

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas  DH  EOR

OG  GSW

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 EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

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  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

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

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

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

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

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

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

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	MEARS 'D' 1-36
Doc ID	1433380

All Electric Logs Run

DIL
DUCP
MEL
BHCS





Scale 1:240 Imperial

Well Name: Mears "D" #1-36  
Surface Location: Sec. 36 - T1S - R38W  
Bottom Location:  
API: 15-023-21500-0000  
License Number: 30606  
Spud Date: 11/16/2018 Time: 4:15 PM  
Region: Cheyenne  
Drilling Completed: 11/24/2018 Time: 1:35 PM  
Surface Coordinates: 1200' FSL & 990' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 3259.00ft  
K.B. Elevation: 3264.00ft  
Logged Interval: 3900.00ft To: 5047.00ft  
Total Depth: 5047.00ft  
Formation: Mississippian  
Drilling Fluid Type: Chemical/Fresh Water Gel

#### 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: Mears "D" #1-36  
Location: Sec. 36 - T1S - R38W  
API: 15-023-21500-0000  
Pool:  
State: Kansas Field: Wildcat  
Country: USA

#### SURFACE CO-ORDINATES

Well Type: Vertical  
Longitude: -101.525948  
Latitude: 39.919357  
N/S Co-ord: 1200' FSL  
E/W Co-ord: 990' 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 #: 3  
Rig Type: mud rotary  
Spud Date: 11/16/2018 Time: 4:15 PM  
TD Date: 11/24/2018 Time: 1:35 PM  
Rig Release: Time:

**ELEVATIONS**

K.B. Elevation: 3264.00ft  
K.B. to Ground: 5.00ft

Ground Elevation: 3259.00ft

**daily drilling report**

DATE	7:00 AM DEPTH	REMARKS
11/18/2018		on location 2100 hrs, @ 3895 ft, running bit trip
11/19/2018	4035	resume drilling @ 0015 hrs, drilling ahead, Stotler, Topeka, Oread, Lansing, show in A zone warrants test, short trip, TOH w/bit, in w/tools
11/20/2018	4236	conduct and complete DST #1, successful test, back on bottom w/bit, drill ahead to D zone, show warrants test, TOH w/bit and in w/tools, conduct And complete DST #2, successful test
11/21/2018	4340	TIH w/bit, resume drilling, show in G zone warrants test, TOH for DST #3 conduct and complete DST #3, successful test, TIH w/bit, resume drilling
11/22/2018	4440	show in J zone warrants test, TOH w/bit, in w/tools, conduct and complete DST #4, successful test, TIH w/bit, drill ahead, base KC, Marmaton
11/23/2018	4747	drilling ahead, Marmaton, Ft. Scott, Breezy Hill, Celia, show in Ft. Scott warrants test, short trip, TOH w/bit, conducting DST #5
11/24/2018	4810	finish pulling test tools, TIH w/PDC bit, rathole to TD, reached TD of 5047' @ 1335 hrs, cfs, short trip, etch, TOH for logs, conduct and complete logging operations, geologist off loc 2330 hrs

**well comparison sheet**

DRILLING WELL					COMPARISON WELL				
Mears D #1-36					Shakespeare - Burkhalter#1				
1200' FSL 990' FEL					30' W C NE SW				
Sec. 36- T1S - R38W					Sec. 32 - T1S - R37W				
3264 KB					3181 KB			Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	
Stotler	3921	-657	3919	-655	3838	-657	0	2	
Topeka	3991	-727	3987	-723	3909	-728	1	5	
Oread	4132	-868	4126	-862	4050	-869	1	7	
Lansing	4206	-942	4202	-938	4123	-942	0	4	
Lansing G	4334	-1070	4323	-1059	4245	-1064	-6	5	
Lansing J	4417	-1153	4415	-1151	4332	-1151	-2	0	
Mound City	4484	-1220	4486	-1222	4398	-1217	-3	-5	
Marmaton	4522	-1258	4521	-1257	4438	-1257	-1	0	
Ft. Scott	4616	-1352	4612	-1348	4529	-1348	-4	0	
Celia	4701	-1437	4699	-1435	4614	-1433	-4	-2	
Mississippian	4928	-1664	4924	-1660	4852	-1671	7	11	
Total Depth	5047	-1783	5046	-1782	4971	-1790	7	8	

**NOTES**

After consideration of negative 5 drill stem tests and electrical log analysis, it was determined that the Mears "D" #1-36 was non-commercial and therefore should 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.

There were a total of 5 drill stem tests conducted during the drilling of this well. The intervals are marked within the lithology log. Full test reports are attached at the bottom of this log.

Respectfully submitted.

### ROCK TYPES

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

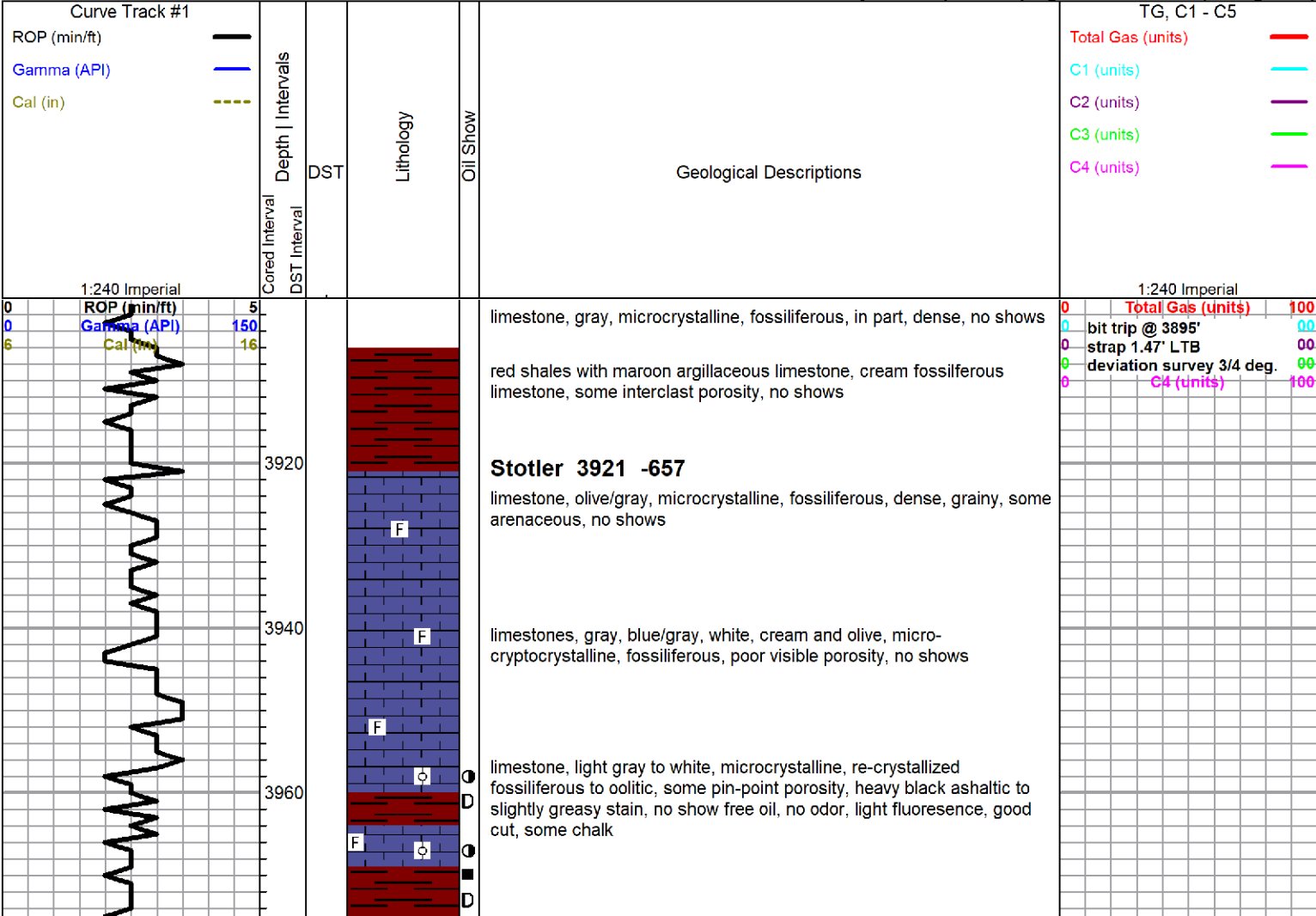
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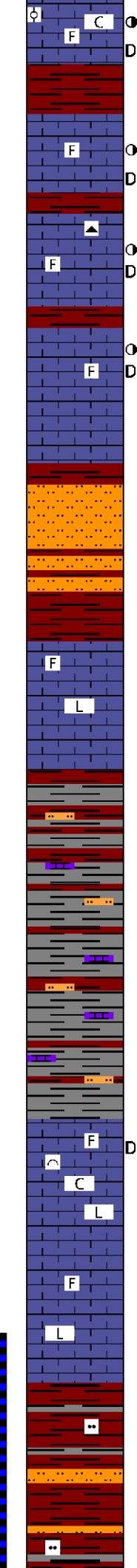
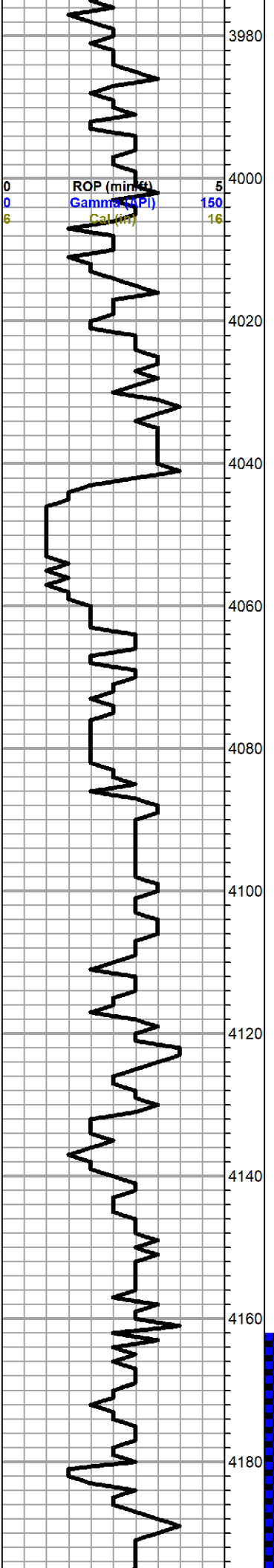
<b>MINERAL</b>	<b>FOSSIL</b>	<b>STRINGER</b>	<b>TEXTURE</b>
⊥ Calcareous	∩ Bioclastic or Fragmental	■ Limestone	C Chalky
▲ Chert, dark	☉ Coral	● Sandstone	L Lithogr
P Pyrite	F Fossils < 20%	■ Siltstone	
• Silty	⊙ Oolite		
△ Chert White			
■ Argillaceous/Shale			

### OTHER SYMBOLS

<b>MISC</b>	<b>Oil Show</b>	<b>DST</b>
Daily Report	● Good Show	■ DST Int
Digital Photo	● Fair Show	■ DST alt
Document	● Poor Show	■ Core
Folder	○ Spotted or Trace	■ tail pipe
Link	○ Questionable Stn	
Vertical Log File	⊔ Dead Oil Stn	
Horizontal Log File	■ Fluorescence	
Core Log File	* Gas	
Drill Cuttings Rpt		

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





**Topeka 3991 -727**  
 limestone, white to cream to light gray, micro-cryptocrystalline, fossiliferous, chalky in part, abundant limestone a.a., show decreasing

a.a. some orange chert nodules, some loose chert, orange to brick red, traces of staining (from above?)

limestone, white to gray and cream, some lavender, mixed crystalline, fossiliferous, chalky in part, some white black stained limestone, chalky, pin-point porosity, no show free oil, no odor, good cut

show drops out

siltstone, red, fairly well cemented, heavy red wash in samples, with red silty shale

**Deer Creek 4064 -800**  
 limestone, light gray, olive, mostly cryptocrystalline, fossiliferous to lithographic, dense, some white limestone, soft, chalky, no shows

shale, lavender, brick red, gray, silty, with gray to lavender siltstones and silty limestones

**Oread 4132 -868**  
 limestone, light gray to white, weathered, recrystallized fossiliferous to bioclastic, some chert nodules, some chalky, pinpoint porosity, dead black heavy staining, no show free oil, no odor, light fluorescence, slow streaming cut

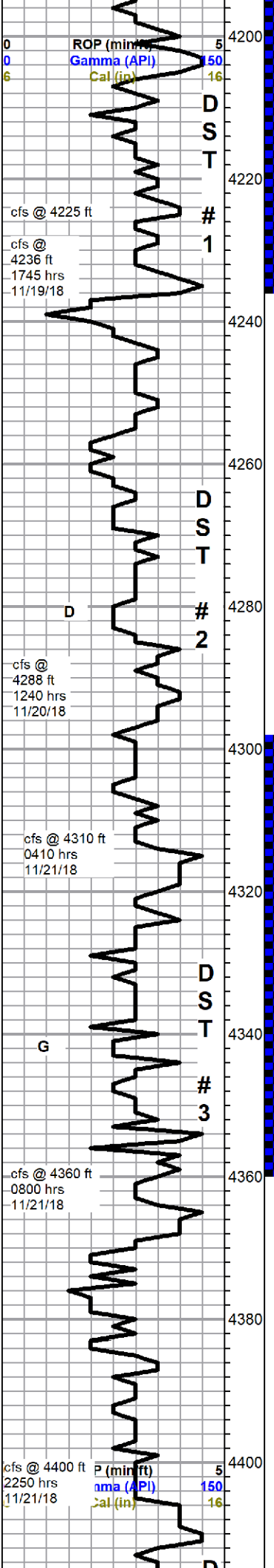
grades to limestone, gray to tan, dense, cryptocrystalline, mostly lithographic, mostly barren, few scattered pieces with recrystallized clasts and interclast dead stain

red to brick red silty shale, gray shale, light gray soft siltstone, red siltstones

