

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1240707  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

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

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

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

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

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

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

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

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

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

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

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

Designate Type of Completion:

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

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

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

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

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

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

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

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

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

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

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

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

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

Datum:  NAD27       NAD83       WGS84

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

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

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

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

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

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

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

Multiple Stage Cementing Collar Used?  Yes  No

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

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

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

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

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

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

Location of fluid disposal if hauled offsite:

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

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

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

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

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

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

1240707

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
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<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. <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Chleborad 1-21
Doc ID	1240707

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: Chleborad #1-21  
 Location: Sec. 21 - T3S - R33W  
 API: 15-153-21086-0000  
 Pool: \_\_\_\_\_ Field: Wildcat  
 State: Kansas Country: USA



Scale 1:240 Imperial

Well Name: Chleborad #1-21  
 Surface Location: Sec. 21 - T3S - R33W  
 Bottom Location: \_\_\_\_\_  
 API: 15-153-21086-0000  
 License Number: 30606  
 Spud Date: 12/5/2014 Time: 2:00 PM  
 Region: Rawlins County  
 Drilling Completed: 12/12/2014 Time: 10:50 AM  
 Surface Coordinates: 1960' FSL & 660' FEL  
 Bottom Hole Coordinates: \_\_\_\_\_  
 Ground Elevation: 3011.00ft  
 K.B. Elevation: 3016.00ft  
 Logged Interval: 3650.00ft To: 4640.00ft  
 Total Depth: 4640.00ft  
 Formation: Mississippian  
 Drilling Fluid Type: Chemical/Fresh Water Gel

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: \_\_\_\_\_  
 Latitude: \_\_\_\_\_  
 N/S Co-ord: 1960' FSL  
 E/W Co-ord: 660' FEL

**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: 12/5/2014 Time: 2:00 PM  
 TD Date: 12/12/2014 Time: 10:50 AM  
 Rig Release: \_\_\_\_\_ Time: \_\_\_\_\_

**ELEVATIONS**

K.B. Elevation: 3016.00ft Ground Elevation: 3011.00ft  
 K.B. to Ground: 5.00ft

**NOTES**

Due to negative drill stem testing and electrical log evaluation, it was determined by the operator that the Chleborad #1-21 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
12/07/2014		Geologist Keith Reavis on location @ 2110 hrs, 3642 ft, bit trip
12/08/2014	3765	drilling ahead, Topeka, Deer Creek, Lecompton, Oread, Lansing A - D,
12/09/2014	4020	show in Lansing A - D warrants test, short trip, TOH for DST, in with tools, conduct DST #1, complete DST #1, successful test, back on bottom w/bit, resume drilling, show in G zone warrants test, TOH for DST #2, Lansing F-G and TIH w/tools
12/10/2014	4070	conduct and complete DST #2, successful test, TIH w/bit, resume drilling, show in J zone warrants test, TOH w/bit, in w/tools, conduct DST #3
12/11/2014	4181	complete DST #3, successful test, TIH w/bit, resume drilling, BKC, Marmaton, Pawnee, Cherokee
12/12/2014	4543	drilling ahead, Cherokee, Mississippian, TD @ 4640 ft 1050 hrs, short trip, ctch, TOH w/bit, conduct and complete logging operations, off loc 2200 hrs

**Murfin Drilling Company**  
**well comparison sheet**

DRILLING WELL					COMPARISON WELL				
MDC - Chleborad #1-21 1960' FSL & 660' FEL Sec 21-T3S-R33W					Base Ent. - Chleborad #1 C SW SE Sec 21-T3S-R33W				
3016 KB					3052 KB			Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	
Topeka	3753	-737	3754	-738	3790	-738	1	0	
Deer Creek	3787	-771	3791	-775	3828	-776	5	1	
Lecompton	3856	-840	3855	-839	3894	-842	2	3	
Oread	3896	-880	3898	-882	3936	-884	4	2	
Heebner	3913	-897	3914	-898	3951	-899	2	1	
Lansing	3955	-939	3957	-941	3994	-942	3	1	
Lansing D	4002	-986	4004	-988	4040	-988	2	0	
Lansing H	4083	-1067	4084	-1068	4126	-1074	7	6	
Stark	4146	-1130	4144	-1128	4185	-1133	3	5	
Base KC	4196	-1180	4194	-1178	4234	-1182	2	4	
Marmaton	4246	-1230	4241	-1225	4286	-1234	4	9	
Pawnee	4320	-1304	4319	-1303	4368	-1316	12	13	
Cherokee	4396	-1380	4396	-1380	4438	-1386	6	6	
Mississippian	4564	-1548	4544	-1528	4594	-1542	-6	14	
Total Depth	4640	-1624	4642	-1626	4691	-1639	15	13	

**drill stem test #1**

**DRILL STEM TEST REPORT**

Murfin Drilling Co. Inc. **21-3S-33w Rawlins Co**

250 N Water STE 300  
Wichita KS 67202

ATTN: Keith Reavis

**Chleborad 1 21**

Job Ticket: 58555 **DST#: 1**

Test Start: 2014.12.09 @ 05:00:15

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**GENERAL INFORMATION:**

Formation: **Lansing A-D**  
 Deviated: No Whipstock: \_\_\_\_\_ ft (KB)  
 Time Tool Opened: 07:29:45  
 Time Test Ended: 12:18:45  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Mike Roberts  
 Unit No: 65  
 Interval: **3912.00 ft (KB) To 4020.00 ft (KB) (TVD)**  
 Reference Elevations: 3016.00 ft (KB)  
 Total Depth: 4020.00 ft (KB) (TVD)  
 3011.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 5.00 ft

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**Serial #: 8846** Inside

Press@RunDepth: 65.36 psig @ 3918.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.09 Last Calib.: 2014.12.09  
 Start Time: 05:00:15 End Time: 12:18:45 Time On Btm: 2014.12.09 @ 07:29:30  
 Time Off Btm: 2014.12.09 @ 10:30:15

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

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Pressure vs. Time

**PRESSURE SUMMARY**

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.99	113.80	Initial Hydro-static
1	55.34	112.81	Open To Flow (1)
31	60.35	114.63	Shut-In(1)
91	825.87	116.52	End Shut-In(1)
91	62.38	116.21	Open To Flow (2)
120	65.36	116.81	Shut-In(2)
180	765.18	118.28	End Shut-In(2)
181	2043.09	118.54	Final Hydro-static

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Recovery: \_\_\_\_\_ Gas Rates: \_\_\_\_\_

Length (ft)	Description	Volume (bbl)
5.00	mud w with oil spots 100% <sup>m</sup>	0.02

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

**drill stem test #2**

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co. Inc.	<b>21-3S-33w Rawlins Co</b>
	250 N Water STE 300 Wichita KS 67202	<b>Chleborad 1 21</b>
ATTN: Keith Reavis	Job Ticket: 58556	<b>DST#: 2</b>
	Test Start: 2014.12.09 @ 21:02:15	

**GENERAL INFORMATION:**

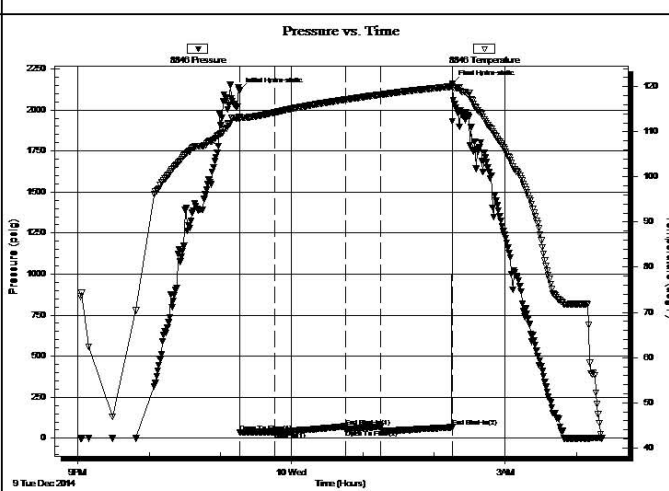
Formation: **Lansing F-G**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 23:16:15  
 Tester: Mke Roberts  
 Time Test Ended: 04:21:45  
 Unit No: 65

Interval: **4018.00 ft (KB) To 4070.00 ft (KB) (TVD)**  
 Reference Elevations: 3016.00 ft (KB)  
 Total Depth: 4070.00 ft (KB) (TVD)  
 3011.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 5.00 ft

**Serial #: 8846 Inside**

Press@RunDepth: 71.79 psig @ 4024.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2014.12.10  
 End Date: 2014.12.10  
 Last Calib.: 2014.12.10  
 Start Time: 21:02:15  
 End Time: 04:21:45  
 Time On Btm: 2014.12.09 @ 23:16:00  
 Time Off Btm: 2014.12.10 @ 02:15:30

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



Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2118.04	113.29	Initial Hydro-static
1	36.43	112.79	Open To Flow (1)
30	39.09	114.26	Shut-In(1)
90	71.48	117.13	End Shut-In(1)
90	52.53	117.13	Open To Flow (2)
120	71.79	118.24	Shut-In(2)
179	67.12	120.02	End Shut-In(2)
180	2160.96	120.43	Final Hydro-static

Length (ft)	Description	Volume (bbl)
5.00	mud w with oil spots	0.02

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

\* Recovery from multiple tests

**drill stem test #3**

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co. Inc.	<b>21-3S-33w Rawlins Co</b>
	250 N Water STE 300 Wichita KS 67202	<b>Chleborad 1 21</b>
ATTN: Keith Reavis	Job Ticket: 58557	<b>DST#: 3</b>
	Test Start: 2014.12.10 @ 15:57:15	

**GENERAL INFORMATION:**

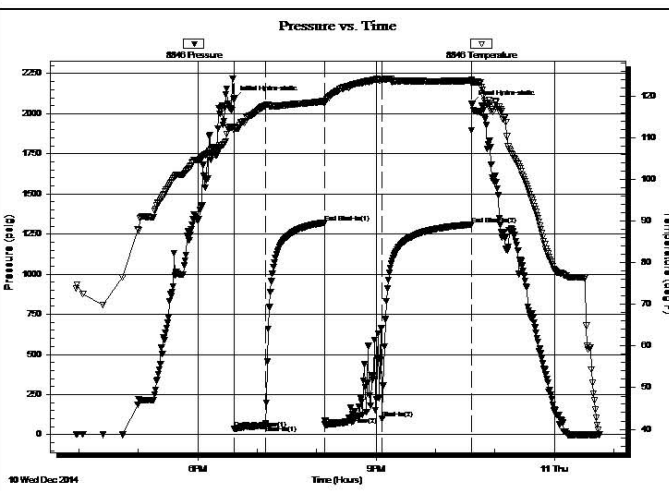
Formation: **J**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 18:36:45  
 Tester: Mke Roberts  
 Time Test Ended: 00:45:15  
 Unit No: 65

