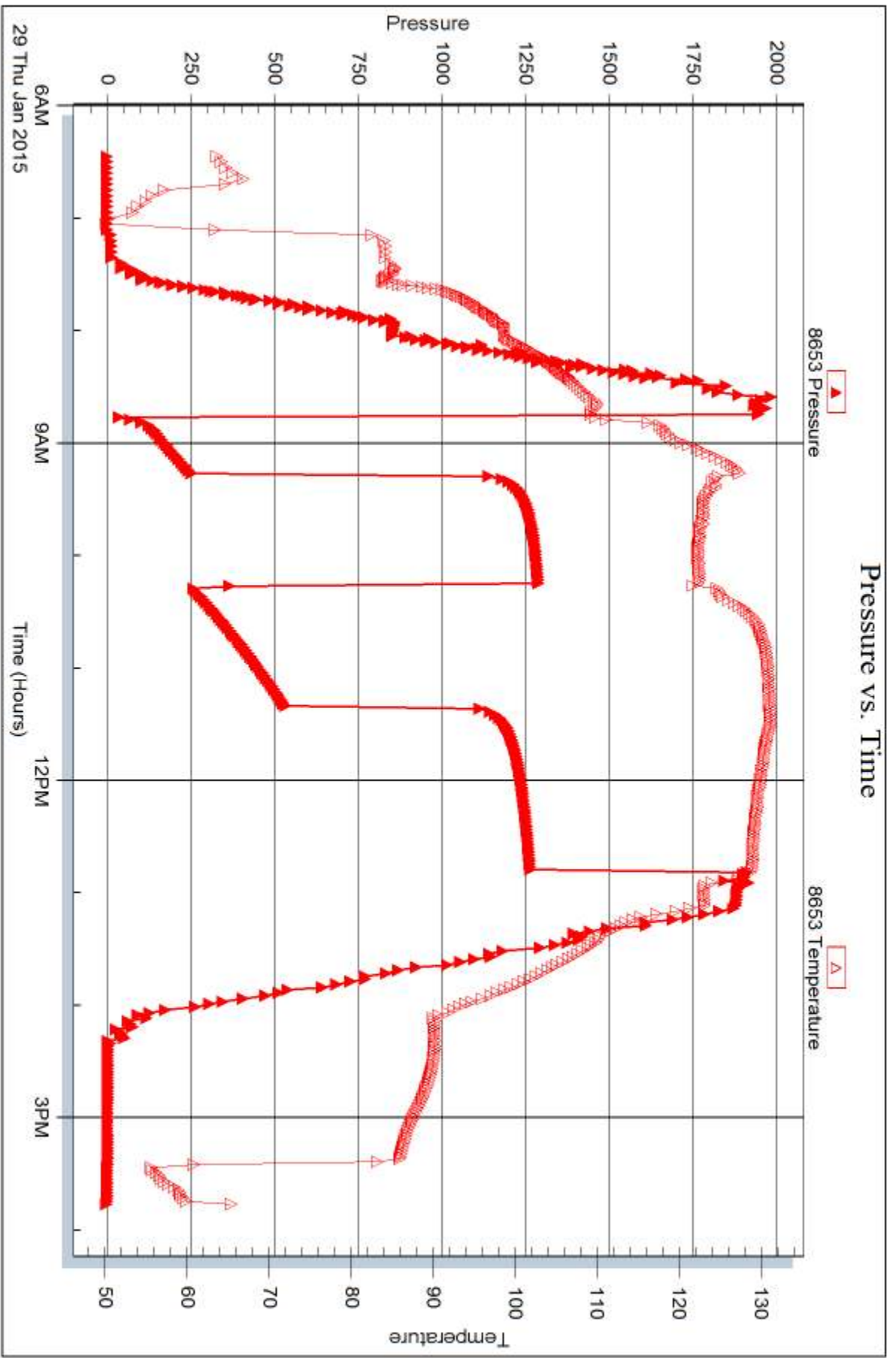
Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .14 @ 62 deg = 75,000ppm

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N Water STE #300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Ruda C #1-13**