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

Morgan Mud chk  
 @ 4050 ft.  
 0735 hrs. 11/19/18  
 Vis. 67 Wt. 8.6  
 PV 20 YP 24  
 WL 5.6  
 Cake 1/32,  
 pH 12.0  
 CHL 600 ppm  
 Ca 10 ppm  
 Sol 2.2 LCM 3#  
 DMC \$2428.00  
 CMC \$16531.00





### Lansing 4206 -942

limestone, gray to cream to olive/gray, mostly cryptocrystalline and lithographic, some weathered to chalky in top with dead black stain, 4225 sample picks up limestone w/ small solution vugs, live stain in vugs, slightly gassy, slight show free oil on break, no odor, light to poor fluorescence, excellent cut

limestone a.a., show drops out

mixed shales and siltstones

dst 2.JPG

4288 sample - limestone, gray to tan and white, microcrystalline, recrystallized oolitic and fossiliferous, some weathered chalky, some fair inter-clast porosity, fair saturated staining, heavy streaming sheen, good show free and bleeding oil, faint odor, overall poor fluorescence, excellent bright white cut

30 min sample, a.a. increase in oil show, some gassy, stronger odor than above

limestone, white to light gray, cryptocrystalline, fossiliferous, chalky in part, poor visible porosity, trace spotty stain, no show free oil, no odor

dst 3.JPG

limestone, white to gray, mostly cryptocrystalline, re-crystallized fossiliferous, some weathered, spongy, good solution vug porosity, fair wormy to saturated stain, good streaming sheen, slight show free oil, faint odor, poor fluorescence, excellent cut

30 min cfs - lower G a.a. with abundant gray arenaceous/silty limestone, barren

limestone, mixed gray to cream, micro-cryptocrystalline, lithographic to fossiliferous to arenaceous, poor overall visible porosity, trace pyritic, trace dead black stain, no show free oil, no odor, light fluorescence, 1 piece with some tarry clingy heavy oil, poor cut

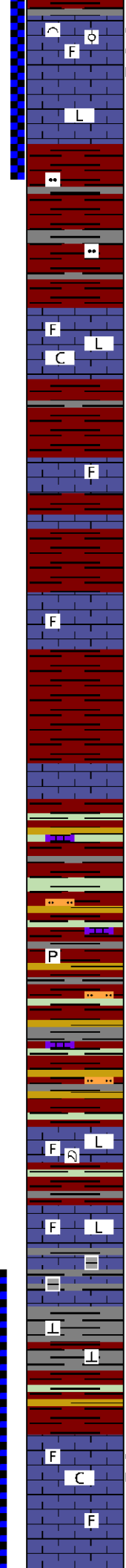
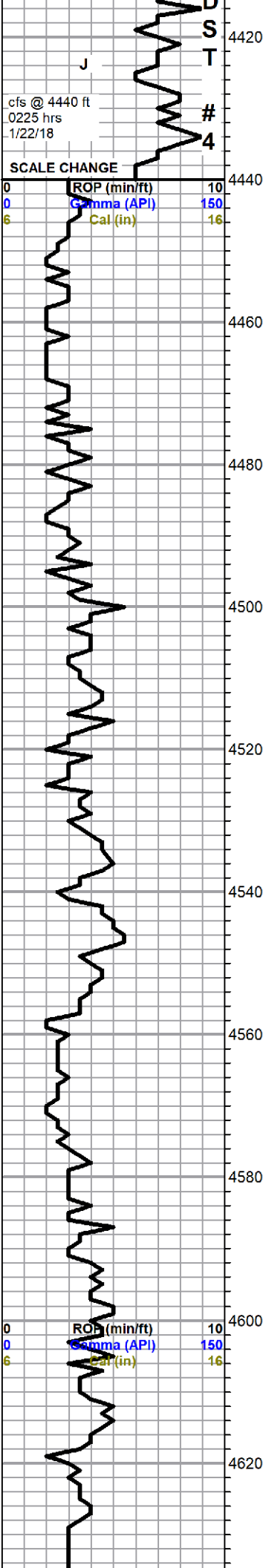
dst 4.JPG

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

Morgan Mud chk @ 4236 ft.  
1000 hrs. 11/20/18  
Vis. 69 Wt. 8.7  
PV 21 YP 23  
WL 6.0  
Cake 2/32,  
pH 11.0  
CHL 2000 ppm  
Ca 10 ppm  
Sol 2.9 LCM 4#  
DMC \$170.00  
CMC \$16701.00

Morgan Mud chk @ 4351 ft.  
0730 hrs. 11/21/18  
Vis. 55 Wt. 8.9  
PV 17 YP 18  
WL 6.0  
Cake 2/32,  
pH 11.0  
CHL 1600 ppm  
Ca 10 ppm  
Sol 4.3 LCM 3#  
DMC \$0.00  
CMC \$16701.00

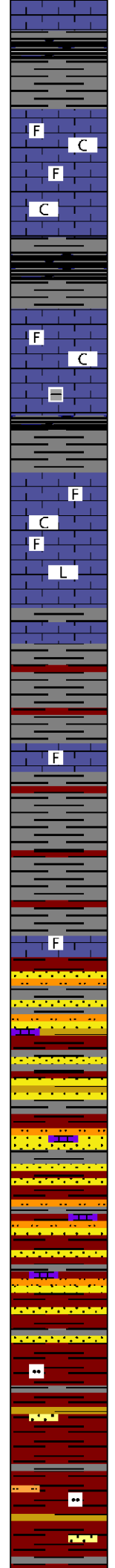
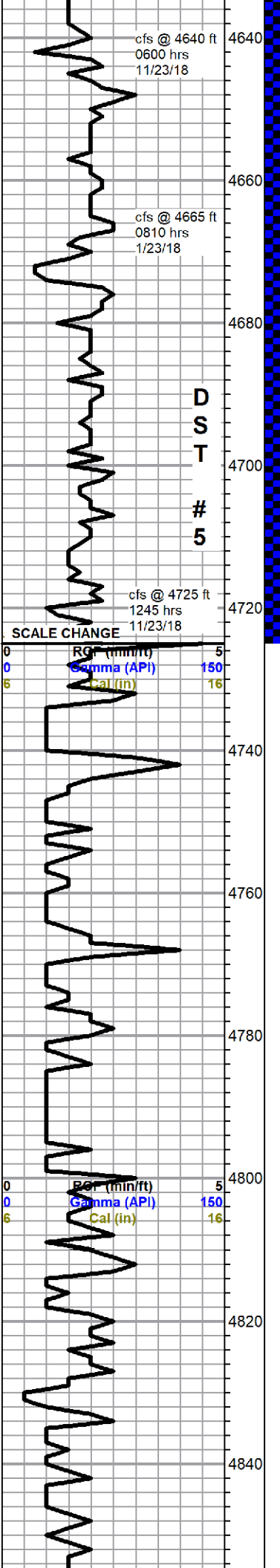
0	Total Gas (units)	100
0	C1 (units)	100
0	C2 (units)	100
0	C3 (units)	100
0	C4 (units)	100



limestone, tan to gray and white, some maroon tinting, bioclastic to oolitic and fossiliferous, some interclast pin-point porosity, scattered light to fair stain, slight sheen with trace free oil on break, no odor, good even fluorescence, light to fair cut with halo  
 grades to limestone, gray to light gray, cryptocrystalline, lithographic to slightly fossiliferous, dense, no shows  
 red silty shales, some gray  
 limestone, light gray to white, micro-cryptocrystalline, fossiliferous and lithographic, chalky to dense, poor visible porosity, no shows  
 shales a.a. with abundant brick orange/red shales  
 limestone a.a.  
**Mound City 4484 -1220**  
 limestone, light gray to cream, microcrystalline, fossiliferous, some grainy, poor visible porosity, no shows  
 shale, red silty to brick, some gray and green  
**Marmaton 4522 -1258**  
 limestone, cream to light gray, mostly cryptocrystalline, fossiliferous and lithographic, some grainy with trace porosity, mostly dense, no shows  
 shale, mixed red, maroon, lavender, gray, green, olive, some pyritic, with stringers limestone and pale green siltstone  
 limestone, white to cream, microcrystalline, oolitic to fossiliferous with some coral fan fragments, poor visible porosity, with limestone cryptocrystalline, light gray to lavender, dense lithographic to arenaceous, no shows  
 limestone, argillaceous to calcareous limey shale, fairly homogenous, dense  
**Fort Scott 4616 -1352**  
 limestone, cream to light gray, cryptocrystalline, fossiliferous to lithographic, some weathered, chalky in part, some fair pin-point porosity and surface etching, spotty to saturated brown to black stain, streaming sheen with some free oil, fair show free oil on break, faint odor, good to fair fluorescence, fair cut with halo  
 show drops out in lower part of bench

**Morgan Mud chk**  
 @ 4440 ft.  
 0730 hrs. 11/22/18  
 Vis. 67 Wt. 9.0  
 PV 20 YP 22  
 WL 5.6  
 Cake 2/32,  
 pH 11.5  
 CHL 1300 ppm  
 Ca 10 ppm  
 Sol 5.0 LCM 4#  
 DMC \$2392.00  
 CMC \$19093.00

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



shale, black carbonaceous

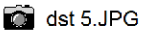
limestone, light gray to tan, cryptocrystalline, some secondary crystals, fossiliferous to sub-lithographic, dense, abundant chalk, no shows

shale, black carbonaceous

limestone, light gray, micro-cryptocrystalline, fossiliferous, fairly dense, poor visible porosity, with variable gray arenaceous to argillaceous limestone, some chalk in samples, no shows

**Celia 4701 -1437**

limestones, mixed gray tan and brown, mixed crystalline, fossiliferous to lithographic, some grainy, some lithographic, poor visible porosity, no shows, some chalk



shale, gray, lavender, purple and red shales, trace

limestone, white to gray, fossiliferous, chalky in part, sandy in part, no shows

shale a.a., increasing red shale, heavy red wash

shale a.a. with sandstone, mixed white quartz to red, green and lavender, dirty, mixed grain, poorly sorted, varying cementation, abundant soft siltstones, no shows, some pyrite, limestone stringers, some large quartz grains

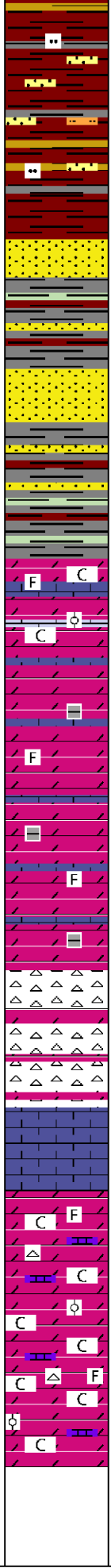
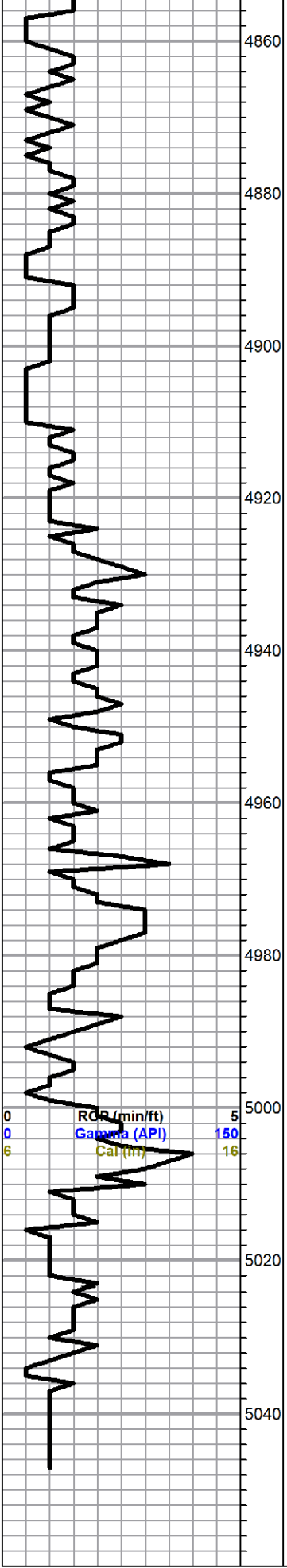
grades to mostly shale, silty red, maroon and lavender, with some gray and olive, heavy red wash, some scattered sands and silts

Morgan Mud chk @ 4640 ft. 0625 hrs. 11/23/18  
 Vis. 58 Wt. 9.0  
 PV 18 YP 19  
 WL 5.6  
 Cake 2/32,  
 pH 11.5  
 CHL 1000 ppm  
 Ca 10 ppm  
 Sol 5.0 LCM 3#  
 DMC \$2072.00  
 CMC \$21165.00

back in hole with PDC bit after DST #5

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

Morgan Mud chk @ 4826 ft. 0730 hrs. 11/24/18  
 Vis. 64 Wt. 9.2  
 PV 19 YP 21  
 WL 5.6  
 Cake 2/32,  
 pH 11.5  
 CHL 1000 ppm  
 Ca 10 ppm  
 Sol 6.4 LCM 2#  
 DMC \$136.00  
 CMC \$21301.00



sandstone, white, gray, red, green, lavender, mostly fine grain and fair rounded, poorly sorted, variable cementing, poor visible porosity no shows, some large quartz grains and pyrite, with shale, mostly gray and maroon, minor lavender, green and red, silty to sandy, some micaceous

