



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1160646  
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: \_\_\_\_\_



1160646

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

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

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

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

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

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
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Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



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

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

September 30, 2013

Leon Rodak  
Murfin Drilling Co., Inc.  
250 N WATER STE 300  
WICHITA, KS 67202-1216

Re: ACO1  
API 15-023-21369-00-00  
Culwell 'B' 1-11  
SW/4 Sec.11-01S-37W  
Cheyenne County, Kansas

Dear Production Department:

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

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

Respectfully,  
Leon Rodak

MDCI Culwell 'B' #1-11 850' FSL 700' FWL Sec. 11-T1S-R37W 3146' KB							MDCI Culwell 'C' #1-10 2190' FNL 1680' FWL Sec. 10-T1S-R37W 3150' KB	
Formation	Sample top	Datum	Ref	Log Top	Datum	Ref	Log Top	Datum
Anhydrite	3082	+64	+8	3082	+64	+8	3094	+56
B/Anhydrite	3115	+31	+4	3115	+31	+4	3123	+27
Neva	3547	-401	-6	3539	-393	+2	3545	-395
Red Eagle	3607	-461	-3	3606	-460	-2	3608	-458
Foraker	3656	-510	-3	3651	-505	+2	3657	-507
Topeka	3874	-728	-2	3873	-727	-1	3876	-726
Oread	4007	-861	-1	4005	-859	+1	4010	-860
Lansing	4087	-941	+1	4088	-942	Flat	4092	-942
Stark	4306	-1160	-3	4304	-1158	Flat	4308	-1158
BKC	4362	-1216	-1	4355	-1209	+6	4365	-1215
Pawnee	4476	-1330	-2	4479	-1333	-5	4478	-1328
Cherokee	4568	-1422	Flat	4568	-1422	Flat	4572	-1422
Mississippi	4797	-1651		4789	-1643		NR	
RTD	4900	-1754					4650	-1500
LTD				4902	-1756		4648	-1498

**Terry Neal, D.D.**  
 Consulting Geologist  
 P.O. Box 503  
 Wichita, Kansas 67201  
 316-265-6431

**GEOLOGIST'S REPORT**  
 DRILLING TIME AND SAMPLE LOG

OPERATOR Murfin Drilg Co. Inc.  
 LEASE Culwell "B" WELL NO. 1-11  
 FIELD Jones Canyon Southeast  
 LOCATION 850' FSL & 700' FWL  
 SEC. 11 TWP. 1S RGE 37W  
 COUNTY Cherokee STATE Kansas

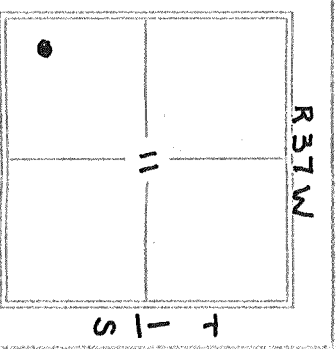
CONTRACTOR Murfin Drilg Co. Inc. Rig # 14  
 COMM. 6-5-2013 COMP. 6-15-2013  
 RID 4900' LOG TO 4902'  
 SAMPLES OBTAINED FROM 3450' TO RTD  
 DRILLING TIME KEPT FROM 3450' TO RTD  
 SAMPLES OBTAINED FROM 3450' TO RTD  
 GEOLOGICAL SUPERVISION FROM 3450' TO RTD  
 MUD UP 3237' TYPE MUD CHEMICAL

FORMATION	TOP	LOG	DEPTH	TOP	SAMPLE	DEPTH	STRUCT.
Anhydrite	3081		+65	3682	+64		+9
Neva	3539		-393	3547	-401		+2
Foraker	3651		-505	3696	-510		+2
Topoka	3873		-727	3874	-728		-/
Lansing	4088		-942	4087	-941		-/
Lansing	4304		-1158	4306	-1160		-1
Bke	4360		-1214	4362	-1216		+1
Pawnee	4480		-1334	4476	-1330		-6
Cherokee sh.	4568		-1422	4568	-1422		-/
Miss OS	4788		-1642	4797	-1651		N/A
Miss KH	4840		-1694	4840	-1694		N/A

ELEVATION  
 KB 3146'  
 DF 3136'  
 Measurements are All  
 From KB.

CASING RECORD  
 SURFACE 8 5/8" @ 223'  
 PRODUCTION 5 1/2"

ELECTRICAL SURVEYS  
 Pioneer Energy  
 Dual Induction  
 Dse-Neutron  
 Sonic-Microlog



REFERENCE WELL FOR STRUCTURAL COMPARISON M.D.C. Culwell C-1-10 2190' FSL  
& 1680' FWL Sec. 10-1s-37W, 3150' KB

DATE	DEPTH	NO	SIZE	TYPE	NO	DEPTH
6-5-13	MIRT					226
6-6-13	226' surf.	A	12 1/4	RE	-	4900
6-7-13	1875' d.l.g	1	7 7/8	HRC	GX20C	4900
6-8-13	3100' d.l.g					
6-9-13	3680' dstr 1					
6-10-13	4025' dstr 1+2 3					
6-11-13	4160' dstr 2+3 4					
6-12-13	4250' dstr 4 5			Board		4036
6-13-13	4400' dstr 5 6			STRAP		4024
6-14-13	4575' d.l.g 7					Short
6-15-13	4900' RTD 8			Surveys		22
	running pipe					120
						402
						450

**oread**  
 4001-10  
 Limestone, tan, fine xln, foss, w/3-5 pc's / tray w/ dark brown free oil in poor foss. Sp'd. Sat & Free oil  
 Limestone, Cream, fine xln, sil foss w/ 4 TD S, pc's w/ med - dark brn sat stain & REFO in PR. fr. pp. of. 2 odor w/ 4-5 pc's w/ dark FO. and spotted stain in scath pinpoint of. No odor  
 Limestone, tan-cream, small oil ls. sil foss, w/ 4-5 pc's w/ dark FO. and spotted stain in scath pinpoint of. No odor  
 Limestone, tan-cream, small oil ls. sil foss, w/ 4-5 pc's w/ dark FO. and spotted stain in scath pinpoint of. No odor

FORMATION	TOP	LOG	DEPTH	TOP	SAMPLE	DEPTH	STRUCT.
Lansing	4149		-4153				
Lansing	4200		-08				
Lansing	4284		-4294				
Pawnee	4480		-4484				

DNLL STEM TESTS

226	-	
4674	w/a	
0.80		
3.35		
2.45	long	
1/2°		
7 3/4°		
5 1/2°		
00 2°		
1-1-		
-3-		
-4-		
-5-		

No.	Interval	SP/Min	IP/Min	PP/Min	RP/Min	RT/Min	RT-10	RT-20
1	3958'-4025'	17-20	314	20-23	221	2043	1960	2' mod
	oread	30"	60"	40"	60"			
2	4103'-4160'	11-318	1292	344-556	1287	1973	1969	441' smc 2% m 12% oil 286' GOCUM 3% oil 533' 56+OCMU 2% oil
	Lansing "D"	30"	60"	75"	90"			1260' fluid
3	4169'-4220'	17-39	1323	42"-70"	1321	2043	1982	45' gmo 6% m - 84% oil 30' gmo 22% m - 76% oil 60' gmo 36% oil + 51% m 135' fluid 29°
	Lansing "G"	30"	60"	60"	90"			
4	4213'-4320'	20-23	409	23-25	222	2115	2087	10' mud
	Lansing "J"	30"	60"	30"	60"			
5	4454'-4500'	17-20	322	20-24	85	2294	2284	5' gmo 78% - 10% m - 83% o 30' gmo 30% - 16% o - 81% m 35' fluid
	Pawnee	30"	60"	30"	60"			

with the success of dst's 2+3, 5 1/2" production casing will be set to further evaluate.