#### **13-4s-33w Rawlins,KS**

Start Date: 2015.01.30 @ 19:08:00

End Date: 2015.01.31 @ 02:55:00

Job Ticket #: 60878                      DST #: 5

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.02.03 @ 13:52:59



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.  
250 N Water STE #300  
Wichita, KS 67202  
ATTN: Keith Reavis

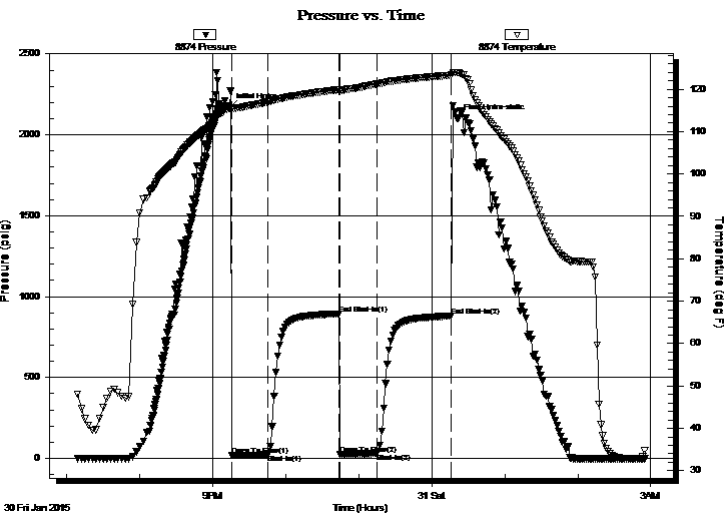
**13-4s-33w Rawlins,KS**  
**Ruda C #1-13**  
Job Ticket: 60878 **DST#: 5**  
Test Start: 2015.01.30 @ 19:08:00

## GENERAL INFORMATION:

Formation: **Pawnee**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:15:30  
Time Test Ended: 02:55:00  
Interval: **4310.00 ft (KB) To 4341.00 ft (KB) (TVD)**  
Total Depth: 4341.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Kevin Mack  
Unit No: 82  
Reference Elevations: 3010.00 ft (KB)  
3005.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8874 Inside**  
Press@RunDepth: 29.96 psig @ 4311.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2015.01.30 End Date: 2015.01.31 Last Calib.: 2015.01.31  
Start Time: 19:09:00 End Time: 02:55:00 Time On Btm: 2015.01.30 @ 21:14:00  
Time Off Btm: 2015.01.31 @ 00:21:00

TEST COMMENT: 30 - IF- 1/2" Blow built to 1 1/2"  
60 - IS- No Return  
30 - FF- Weak Surface Blow started at 5 min. built to 1/2"  
60 - FS- No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2165.77	115.42	Initial Hydro-static
2	17.38	115.24	Open To Flow (1)
31	22.23	116.94	Shut-In(1)
90	893.10	119.87	End Shut-In(1)
91	24.37	119.48	Open To Flow (2)
121	29.96	121.23	Shut-In(2)
182	879.96	123.32	End Shut-In(2)
187	2099.58	123.96	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	OSM 100M (oil spots)	0.10

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 60878

**DST#: 5**

ATTN: Keith Reavis

Test Start: 2015.01.30 @ 19:08:00

## Tool Information

Drill Pipe:	Length: 4122.00 ft	Diameter: 3.80 inches	Volume: 57.82 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: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 58.74 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4310.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	31.00 ft				
Tool Length:	59.00 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			4283.00	
Shut In Tool	5.00			4288.00	
Hydraulic tool	5.00			4293.00	
Jars	5.00			4298.00	
Safety Joint	3.00			4301.00	
Packer	5.00			4306.00	28.00 Bottom Of Top Packer
Packer	4.00			4310.00	
Stubb	1.00			4311.00	
Recorder	0.00	8653	Outside	4311.00	
Recorder	0.00	8874	Inside	4311.00	
Perforations	25.00			4336.00	
Bullnose	5.00			4341.00	31.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**13-4s-33w Rawlins,KS**