**Mississippian 4928 -1664**

dolomite, dolomitic limestone and limestone, recrystallized fossiliferous, some oolitic, some weathered and chalky, grainy in part, poor visible porosity, no shows, abundant chalk

grades to dolomite and dolomitic limestone, variable gray, micro-cryptocrystalline, sub-sucrosic to arenaceous, argillaceous to sub-lithographic, mixed with dolomite and limestone a.a., no shows

chert, white to gray mottled, fossiliferous, mostly fresh, with dolomite, white to light gray, microcrystalline, sub-sucrosic, some glauconitic, dense to chalky, abundant chalk, no shows

limestone, dolomitic, tan to brown, cryptocrystalline, fossiliferous in part, cherty, dense, no visible porosity, no shows

dolomite, tan to white and gray mottled, weathered, recrystallized fossiliferous to oolitic, chalky, with scattered limestone a.a., scattered chert, appx 40% chalk in samples, no shows

Rotary TD 5047 ft @ 1335 hrs 11/24/18  
 Pioneer wireline TD 5046 ft  
 complete logging operations 2330 hrs 11/24/18

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

**dst 1.JPG**

 <b>TRILOBITE TESTING, INC</b>	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc.  250 N. Water STE 300 Wichita, Ks 67202  ATTN: Keith Reavis	<b>36-1S-38W</b>  <b>Mears "D" #1-36</b> Job Ticket: 63798 <b>DST#: 1</b>  Test Start: 2018.11.19 @ 22:37:00

<b>GENERAL INFORMATION:</b>			
Formation:	<b>Lansing 'A'</b>		
Deviated:	No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (initial)
Time Tool Opened:	00:51:15		Tester: Royal Fisher
Time Test Ended:	06:12:00		Unit No: #77
Interval:	<b>4162.00 ft (KB) To 4236.00 ft (KB) (TVD)</b>		Reference Elevations: 3264.00 ft (KB)
Total Depth:	4236.00 ft (KB) (TVD)		3259.00 ft (CF)
Hole Diameter:	7.88 inches Job Condition:		KB to GB/CE: 5.00 ft

Serial #: 8673

Outside

Press@RunDepth: 21.85 psig @ 4163.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.11.19 End Date: 2018.11.20

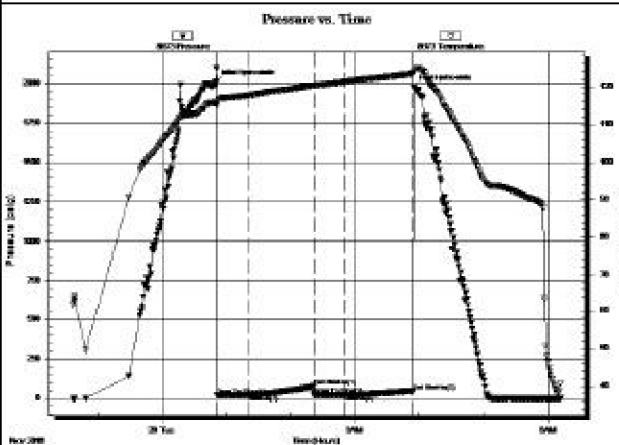
Last Calib.: 2018.11.20

Start Time: 22:37:05 End Time: 06:11:59

Time On Btm: 2018.11.20 @ 00:50:15

Time Off Btm: 2018.11.20 @ 03:54:45

TEST COMMENT: 30 - IFP - Surface blow built up to 1/4"  
60 - ISI - No Return  
30 - FFP - No Surface blow  
60 - FSI - No Return



### PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2007.10	115.73	Initial Hydro-static
1	19.41	115.06	Open To Flow (1)
31	21.55	117.76	Shut-In (1)
92	75.69	120.28	End Shut-In (1)
92	21.11	120.29	Open To Flow (2)
121	21.85	121.35	Shut-In (2)
184	46.33	123.43	End Shut-In (2)
185	1970.21	123.94	Final Hydro-static


### Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud - 100% m	0.02

### Gas Rates

C Hole (Inches)	Pressure (psig)	Gas Rate (Mcf/D)

dst 2.JPG

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N. Water STE 300 Wichita, Ks 67202 ATTN: Keth Reavis	<b>36-1S-38W</b>  <b>Mears "D" #1-36</b> Job Ticket: 63799 <b>DST#: 2</b> Test Start: 2018.11.20 @ 15:39:00

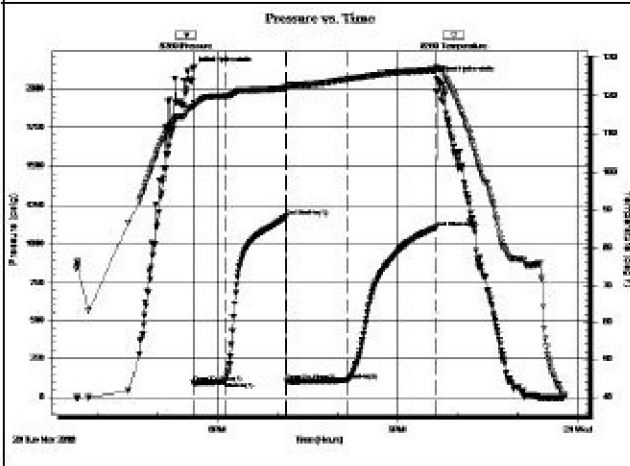
### GENERAL INFORMATION:

Formation: **Lansing D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:36:15  
 Time Test Ended: 23:45:45  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: #77  
 Interval: **4226.00 ft (KB) To 4288.00 ft (KB) (TVD)**  
 Reference Elevations: 3284.00 ft (KB)  
 Total Depth: 4288.00 ft (KB) (TVD) 3259.00 ft (CF)  
 Hole Diameter: 7.88 inches -hole Condition: KB to GRVCF: 5.00 ft

Serial #: 8360

Press@RunDepth: 110.07 psig @ 8000.00 psig  
 Start Date: 2018.11.20 End Date: 2018.11.20 Last Calib.: 2018.11.20  
 Start Time: 15:39:05 End Time: 23:45:44 Time On Btm: 2018.11.20 @ 17:35:30  
 Time Off Btm: 2018.11.20 @ 21:39:15

**TEST COMMENT:** 30 - IFP - Surface blow built up to about 6 1/4"  
 60 - ISI - No Return  
 60 - FFP - Surface blow built up to 3"  
 90 - FSI - No Return

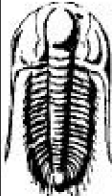


PRESSURE SUMMARY			
Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2124.88	117.17	Initial Hydro-static
1	92.78	116.86	Open To Flow(1)
33	101.37	119.95	Shut-In(1)
93	1173.22	122.06	End Shut-In(1)
94	105.47	121.98	Open To Flow(2)
156	110.07	124.33	Shut-In(2)
243	1105.20	126.85	End Shut-In(2)
244	2061.27	127.39	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
124.00	OCM - 40%α - 60%β	0.61
93.00	OCM - 30%α - 70%β	0.67

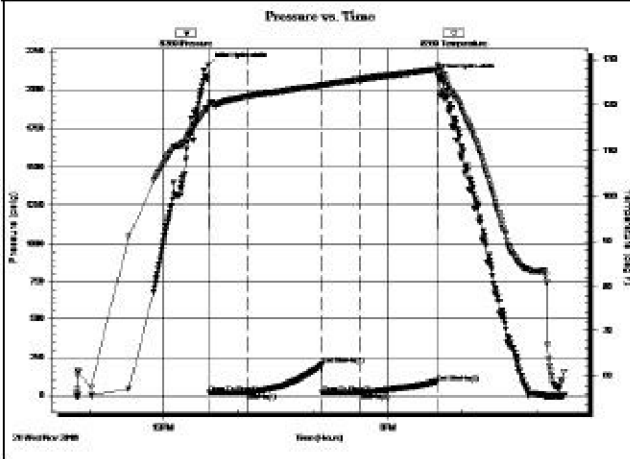
Gas Rates			
	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/D)

dst 3.JPG

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N. Water STE 300 Wichita, Ks 67202 ATTN: Keth Reavis	<b>36-1S-38W</b> <b>Mears "D" #1-36</b> Job Ticket: 63800 <b>DST#: 3</b> Test Start: 2018.11.21 @ 10:50:00
<b>GENERAL INFORMATION:</b>		
Formation: <b>G Zone</b> Deviated: No Whipstock:      ft (KB) Time Tool Opened: 12:37:15 Time Test Ended: 17:21:45	Test Type: Conventional Bottom Hole (Initial) Tester: Royal Fisher Unit No: #77	
Interval: <b>4298.00 ft (KB) To 4360.00 ft (KB) (TVD)</b> Total Depth: 4360.00 ft (KB) (TVD) Hole Diameter: 7.68 inches -hole Condition:	Reference Elevations: 3264.00 ft (KB) 3259.00 ft (CF) KB to GR/CF: 5.00 ft	
<b>Serial #: 8360      Outside</b>		
Press@RunDepth: 20.32 psig @ 4299.00 ft (KB) Start Date: 2018.11.21      End Date: 2018.11.21	Capacity: 8000.00 psig Last Calib.: 2018.11.21	

Start Time: 10:50:05 End Time: 17:21:44 Time On Btm: 2018.11.21 @ 12:36:30  
 Time Off Btm: 2018.11.21 @ 15:40:15

TEST COMMENT: 30 - IFP - Surface bbw built up to 3/4"  
 60 - ISI - No Return  
 30 - FFP - No Surface Blw  
 60 - FSI - No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.06	119.22	Initial Hydro-static
1	16.39	120.00	Open To Flw(1)
32	18.38	121.86	Shut-In(1)
91	201.24	124.42	End Shut-In(1)
92	19.88	124.37	Open To Flw(2)
122	20.32	125.69	Shut-In(2)
183	87.01	127.78	End Shut-In(2)
184	2089.93	128.69	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
10.00	OCM - 15%o - 8.5%sm	0.05

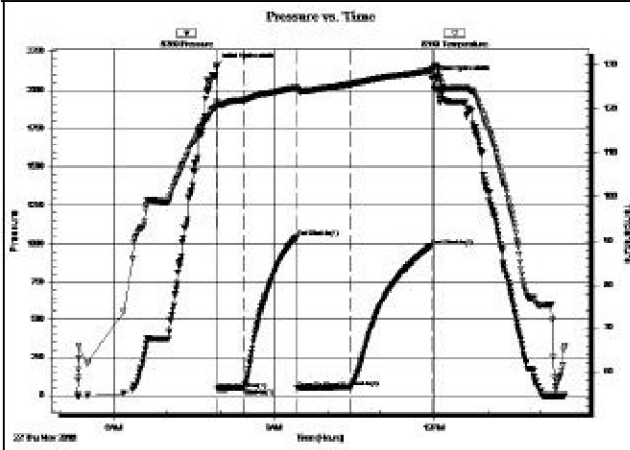
Gas Rates			
	Choke (Inches)	Pressure (psig)	Gas Rate (MDD)

dst 4.JPG

	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N. Water STE 300 Wichita, Ks 67202 ATTN: Keth Reavis	<b>36-1S-38W</b> <b>Mears "D" #1-36</b> Job Ticket: 65376 <b>DST#: 4</b> Test Start: 2018.11.22 @ 05:18:00
<b>GENERAL INFORMATION:</b>		
Formation: <b>H &amp; J</b> Deviated: No      Whipstock:      ft (KB) Time Tool Opened: 07:55:45 Time Test Ended: 14:26:45	Test Type: Conventional Bottom Hole (Initial) Tester: Royal Fisher Unit No: #77	
Interval: <b>4353.00 ft (KB) To 4440.00 ft (KB) (TVD)</b> Total Depth: <b>4440.00 ft (KB) (TVD)</b> Hole Diameter: 7.88 inches      Hole Condition:	Reference Elevations: 3264.00 ft (KB) 3259.00 ft (CF) KB to GR/CF: 5.00 ft	
<b>Serial #: 8360</b>		
Press@RunDepth: 51.24 psig @      ft (KB) Start Date: 2018.11.22      End Date: 2018.11.22 Start Time: 05:18:05      End Time: 14:26:45	Capacity: 8000.00 psig Last Calib.: 2018.11.22 Time On Btm: 2018.11.22 @ 07:55:15 Time Off Btm: 2018.11.22 @ 11:57:45	



TEST COMMENT: 30 - IFP - Surface bbw built up to 3"  
 60 - ISI - No Return  
 60 - FFP - No Surface Bbw  
 90 - FSI - No Return



PRESSURE SUMMARY			
Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2158.10	121.55	Initial Hydro-static
1	42.47	120.78	Open To Flow (1)
32	46.04	122.01	Shut-In(1)
91	1044.06	124.79	End Shut-In(1)
91	47.17	124.41	Open To Flow (2)
151	51.24	125.54	Shut-In(2)
242	983.18	128.57	End Shut-In(2)
243	2077.51	128.96	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
72.00	Mud - 100%m	0.35

Gas Rates			
	Choke (Inches)	Pressure (psig)	Gas Rate (Mcf/d)

dst 5.JPG

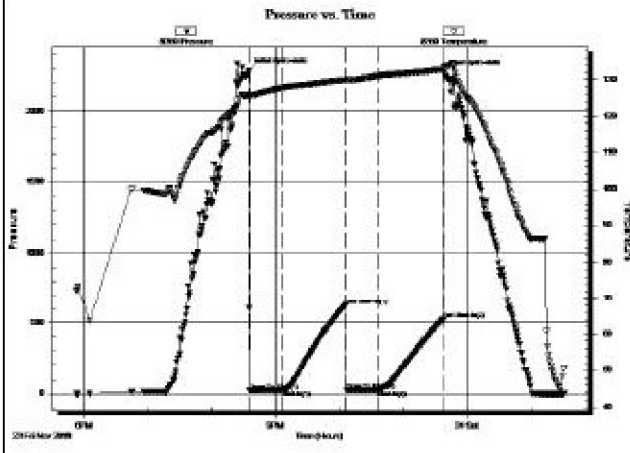
	<b>DRILL STEM TEST REPORT</b>	
	Murfin Drilling Co., Inc. 250 N. Water STE 300 Wichita, Ks 67202 ATTN: Keth Reavis	<b>36-1S-38W</b> <b>Mears "D" #1-36</b> Job Ticket: 65377 <b>DST#: 5</b> Test Start: 2018.11.23 @ 17:53:00