Interval: **4091.00 ft (KB) To 4149.00 ft (KB) (TVD)**  
 Reference Elevations: 3016.00 ft (KB)  
 Total Depth: 4149.00 ft (KB) (TVD)  
 3011.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 5.00 ft

**Serial #: 8846 Inside**

Press@RunDepth: 101.82 psig @ 4095.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2014.12.10  
 End Date: 2014.12.11  
 Last Calib.: 2014.12.11  
 Start Time: 15:57:15  
 End Time: 00:45:15  
 Time On Btm: 2014.12.10 @ 18:36:30  
 Time Off Btm: 2014.12.10 @ 22:36:45

TEST COMMENT: IF: Built to 2" blow  
 IS: No return blow  
 FF: Built to 2" blow  
 FS: No return blow



Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2094.13	112.60	Initial Hydro-static
1	36.68	111.81	Open To Flow (1)
32	58.06	117.74	Shut-In(1)
92	1319.81	118.75	End Shut-In(1)
92	62.85	118.22	Open To Flow (2)
150	101.82	123.95	Shut-In(2)
240	1309.66	123.65	End Shut-In(2)
241	2061.65	123.08	Final Hydro-static

Length (ft)	Description	Volume (bbl)
124.00	mud	0.61

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

\* Recovery from multiple tests

**ROCK TYPES**

Cht vari	shale, grn	shale, red	Siltst
Lmst fw<7	shale, gry	Shcol	
Lmst fw7>	Carbon Sh	Ss	

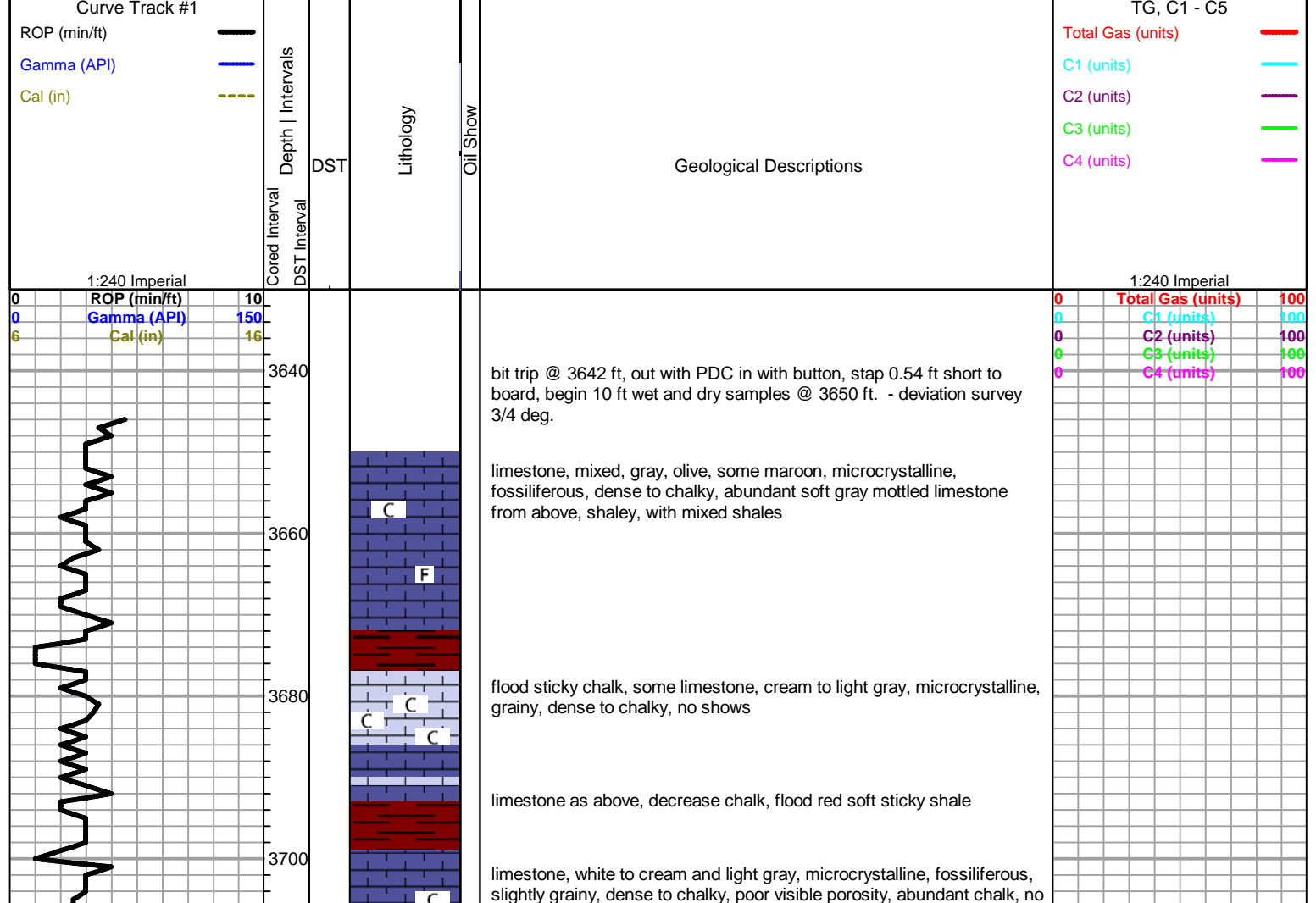
**ACCESSORIES**

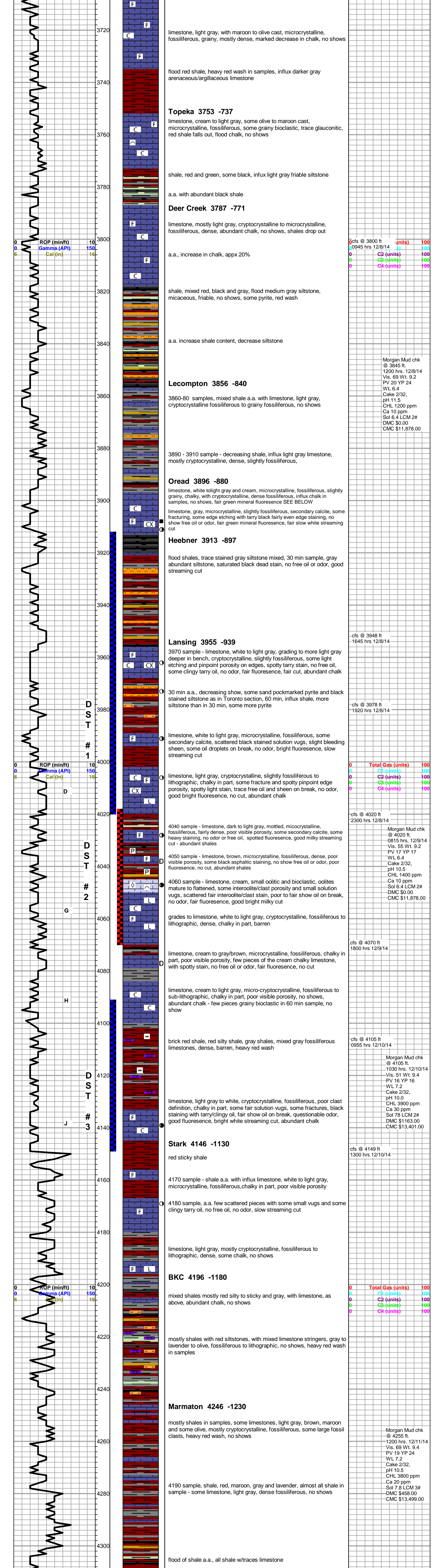
<b>MINERAL</b>	<b>FOSSIL</b>	<b>STRINGER</b>	<b>TEXTURE</b>
<ul style="list-style-type: none"> <li>∩ Glauconite</li> <li>P Pyrite</li> <li>• Silty</li> </ul>	<ul style="list-style-type: none"> <li>∩ Bioclastic or Fragmental</li> <li>F Fossils &lt; 20%</li> <li>∅ Oolite</li> </ul>	<ul style="list-style-type: none"> <li> Dolomite</li> <li> Limestone</li> <li> Sandstone</li> <li> Siltstone</li> <li> Shale</li> <li> red shale</li> </ul>	<ul style="list-style-type: none"> <li>C Chalky</li> <li>CX Cryptocrystalline</li> <li>L Lithogr</li> </ul>

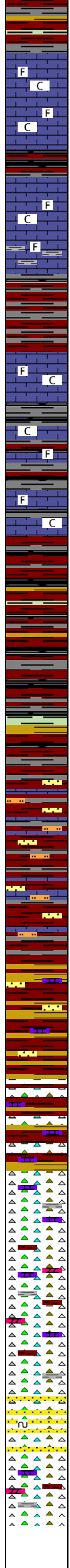
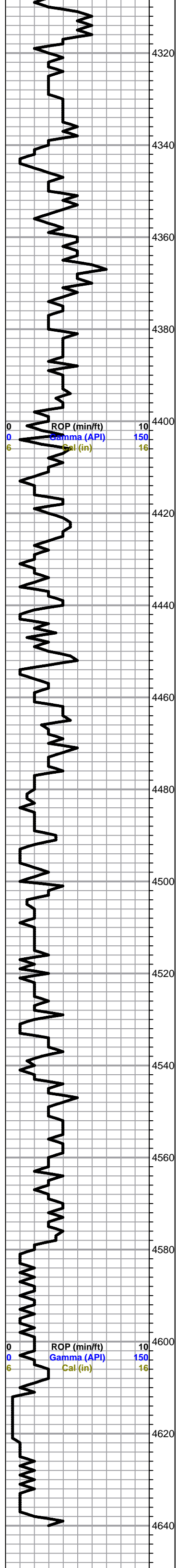
**OTHER SYMBOLS**