Respectfully

Jerry K. McLeod  
6/15-2013

LEGEND

Anhydrite	Salt	Sandstone	Shale	Carb sh	Limestone	Coo.Lirno	Chert	Dolomite

SCALE 1" = 100'

DRILLING TIME IN MINUTES PER FOOT  
Rate of Penetration Increases



LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS

DEPTH

3070

80

Anhydrite  
3082 (+64)

90

3100

10

Base Anhydrite  
3115 (+31)

20

30

40

50

60

3450

60

sh. gry-mar. red, - silty  
qms of sh. u.s.

70

80

90

sh. mar - gry. silty + sdy  
N.S.

3500

10

sh. mar - gry.

20

30

sh. mar - gry - silty + sdy  
N.S.

40

E-Log

sh. mar - gry - silty - dirty  
N.S.

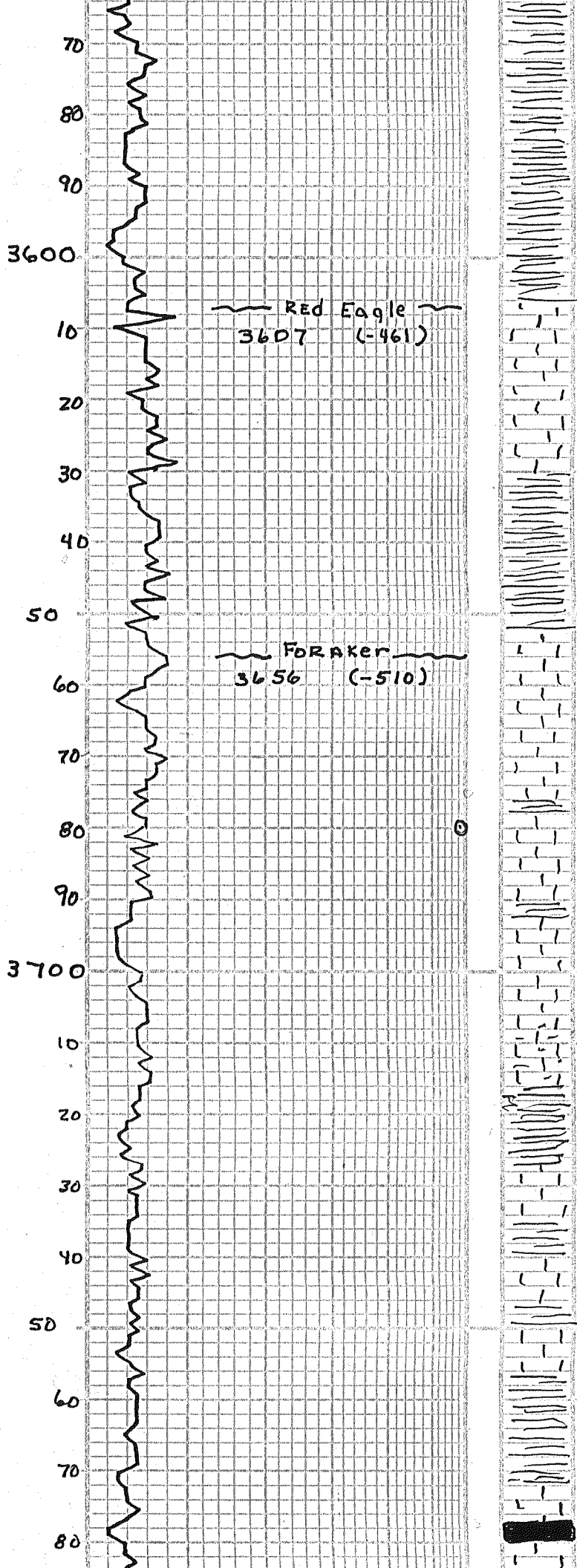
50

NEVA  
3547 (-401)

Ls. Crm. fn-xln. sil. foss  
chky - N.S.

60

Ls. Crm. gry. fn-xln, fn-  
xln + sil foss -> DNS, pr-NVA  
N.S.



sh. mar-gry

sh. mar-gry

3600

RED Eagle  
3607 (-461)

ls. gry, fn-xln, sli foss  
pr φ, chky, N.S.

10

ls. brn, fn-xln-dse, N.v.p  
N.S.

20

sh. MAR-gry

30

40

sh. MAR-gry

50

FORAKER  
3656 (-510)

ls. gry, fn-xln-grg, tight  
N.v.p N.S. (2 pds. edge  
str) N.F.O. No odor

60

ls. brn, fn-xln + sli foss -  
tight RX, pr φ. N.S.

70

ls. tan-brn, fn-xln +  
sli foss - dse, pr φ N.S.

80

ls. tan-brn, fn-xln - sli foss  
pr φ. N.S.

90

ls. tan-brn, fn-xln + sli  
foss. N.S. - chky

3700

ls. tan, fn-xln, foss w/  
fair foss φ. N.S.

10

sh. med-drk Gry. + ls  
a/a

20

sh. MAR-gry

30

ls. Brn-H Gry, sli foss  
scatt φ, sli chky N.S.

40

sh. MAR-gry

50

ls. wh-crm, fn-xln, foss  
w) pr foss φ N.S.

60

ls. wh-crm, foss - U.S.

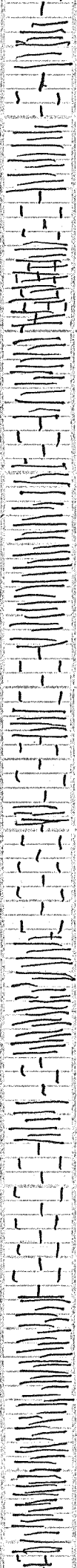
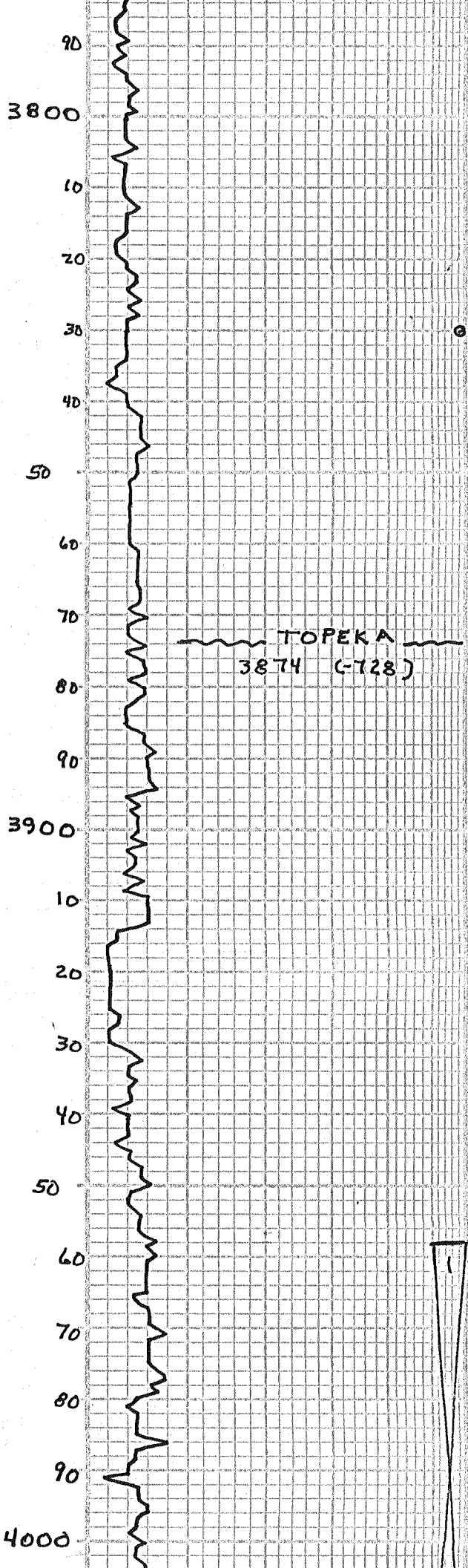
70

sh. gry-MAR

80

sh. DRK Gry - BK





sh. gry - mar

Ls. Crm, fn-xln. sli foss  
w/ 4-5 pcls w/ dead asph.  
strn in poor foss p  
NFO + No odor

Ls. H. tan, fn-xln + sli foss  
to col, w/ scatt foss  
ool p. N.S. - No odor

Ls. H. tan, fn-xln, sli foss  
poor foss p. N.S. No odor

sh. gry - red, mucky.