GENERAL INFORMATION:			
Formation:	<b>Fort Scott - Celia</b>		
Deviated:	No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened:	20:36:00		Tester: Royal Fisher
Time Test Ended:	01:30:45		Unit No: #77
Interval:	<b>4593.00 ft (KB) To 4725.00 ft (KB) (TVD)</b>		Reference Elevations: 3264.00 ft (KB)
Total Depth:	4725.00 ft (KB) (TVD)		3259.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	KB to GR/CF: 5.00 ft

<b>Serial #: 8360</b>				Capacity:	8000.00 psig
Press@RunDepth:	27.36 psig @	ft (KB)		Last Calib.:	2018.11.24
Start Date:	2018.11.23	End Date:	2018.11.24	Time On Btm:	2018.11.23 @ 20:35:30
Start Time:	17:53:05	End Time:	01:30:44	Time Off Btm:	2018.11.23 @ 23:38:15

TEST COMMENT: 30 - IFP - Surface blow built up to 3/4"  
 60 - ISI - No Return

60 - FSI - No Return  
 30 - FFP - No Surface blow  
 60 - FSI - No Return



**PRESSURE SUMMARY**

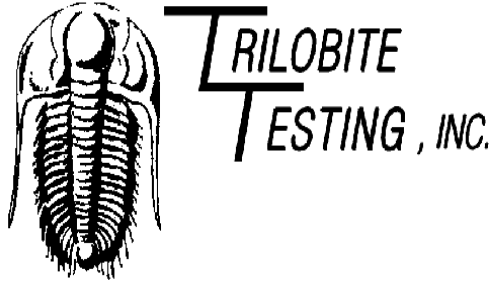
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2283.99	125.87	Initial Hydro-static
1	22.33	125.42	Open To Flow(1)
31	24.52	127.66	Shut-In(1)
91	628.39	129.91	End Shut-In(1)
92	25.91	129.76	Open To Flow(2)
121	27.36	130.94	Shut-In(2)
182	521.49	132.73	End Shut-In(2)
183	2271.07	133.33	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbt)
5.00	Mud - 100% <sub>m</sub>	0.02

**Gas Rates**

	Choke (Inches)	Pressure (psig)	Gas Rate (McfD)



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Mears "D" #1-36**

#### **36-1S-38W Cheyenne,KS**

Start Date: 2018.11.19 @ 22:37:00

End Date: 2018.11.20 @ 06:12:00

Job Ticket #: 63798                      DST #: 1

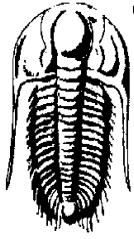
Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.11.27 @ 08:57:46

Murfin Drilling Co., Inc.  
36-1S-38W Cheyenne,KS  
Mears "D" #1-36  
DST # 1  
LKC 'A'  
2018.11.19







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63798

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2018.11.19 @ 22:37:00

## Tool Information

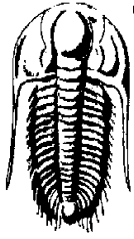
Drill Pipe:	Length: 3978.10 ft	Diameter: 3.25 inches	Volume: 40.82 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 176.55 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 41.69 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	20.65 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4162.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	102.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4139.00	
Hydraulic tool	5.00			4144.00	
Jars	5.00			4149.00	
Safety Joint	3.00			4152.00	
Packer	5.00			4157.00	28.00 Bottom Of Top Packer
Packer	5.00			4162.00	
Stubb	1.00			4163.00	
Recorder	0.00	8360	Inside	4163.00	
Recorder	0.00	8673	Inside	4163.00	
Perforations	6.00		Outside	4169.00	
Change Over Sub	1.00		Outside	4170.00	
Drill Pipe	62.00			4232.00	
Change Over Sub	1.00			4233.00	
Bullnose	3.00			4236.00	74.00 Bottom Packers & Anchor

**Total Tool Length: 102.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63798

**DST#: 1**

ATTN: Keith Reavis

Test Start: 2018.11.19 @ 22:37:00

## 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: 67.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud - 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

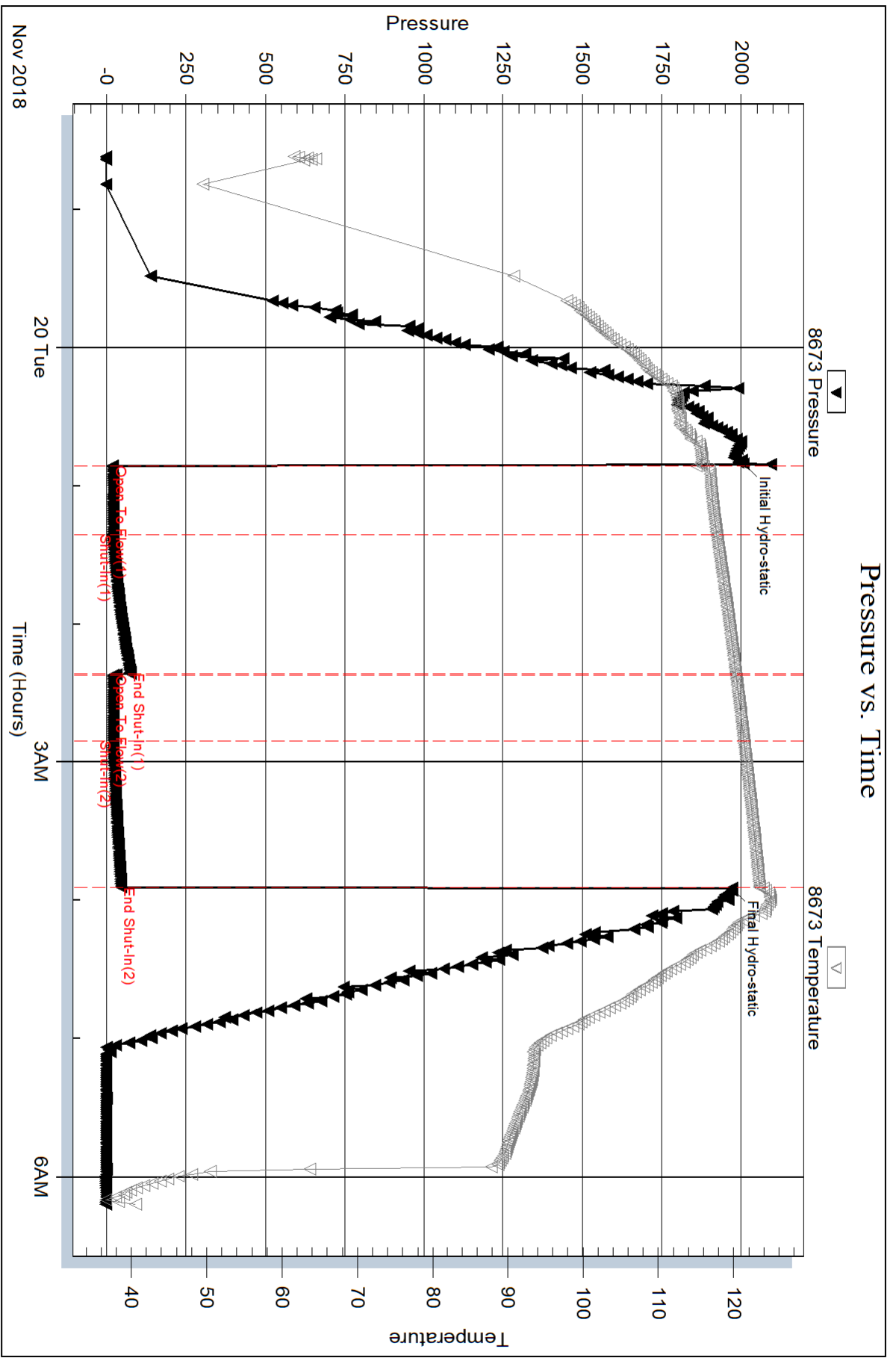
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





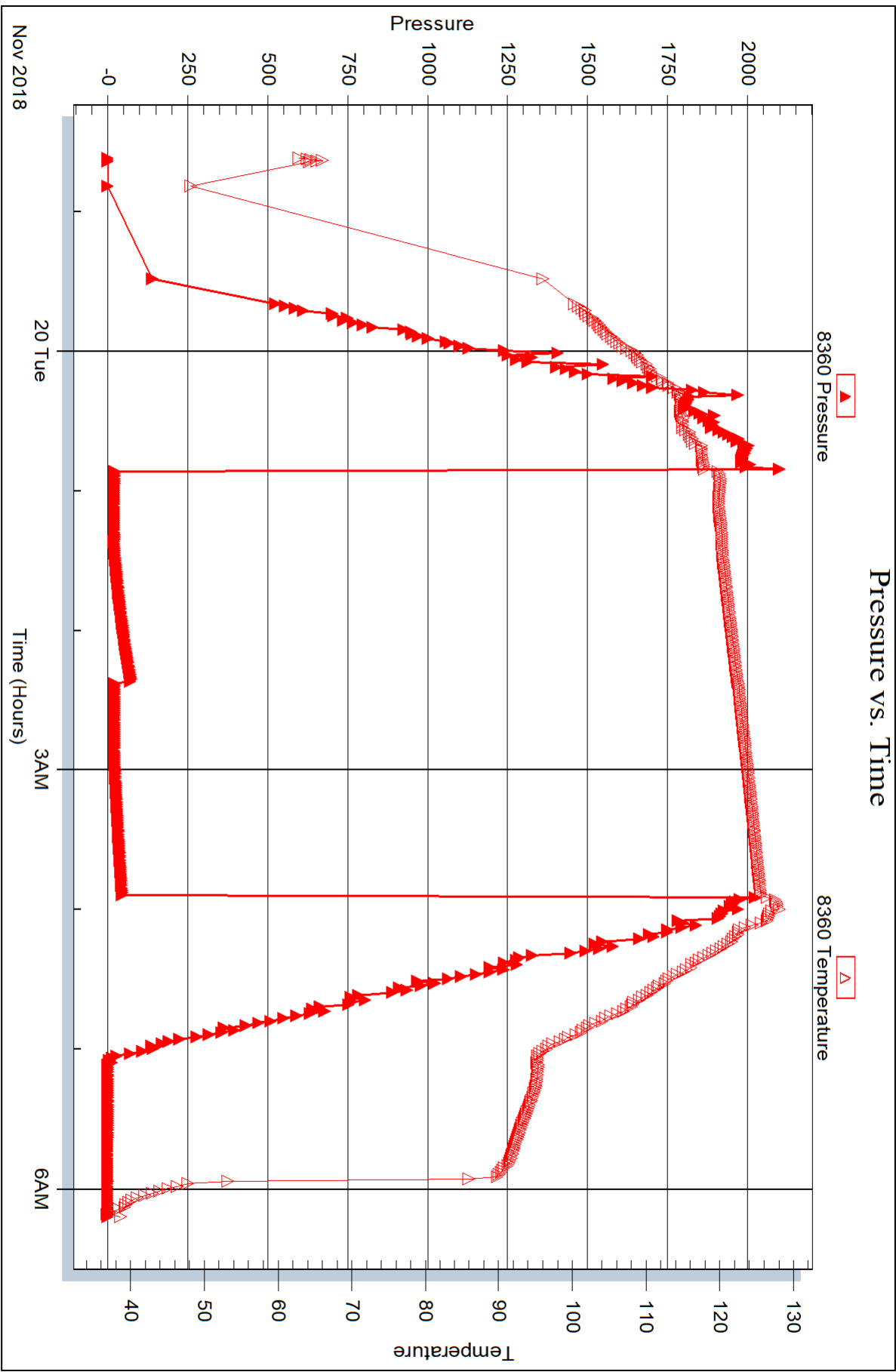
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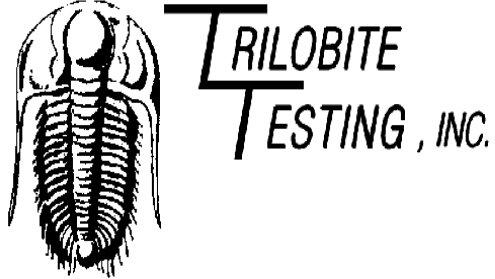
Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Keith Reavis

**Mears "D" #1-36**

**36-1S-38W Cheyenne,KS**

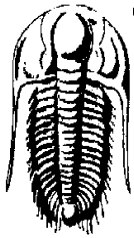
Start Date: 2018.11.20 @ 15:39:00

End Date: 2018.11.20 @ 23:45:45

Job Ticket #: 63799                      DST #: 2

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

Printed: 2018.11.27 @ 08:57:21



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne, KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63799

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2018.11.20 @ 15:39:00

## GENERAL INFORMATION:

Formation: **LKC D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:36:15

Time Test Ended: 23:45:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

**Interval: 4226.00 ft (KB) To 4288.00 ft (KB) (TVD)**

Reference Elevations: 3264.00 ft (KB)

Total Depth: 4288.00 ft (KB) (TVD)

3259.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8360**

**Inside**

Press@RunDepth: 110.07 psig @ 4227.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.11.20

End Date:

2018.11.20

Last Calib.:

2018.11.20

Start Time: 15:39:05

End Time:

23:45:44

Time On Btm:

2018.11.20 @ 17:35:30

Time Off Btm:

2018.11.20 @ 21:39:15

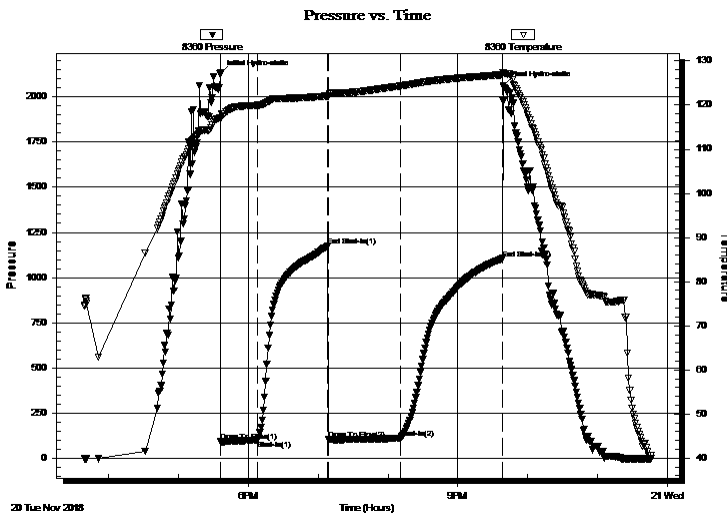
**TEST COMMENT:** 30 - IFP - Surface blow built up to about 8 1/4"

60 - ISI - No Return

60 - FFP - Surface blow built up to 3"

90 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2124.88	117.17	Initial Hydro-static
1	92.78	116.86	Open To Flow (1)
33	101.37	119.95	Shut-In(1)
93	1173.22	122.06	End Shut-In(1)
94	105.47	121.98	Open To Flow (2)
156	110.07	124.33	Shut-In(2)
243	1105.20	126.85	End Shut-In(2)
244	2061.27	127.39	Final Hydro-static

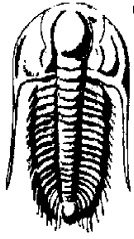
## Recovery

Length (ft)	Description	Volume (bbl)
124.00	OCM - 40%o - 60%m	0.61
93.00	OCM - 30%o - 70%m	0.67

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne, KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63799

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2018.11.20 @ 15:39:00

## Tool Information

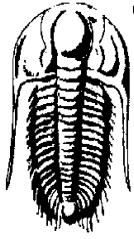
Drill Pipe:	Length: 4041.45 ft	Diameter: 3.25 inches	Volume: 41.47 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 176.55 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 42.34 bbl</u>	Tool Chased 15.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4226.00 ft			Final 60000.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4203.00	
Hydraulic tool	5.00			4208.00	
Jars	5.00			4213.00	
Safety Joint	3.00			4216.00	
Packer	5.00			4221.00	28.00 Bottom Of Top Packer
Packer	5.00			4226.00	
Stubb	1.00			4227.00	
Recorder	0.00	8360	Inside	4227.00	
Recorder	0.00	8673	Inside	4227.00	
Perforations	25.00		Outside	4252.00	
Change Over Sub	1.00		Outside	4253.00	
Drill Pipe	31.00			4284.00	
Change Over Sub	1.00			4285.00	
Bullnose	3.00			4288.00	62.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63799

**DST#: 2**

ATTN: Keith Reavis

Test Start: 2018.11.20 @ 15:39:00

## 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: 69.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	OCM - 40%o - 60%m	0.610
93.00	OCM - 30%o - 70%m	0.673

Total Length: 217.00 ft      Total Volume: 1.283 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



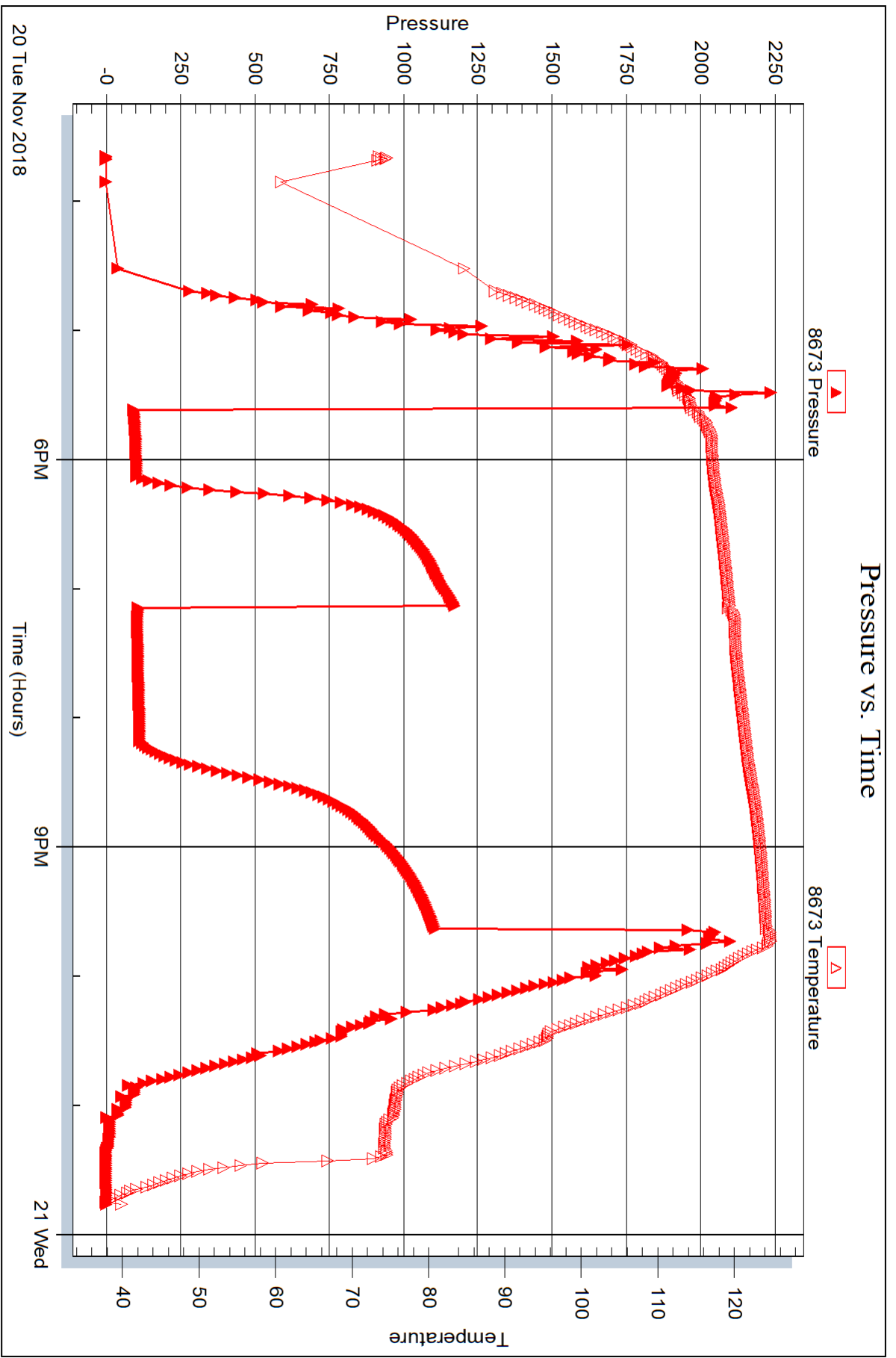
Serial #: 8673

Inside

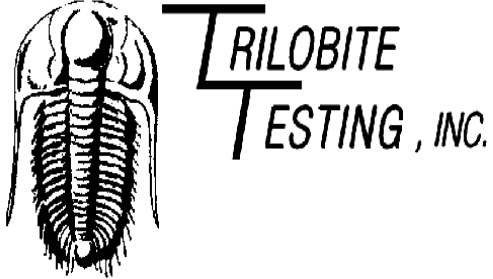
Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 2







## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Mears "D" #1-36**

#### **36-1S-38W Cheyenne,KS**

Start Date: 2018.11.21 @ 10:50:00

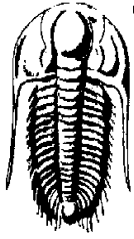
End Date: 2018.11.21 @ 17:21:45

Job Ticket #: 63800                      DST #: 3

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

Printed: 2018.11.27 @ 08:56:58

Murfin Drilling Co., Inc. 36-1S-38W Cheyenne,KS Mears "D" #1-36 DST # 3 LKC G 2018.11.21



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**36-1S-38W Cheyenne,KS**

**Mears "D" #1-36**

Job Ticket: 63800      **DST#: 3**  
 Test Start: 2018.11.21 @ 10:50:00

## GENERAL INFORMATION:

Formation: **LKC G**  
 Deviated: No Whipstock:      ft (KB)  
 Time Tool Opened: 12:37:15  
 Time Test Ended: 17:21:45  
 Interval: **4298.00 ft (KB) To 4360.00 ft (KB) (TVD)**  
 Total Depth: 4360.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: 77  
 Reference Elevations: 3264.00 ft (KB)  
 3259.00 ft (CF)  
 KB to GR/CF: 5.00 ft

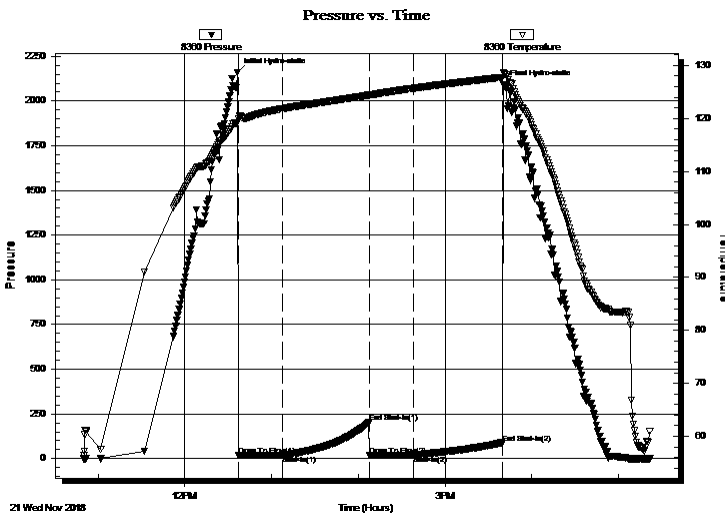
## Serial #: 8360

Inside

Press@RunDepth: 20.32 psig @ 4299.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2018.11.21      End Date: 2018.11.21      Last Calib.: 2018.11.21  
 Start Time: 10:50:05      End Time: 17:21:44      Time On Btm: 2018.11.21 @ 12:36:30  
 Time Off Btm: 2018.11.21 @ 15:40:15

TEST COMMENT: 30 - IFP - Surface blow built up to 3/4"  
 60 - ISI - No Return  
 30 - FFP - No Surface Blow  
 60 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.06	119.22	Initial Hydro-static
1	16.39	120.00	Open To Flow (1)
32	18.38	121.86	Shut-In(1)
91	201.24	124.42	End Shut-In(1)
92	19.88	124.37	Open To Flow (2)
122	20.32	125.69	Shut-In(2)
183	87.01	127.78	End Shut-In(2)
184	2089.93	128.69	Final Hydro-static

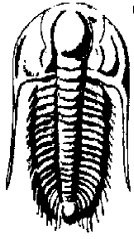
## Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM - 15%o - 85%m	0.05

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne, KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63800

**DST#: 3**

ATTN: Keith Reavis

Test Start: 2018.11.21 @ 10:50:00

## Tool Information

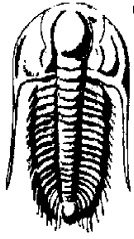
Drill Pipe:	Length: 4102.59 ft	Diameter: 3.25 inches	Volume: 42.10 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 176.55 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 42.97 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.14 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4298.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4275.00	
Hydraulic tool	5.00			4280.00	
Jars	5.00			4285.00	
Safety Joint	3.00			4288.00	
Packer	5.00			4293.00	28.00 Bottom Of Top Packer
Packer	5.00			4298.00	
Stubb	1.00			4299.00	
Recorder	0.00	8360	Inside	4299.00	
Recorder	0.00	8673	Inside	4299.00	
Perforations	25.00		Outside	4324.00	
Change Over Sub	1.00		Outside	4325.00	
Drill Pipe	31.00			4356.00	
Change Over Sub	1.00			4357.00	
Bullnose	3.00			4360.00	62.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 63800

**DST#: 3**

ATTN: Keith Reavis

Test Start: 2018.11.21 @ 10:50:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OCM - 15%o - 85%m	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