<b>Oil Show</b>	<b>DST</b>
<ul style="list-style-type: none"> <li>● Good Show</li> <li>● Fair Show</li> <li>● Poor Show</li> <li>○ Spotted or Trace</li> <li>○ Questionable Stn</li> <li>■ Dead Oil Stn</li> <li>■ Fluorescence</li> <li>* Gas</li> </ul>	<ul style="list-style-type: none"> <li> DST Int</li> <li> DST alt</li> <li> Core</li> <li> tail pipe</li> </ul>

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







**Pawnee 4320 -1304**

4330 influx limestone, light gray, micro-cryptocrystalline, fossiliferous, dense, some secondary calcite, some associated chalk, no shows

4350 sample, influx shales, some cream chalky bioclastic limestone, no shows

4360 limestone, brown and gray mottled, microrcrystalline, fossiliferous, dense, no shows

4370 limestone, cream to light gray, micro-cryptocrystalline, fossiliferous, chalky in part, some fractures otherwise no visible porosity, no shows, 30 min sample, a.a., abundant light gray smooth limy shale to shaley limestone

4380-4390 samples flood shales, brick red, lavender, gray

4400 sample, limestone, light gray, mostly cryptocrystalline, fossiliferous, dense, no shows, flood chalk in samples, heavy chalky wash

**Cherokee 4396 -1380**

4410 flood black shale

limestone, mostly light gray, micro-cryptocrystalline, fossiliferous, chalky in part, some lithographic, poor visible porosity, with some scattered olive cherty limestone and maroon cryptocrystalline, compact dense lithographic, abundant shale, flood chalk, no shows

mixed gray, maroon, black, lavender, olive shales, with limestone a.a.

increase shales, limestone marked decrease

as above

shale as above, with limestone, light gray, microcrystalline, fossiliferous, some brittle/friable, some rust red dense argillaceous limestone, scattered sandstone, very fine to medium grain, white to quartz, fair rounded to angular, fair cementing, abundant very silty red shale

soft mushy red shale with flood soft mushy yellow shales, scattered mixed sandstones and some limestone a.a.

**Mississippian 4544 -1528 (Log Top)**

conglomerate? flood chert, yellow and yellow/white mottled, fossiliferous, some maroon, red, yellow and maroon shales, pale green and yellow cryptocrystalline limestones, no shows

**Mississppian 4564 Sample Top**

as above, decreasing shales

4590 sample grades to mostly white chert, fossiliferous, sharp fresh, to sub-tripolitic, still abundant yellow cherts, shales sharply decrease

as above, some light gray subsucrosic dolomite to cryptocrystalline lithographic limetone, still abundant shales from above

flood sandstone, light gray, very fine grain, silty, round to sub-angular, fair sorting, fair cementing, glauconitic, no shows

cherts, limestone, dolomite a.a. in final cfs sample

**Rotary TD 4640 ft @ 1050 hrs 12/12/14**  
**Pioneer Log TD 4642 ft**

cfs @ 4370 ft  
 1955 hrs 12/11/14

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

cfs @ 4430 ft  
 0045 hrs 12/12/14

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

Morgan Mud chk @ 4640 ft.  
 1200 hrs. 12/12/14  
 Vis. 62 Wt. 9.6  
 PV 18 YP 21  
 WL 8.4  
 Cake 2/32,  
 pH 10.5  
 CHL 3600 ppm  
 Ca 20 ppm  
 Sol 9.2 LCM 2#  
 DMC \$976.00  
 CMC \$14,475.00





## DRILL STEM TEST REPORT

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

250 N Water STE 300  
Wichita KS 67202

ATTN: Keith Reavis

### **Chleborad #1-21**

#### **21-3S-33w Rawlins,KS**

Start Date: 2014.12.09 @ 05:00:15

End Date: 2014.12.09 @ 12:18:45

Job Ticket #: 58555                      DST #: 1

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

Printed: 2014.12.12 @ 17:22:24



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

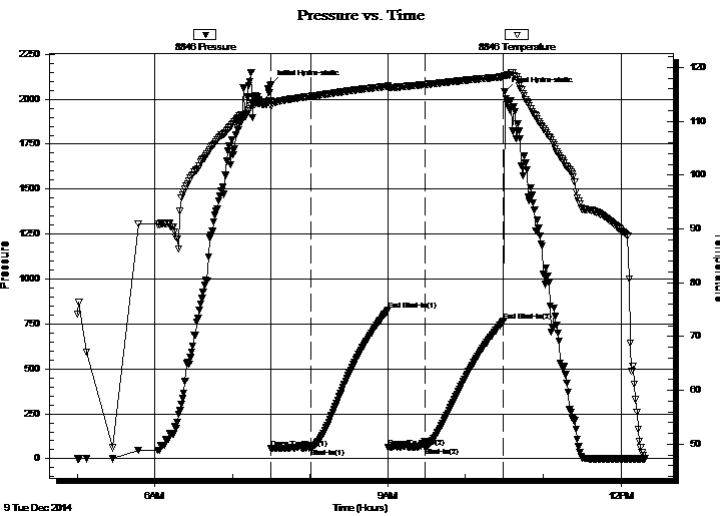
**21-3S-33w Rawlins, KS**  
**Chleborad #1-21**  
 Job Ticket: 58555 **DST#: 1**  
 Test Start: 2014.12.09 @ 05:00:15

## GENERAL INFORMATION:

Formation: **LKC A-D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 07:29:45  
 Time Test Ended: 12:18:45  
 Interval: **3912.00 ft (KB) To 4020.00 ft (KB) (TVD)**  
 Total Depth: 4020.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Mike Roberts  
 Unit No: 65  
 Reference Elevations: 3016.00 ft (KB)  
 3011.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8846 Inside**  
 Press@RunDepth: 65.36 psig @ 3918.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.09 Last Calib.: 2014.12.09  
 Start Time: 05:00:15 End Time: 12:18:45 Time On Btm: 2014.12.09 @ 07:29:30  
 Time Off Btm: 2014.12.09 @ 10:30:15

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



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.99	113.80	Initial Hydro-static
1	55.34	112.81	Open To Flow (1)
31	60.35	114.63	Shut-In(1)
91	825.87	116.52	End Shut-In(1)
91	62.38	116.21	Open To Flow (2)
120	65.36	116.81	Shut-In(2)
180	765.18	118.28	End Shut-In(2)
181	2043.09	118.54	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots 100% m	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Murfin Drilling Co. Inc.

**21-3S-33w Rawlins, KS**

250 N Water STE 300  
Wichita KS 67202

**Chleborad #1-21**

Job Ticket: 58555

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2014.12.09 @ 05:00:15

## GENERAL INFORMATION:

Formation: **LKC A-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:29:45

Time Test Ended: 12:18:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

**Interval: 3912.00 ft (KB) To 4020.00 ft (KB) (TVD)**

Total Depth: 4020.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3016.00 ft (KB)

3011.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8737**

**Outside**

Press@RunDepth: psig @ 3918.00 ft (KB)

Start Date: 2014.12.09

End Date:

2014.12.09

Capacity: 8000.00 psig

Last Calib.:

2014.12.09

Start Time: 05:00:15

End Time:

12:18:45

Time On Btm:

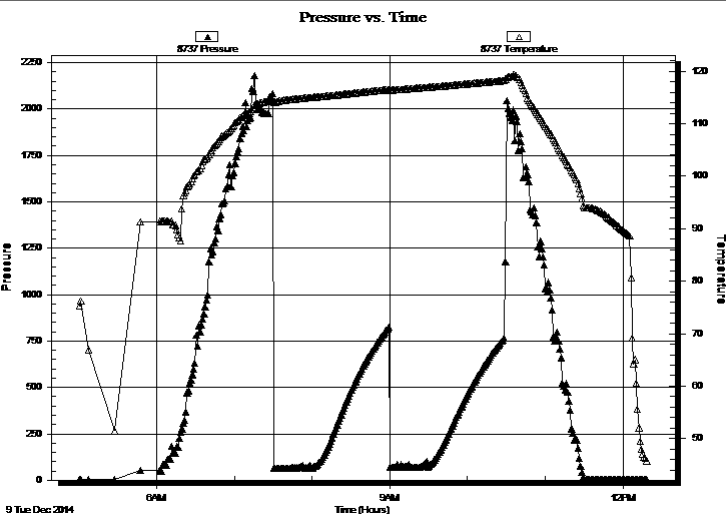
Time Off Btm:

TEST COMMENT: IF: Built to weak surface blow

IS: No return blow

FF: No blow

FS: No return blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots 100% m	0.02

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.Inc.

**21-3S-33w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Chleborad #1-21**

Job Ticket: 58555

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2014.12.09 @ 05:00:15

## Tool Information

Drill Pipe:	Length: 3707.00 ft	Diameter: 3.80 inches	Volume: 52.00 bbl	Tool Weight:	1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 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: 52.92 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	3912.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	108.00 ft				
Tool Length:	136.00 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			3885.00	
Shut In Tool	5.00			3890.00	
Hydraulic tool	5.00			3895.00	
Jars	5.00			3900.00	
Safety Joint	3.00			3903.00	
Packer	5.00			3908.00	28.00 Bottom Of Top Packer
Packer	4.00			3912.00	
Stubb	1.00			3913.00	
Perforations	5.00			3918.00	
Recorder	0.00	8846	Inside	3918.00	
Recorder	0.00	8737	Outside	3918.00	
Change Over Sub	1.00			3919.00	
Blank Spacing	95.00			4014.00	
Change Over Sub	1.00			4015.00	
Bullnose	5.00			4020.00	108.00 Bottom Packers & Anchor