Ls. H. tan - H. gry, fn-xln  
- sli foss - N.S.

sh. red + gry. sdy-silty  
mar

sh. red + gry - silty, N.S.  
mar.

Ls. H. tan - H. Gry, fn-xln +  
dse, tight rx, N.S.

Ls. H. tan - H. Gry, fn-xln  
Foss w/ scatt foss p.  
N.S.

Ls. H. tan - Crm - Gry, fn-xln  
sli foss poor of N.S.

Ls. H. tan - crm - Gry, sli foss  
pr p. N.S.

sh. mar-gry.

Ls. H. tan - Crm, fn-xln -  
sli foss - pr p. N.S.

Ls. H. tan - Gry, fn-xln -  
sli foss - scatt p. N.S.  
CHKY

sh. drk Gry - blk + Ls. q/a  
N.S.

sh. mar - Gry

sh. mar - Gry

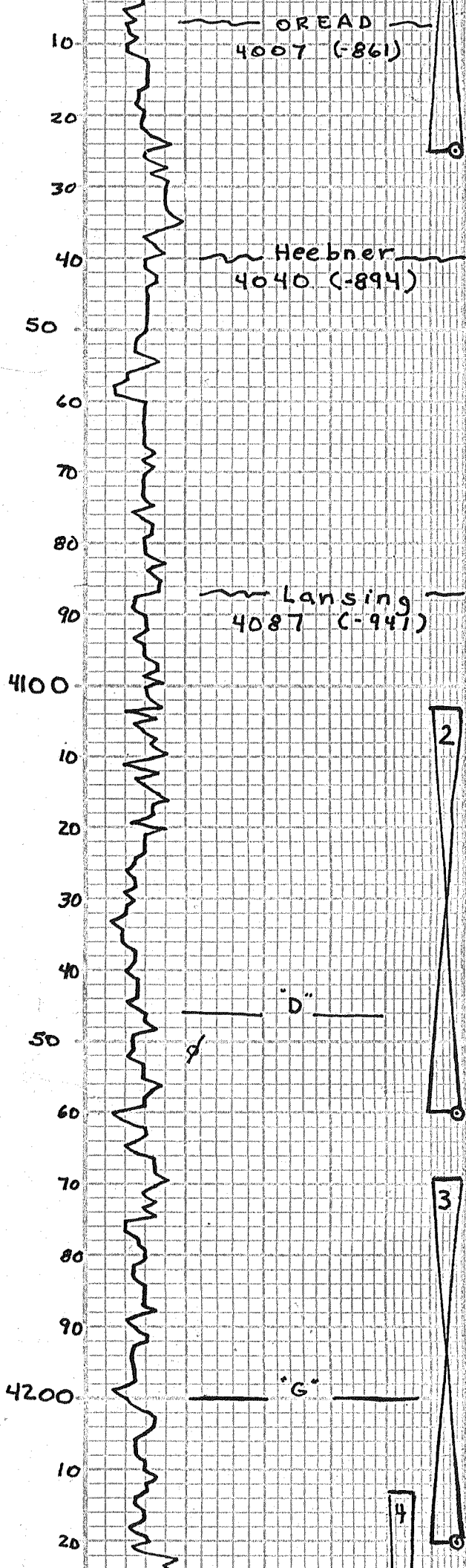
sh. mar - Gry

sh. drk Gry, Gry - rd.

DST No. 1 3958' - 4025'  
 wk blow died 21 min  
 36" 60" 40" 60"

Rec 2' mud

SIP 314\* - 221\*  
 FP 17\* - 20\* + 20 - 23  
 HP 2043\* - 1960\*



Ls. tan. fn-xln, foss w/ 3-4 pc's w/ dark sat stn + 5 DRK F.O. in poor foss p. ? odor.

Ls. H. tan. fn-xln-dse, pr-NVØ. N.S. SLI CHKY

Ls. H. tan. fn-xln-dse, NVØ N.S.

sh., blk., carb

Ls. H. tan-H. gry, fn-xln + sli foss → dse, pr Ø N.S.

sdstone + siltstone. v. fn. grnd tight, pr. NVØ. N.S.

sh., mar - gry

sh. mar - gry

Ls. Crm. - H. Gry, fn-xln v. sli foss, tight + RX. pr Ø. N.S.

Ls. tan. H. Gry. dse, NVØ N.S., SLI CHKY.

Ls. tan, dse, And, SLI CHKY N.S.

Ls. tan-dse, tight RX, NVØ N.S.

sh. gry - red.

sh. gry - red - mar

Ls. Crm. - fn-xln sli foss w/ 4-5 pc's w/ med drk sat stn + f.SFO in pr. fr foss → pinpoint Ø. v. faint odor.

Ls. Crm. fn-xln, sli foss tight, poor Ø. N.S.

sh. drk Gry - mar

Ls. Crm. fn-xln, v. sli foss, 2-3 pc's w/ drk brw stn in poor xln Ø. NFB, NO odor

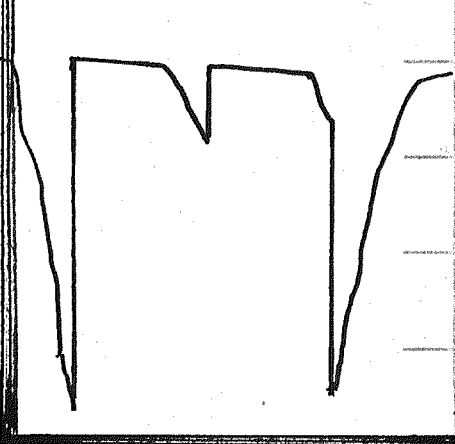
sh. Gry - mar

sh. gry - mar

Ls. Crm. fn-xln + sli foss, w/ 4-5 pc's w/ drk Hvp fo, and sp'd sat stn in sect pp Ø. NO odor.