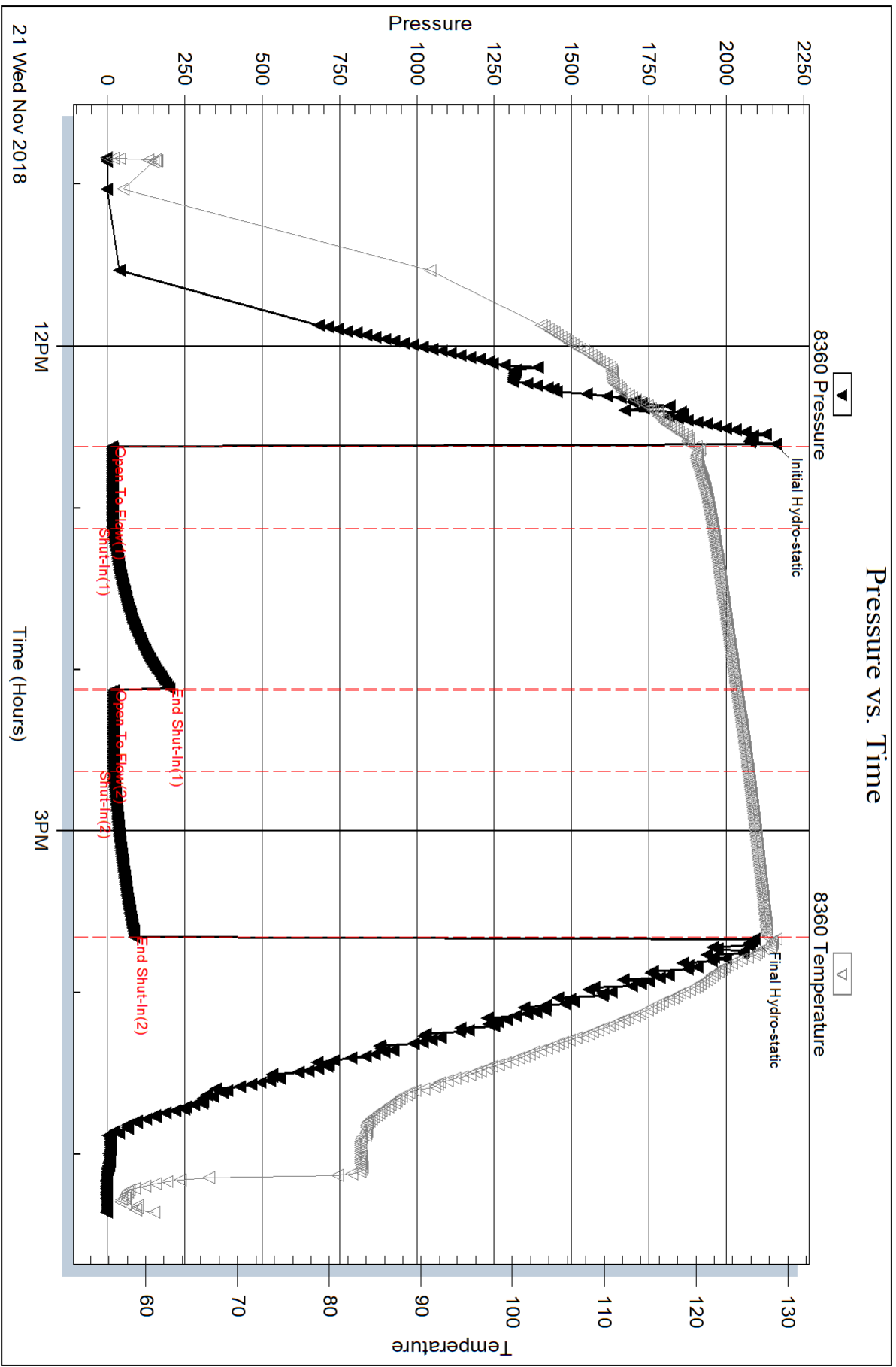
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63800

Printed: 2018.11.27 @ 08:56:59

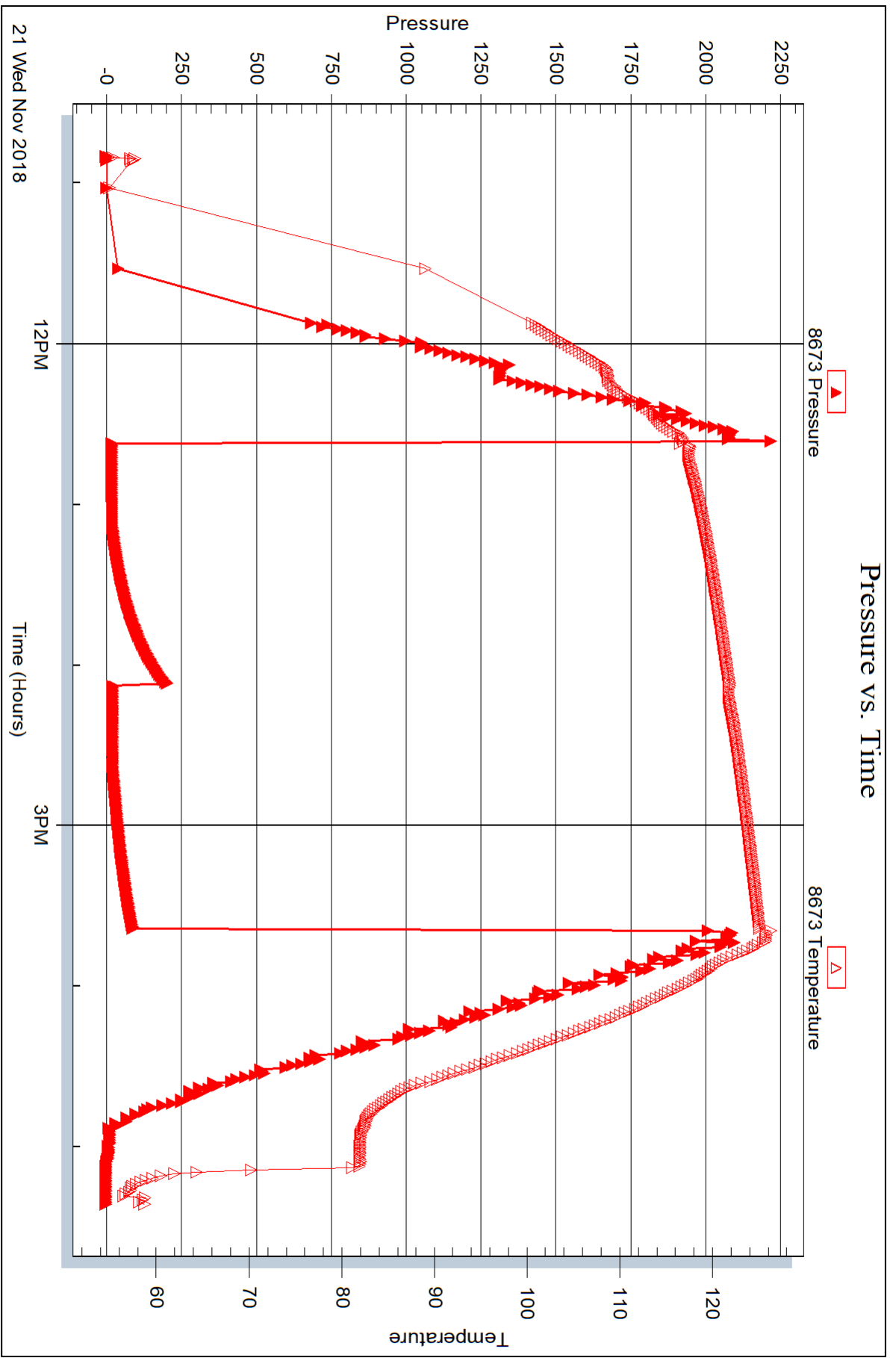
Serial #: 8673

Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

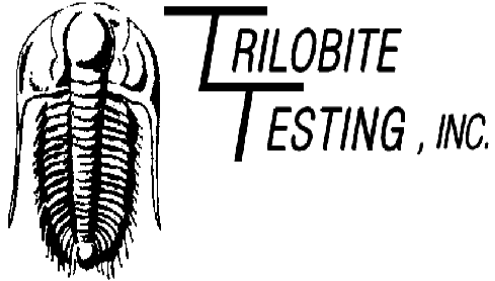
DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 63800

Printed: 2018.11.27 @ 08:56:59



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Mears "D" #1-36**

### **36-1S-38W Cheyenne,KS**

Start Date: 2018.11.22 @ 05:18:00

End Date: 2018.11.22 @ 14:26:45

Job Ticket #: 65376                      DST #: 4

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

Printed: 2018.11.27 @ 08:56:33





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**36-1S-38W Cheyenne, KS**  
**Mears "D" #1-36**  
 Job Ticket: 65376 **DST#: 4**  
 Test Start: 2018.11.22 @ 05:18:00

## GENERAL INFORMATION:

Formation: **LKC H - J**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 07:55:45 Tester: Royal Fisher  
 Time Test Ended: 14:26:45 Unit No: 77  
 Interval: **4353.00 ft (KB) To 4440.00 ft (KB) (TVD)** Reference Elevations: 3264.00 ft (KB)  
 Total Depth: 4440.00 ft (KB) (TVD) 3259.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

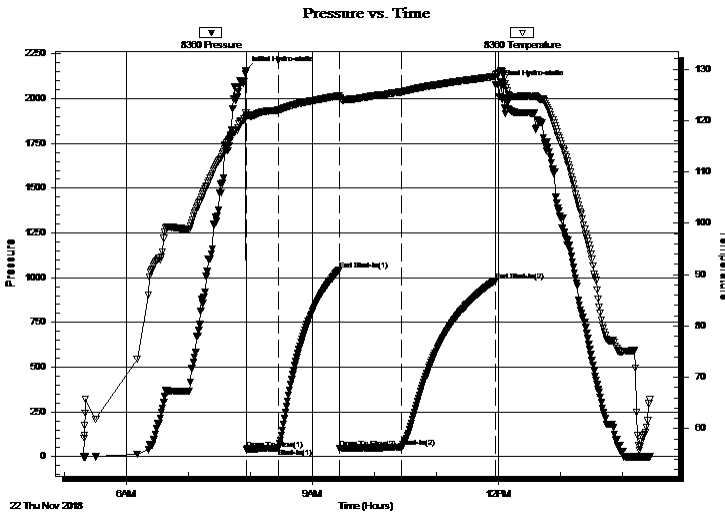
## Serial #: 8360

Inside

Press@RunDepth: 51.24 psig @ 4354.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.11.22 End Date: 2018.11.22 Last Calib.: 2018.11.22  
 Start Time: 05:18:05 End Time: 14:26:45 Time On Btm: 2018.11.22 @ 07:55:15  
 Time Off Btm: 2018.11.22 @ 11:57:45

TEST COMMENT: 30 - IFP - Surface blow built up to 3"  
 60 - ISI - No Return  
 60 - FFP - No Surface Blow  
 90 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2158.10	121.55	Initial Hydro-static
1	42.47	120.78	Open To Flow (1)
32	46.04	122.01	Shut-In(1)
91	1044.06	124.79	End Shut-In(1)
91	47.17	124.41	Open To Flow (2)
151	51.24	125.54	Shut-In(2)
242	983.18	128.57	End Shut-In(2)
243	2077.51	128.96	Final Hydro-static

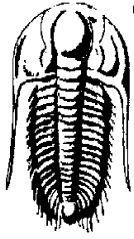
## Recovery

Length (ft)	Description	Volume (bbl)
72.00	Mud - 100% <sub>m</sub>	0.35

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne, KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 65376

**DST#: 4**

ATTN: Keith Reavis

Test Start: 2018.11.22 @ 05:18:00

## Tool Information

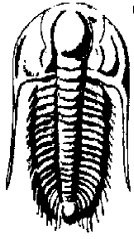
Drill Pipe:	Length: 4164.76 ft	Diameter: 3.25 inches	Volume: 42.73 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 176.55 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 43.60 bbl</u>	Tool Chased 10.00 ft
Drill Pipe Above KB:	16.31 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4353.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	87.00 ft			
Tool Length:	115.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4330.00	
Hydraulic tool	5.00			4335.00	
Jars	5.00			4340.00	
Safety Joint	3.00			4343.00	
Packer	5.00			4348.00	28.00 Bottom Of Top Packer
Packer	5.00			4353.00	
Stubb	1.00			4354.00	
Recorder	0.00	8360	Inside	4354.00	
Recorder	0.00	8673	Inside	4354.00	
Perforations	19.00		Outside	4373.00	
Change Over Sub	1.00		Outside	4374.00	
Drill Pipe	62.00			4436.00	
Change Over Sub	1.00			4437.00	
Bullnose	3.00			4440.00	87.00 Bottom Packers & Anchor

**Total Tool Length: 115.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 65376

**DST#: 4**

ATTN: Keith Reavis

Test Start: 2018.11.22 @ 05:18:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
72.00	Mud - 100%m	0.354

Total Length: 72.00 ft      Total Volume: 0.354 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

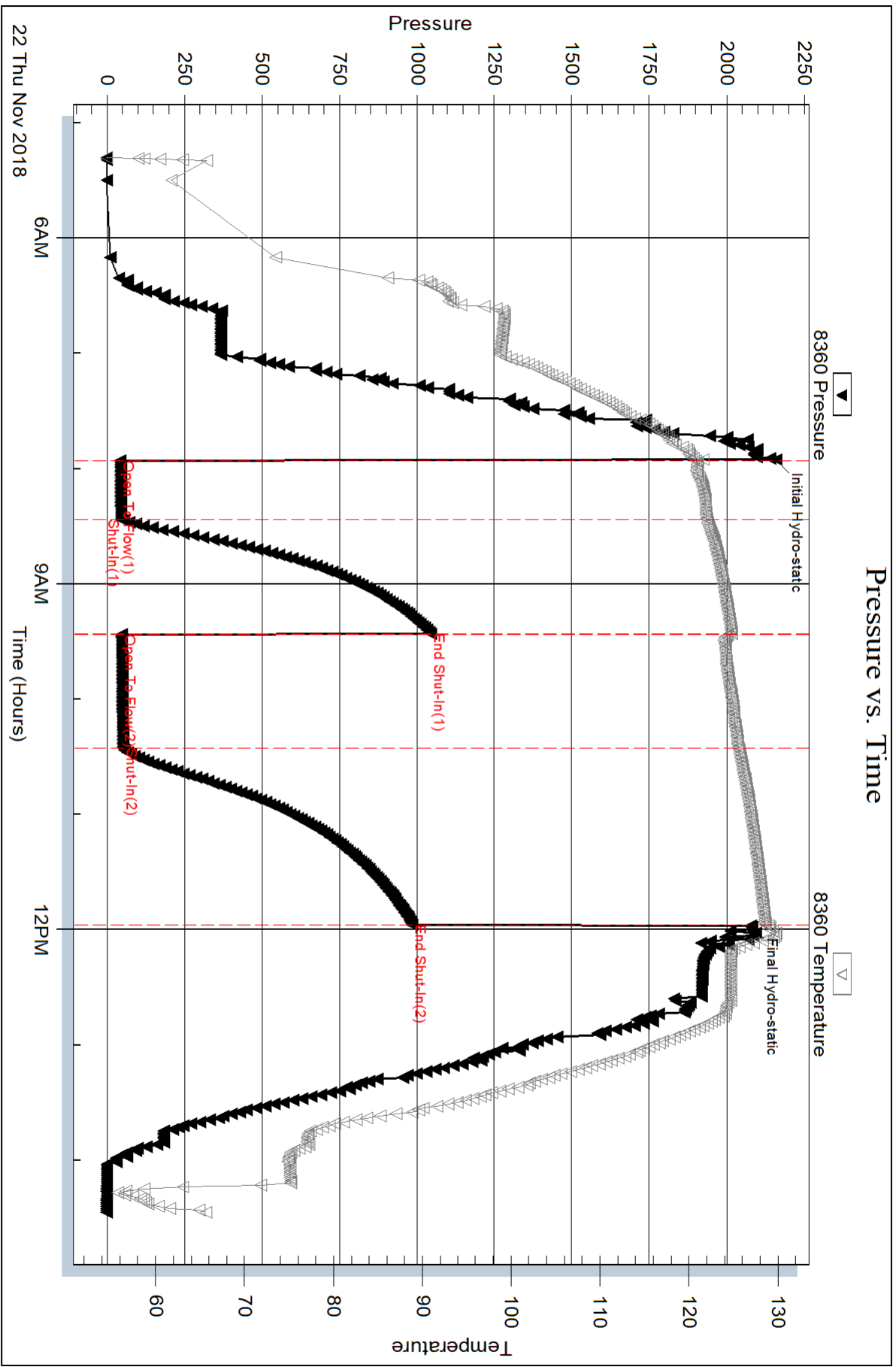
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 65376