**Total Tool Length: 136.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

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

**21-3S-33w Rawlins,KS**  
**Chleborad #1-21**  
Job Ticket: 58555      **DST#: 1**  
Test Start: 2014.12.09 @ 05:00:15

### Mud and Cushion Information

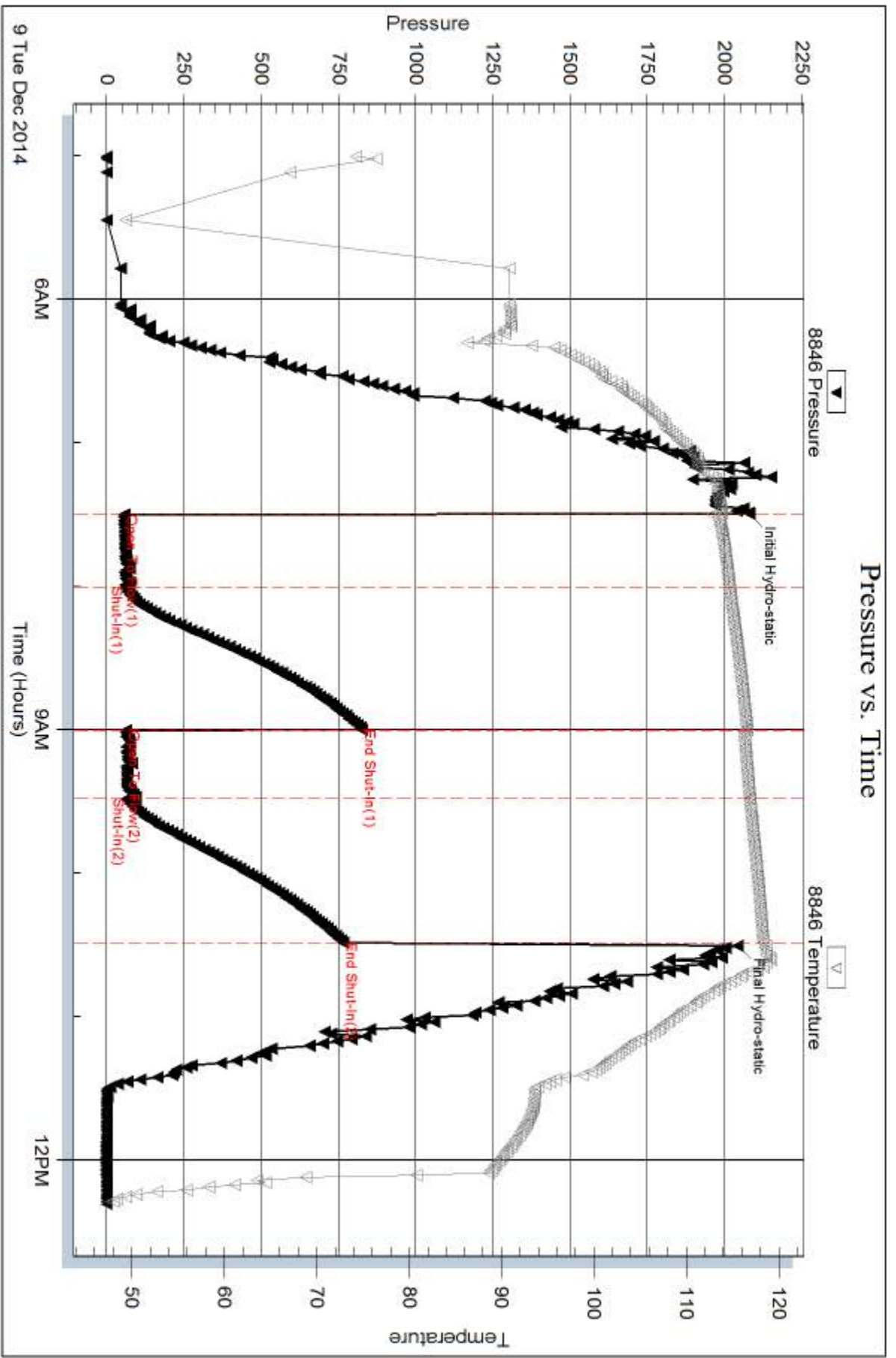
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 69.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.36 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1200.00 ppm			
Filter Cake: 2.00 inches			

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud w ith oil spots 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl  
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

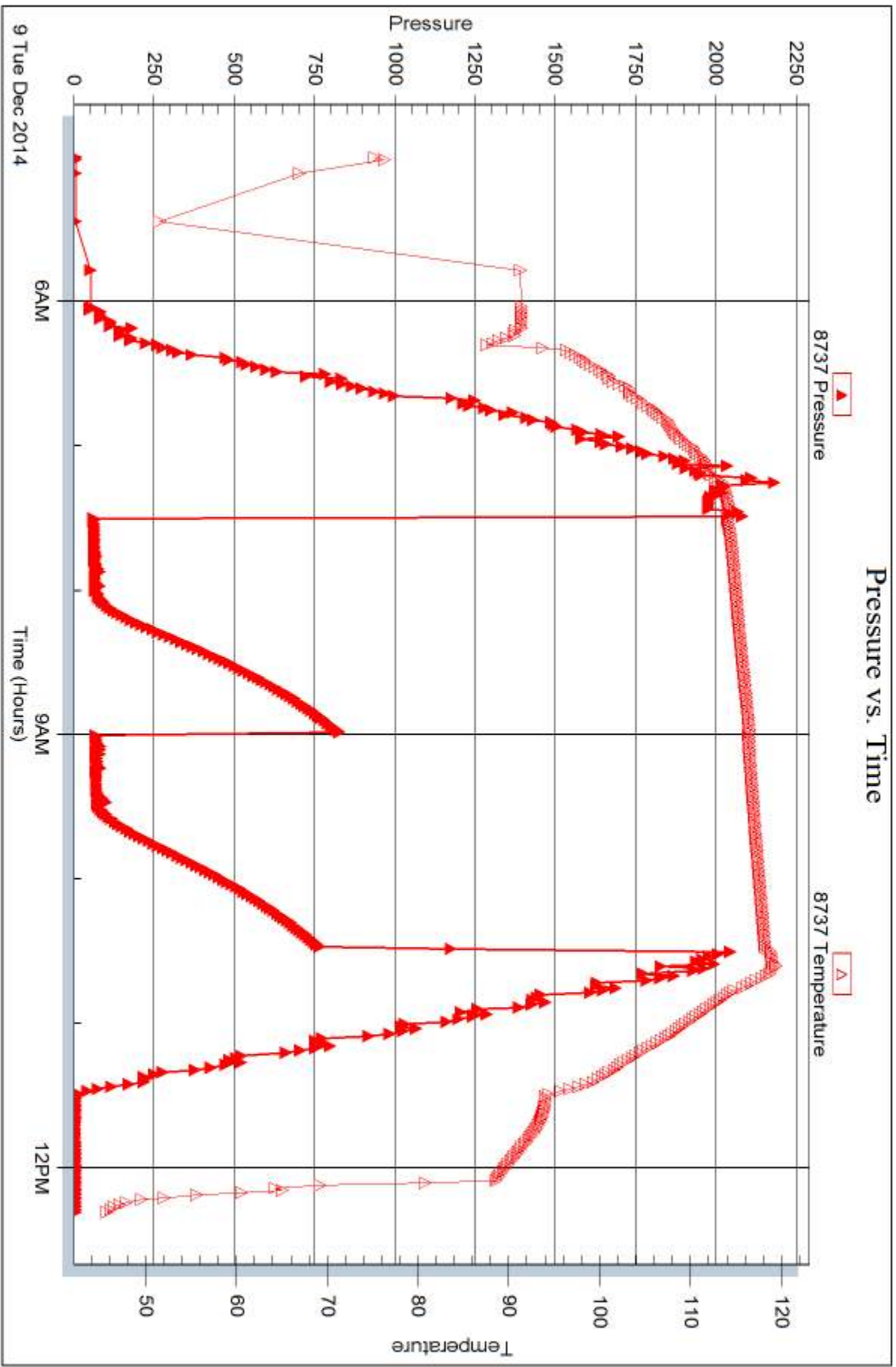


Serial #: 8737

Outside Murfin Drilling Co. Inc.

Oleborad #1-21

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 58555

Printed: 2014.12.12 @ 17:22:25



## DRILL STEM TEST REPORT

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

250 N Water STE 300  
Wichita KS 67202

ATTN: Keith Reavis

### **Chleborad #1-21**

#### **21-3S-33w Rawlins,KS**

Start Date: 2014.12.09 @ 21:02:15

End Date: 2014.12.10 @ 04:21:45

Job Ticket #: 58556                      DST #: 2

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

Printed: 2014.12.12 @ 17:21:58





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

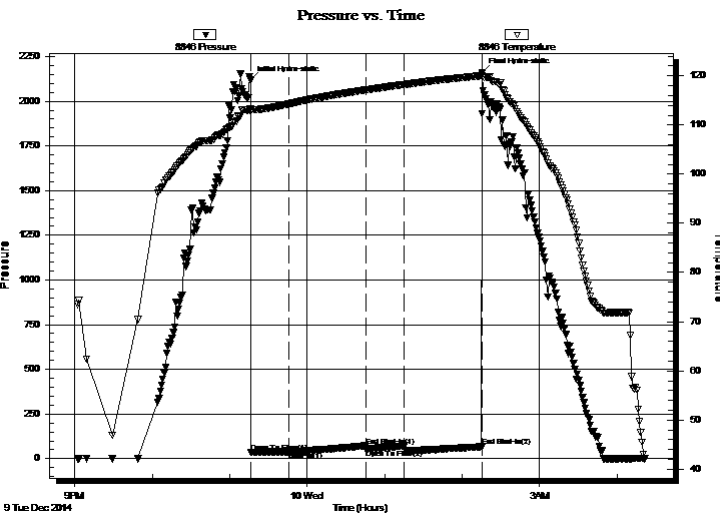
**21-3S-33w Rawlins, KS**  
**Chleborad #1-21**  
Job Ticket: 58556      **DST#: 2**  
Test Start: 2014.12.09 @ 21:02:15

## GENERAL INFORMATION:

Formation: **LKC F-G**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:16:15  
Time Test Ended: 04:21:45  
Interval: **4018.00 ft (KB) To 4070.00 ft (KB) (TVD)**  
Total Depth: 4070.00 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: 3016.00 ft (KB)  
3011.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8846      Inside**  
Press@RunDepth: 71.79 psig @ 4024.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.12.09      End Date: 2014.12.10      Last Calib.: 2014.12.10  
Start Time: 21:02:15      End Time: 04:21:45      Time On Btm: 2014.12.09 @ 23:16:00  
Time Off Btm: 2014.12.10 @ 02:15:30

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



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2118.04	113.29	Initial Hydro-static
1	36.43	112.79	Open To Flow (1)
30	39.09	114.26	Shut-In(1)
90	71.48	117.13	End Shut-In(1)
90	52.53	117.13	Open To Flow (2)
120	71.79	118.24	Shut-In(2)
179	67.12	120.02	End Shut-In(2)
180	2160.96	120.43	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud w ith oil spots	0.02