250 N Water STE #300  
Wichita, KS 67202

**Ruda C #1-13**

Job Ticket: 60878

**DST#: 5**

ATTN: Keith Reavis

Test Start: 2015.01.30 @ 19:08:00

## 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: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OSM 100M (oil spots)	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

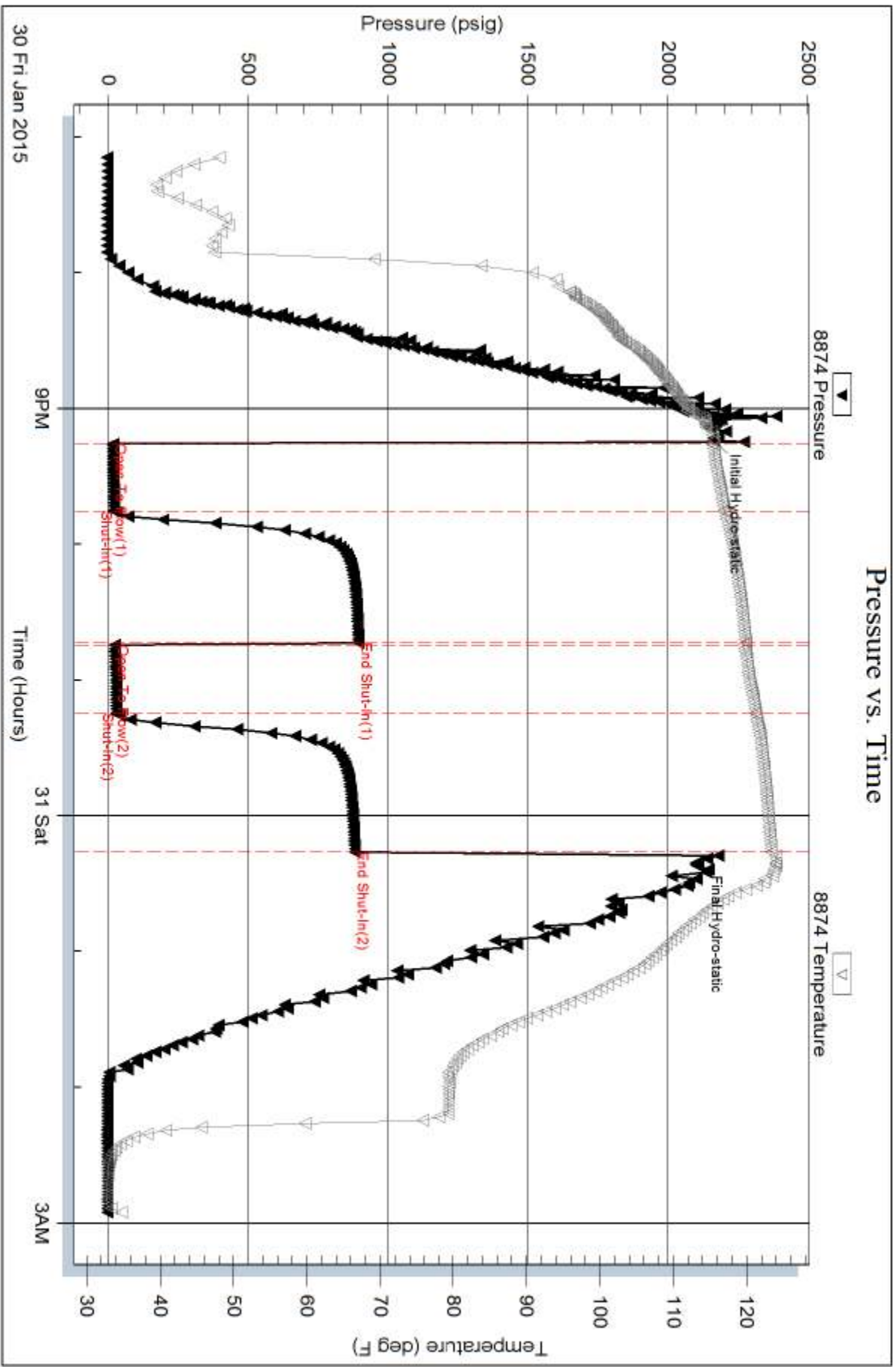
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