Printed: 2018.11.27 @ 08:56:34

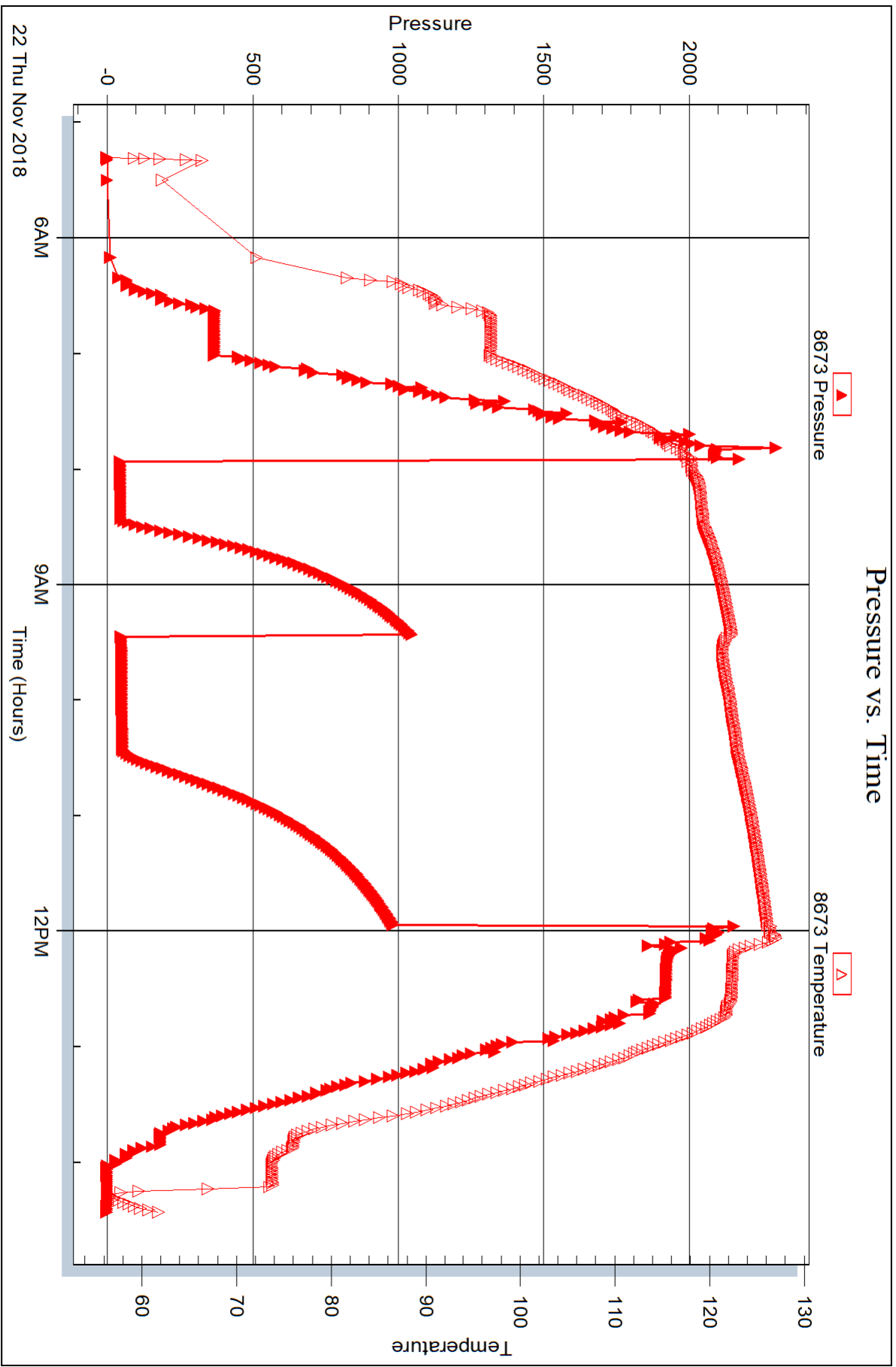
Serial #: 8673

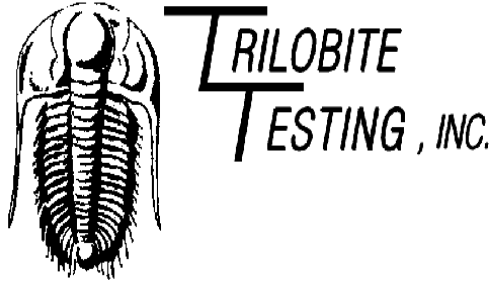
Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 4





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Keith Reavis

### **Mears "D" #1-36**

#### **36-1S-38W Cheyenne,KS**

Start Date: 2018.11.23 @ 17:53:00

End Date: 2018.11.24 @ 01:30:45

Job Ticket #: 65377                      DST #: 5

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

Printed: 2018.11.27 @ 08:56:11

Murfin Drilling Co., Inc.

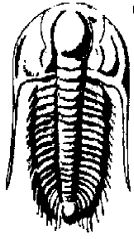
36-1S-38W Cheyenne,KS

Mears "D" #1-36

DST # 5

Fort Scott - Celia

2018.11.23



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**36-1S-38W Cheyenne, KS**

**Mears "D" #1-36**

Job Ticket: 65377

**DST#: 5**

Test Start: 2018.11.23 @ 17:53:00

## GENERAL INFORMATION:

Formation: **Fort Scott - Celia**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 20:36:00  
 Time Test Ended: 01:30:45  
 Interval: **4593.00 ft (KB) To 4725.00 ft (KB) (TVD)**  
 Total Depth: 4725.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Royal Fisher  
 Unit No: 77  
 Reference Elevations: 3264.00 ft (KB)  
 3259.00 ft (CF)  
 KB to GR/CF: 5.00 ft

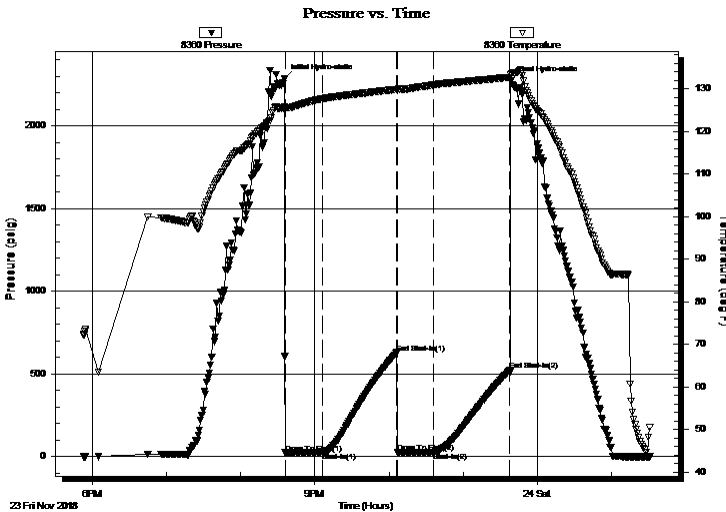
**Serial #: 8360**

**Inside**

Press@RunDepth: 27.36 psig @ 4594.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.11.23 End Date: 2018.11.24 Last Calib.: 2018.11.24  
 Start Time: 17:53:05 End Time: 01:30:44 Time On Btm: 2018.11.23 @ 20:35:30  
 Time Off Btm: 2018.11.23 @ 23:38:15

**TEST COMMENT:** 30 - IFP -Surface blow built up to 3/4"  
 60 - ISI -No Return  
 30 - FFP - No Surface blow  
 60 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2283.99	125.87	Initial Hydro-static
1	22.33	125.42	Open To Flow (1)
31	24.52	127.66	Shut-In(1)
91	628.39	129.91	End Shut-In(1)
92	25.91	129.76	Open To Flow (2)
121	27.36	130.94	Shut-In(2)
182	521.49	132.73	End Shut-In(2)
183	2271.07	133.33	Final Hydro-static

## Recovery

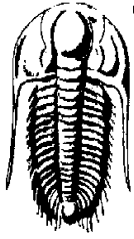
Length (ft)	Description	Volume (bbl)
5.00	Mud - 100%m	0.02

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne, KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 65377

**DST#: 5**

ATTN: Keith Reavis

Test Start: 2018.11.23 @ 17:53:00

## Tool Information

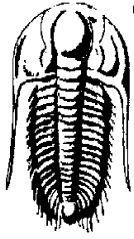
Drill Pipe:	Length: 4413.90 ft	Diameter: 3.25 inches	Volume: 45.29 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 176.55 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 86000.00 lb
			<u>Total Volume: 46.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.45 ft			String Weight: Initial 66000.00 lb
Depth to Top Packer:	4593.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	132.00 ft			
Tool Length:	160.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4570.00	
Hydraulic tool	5.00			4575.00	
Jars	5.00			4580.00	
Safety Joint	3.00			4583.00	
Packer	5.00			4588.00	28.00 Bottom Of Top Packer
Packer	5.00			4593.00	
Stubb	1.00			4594.00	
Recorder	0.00	8360	Inside	4594.00	
Recorder	0.00	8673	Inside	4594.00	
Perforations	33.00		Outside	4627.00	
Change Over Sub	1.00		Outside	4628.00	
Drill Pipe	93.00			4721.00	
Change Over Sub	1.00			4722.00	
Bullnose	3.00			4725.00	132.00 Bottom Packers & Anchor

**Total Tool Length: 160.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc.

**36-1S-38W Cheyenne,KS**

250 N. Water STE 300  
Wichita, KS 67202

**Mears "D" #1-36**

Job Ticket: 65377

**DST#: 5**

ATTN: Keith Reavis

Test Start: 2018.11.23 @ 17:53:00

## 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: 58.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud - 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

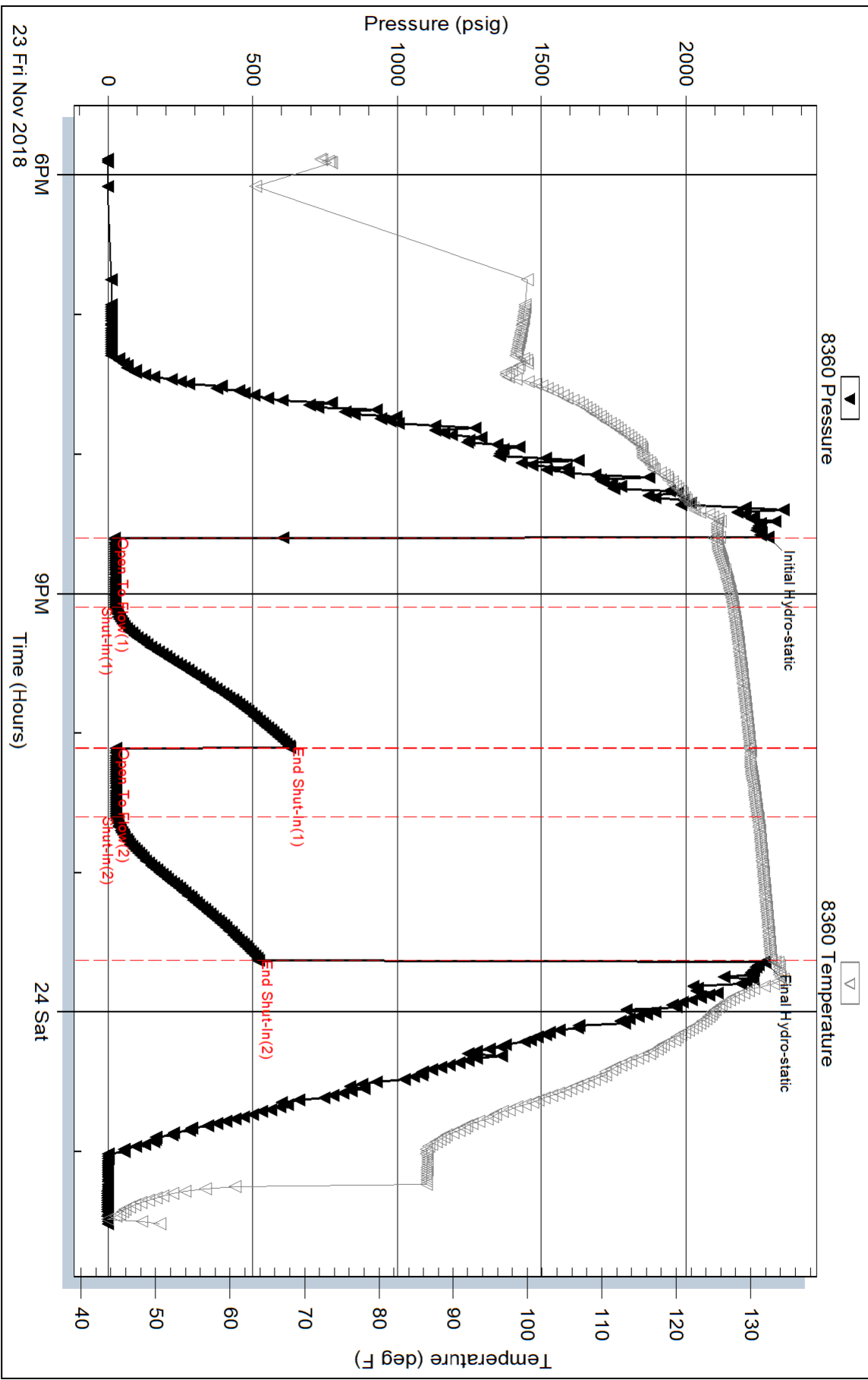
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