\* 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 Co.Inc.  
250 N Water STE 300  
Wichita KS 67202  
ATTN: Keith Reavis

**21-3S-33w Rawlins,KS**  
**Chleborad #1-21**  
Job Ticket: 58556 **DST#: 2**  
Test Start: 2014.12.09 @ 21:02:15

## Tool Information

Drill Pipe:	Length: 3833.00 ft	Diameter: 3.80 inches	Volume: 53.77 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 54.69 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4018.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	108.00 ft			
Tool Length:	136.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3991.00	
Shut In Tool	5.00			3996.00	
Hydraulic tool	5.00			4001.00	
Jars	5.00			4006.00	
Safety Joint	3.00			4009.00	
Packer	5.00			4014.00	28.00 Bottom Of Top Packer
Packer	4.00			4018.00	
Stubb	1.00			4019.00	
Perforations	5.00			4024.00	
Recorder	0.00	8846	Inside	4024.00	
Recorder	0.00	8737	Outside	4024.00	
Change Over Sub	1.00			4025.00	
Blank Spacing	95.00			4120.00	
Change Over Sub	1.00			4121.00	
Bullnose	5.00			4126.00	108.00 Bottom Packers & Anchor

**Total Tool Length: 136.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

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

**21-3S-33w Rawlins,KS**  
**Chleborad #1-21**  
Job Ticket: 58556      **DST#: 2**  
Test Start: 2014.12.09 @ 21:02:15

### 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: bbl		
Water Loss: 6.38 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1400.00 ppm			
Filter Cake: 2.00 inches			

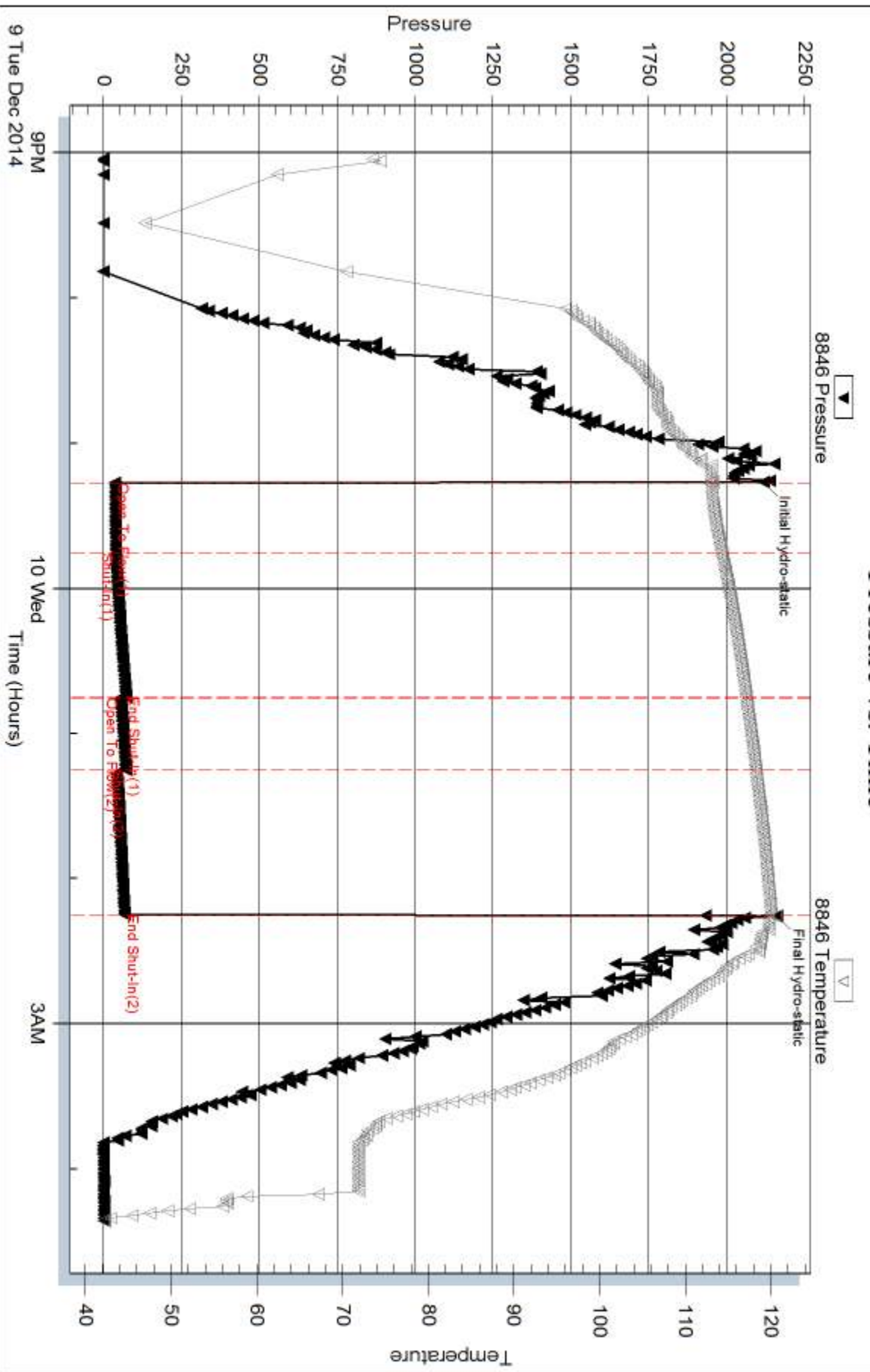
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud w ith oil spots	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time

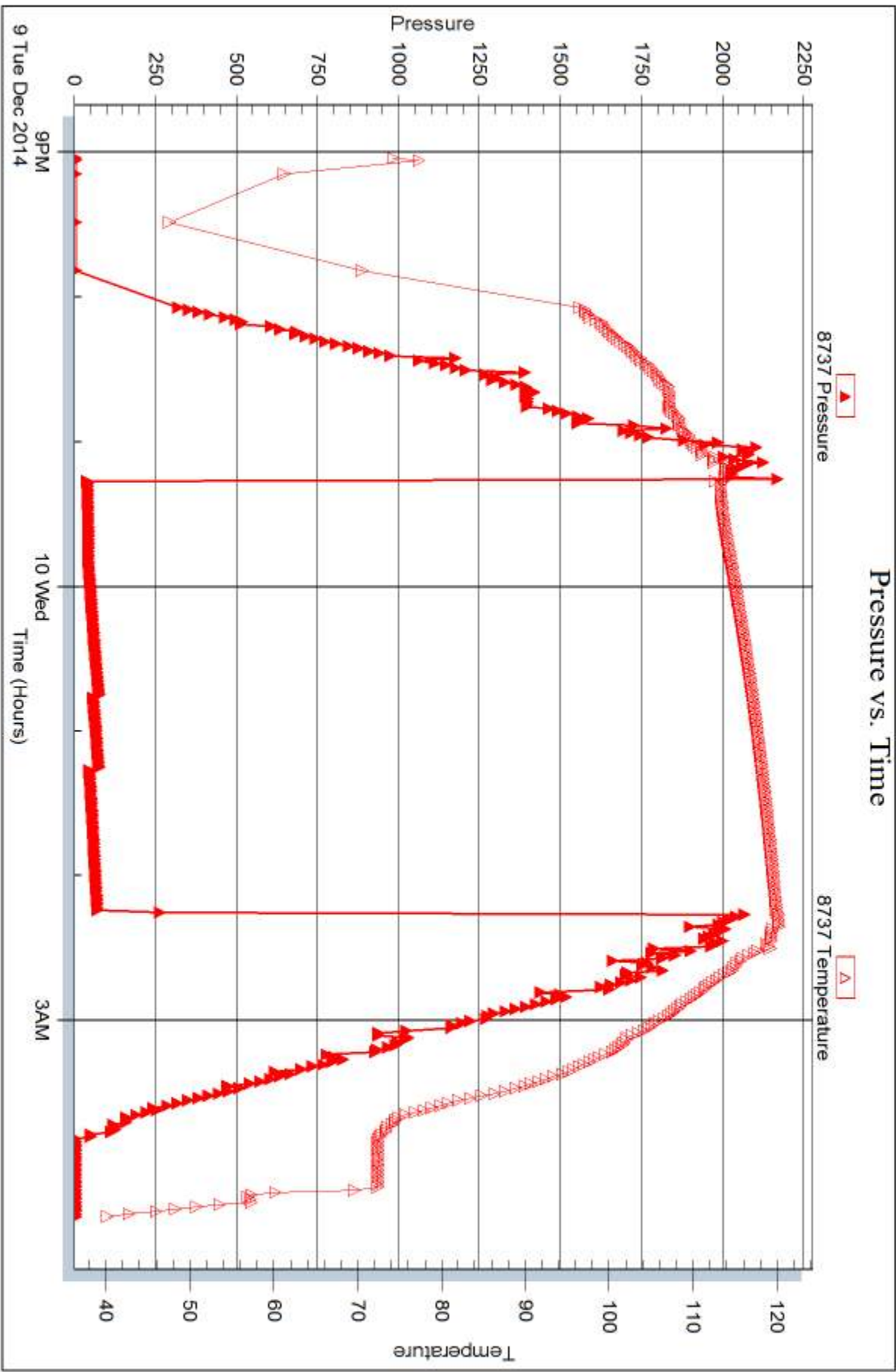


Serial #: 8737

Outside Murfin Drilling Co. Inc.