Ls. Crm. fn-xln, sli foss, 2 pc's w/ 3FO + sp'd sat stn in pp Ø., NO odor

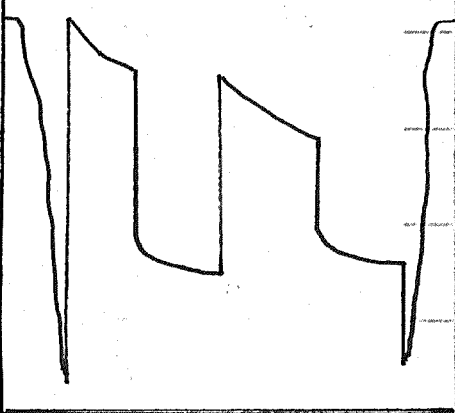
sh. gry - mar



**DST NO. 2 4103' - 4160'**

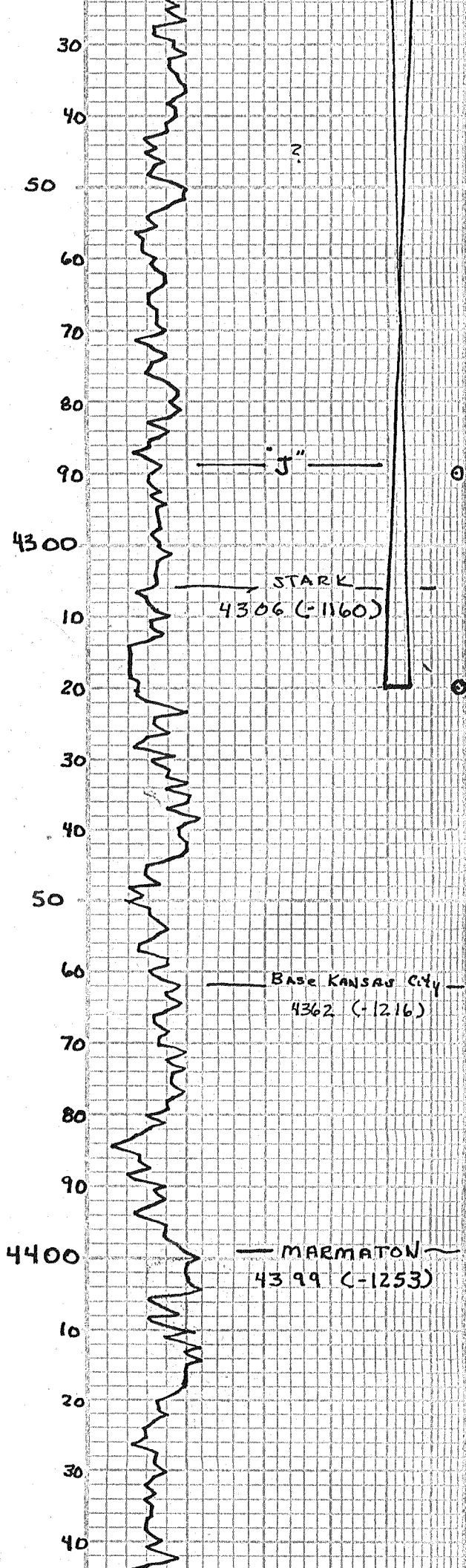
Hit Bridge 10' from bottom, tool opened - pulled tool + reset. packer held - Test OK  
 BOB 9" 1st open > Blow Backs SI  
 BOB 8 1/2" 2nd open  
 — 30" 60" 75" 90" —

Rec: 441 sm+GC oil 72%  
 1260 Fluid 286' GC0+wm 7%  
 533' SGCO+mw 2%  
 SIP: 1292# - 1289#  
 FP: 111# 318# + 344# 556#  
 HP: 1973# - 1969#  
 DST - No. 2



**DST NO. 3 4169' - 4220'**

wk blow → 3 3/4" 1st open  
 wk inc blow TO 7 1/4" 2nd op  
 — 30" 60" 75" 90" —



sh. gry-mar. rd + drk  
gry ls. tight rx + pyrite

sh, gry-mar

ls. tan. fn. xln. -dse pr  
N.V.B. N.S. No odor

ls. tan. Gry. fn. xln. sl. foss w/  
3-4 pcs w/ drk dead asph. stn  
in poor pp-foss p. N.F.O  
No odor

sh. mar-Gry

ls. tan. Gry. fn. xln. 2 pcs  
w/ dead oil spots stn on  
edges. N.F.O No Odor

ls. lt tan + lt Gry. fn. xln +  
foss 5-6 pcs w/ drk sat  
stn + f.s.o. in fr. pp -  
foss p. No odor.

ls. gla. tighter rx. 2-3  
pcs w/pr stn. N.F.O No  
odor

sh. black carb

sh. gry's-mar-blk.

sh, sh-mar

ls. tan-Gry. fn. xln +  
dse, N.V.B. N.S

sh. gry-mar

ls. tan-Gry. V. fn. xln. -dse  
sl. foss, N.V.B. N.S

sh. gry-mar

ls. tan. fn. xln. tight rx  
N.S.

sh. gry-mar

sh, mar-gry

ls. tan-gry. fn. xln. tight  
sl. foss. N.S.

ls. tan. Gry. fn. xln. sl. foss  
to dse, N.V.B. N.S.

sh. gry-mar

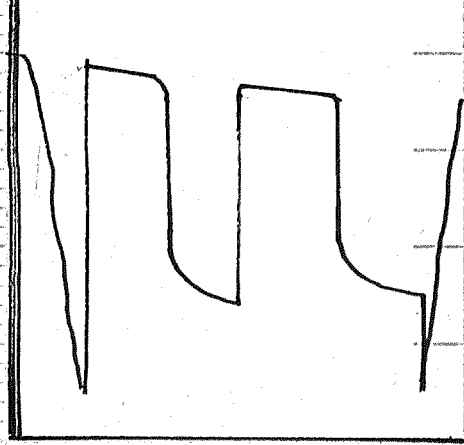
sh. gry-mar

30 60 90

Rec: 45' 9mo 84% oil  
30' 9mo 76% oil  
135' < 60' 9om 36% oil

SIP: 1323\* - 1321\* HP 2043\*  
1982\*

FP: 17\* - 39\* + 42\* - 70\*  
DST No. 3



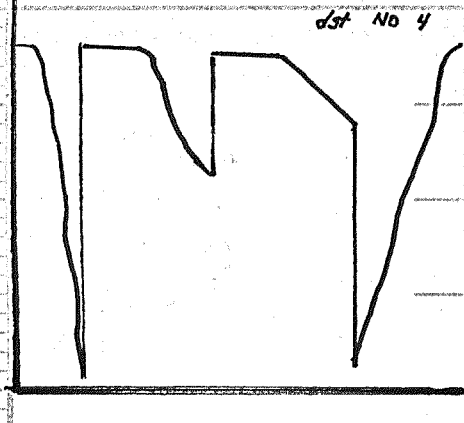
DST No. 4 4213' - 4320'

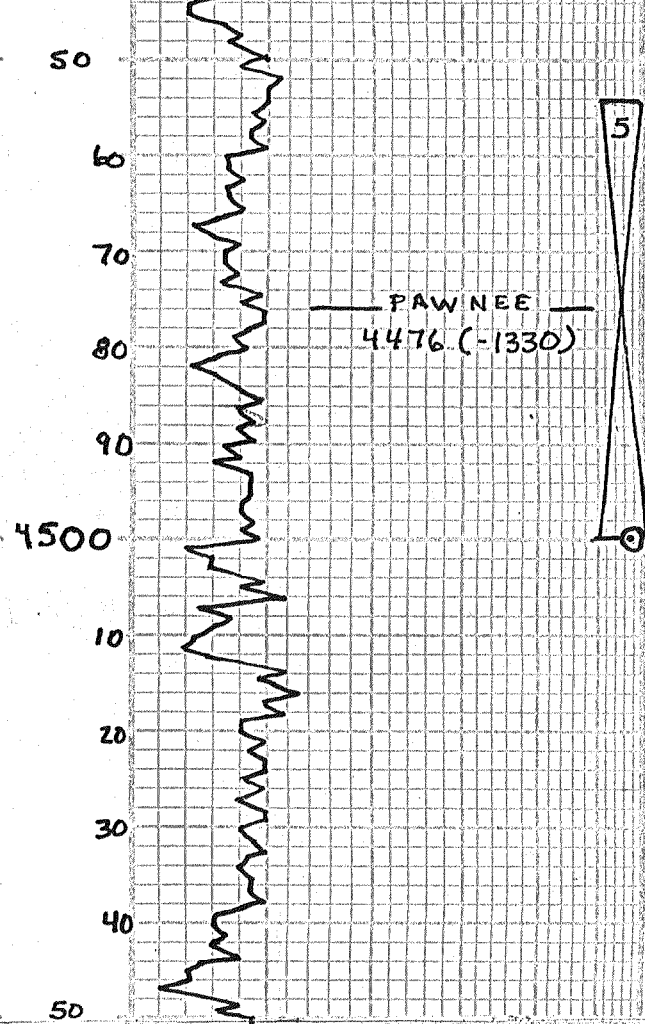
wk blow died 9"  
No blow 2nd open

30" 60" 30" 60"

Rec: 10' mud

SIP: 409\* - 222\*  
FP: 20\* - 23\* + 23\* - 25\*  
HP: 2115\* - 2087\*





PAWNEE  
4476 (-1330)



sh. blk carb

Ls. tan - Gry, fn-xln. SLI foss  
TIGHT - PR - NVØ. N.S.