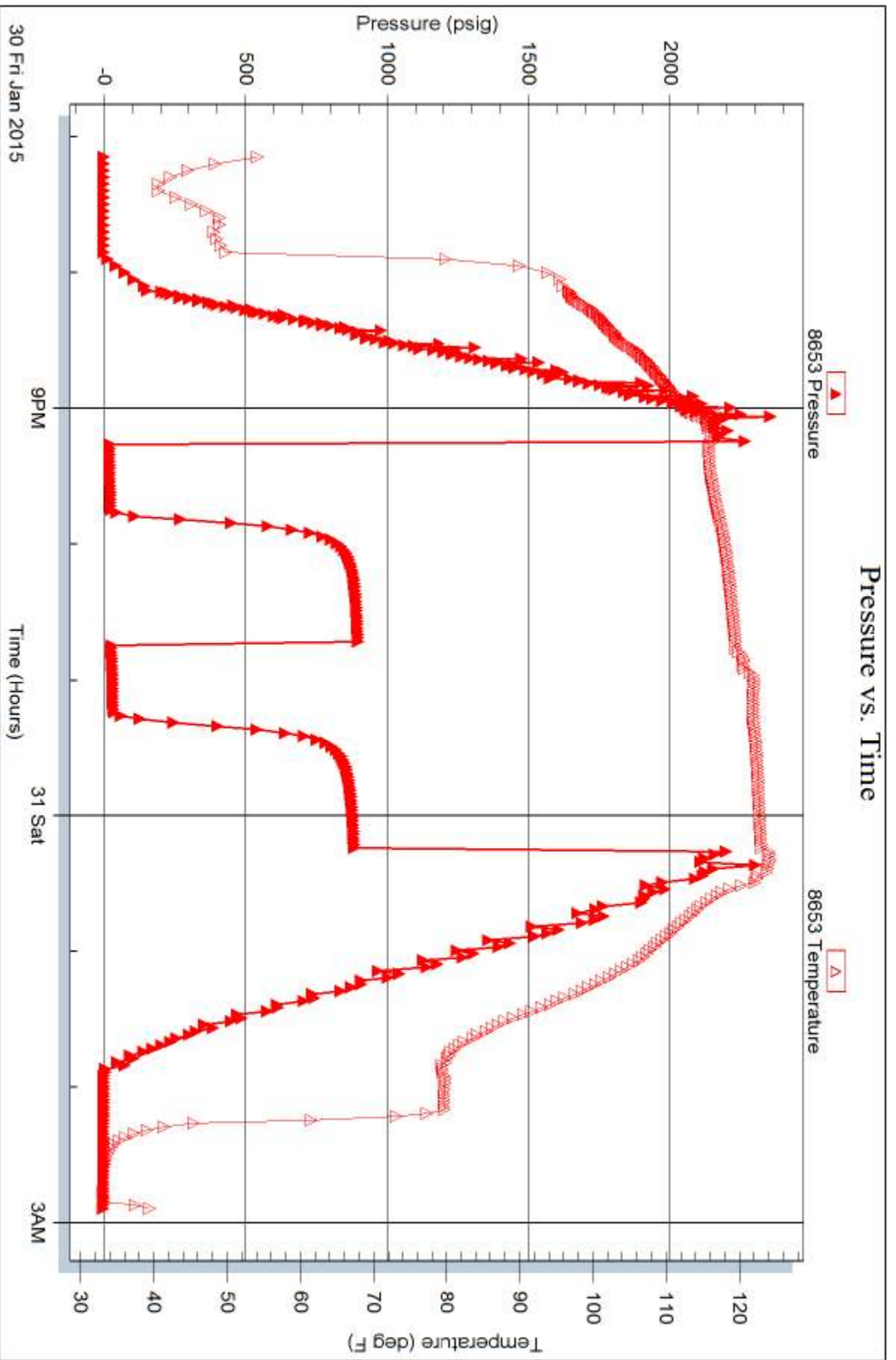


Serial #: 8653

Outside Murfin Drilling Co., Inc.