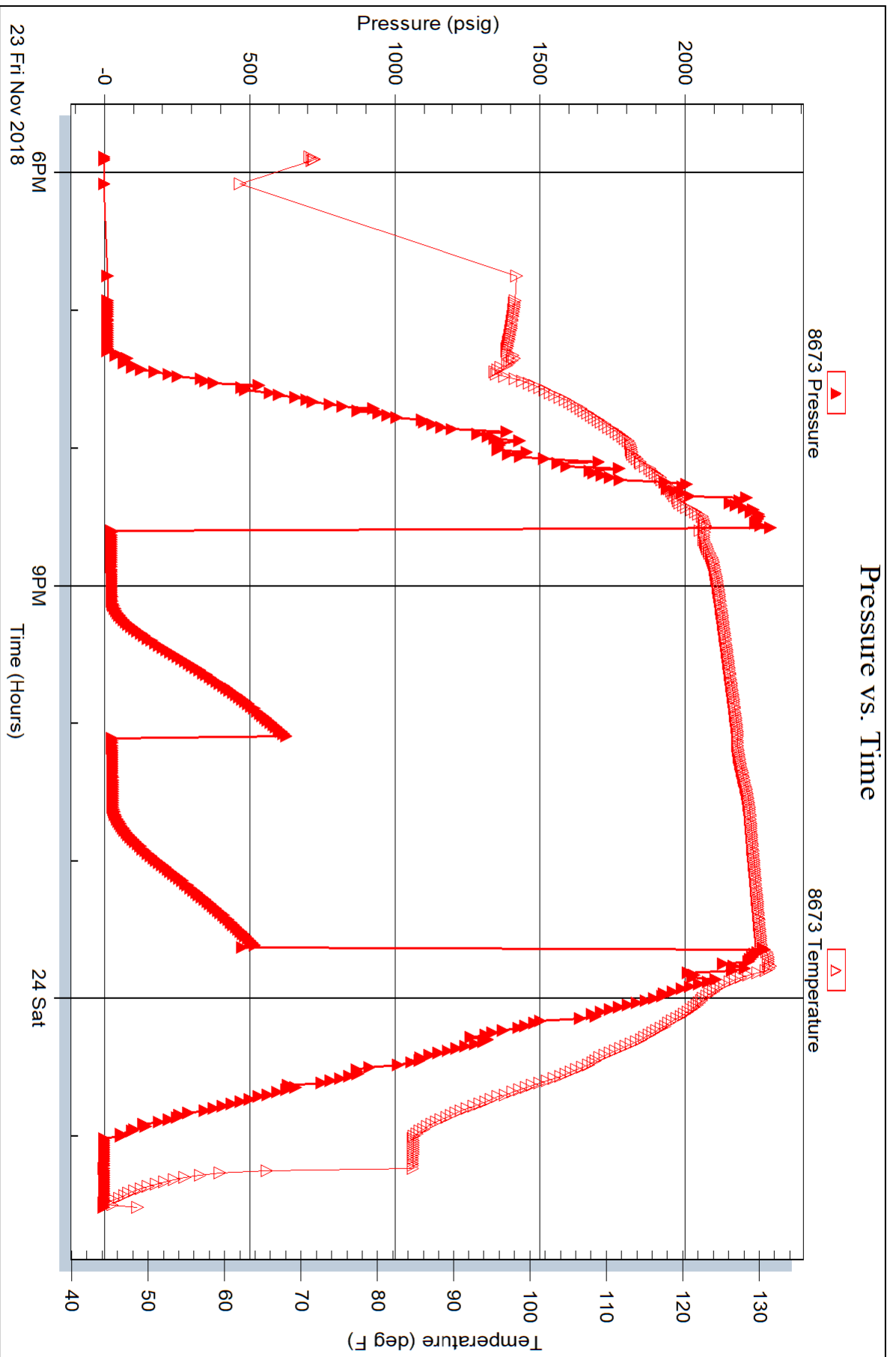
Serial #: 8673

Inside

Murfin Drilling Co., Inc.

Mears "D" #1-36

DST Test Number: 5





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63798

Well Name & No. Meads "D" #1-36 Test No. 1 Date 11-19-18  
 Company Murfin Drilling Co, Inc. Elevation 3259 KB 3264 GL  
 Address 250 N. Water STE 300 Wichita, ks 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #3  
 Location: Sec. 36 Twp 1S Rge. 38 W Co. Cheyenne State ks

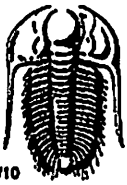
Interval Tested 4162-4236 Zone Tested Lansing A  
 Anchor Length 74 Drill Pipe Run 3978.10 Mud Wt. 8.6  
 Top Packer Depth 4157 Drill Collars Run 176.55 Vls 67  
 Bottom Packer Depth 4162 Wt. Pipe Run 0 WL 5.6  
 Total Depth 4236 Chlorides 100 ppm System LCM 3#  
 Blow Description IFP-Surface blow built up to a 1/4"  
ISI-No return  
FFP-No surface blow  
FSI-No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</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 5' BHT 123°F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2007  Test 1150 T-On Location 10:00pm  
 (B) First Initial Flow 19  Jars 250 T-Started 10:37pm  
 (C) First Final Flow 22  Safety Joint 75 T-Open 12:51am  
 (D) Initial Shut-In 76  Circ Sub \_\_\_\_\_ T-Pulled 3:51am  
 (E) Second Initial Flow 21  Hourly Standby \_\_\_\_\_ T-Out 5:12am  
 (F) Second Final Flow 22  Mileage 137 R/T 136 Comments \_\_\_\_\_  
 (G) Final Shut-In 46  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1970  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1611  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1611

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. 63799

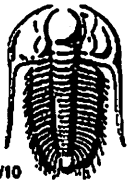
Well Name & No. Mears "D" #1-36 Test No. 2 Date 11-20-18  
 Company Martin Drilling Co. Inc. Elevation 3259 KB 3264 GL  
 Address 250 N. Water STE 300 Wichita, ks 67202  
 Co. Rep / Geo. Keith Reavis Rig Martin #3  
 Location: Sec. 36 Twp 1S Rge. 38W Co. Cheyenne State ks

Interval Tested 4226' - 4288' Zone Tested Lansing D  
 Anchor Length 62' Drill Pipe Run 4041.85 Mud Wt. 8.7  
 Top Packer Depth 4221 Drill Collars Run 176.55 Vls 69  
 Bottom Packer Depth 4226 Wt. Pipe Run 0 WL 6.0  
 Total Depth 4288' Chlorides 2000 ppm System LCM 4#  
 Blow Description I/FP - Surface blow built up to about 8 1/4"  
IST - No Return  
F/P - Surface blow built up to 3"  
FST - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>124'</u>	<u>OCM</u>	<u>40</u>		<u>60</u>	
<u>93'</u>	<u>OCM</u>	<u>30</u>		<u>70</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec Total <u>217'</u>	BHT <u>127F</u>	Gravity	API RW	@	F Chlorides ppm

(A) Initial Hydrostatic 2125  Test 1150 T-On Location 2:36pm  
 (B) First Initial Flow 93  Jars 250 T-Started 3:39pm  
 (C) First Final Flow 101  Safety Joint 75 T-Open 5:37pm  
 (D) Initial Shut-In 1173  Circ Sub \_\_\_\_\_ T-Pulled 9:37pm  
 (E) Second Initial Flow 105  Hourly Standby \_\_\_\_\_ T-Out 11:46pm  
 (F) Second Final Flow 110  Mileage 136 R/T 136 Comments \_\_\_\_\_  
 (G) Final Shut-In 1105  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2061  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 60  Day Standby \_\_\_\_\_ Total 1611  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1611

Approved By \_\_\_\_\_ Our Representative Paul Fisher  
 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. 63800

Well Name & No. Mears D' #1-36 Test No. 3 Date 11-21-18  
 Company Murfin Drilling Co., Inc. Elevation 3259 KB 3214 GL  
 Address 250 N. Water STE. 300 Wichita, ks 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #3  
 Location: Sec. 36 Twp 1S Rge. 38W Co. Cheyenne State ks

Interval Tested 4298-4310 Zone Tested G zone  
 Anchor Length 62' Drill Pipe Run 4102.59 Mud Wt. 8.9  
 Top Packer Depth 4293 Drill Collars Run 176.55 Vls 55  
 Bottom Packer Depth 4298 Wt. Pipe Run 0 WL 6.0  
 Total Depth 4310 Chlorides 11000 ppm System LCM 3#  
 Blow Description IFP - Surface blow built up to 3/4"  
ISI - No Return  
FFP - No surface blow  
FSI - No Return

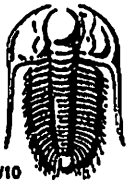
Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>OCM</u>	<u>15</u>		<u>85</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10' BHT 128°F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2110</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>10:15am</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:50am</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:37pm</u>
(D) Initial Shut-In <u>201</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>3:37pm</u>
(E) Second Initial Flow <u>20</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>5:22pm</u>
(F) Second Final Flow <u>20</u>	<input checked="" type="checkbox"/> Mileage <u>136 R/T</u>	Comments _____
(G) Final Shut-In <u>87</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2090</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>100</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>100</u>	<input type="checkbox"/> Day Standby _____	Total <u>1611</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1611</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65376

Well Name & No. Mears 'D' # 1-36 Test No. 4 Date 11-22-18  
 Company Murfin Drilling Co., Inc. Elevation 3259 KB 32164 GL  
 Address 250 N. Water STE. 300 Wichita, ks 67202  
 Co. Rep / Geo. Keith Reavis Rig Murfin #3  
 Location: Sec. 36 Twp 1S Rge. 38W Co. Cheyenne State ks

Interval Tested 4353'-4440 Zone Tested H4J  
 Anchor Length 87' Drill Pipe Run 4164.76 Mud Wt. 8.9  
 Top Packer Depth 4348 Drill Collars Run 176.55 Vis 55  
 Bottom Packer Depth 4353 Wt. Pipe Run 0 WL 6.0  
 Total Depth 4440 Chlorides 11000 ppm System LCM 3#  
 Blow Description IFP - Surface blow built up to 3"  
ISI - No Return  
FFP - No Surface Blow  
FST - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>72'</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 72' BHT 1299F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2158</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>4:30am</u>
(B) First Initial Flow <u>42</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>5:18am</u>
(C) First Final Flow <u>46</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>7:56am</u>
(D) Initial Shut-In <u>1044</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>11:56pm</u>
(E) Second Initial Flow <u>47</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>2:27pm</u>
(F) Second Final Flow <u>51</u>	<input checked="" type="checkbox"/> Mileage <u>136 R/T</u> 136	Comments _____
(G) Final Shut-In <u>983</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> EM Tool _____
(H) Final Hydrostatic <u>2078</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>1611</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1611</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65377

Well Name & No. Mears D' #1-36 Test No. 5 Date 11-23-18  
 Company Murfin Drilling Co., Inc Elevation 3259 KB 3264 GL  
 Address 250 N. Water STE 300 Wichita, ks 67202  
 Co. Rep / Geo. Keith Beavis Rig Murfin #3  
 Location: Sec. 36 Twp 1S Rge. 38W Co. Cheyenne State ks

Interval Tested 4593' - 4725 Zone Tested Fort Scott - Celia  
 Anchor Length 132' Drill Pipe Run 4413.90 Mud Wt. 9.0  
 Top Packer Depth 4588' Drill Collars Run 176.55 Vis 58  
 Bottom Packer Depth 4593' Wt. Pipe Run 0 WL 5.6  
 Total Depth 4725' Chlorides 1000 ppm System LCM 3#  
 Blow Description IFP - Surface blow built up to 3/4"  
ISI - No Return  
FFP - No Surface blow  
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</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 5' BHT 1330F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2284</u>	<input checked="" type="checkbox"/> Test 1150	T-On Location <u>5:00pm</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>5:53pm</u>
(C) First Final Flow <u>25</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>8:37pm</u>
(D) Initial Shut-In <u>1628</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>11:37pm</u>
(E) Second Initial Flow <u>26</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1:32am</u>
(F) Second Final Flow <u>27</u>	<input checked="" type="checkbox"/> Mileage <u>1360 R/T</u>	Comments _____
(G) Final Shut-In <u>521</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>2271</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1611</u>
	Sub Total <u>1611</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative Keith Beavis  
 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.

MDCI  
Mears 'D' #1-36  
1200' FSL 990' FEL  
Sec. 36-T1S-R38W  
3264' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	3204	+60	-9	3194	+70	+1
B/Anhydrite	3230	+34	-1	3223	+41	+6
Topeka	3991	-727	+2	3987	-723	+6
Oread	4132	-868	+1	4126	-862	+7
Lansing	4206	-942	+1	4200	-936	+7
Stark	4435	-1171	-2	4431	-1167	+2
Mound City	4484	-1220	+4	4486	-1222	+2
Ft Scott	4616	-1352	+6	4612	-1348	-2
Oakley	4693	-1429	-1	4692	-1428	Flat
RTD	4928	-1664		4924	-1660	+11
LTD	5047					