Ls. tan - Gry, fn-xln. foss.  
TIGHT RX. NVØ N.S.

SH. DRK Gry - blk carb.

Ls. tan - Crm, ool. foss - w/  
lt. brn spt'd sat str. +  
sto in pr. fr ool Ø. (4-5 pcs)

Ls. tan - Crm - ool - and fn-xln  
2-3 pels. w/ ssfo. in. pr. ool Ø.

Ls. Gry, fn-xln - dse, NVØ  
N.S. - SH. GRYS

SH. BIK Carb

tr tan ls. fn-xln - dse, N.S.

sh. Gry's - blk - mar

Ls. tan - brn, dse, Hrd  
tight RX, NVØ N.S.

Ls. tan - brn, dse, NVØ.  
N.S.

Ls. tan - Gry - dse, Hrd,  
NVØ N.S.

sh. drk Gry. Gry - blk, mar

DST NO. 5 4454' - 4500'

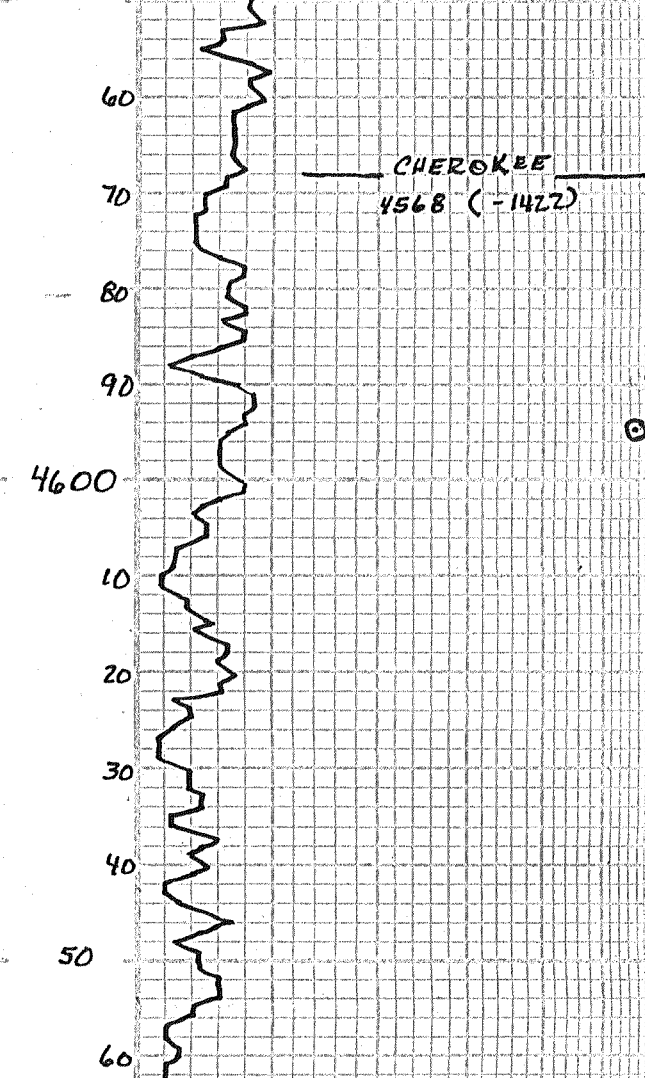
wk blow 1/8" died 15 min 1st op  
No blow - 2nd open -

30" 60" 30" 60"

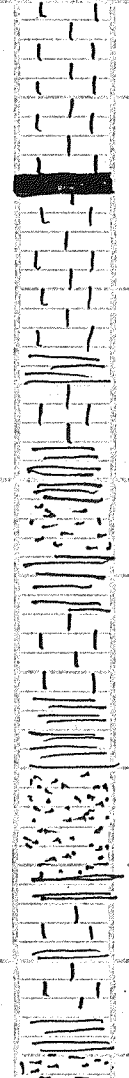
Rec: 5' gmco 83% oil  
30' 9 ocm 81% mud

SIP: 322" - 85"  
FP: 17" - 20" + 20" - 24"  
HP: 2294" - 2284"

Dst No. 5



CHEROKEE  
4568 (-1422)



Ls. H tan - tan, fn-xln +  
foss w/ fair foss & N.S.  
SLI clay

Ls. H tan, fn-xln - dse NVØ  
N.S.

SH. DRK GRY - BIK

5

Ls. tan. dse, Hrd, NVØ. N.S.

sh. Gry's

Ls. tan, fn-xln, foss. tight  
RX. pr. NVØ N.S.

sh. gry - red + ss. cl. red  
ØRETIC sub ang - clusters  
N.S.

sh. gry - rd. mar

Ls. tan - Gry, fn-xln, tight  
RX - Hrd - NVØ N.S.

ss. cl. fn-grnd, clusters -  
tightly cem w/ wh calc.  
N.S.

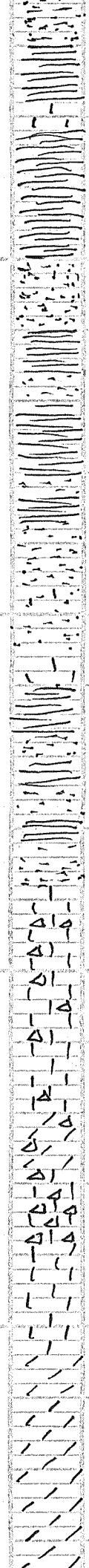
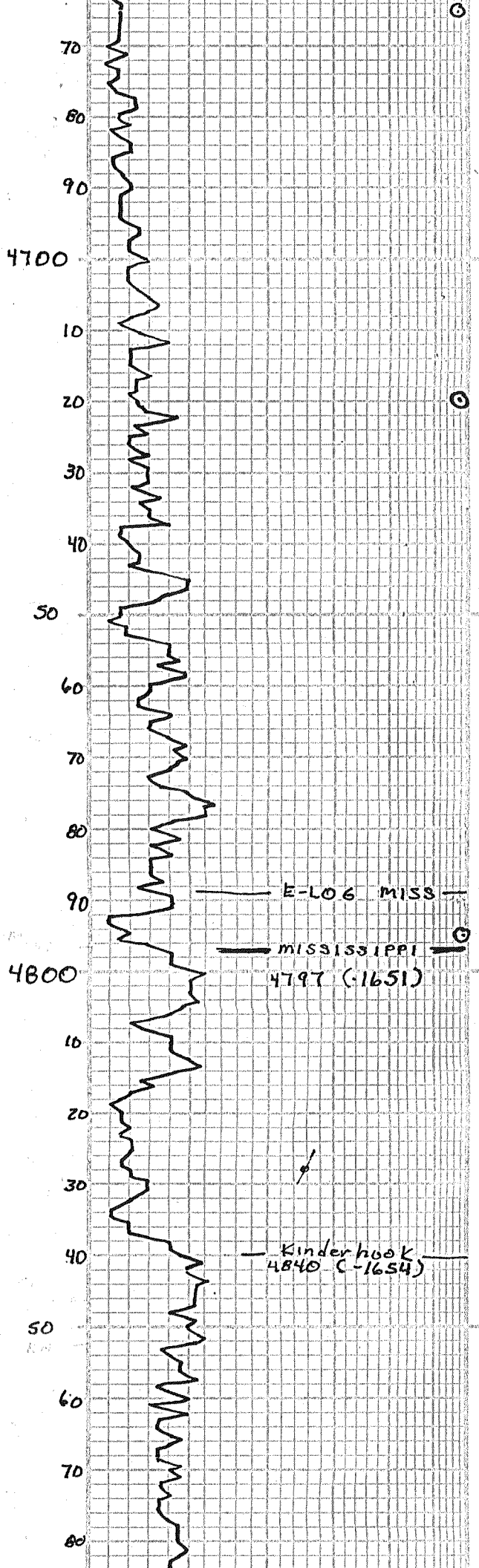
sh. gry - mar + ss. q/a

Ls. gry - tan, fn-xln - tight rx  
NVØ. N.S.