Ruda C#1-13

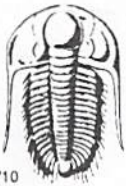
DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 60878

Printed: 2015.02.03 @ 13:53:00



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 61123

Well Name & No. Ruda C #143 Test No. 1 Date 1-27-15  
 Company Murrin Drilling Co., Inc. Elevation 3010 KB 3005 GL  
 Address 250 N Water STE #3000 Wichita, KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murrin #7  
 Location: Sec. 13 Twp. 4S Rge. 33W Co. Rawlins State KS

Interval Tested 3800-3863 Zone Tested Lecompton  
 Anchor Length 63' Drill Pipe Run 3615 Mud Wt. 8.4  
 Top Packer Depth 3796 Drill Collars Run 187 Vis 70  
 Bottom Packer Depth 3800 Wt. Pipe Run 8 WL 5.6  
 Total Depth 3863 Chlorides 3,600 ppm System LCM 2#  
 Blow Description IF- 1/2" Blow built to 3 1/2"  
ISI- NO Return  
FF- Surface Blow built to 4"  
FSI- Weak surface Return started at 33min. Built to 1/4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>308</u>	<u>Mud</u>			<u>100</u>	
<u>62</u>	<u>LM</u>		<u>20</u>	<u>80</u>	
<u>62</u>	<u>MW</u>		<u>50</u>	<u>50</u>	

Rec Total 154 BHT 119 Gravity 1.58 @ 51 °F Chlorides 4,900 ppm  
 (A) Initial Hydrostatic 1858  Test 1050 T-On Location 1:30 AM  
 (B) First Initial Flow 18  Jars 250 T-Started 2:02 AM  
 (C) First Final Flow 43  Safety Joint 75 T-Open 3:58 AM  
 (D) Initial Shut-In 1189  Circ Sub \_\_\_\_\_ T-Pulled 7:58 AM  
 (E) Second Initial Flow 46  Hourly Standby \_\_\_\_\_ T-Out 10:30 PM  
 (F) Second Final Flow 87  Mileage 70 RT 70 Comments \_\_\_\_\_  
 (G) Final Shut-In 1136  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1828  Straddle \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 60  Extra Packer \_\_\_\_\_  
 Final Flow 60  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Shut-In 90  Day Standby \_\_\_\_\_ Total 1445  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1445

Approved By \_\_\_\_\_ Our Representative

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. 61124

Well Name & No. Ruda C #113 Test No. 2 Date 1-27-15  
 Company Murfin Drilling Co., Inc. Elevation 3010 KB 3005 GL  
 Address 250 N Water STE #3000 Wichita, KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #7  
 Location: Sec. B Twp. 4S Rge. 33 W Co. Rawlins State KS

Interval Tested 3892-3954 Zone Tested Toronto - LKC "A"  
 Anchor Length 62' Drill Pipe Run 3709' Mud Wt. 9.3  
 Top Packer Depth 3888 Drill Collars Run 187' Vis 57  
 Bottom Packer Depth 3892 Wt. Pipe Run 0 WL 6.0  
 Total Depth 3954 Chlorides 3,500 ppm System LCM 2#  
 Blow Description DF - 1/2" Blow built to 5"  
ISI - NO Return  
PF - Blow started at 12 min. Built to 5 1/4"  
PSI - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>308</u>	<u>VS CRM</u>	<u>5</u>		<u>95</u>	
<u>62</u>	<u>OSM + CRM</u>	<u>SPOTS</u>		<u>60</u>	
<u>62</u>	<u>OSMW</u>	<u>SPOTS</u>		<u>50</u>	
<u>62</u>	<u>OSMW</u>	<u>SPOTS</u>		<u>40</u>	
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 216 BHT 122 Gravity - API RW .18 @ 70 °F Chlorides 40,000 ppm