Oleborad #1-21

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 58556

Printed: 2014.12.12 @ 17:22:00



## DRILL STEM TEST REPORT

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

250 N Water STE 300  
Wichita KS 67202

ATTN: Keith Reavis

### **Chleborad #1-21**

### **21-3S-33w Rawlins,KS**

Start Date: 2014.12.10 @ 15:57:15

End Date: 2014.12.11 @ 00:45:15

Job Ticket #: 58557                      DST #: 3

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

Printed: 2014.12.12 @ 17:21:07



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

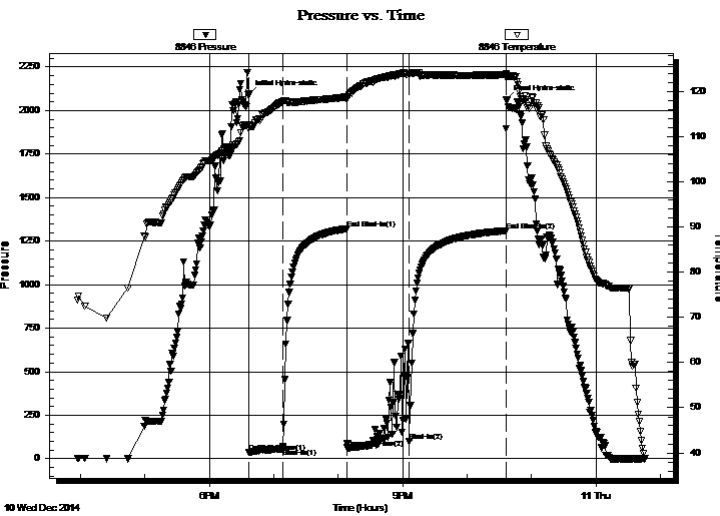
**21-3S-33w Rawlins, KS**  
**Chleborad #1-21**  
Job Ticket: 58557      **DST#: 3**  
Test Start: 2014.12.10 @ 15:57:15

## GENERAL INFORMATION:

Formation: **LKC J**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 18:36:45      Tester: Mike Roberts  
Time Test Ended: 00:45:15      Unit No: 65  
**Interval: 4091.00 ft (KB) To 4149.00 ft (KB) (TVD)**      Reference Elevations: 3016.00 ft (KB)  
Total Depth: 4149.00 ft (KB) (TVD)      3011.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair      KB to GR/CF: 5.00 ft

**Serial #: 8846      Inside**  
Press@RunDepth: 101.82 psig @ 4095.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2014.12.10      End Date: 2014.12.11      Last Calib.: 2014.12.11  
Start Time: 15:57:15      End Time: 00:45:15      Time On Btm: 2014.12.10 @ 18:36:30  
Time Off Btm: 2014.12.10 @ 22:36:45

TEST COMMENT: IF: Built to 2" blow  
IS: No return blow  
FF: Built to 2" blow  
FS: No return blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2094.13	112.60	Initial Hydro-static
1	36.68	111.81	Open To Flow (1)
32	58.06	117.74	Shut-In(1)
92	1319.81	118.75	End Shut-In(1)
92	62.85	118.22	Open To Flow (2)
150	101.82	123.95	Shut-In(2)
240	1309.66	123.65	End Shut-In(2)
241	2061.65	123.08	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	mud	0.61

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

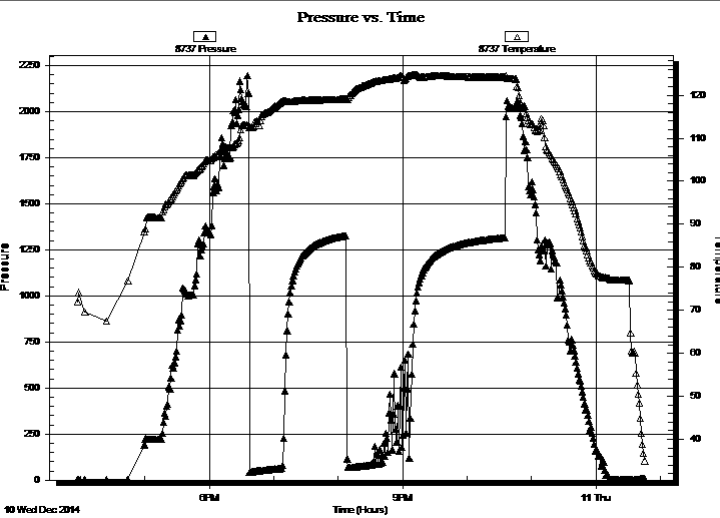
**21-3S-33w Rawlins, KS**  
**Chleborad #1-21**  
 Job Ticket: 58557 **DST#: 3**  
 Test Start: 2014.12.10 @ 15:57:15

### GENERAL INFORMATION:

Formation: **LKC J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:36:45  
 Time Test Ended: 00:45:15  
 Interval: **4091.00 ft (KB) To 4149.00 ft (KB) (TVD)**  
 Total Depth: 4149.00 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: 3016.00 ft (KB)  
 3011.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8737** **Outside**  
 Press@RunDepth: psig @ 4095.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.10 End Date: 2014.12.11 Last Calib.: 2014.12.11  
 Start Time: 15:57:15 End Time: 00:45:15 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: Built to 2" blow  
 IS: No return blow  
 FF: Built to 2" blow  
 FS: No return blow



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

Recovery		
Length (ft)	Description	Volume (bbl)
124.00	mud	0.61

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co.Inc.

**21-3S-33w Rawlins,KS**

250 N Water STE 300  
Wichita KS 67202

**Chleborad #1-21**

Job Ticket: 58557

**DST#: 3**

ATTN: Keith Reavis

Test Start: 2014.12.10 @ 15:57:15

## Tool Information

Drill Pipe:	Length: 3896.00 ft	Diameter: 3.80 inches	Volume: 54.65 bbl	Tool Weight:	1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 187.00 ft	Diameter: 2.25 inches	Volume: 0.92 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 55.57 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4091.00 ft			Final	61000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	58.00 ft				
Tool Length:	86.00 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			4064.00	
Shut In Tool	5.00			4069.00	
Hydraulic tool	5.00			4074.00	
Jars	5.00			4079.00	
Safety Joint	3.00			4082.00	
Packer	5.00			4087.00	28.00 Bottom Of Top Packer
Packer	4.00			4091.00	
Stubb	1.00			4092.00	
Perforations	3.00			4095.00	
Recorder	0.00	8846	Inside	4095.00	
Recorder	0.00	8737	Outside	4095.00	
Change Over Sub	1.00			4096.00	
Blank Spacing	32.00			4128.00	
Change Over Sub	1.00			4129.00	
Perforations	15.00			4144.00	
Bullnose	5.00			4149.00	58.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>86.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**21-3S-33w Rawlins,KS**  
**Chleborad #1-21**  
Job Ticket: 58557      **DST#: 3**  
Test Start: 2014.12.10 @ 15:57:15

## 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: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 3900.00 ppm			
Filter Cake: 2.00 inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	mud	0.610

Total Length: 124.00 ft      Total Volume: 0.610 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

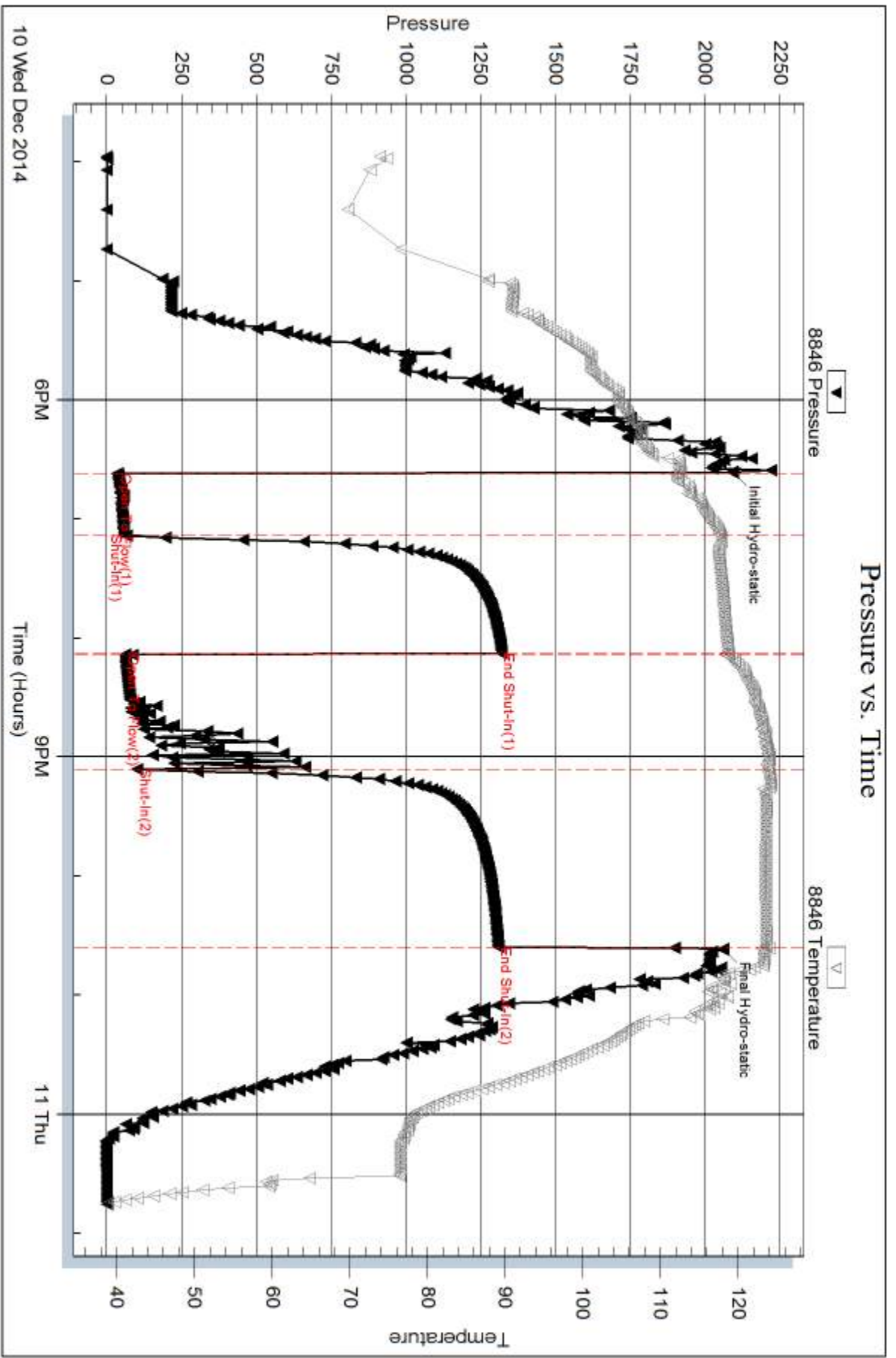
Serial #: 8846

Inside

Murfin Drilling Co. Inc.