Ls. gry - tan - fn-xln, NVØ N.S.

sh - gry's - mar, grn.

sh + ss. tan - cl. ØRETIC



fr. grnd N.S.

sh. gry-mar

tr, tan fn-xln ls, N.S.

sh gry-MAR.

sh. gry-MAR - some scatt  
ss. clr. fn-grnd w/calc cem  
N.S.

s.s. clr. fn-grnd, clusters -  
biotite, tight rx, N.S.

sh - Gry-mar

sh gry-mar, gry mudstone  
NVØ, N.S.

s.s. clr, fn-xln, grnd, clusters  
tight - N.S. - Ls. Cem - tan  
fn-xln - NVØ N.S.

QTZ PC's. wh. Gry. Hrd.

Ls. Gry - fn-xln, dse,  
Hrd - tight rx, NVØ.  
N.S. Pyrite

QTZ PC's. GRy - wh -  
sh - varicolor; pyrite

QTZ pc's + sh varicolorad  
pyrite N.S.

fr QTZ, Pyrite + sh.  
varicolorad  
ss. clr. sh-grnd, tightly  
cem - sh. varicolor

scatt ss., tan Δ, op, N.S.  
Ls. dol, tan, fn-xln. sli foss  
N.S.

Ls. tan, fn-xln sli chky,  
TRACE Δ, N.S.

Ls. tan, fn-xln, tight rx,  
pr - NVØ., N.S.

dol. tan, fn-xln + gry-wh  
op Δ - N.S.

Ls + dol, tan, fn-xln, tight  
rx. pr - NVØ., gry op fresh  
foss Δ. N.S.


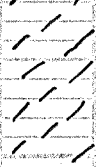
Ls. tan-brn, dse, NVØ N.S.

Ls. brn, dse, NVØ, N.S.

DOL. lt tan, fn-xln, poor xln  
Ø. N.S. Brn dse ls - N.S.

DOL. lt tan, fn-xln, pr  
xln Ø. N.S.

DOL. lt tan, fn-xln w/pr

<p>90</p> <p>4900</p> <p>10</p> <p>20</p> <p>30</p> <p>40</p>	 <p>RTD = 4900'</p> <p>ELTD = 4902'</p>		<p>via <math>\frac{1}{2}</math> N.E.</p> <p>D.O.C. H. T. H. in view of some SLI foss. of C.M.R.Y., N.H.S.</p>	
<p>DEPTH</p>	<p>5" 10" 15" 20" 25"</p> <p>DRILLING TIME Minutes/Foot</p> <p>Rate of Penetration Increases</p>	<p>LITHOLOGY</p>	<p>SAMPLE DESCRIPTIONS</p>	<p>REMARKS</p>

COMPANY MURFIN Drlg. Co. Inc.

LEASE Culwell "B"

LOCATION 850' FSL + 700' FWL SEC 11 TWP 1s RNG 37 W

COUNTY Cheyenne STATE Kansas

ELEVATION: 3146 K.B.



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

### **Culwell 'B' #1-11**

#### **11-1s-37w Cheyenne KS**

Start Date: 2013.06.10 @ 03:10:00

End Date: 2013.06.10 @ 10:22:15

Job Ticket #: 52621                      DST #: 1

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

Printed: 2013.06.17 @ 14:15:48

Murfin Drilling Co., Inc  
11-1s-37w Cheyenne KS  
Culwell 'B' #1-11  
DST # 1  
Oread  
2013.06.10



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52621      **DST#: 1**  
 Test Start: 2013.06.10 @ 03:10:00

## GENERAL INFORMATION:

Formation: **Oread**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 05:26:00  
 Time Test Ended: 10:22:15  
 Interval: **3958.00 ft (KB) To 4025.00 ft (KB) (TVD)**  
 Total Depth: 4025.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: James Winder  
 Unit No: 57  
 Reference Elevations: 3150.00 ft (KB)  
 3140.00 ft (CF)  
 KB to GR/CF: 10.00 ft

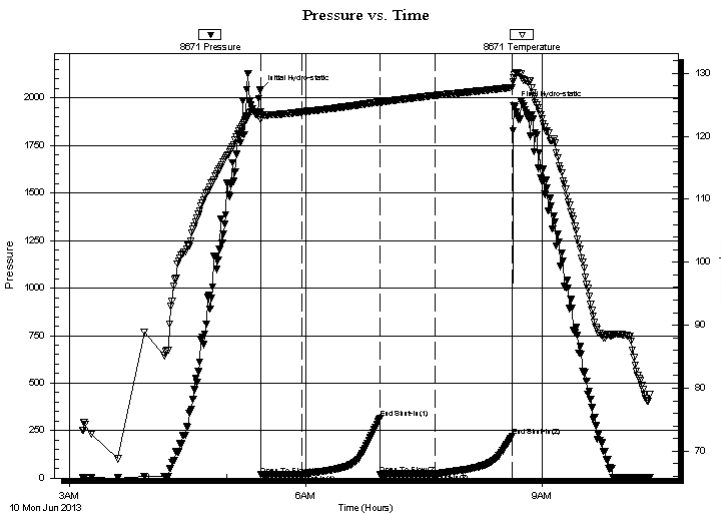
## Serial #: 8671

Inside

Press @ RunDepth: 23.22 psig @ 3959.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2013.06.10      End Date: 2013.06.10      Last Calib.: 2013.06.10  
 Start Time: 03:10:05      End Time: 10:22:14      Time On Btm: 2013.06.10 @ 05:25:45  
 Time Off Btm: 2013.06.10 @ 08:38:45

TEST COMMENT: 30 - IF: Blow built to 1/4" then died back, dead at 21 min.  
 60 - IS: No blow back  
 40 - FF: No blow  
 60 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2043.13	123.93	Initial Hydro-static
1	16.85	122.62	Open To Flow (1)
31	20.26	123.87	Shut-In(1)
91	313.67	125.50	End Shut-In(1)
91	20.13	125.30	Open To Flow (2)
133	23.22	126.49	Shut-In(2)
192	221.23	127.78	End Shut-In(2)
193	1960.14	129.24	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%	0.01

## Gas Rates

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





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

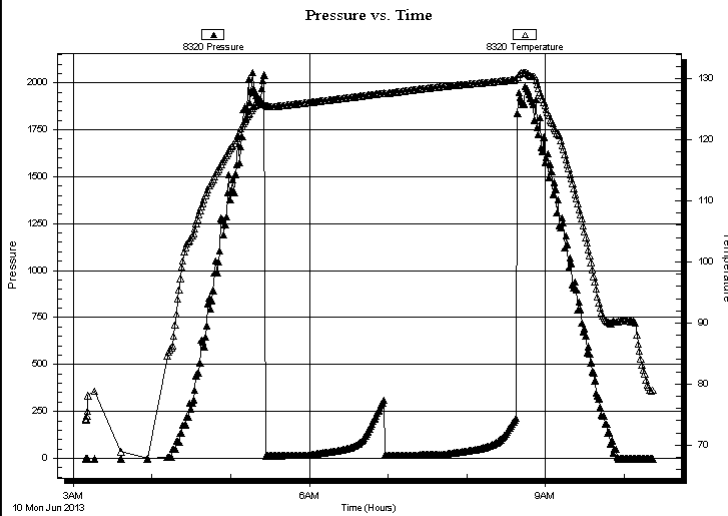
**11-1s-37w Cheyenne KS**  
**Culwell 'B' #1-11**  
 Job Ticket: 52621      **DST#: 1**  
 Test Start: 2013.06.10 @ 03:10:00