(A) Initial Hydrostatic 1939  Test 1050 T-On Location 8:15 PM  
 (B) First Initial Flow 26  Jars 250 T-Started 8:30 PM  
 (C) First Final Flow 69  Safety Joint 75 T-Open 10:35 PM  
 (D) Initial Shut-In 1147  Circ Sub T-Pulled 2:35 AM  
 (E) Second Initial Flow 76  Hourly Standby T-Out 5:12 AM  
 (F) Second Final Flow 121  Mileage 70 RT 70  
 (G) Final Shut-In 1095  Sampler  
 (H) Final Hydrostatic 1910  Straddle  
 Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

Initial Open 300  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Sub Total 1445  
 Total 1445  
 MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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. 61125

4/10

Well Name & No. Ruda-C #113-1-13 Test No. 3 Date 1-28-15  
 Company Murfin Drilling Co., Inc Elevation 3010 KB 3005 GL  
 Address 250 N Water STE #300 Wichita, KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #7  
 Location: Sec. 13 Twp. 4S Rge. 33W Co. Rawlins State KS

Interval Tested 3950 - 3990 Zone Tested L14 "B-D"  
 Anchor Length 40' Drill Pipe Run 3950' Mud Wt. 9.4  
 Top Packer Depth 3946 Drill Collars Run 187 Vis 65  
 Bottom Packer Depth 3950 Wt. Pipe Run 0 WL 6.4  
 Total Depth 3990 Chlorides 6,200 ppm System LCM 2#  
 Blow Description IF - 1 1/4" Blow died in 5 min.  
ISI - NO Return

FF - No Blow - Flushed tool at 5 min. - 1/4" Blow died to surface. Surface Blow died in 7 min.

FSD - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>65</u>	<u>Mud</u>			<u>100</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 65 BHT 112 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1890  Test 1050 T-On Location 1:45 PM  
 (B) First Initial Flow 36  Jars 250 T-Started 2:15 PM  
 (C) First Final Flow 42  Safety Joint 75 T-Open 4:35 PM  
 (D) Initial Shut-In 1114  Circ Sub \_\_\_\_\_ T-Pulled 7:35 PM  
 (E) Second Initial Flow 43  Hourly Standby \_\_\_\_\_ T-Out 9:22 PM  
 (F) Second Final Flow 49  Mileage 70 RT 70 Comments Chased tool  
 (G) Final Shut-In 1077  Sampler \_\_\_\_\_ approx 4' to bottom  
 (H) Final Hydrostatic 1863  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 30  
 Final Shut-In 60  
 Sub Total 0  
 Total 1445  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1445

Approved By \_\_\_\_\_ Our Representative

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. **60877**

4/10

Well Name & No. <u>Ruda C #1-13</u>	Test No. <u>4</u>	Date <u>1-29-15</u>
Company <u>Murfin Drilling Co., Inc.</u>	Elevation <u>3010</u>	KB <u>3005</u> GL
Address <u>250 N Water STE #300 Wichita, KS 67202</u>		
Co. Rep / Geo. <u>Keith Lewis</u>	Rig <u>Murfin #7</u>	
Location: Sec. <u>13</u> Twp. <u>4S</u> Rge. <u>33W</u> Co. <u>Rawlins</u> State <u>KS</u>		

Interval Tested <u>3986-4046</u>	Zone Tested <u>LKC "F-6"</u>
Anchor Length <u>60'</u>	Drill Pipe Run <u>3803</u> Mud Wt. <u>9.1</u>
Top Packer Depth <u>3982</u>	Drill Collars Run <u>187'</u> Vis <u>50</u>
Bottom Packer Depth <u>3986</u>	Wt. Pipe Run <u>0</u> WL <u>5.6</u>
Total Depth <u>4046</u>	Chlorides <u>6,000</u> ppm System LCM <u>3#</u>

Blow Description IF - BoB in 12 min  
IST - NO Return  
FF - BoB in 10 min.  
FST - NO Return

Rec	Feet of	%gas	SPOTS	%oil	%water	%mud
<u>204</u>	<u>OS MW</u>			<u>50</u>	<u>50</u>	
<u>189</u>	<u>OS MW</u>			<u>70</u>	<u>30</u>	
<u>252</u>	<u>OS MW</u>			<u>90</u>	<u>10</u>	
<u>371</u>	<u>MW</u>			<u>95</u>	<u>5</u>	
<u>5</u>	<u>Mud</u>				<u>100</u>	