Oleborad #1-21

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 58557

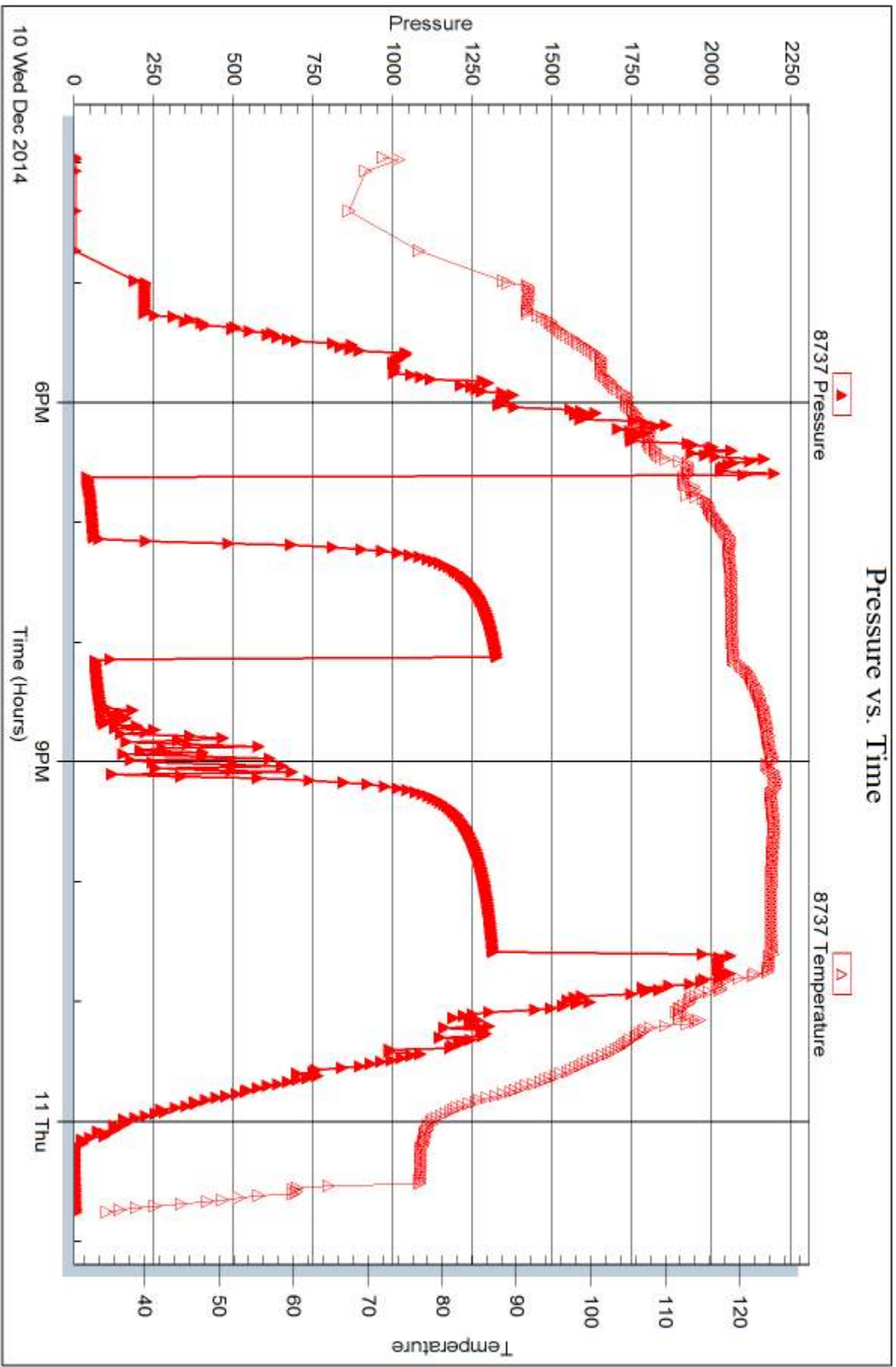
Printed: 2014.12.12 @ 17:21:08

Serial #: 8737

Outside Murfin Drilling Co. Inc.

Oleborod #1-21

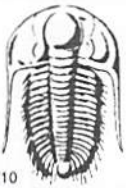
DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 58557

Printed: 2014.12.12 @ 17:21:08



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

785-650-5123

## Test Ticket

NO. 58555

Well Name & No. Chlorad #1-21 Test No. 1 Date 12-9-14  
 Company Murfin Drilling Co Inc. Elevation 3016 KB 3011 GL  
 Address 250 N. Water St 300 Wichita KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin 7  
 Location: Sec. 21 Twp. 3S Rge. 33W Co. Rawlins State KS

Interval Tested 3912-4020 Zone Tested Lansing A-D  
 Anchor Length 108 Drill Pipe Run ~~3662~~ 3707 Mud Wt. 9.2  
 Top Packer Depth 3907 Drill Collars Run ~~232~~ 187 Vis 69  
 Bottom Packer Depth 3912 Wt. Pipe Run Ø WL 6.4  
 Total Depth 4020 Chlorides 1200 ppm System LCM 2

Blow Description IF: Built to Weak Surface Blow  
IS: No Return Blow  
FF: NO Blow  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud with oil spots</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 5 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2079</u>	<input checked="" type="checkbox"/> Test <u>1250.00</u>	T-On Location <u>03:00</u>
(B) First Initial Flow <u>55</u>	<input checked="" type="checkbox"/> Jars <u>250.00</u>	T-Started <u>05:00</u>
(C) First Final Flow <u>60</u>	<input checked="" type="checkbox"/> Safety Joint <u>751.00</u>	T-Open <u>07:30</u>
(D) Initial Shut-In <u>825</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>10:30</u>
(E) Second Initial Flow <u>62</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>12:18</u>
(F) Second Final Flow <u>65</u>	<input checked="" type="checkbox"/> Mileage <u>222 RT 344.10</u>	Comments _____
(G) Final Shut-In <u>765</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2043</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

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

Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Sub Total 1668 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Mike Roberts

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. 58556

4/10

Well Name & No. ~~Chleborad~~ Chleborad #1-21 Test No. 2 Date 12-9-14  
 Company Murfin Drilling Co Inc. Elevation 3016 KB 3011 GL  
 Address 250 N. Water STE 300 Wichita KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin 7  
 Location: Sec. 21 Twp. 3S Rge. 33W Co. Rawlins State KS

Interval Tested 4018-4070 Zone Tested Lansing F+G  
 Anchor Length 52 Drill Pipe Run 3833 Mud Wt. 9.2  
 Top Packer Depth 4013 Drill Collars Run 187 Vis 55  
 Bottom Packer Depth 4018 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4070 Chlorides 1400 ppm System LCM 2

Blow Description IFI Built to 1" Blow  
IS: NO Return Blow  
FF: NO Blow  
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>MUD with oil spots</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 5 BHT 120 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>2118</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>20:00</u>
(B) First Initial Flow <u>36</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:02</u>
(C) First Final Flow <u>39</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:16</u>
(D) Initial Shut-In <u>71</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>02:16</u>
(E) Second Initial Flow <u>52</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>09:21</u>
(F) Second Final Flow <u>71</u>	<input checked="" type="checkbox"/> Mileage <u>74 RT From Motel</u>	Comments
(G) Final Shut-In <u>67</u>	<input type="checkbox"/> Sampler <u>93</u>	
(H) Final Hydrostatic <u>2160</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

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

Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

Sub Total 1668

Sub Total 1668

MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Mike Roberts

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 58557

Well Name & No. ~~Chleborad~~ Chleborad #1-21 Test No. 3 Date 12-10-14  
 Company Martin Drilling Co Inc. Elevation 3016 KB 3011 GL  
 Address 250 N. Water St # 300 Wichita KS 67202  
 Co. Rep / Geo. Keith Reavis Rig Martin 7  
 Location: Sec. 21 Twp. 3S Rge. 33W Co. Rawlins State KS

Interval Tested 4091-4149 Zone Tested J  
 Anchor Length 58 Drill Pipe Run 3896 Mud Wt. 9.4  
 Top Packer Depth 4086 Drill Collars Run 187 Vis 51  
 Bottom Packer Depth 4091 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4149 Chlorides 3900 ppm System LCM 2

Blow Description IF: Built to 2" Blow  
IS: No Return Blow  
FF: Built to 2" Blow  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</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 Total 124 BHT 123 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ F Chlorides \_\_\_\_\_ ppm

- (A) Initial Hydrostatic 2094
- (B) First Initial Flow 36
- (C) First Final Flow 58
- (D) Initial Shut-In 1319
- (E) Second Initial Flow 62
- (F) Second Final Flow 101
- (G) Final Shut-In 1309
- (H) Final Hydrostatic 2061

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

- Test 1250
- Jars 250
- Safety Joint 75
- Circ Sub \_\_\_\_\_
- Hourly Standby \_\_\_\_\_
- Mileage 74 RT From Moke
- Sampler 186
- Straddle \_\_\_\_\_
- Shale Packer \_\_\_\_\_
- Extra Packer \_\_\_\_\_
- Extra Recorder \_\_\_\_\_
- Day Standby \_\_\_\_\_
- Accessibility \_\_\_\_\_
- Sub Total 1761

- T-On Location 15:00
- T-Started 15:57
- T-Open 18:37
- T-Pulled 22:37
- T-Out 00:45
- Comments Loaded Tools  
12-12-14 at 12:00 PM  
left from house
- Ruined Shale Packer \_\_\_\_\_
- Ruined Packer \_\_\_\_\_
- Extra Copies \_\_\_\_\_
- Sub Total 0
- Total 1761
- MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Mike Roberts

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: 147503  
Invoice Date: Dec 5, 2014  
Page: 1

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

Federal Tax I.D.#: 20-8651475

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	64364	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Dec 5, 2014	1/4/15

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Chlershod #1-21		
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
532.40	CEMENT SERVICE	Ton Mileage Charge	2.75	1,464.10
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
55.00	CEMENT SERVICE	Pump Truck Mileage	7.70	423.50
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
55.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	242.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	EQUIPMENT OPERATOR	Wayne McGhghy		
1.00	OPERATOR ASSISTANT	Wayne Messalle		

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

\$ 3,023.31 *on 356 ✓*

ONLY IF PAID ON OR BEFORE  
Jan 4, 2015

Subtotal	8,638.05
Sales Tax	331.83
Total Invoice Amount	8,969.88
Payment/Credit Applied	
<b>TOTAL</b>	<b>8,969.88</b>