## GENERAL INFORMATION:

Formation: **Oread**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 05:26:00 Tester: James Winder  
 Time Test Ended: 10:22:15 Unit No: 57  
 Interval: **3958.00 ft (KB) To 4025.00 ft (KB) (TVD)** Reference Elevations: 3150.00 ft (KB)  
 Total Depth: 4025.00 ft (KB) (TVD) 3140.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

**Serial #: 8320      Outside**  
 Press @ Run Depth: psig @ 3959.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.06.10 End Date: 2013.06.10 Last Calib.: 2013.06.10  
 Start Time: 03:09:20 End Time: 10:21:59 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30 - IF: Blow built to 1/4" then died back, dead at 21 min.  
 60 - IS: No blow back  
 40 - FF: No blow  
 60 - FS: No blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52621

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2013.06.10 @ 03:10:00

## Tool Information

Drill Pipe:	Length: 3425.00 ft	Diameter: 3.80 inches	Volume: 48.04 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 533.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 78000.00 lb
			Total Volume: 50.66 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	3958.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 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			3940.00	
Hydraulic tool	5.00			3945.00	
Safety Joint	3.00			3948.00	
Packer	5.00			3953.00	23.00 Bottom Of Top Packer
Packer	5.00			3958.00	
Stubb	1.00			3959.00	
Recorder	0.00	8671	Inside	3959.00	
Recorder	0.00	8320	Outside	3959.00	
Perforations	26.00			3985.00	
Blank Spacing	33.00			4018.00	
Perforations	4.00			4022.00	
Bullnose	3.00			4025.00	67.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52621

**DST#: 1**

ATTN: Terry McLeod

Test Start: 2013.06.10 @ 03:10:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud 100%	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

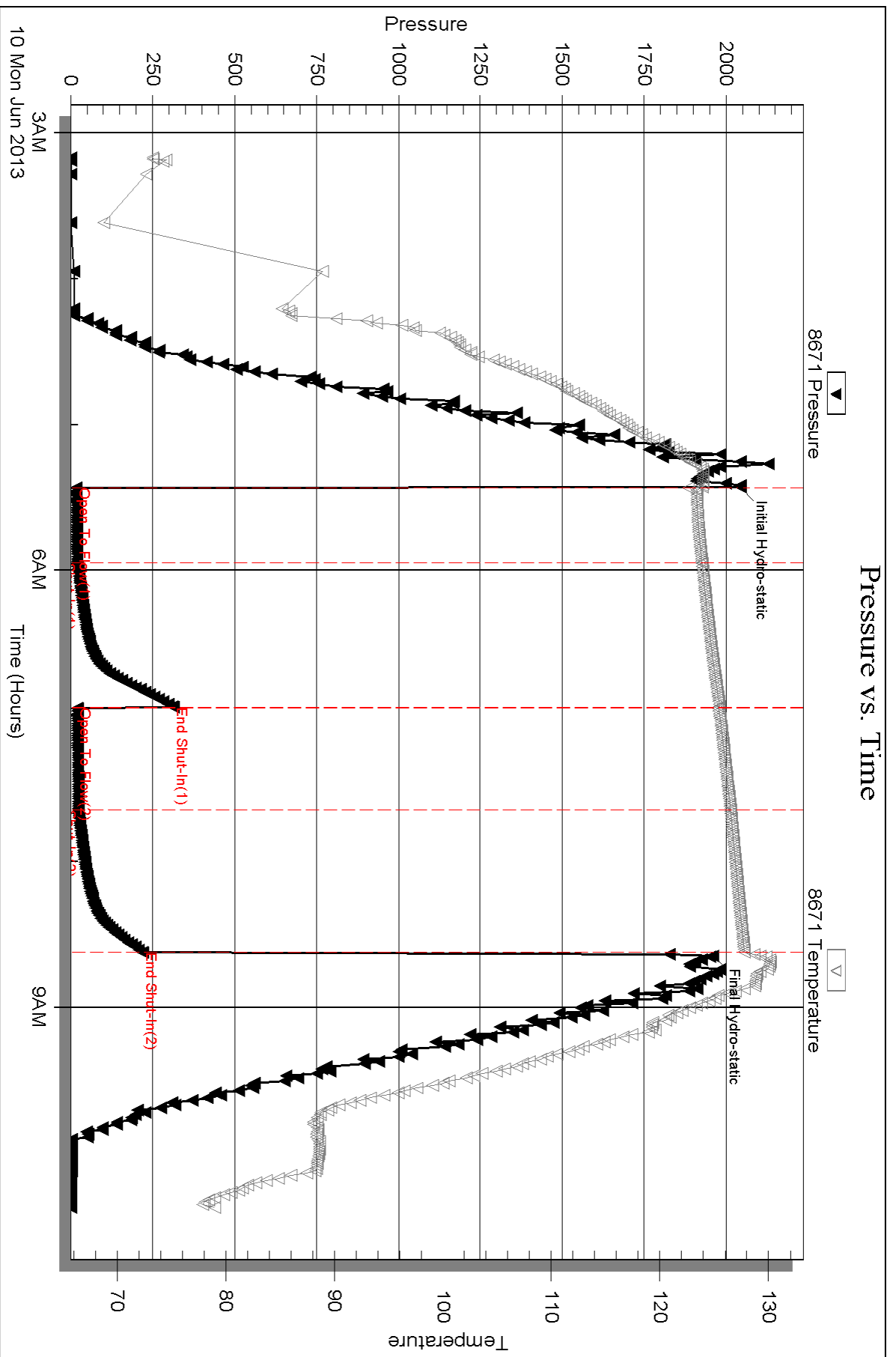
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