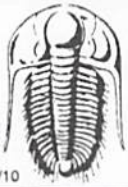
Rec Total 1021 BHT 129 Gravity \_\_\_\_\_ API RW .14 @ 62 ° F Chlorides 75,000 ppm

(A) Initial Hydrostatic <u>1943</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>6:15 AM</u>
(B) First Initial Flow <u>58</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>6:26 AM</u>
(C) First Final Flow <u>244</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>8:46 AM</u>
(D) Initial Shut-In <u>1285</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>12:46 PM</u>
(E) Second Initial Flow <u>249</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>3:50 PM</u>
(F) Second Final Flow <u>524</u>	<input checked="" type="checkbox"/> Mileage <u>70 RT</u> <u>70</u>	Comments _____
(G) Final Shut-In <u>1256</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1908</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Total <u>1545</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
Sub Total <u>1545</u>		

Approved By \_\_\_\_\_ Our Representative [Signature]

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. 60878

Well Name & No. Ruda 'C' #1-13 Test No. 5 Date 1-30-15  
 Company Murfin Drilling Co., Inc. Elevation 3010 KB 3005 GL  
 Address 250 N Water STE #300 Wichita, KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #7  
 Location: Sec. 13 Twp. 4S Rge. 33W Co. Rawlins State KS

Interval Tested 4310-4341 Zone Tested Pawnee  
 Anchor Length 31' Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.2  
 Top Packer Depth 4306 Drill Collars Run 187' Vis 62  
 Bottom Packer Depth 4310 Wt. Pipe Run 0 WL 6.8  
 Total Depth 4341 Chlorides 65000 ppm System \_\_\_\_\_ LCM 4#  
 Blow Description IF - 1/2" Blow built to 1 1/2"  
ISI - NO Return  
FF - Weak Surface Blow started at 5 min. Built to 1/2"  
FSE - NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>200</u>	<u>OSM</u>	<u>spots</u>		<u>1000</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 200 BHT 123 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2165  Test 1150 T-On Location 7:00 pm  
 (B) First Initial Flow 170  Jars 250 T-Started 7:08 pm  
 (C) First Final Flow 22  Safety Joint 75 T-Open 9:15 pm  
 (D) Initial Shut-In 893  Circ Sub \_\_\_\_\_ T-Pulled 12:15 AM  
 (E) Second Initial Flow 24  Hourly Standby \_\_\_\_\_ T-Out 2:55 AM  
 (F) Second Final Flow 29  Mileage 70 RT 70 Comments \_\_\_\_\_  
 (G) Final Shut-In 879  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2099  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1545  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1545

Approved By \_\_\_\_\_ Our Representative

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.



*acct.  
Prod-MG*

# INVOICE

PO Box 93999  
Southlake, TX 76092

Invoice Number: 148309

Invoice Date: Jan 23, 2015

Page: 1

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

Federal Tax I.D.#: 20-8651475

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	64873	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Jan 23, 2015	2/22/15

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Ruda C #1-13		
200.00	CEMENT MATERIALS	Class A Common	17.90	3,580.00
564.00	CEMENT MATERIALS	Chloride	1.10	620.40
210.00	CEMENT SERVICE	Cubic Feet Charge	2.48	520.80
464.64	CEMENT SERVICE	Ton Mileage Charge	2.75	1,277.76
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
48.00	CEMENT SERVICE	Pump Truck Mileage	7.70	369.60
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
48.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	211.20
1.00	CEMENT SUPERVISOR	Andrew Forslund		
1.00	EQUIPMENT OPERATOR	Brandon Wilkinson		
1.00	EQUIPMENT OPERATOR	Darren Racette		

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

\$ 3,765.15

ONLY IF PAID ON OR BEFORE

Feb 22, 2015

Subtotal	8,367.01
Sales Tax	331.83
Total Invoice Amount	8,698.84
Payment/Credit Applied	
<b>TOTAL</b>	<b>8,698.84</b>