*OK RR*

3023.31

5946.57

# ALLIED OIL & GAS SERVICES, LLC 064364

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:  
Oakley, KS

DATE <u>12-5-14</u>	SEC. <u>21</u>	TWP. <u>3</u>	RANGE <u>33</u>	CALLED OUT	ON LOCATION <u>6:30pm</u>	JOB START <u>7:30pm</u>	JOB FINISH <u>8:00pm</u>
LEASE <u>Chlerswood</u>	WELL # <u>1-21</u>	LOCATION <u>Harwood St Rd, 1E, 1N, 2E,</u>			COUNTY <u>Rawlins</u>	STATE <u>KS</u>	
OLD OR NEW (Circle one)		<u>NEW</u>					
		<u>1 1/2 N, Le-Ho Blacktop, Winto</u>					

CONTRACTOR <u>Martin 7</u>	OWNER <u>Same</u>
TYPE OF JOB <u>Surface</u>	
HOLE SIZE <u>12 1/4</u> T.D. <u>219'</u>	CEMENT
CASING SIZE <u>8 7/8</u> DEPTH <u>219'</u>	AMOUNT ORDERED <u>200 stb com 3% cc</u>
TUBING SIZE _____ DEPTH _____	
DRILL PIPE _____ DEPTH _____	
TOOL _____ DEPTH _____	
PRES. MAX _____ MINIMUM _____	COMMON <u>200 stb @ 17.90 3580.00</u>
MEAS. LINE _____ SHOE JOINT _____	POZMIX @ _____
CEMENT LEFT IN CSG. <u>15'</u>	GEL @ _____
PERFS. _____	CHLORIDE <u>564# @ 1.10 620.40</u>
DISPLACEMENT <u>13.06</u>	ASC @ _____

EQUIPMENT			
PUMP TRUCK # <u>423/281</u>	CEMENTER <u>Larone Leland</u>	Material Cost.	<u>4,200.40</u>
BULK TRUCK # <u>818/282</u>	HELPER <u>Wayne Mahughy</u>	<u>(1710.17/352)</u>	
BULK TRUCK # _____	DRIVER <u>Wayne Massalle</u>		
BULK TRUCK # _____	DRIVER <u>William Crawford</u>		
	<u>(70)</u>	HANDLING <u>216 stb @ 2.98 643.68</u>	
		MILEAGE <u>268 stb X .55 X 2.95 422.00</u>	
		TOTAL _____	

REMARKS:

Mix 200 stb cement  
Displace with water  
Cement did circulate  
10 stb to PIT  
100 ft stop

Thank you

CHARGE TO: Martin

STREET \_\_\_\_\_

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

SERVICE		
DEPTH OF JOB <u>219'</u>		
PUMP TRUCK CHARGE _____	<u>1512.25</u>	
EXTRA FOOTAGE @ _____		
MILEAGE <u>MI 55 @ 2.70 1485.50</u>		
MANIFOLD <u>Savage @ 275.00</u>		
<u>MI 55 @ 4.90 2695.00</u>		
		TOTAL <u>4,437.65</u>

PLUG & FLOAT EQUIPMENT		
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
_____	@ _____	
		TOTAL _____

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 FEED Williams

SIGNATURE [Signature]

SALES TAX (If Any) \_\_\_\_\_

TOTAL CHARGES 4,437.65

DISCOUNT 3,023.31 (35%) IF PAID IN 30 DAYS

1,414.34 Net



PO Box 93999  
Southlake, TX 76092

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

*acct  
Prod-me*

# INVOICE

Invoice Number: 147620  
Invoice Date: Dec 12, 2014  
Page: 1

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	64860	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-03	Oakley	Dec 12, 2014	1/11/15

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Chleborad #1-21		
305.00	CEMENT MATERIALS	60/40/4% Gel Blend	18.92	5,770.60
76.25	CEMENT MATERIALS	Flo Seal	2.97	226.46
327.56	CEMENT SERVICE	Cubic Feet Charge	2.48	812.35
751.84	CEMENT SERVICE	Ton Mileage Charge	2.75	2,067.56
1.00	CEMENT SERVICE	Plug to Abandon	2,810.84	2,810.84
55.00	CEMENT SERVICE	Pump Truck Mileage	7.70	423.50
55.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	242.00
1.00	EQUIPMENT SALES	8 5/8 Dry Hole Plug	110.00	110.00
1.00	CEMENT SUPERVISOR	Andrew Forstlund		
1.00	EQUIPMENT OPERATOR	Brandon Wilkinson		
1.00	OPERATOR ASSISTANT	Shawn Tatro		

Subtotal	12,463.31
Sales Tax	984.60
Total Invoice Amount	13,447.91
Payment/Credit Applied	
<b>TOTAL</b>	<b>13,447.91</b>

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

\$ 4,323.66 ✓ *ok*

ONLY IF PAID ON OR BEFORE

Jan 11, 2015

*4323.66  
9124.25*

*MJR*

# ALLIED OIL & GAS SERVICES, LLC 064860

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:

colby

DATE <u>12-12-14</u>	SEC <u>21</u>	TWP <u>3</u>	RANGE <u>33</u>	CALLED OUT	ON LOCATION <u>10:30 PM</u>	JOB START <u>4:30 AM</u>	JOB FINISH <u>5:20 AM</u>
LEASE <u>CHLEB0190</u>	WELL # <u>1-21</u>		LOCATION <u>colby N TO RD L 1E 1N</u>		COUNTY <u>Rawlins</u>	STATE <u>KS</u>	
OLD OR NEW (Circle one) <u>NEW</u>			<u>2E 2 1/2 N WIND</u>				

CONTRACTOR <u>Murkin 7</u>	OWNER <u>same</u>
TYPE OF JOB <u>RTA</u>	
HOLE SIZE <u>7 7/8</u> T.D. <u>4640'</u>	CEMENT
CASING SIZE _____ DEPTH _____	AMOUNT ORDERED <u>305 sks 4 1/2 4 1/2 size</u>
TUBING SIZE _____ DEPTH _____	<u>1/2 Flu-seal</u>
DRILL PIPE <u>4 1/2</u> DEPTH <u>4536'</u>	
TOOL _____ DEPTH _____	
PRES. MAX _____ MINIMUM _____	COMMON _____ @ _____
MEAS. LINE _____ SHOE JOINT _____	POZMIX _____ @ _____
CEMENT LEFT IN CSG. _____	GEL _____ @ _____
PERFS. _____	CHLORIDE _____ @ _____
DISPLACEMENT _____	ASC _____ @ _____

EQUIPMENT			
PUMP TRUCK # <u>431</u>	CEMENTER <u>Andrew Horslund</u>	<u>Flu-seal 76.25</u>	@ <u>2.92</u> <u>226.46</u>
	HELPER <u>Brandon Wilkerson</u>		@ _____
BULK TRUCK # <u>818</u>	DRIVER <u>Shawn Tatro</u>	<u>MasterCard Total</u>	@ _____ <u>599.70</u>
BULK TRUCK # _____	DRIVER _____	<u>(2097.97 / 200)</u>	@ _____
		HANDLING <u>322.56 cu/ft</u>	@ <u>2.48</u> <u>812.34</u>
		MILEAGE <u>2.25 hrs/mile</u>	<u>13.6270</u> <u>261.758</u>

REMARKS:

50 sks @ 4536'  
50 sks @ 2790'  
100 sks @ 2061'  
50 sks @ 270'  
10 sks @ 40'  
15 sks @ mouse hole  
30 sks Red hole

Thank you

CHARGE TO: Murkin

STREET \_\_\_\_\_

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

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 FRED WILKINSON

SIGNATURE [Signature]

TOTAL	
SERVICE	
DEPTH OF JOB <u>4536'</u>	
PUMP TRUCK CHARGE _____	<u>2810.84</u>
EXTRA FOOTAGE _____ @ _____	
MILEAGE <u>55 miles</u>	@ <u>7.70</u> <u>423.50</u>
MANIFOLD _____ @ _____	
<u>Light vehicle</u>	@ <u>4.90</u> <u>242.00</u>

(2224.69 / 35%) TOTAL 6,356.25

PLUG & FLOAT EQUIPMENT	
<u>8 5/8</u>	
<u>1 Dry hole plug</u>	@ <u>110.00</u>
_____ @ _____	
_____ @ _____	
_____ @ _____	
_____ @ _____	
TOTAL <u>110.00</u>	

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

TOTAL CHARGES 12,463.32

DISCOUNT 4,323.66 (35%) IF PAID IN 30 DAYS

8,139.65 Net

Chleborad #1-21  
 Daily Drilling Report  
 Pg.2

12/14/14 RTD 4640'. CT: 2 ½ hrs. Allied plugged hole, 1:15AM – 5:30AM 12/13, as follows using 60/40 POZ, 4% gel, ¼# Floseal, 50sxs @4536', 50sxs @2790', 100sxs @2061', 50sxs @ 270', 10sxs @ 40', 30sxs RH, 15sxs MH. Orders: Marvin Mills, KCC. RR @9:30AM 12/13. FINAL REPORT.

		Chleborad #1-21 1960FSL 660FEL Sec. 21-3S-R33W 3016'KB					Chleborad #1 C SW SE Sec. 21-3S-R33W 3052' KB		
Formation	Sample top	Datum	Ref	Log tops	Datum	Ref	Log tops	Datum	
Anhydrite	2760	256	-3	2754	+262	+3	2793	+259	
B/Anhydrite	2790	226	+6	2790	+226	+6	2832	+220	
Topeka	3753	-737	+1	3751	-735	+3	3790	-738	
Heebner	3913	-897	+3	3914	-898	+2	3952	-900	
Lansing	3955	-939	+3	3957	-941	+1	3994	-942	
Stark	4146	-1130	+3	4145	-1129	+4	4185	-1133	
BKC	4196	-1180	-2	4195	-1179	+3	4234	-1182	
Pawnee	4320	-1304	+12	4319	-1303	+13	4368	-1316	
Cherokee	4396	-1380	+6	4396	-1380	+6	4438	-1386	
Mississippi	4564	-1548	-6	4544	-1528	+14	4594	-1542	
RTD	4640						4691		
LTD				4642					