*OK  
SR*





# ALLIED OIL & GAS SERVICES, LLC 064648

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT: Dakley, TX

DATE <u>2-1-15</u>	SEC. <u>13</u>	TWP. <u>4</u>	RANGE <u>33</u>	CALLED OUT	ON LOCATION <u>4:00pm</u>	JOB START <u>6:30am</u>	JOB FINISH <u>7:15am</u>
LEASE <u>Reda C</u>	WELL# <u>1-13</u>	LOCATION <u>Colby (8Yard CH) 48220</u>		COUNTY <u>Rockwall</u>	STATE <u>TX</u>		
OLD OR NEW (Circle one) <u>NEW</u>				<u>2Yard, Excite</u>			

CONTRACTOR <u>Murphy</u>	OWNER <u>same</u>
TYPE OF JOB <u>PTA</u>	
HOLE SIZE <u>7 7/8</u>	T.D. <u>4504'</u>
CASING SIZE	DEPTH
TUBING SIZE	DEPTH
DRILL PIPE <u>4 1/2</u>	DEPTH <u>2712'</u>
TOOL	DEPTH
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG.	
PERFS.	
DISPLACEMENT <u>8V8560</u>	

CEMENT	AMOUNT ORDERED <u>2555B60/4097oz</u>
	<u>64# 76-5al</u>
COMMON	@
POZMIX	@
GEL	@
CHLORIDE	@
ASC	@
	<u>64/90/4 2555B @ 18.92 4824.60</u>
	@
	<u>64# 2.77 190.08</u>
	@
	<u>Material Total @ 5074.68</u>
	@
	<u>(2236.60/45%)</u>
	@
HANDLING <u>27357 57</u>	@ <u>2.98 628.20</u>
MILEAGE <u>11.44km X 48 X 2.77</u>	<u>1310.08</u>

EQUIPMENT	
PUMP TRUCK	CEMENTER <u>Lakene Erdanite</u>
# <u>422</u>	HELPER <u>Wayne McHugh</u>
BULK TRUCK	
# <u>818/287</u>	DRIVER <u>Wayne Massole</u>
BULK TRUCK	
#	DRIVER

REMARKS:

Mix 36 sks 2712'

Mix 100 sks 21561

Mix 50 sks 270'

Mix 10 sks 401 w/ plug

plug MH 1.5 sks

plug RH 303 R

CHARGE TO: Murphy

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SERVICE	
DEPTH OF JOB <u>2712'</u>	
PUMP TRUCK CHARGE	<u>2483.59</u>
EXTRA FOOTAGE	@
MILEAGE <u>M.I. 48</u>	@ <u>7.70 369.60</u>
MANIFOLD	@
<u>M.I. 48</u>	@ <u>4.40 211.20</u>
	@
	<u>(2364.15/45%)</u>
	TOTAL <u>5,253.67</u>

PLUG & FLOAT EQUIPMENT	
<u>Wooden plug</u>	@ <u>110.00</u>
	@
	@
	@
	@
	TOTAL <u>110.00</u>

To: Allied Oil & Gas Services, LLC.

You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Marcus Colson

SIGNATURE Marcus Colson

SALES TAX (if Any) \_\_\_\_\_

TOTAL CHARGES 10,378.35

DISCOUNT 4,620.75 (45%) IF PAID IN 30 DAYS

5,757.59 Net

Ruda 'C' #1-13  
 330' FSL 330'FWL  
 Sec. 13-4S-33W  
 3010' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref		
Anhydrite	2694	+316	Flat	2700	+310	-6		
B/Anhydrite	2732	+278	-1	2736	+274	-5		
Topeka	3721	-711	-5	3721	-711	-5		
Heebner	3891	-881	-9	3889	-879	-7		
Lansing	3935	-925	-9	3932	-922	-6		
Stark	4115	-1105	-9	4112	-1102	-6		
BKC	4163	-1153	-8	4162	-1152	-7		
Pawnee	4289	-1279	-11	4292	-1282	-14		
Cherokee	4370	-1360	-16	4362	-1352	-8		
Mississippi	NR			NR				
RTD	4504							
LTD				4503				