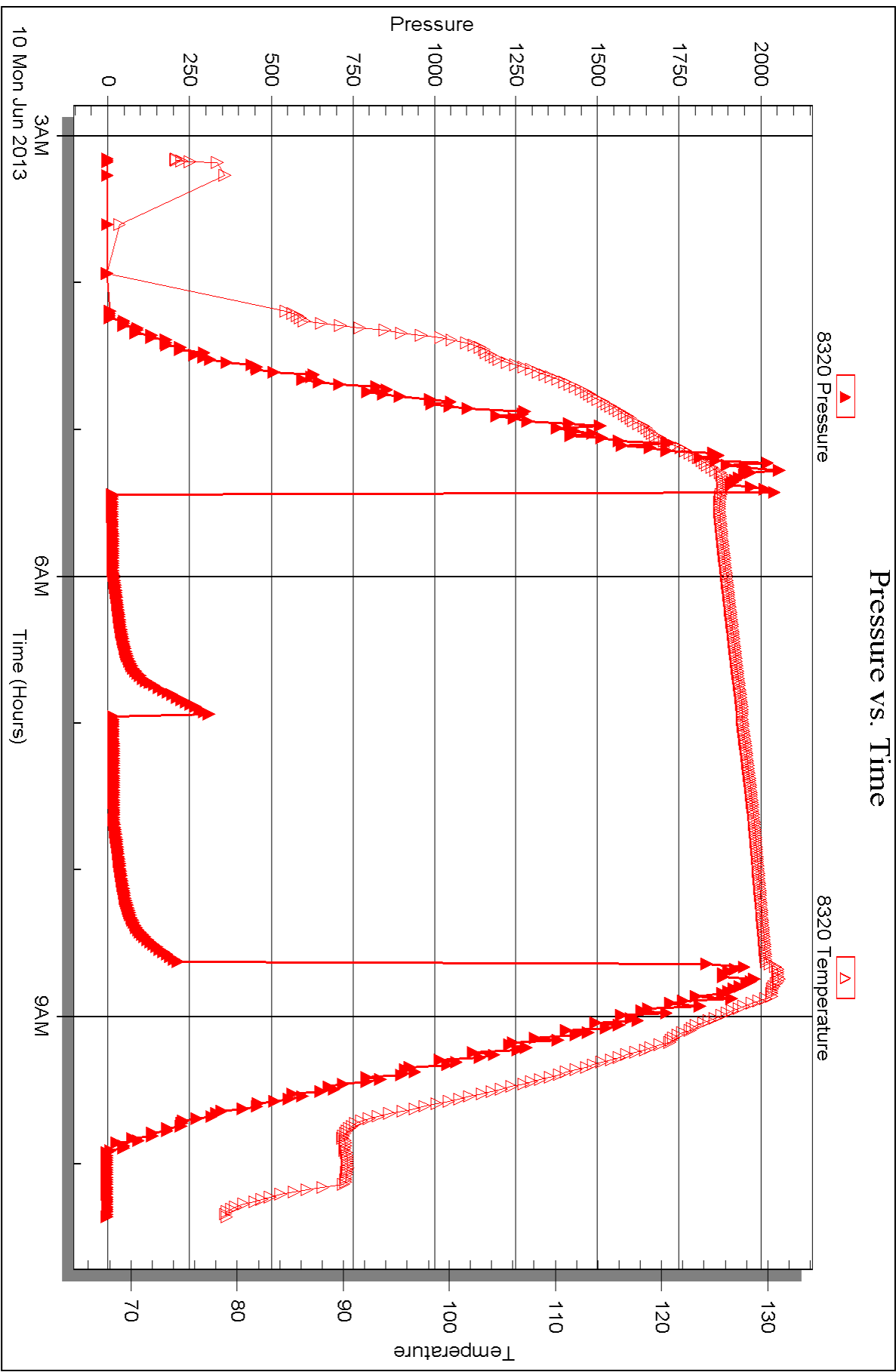


Serial #: 8320

Outside Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 1





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

### **Culwell 'B' #1-11**

#### **11-1s-37w Cheyenne KS**

Start Date: 2013.06.10 @ 22:18:00

End Date: 2013.06.11 @ 07:43:45

Job Ticket #: 52622                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.17 @ 14:15:10



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52622

**DST#: 2**

Test Start: 2013.06.10 @ 22:18:00

## GENERAL INFORMATION:

Formation: **LKC "D"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:37:45  
 Time Test Ended: 07:43:45  
 Interval: **4103.00 ft (KB) To 4160.00 ft (KB) (TVD)**  
 Total Depth: 4160.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: James Winder  
 Unit No: 57  
 Reference Elevations: 3150.00 ft (KB)  
 3140.00 ft (CF)  
 KB to GR/CF: 10.00 ft

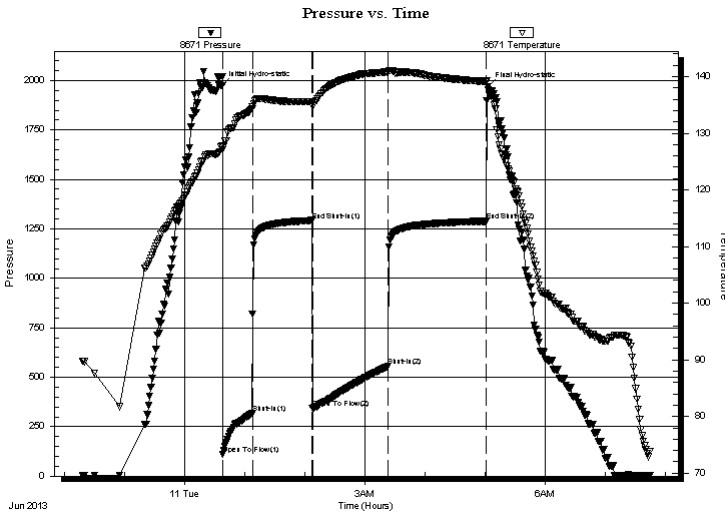
## Serial #: 8671

Inside

Press @ Run Depth: 556.31 psig @ 4104.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.06.10 End Date: 2013.06.11 Last Calib.: 2013.06.11  
 Start Time: 22:18:05 End Time: 07:43:45 Time On Btm: 2013.06.11 @ 00:37:15  
 Time Off Btm: 2013.06.11 @ 05:02:30

TEST COMMENT: 30 - IF: Blow built to BOB (11") in 9 min.  
 60 - IS: Blow back built to BOB in 40 min.  
 75 - FF: Blow built to BOB in 8 1/2 min.  
 90 - FS: Blow back built to BOB in 41 min.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1972.99	127.78	Initial Hydro-static
1	111.23	127.09	Open To Flow (1)
30	318.20	134.30	Shut-In(1)
90	1292.43	135.55	End Shut-In(1)
91	344.48	134.80	Open To Flow (2)
166	556.31	140.84	Shut-In(2)
264	1288.82	139.14	End Shut-In(2)
266	1969.47	137.73	Final Hydro-static

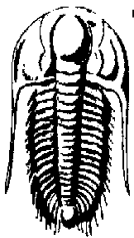
## Recovery

Length (ft)	Description	Volume (bbl)
533.00	MCW w/oil spots 76%w, 20%m, 2%o, 2%g	2.62
286.00	GOWCM 67%m, 16%w, 10%g, 7%o	4.01
441.00	GO 72%o, 26%g, 2%m	6.19
0.00	GIP = 550'	0.00

\* Recovery from multiple tests

## Gas Rates

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



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

## DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**  
**Culwell 'B' #1-11**  
Job Ticket: 52622      **DST#: 2**  
Test Start: 2013.06.10 @ 22:18:00

### GENERAL INFORMATION:

Formation:      **LKC "D"**  
Deviated:      No      Whipstock:                      ft (KB)  
Time Tool Opened: 00:37:45  
Time Test Ended: 07:43:45  
**Interval:      4103.00 ft (KB) To 4160.00 ft (KB) (TVD)**  
Total Depth:      4160.00 ft (KB) (TVD)  
Hole Diameter:      7.88 inches      Hole Condition: Fair

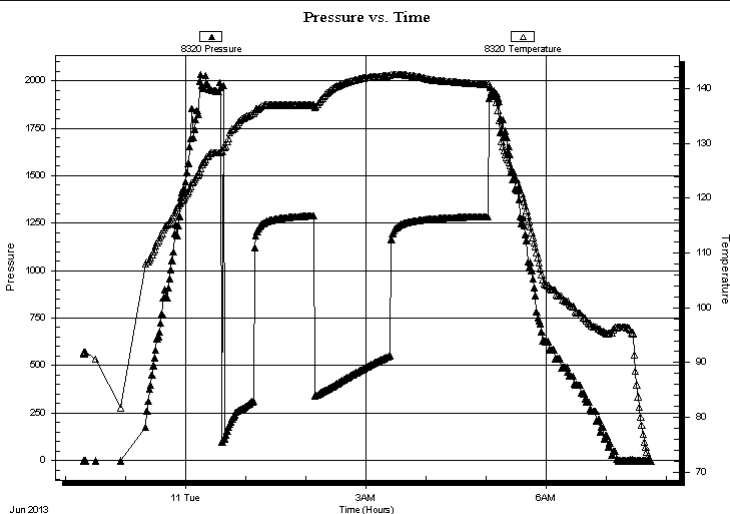
Test Type:      Conventional Bottom Hole (Reset)  
Tester:      James Winder  
Unit No:      57  
Reference Elevations:      3150.00 ft (KB)  
   3140.00 ft (CF)  
KB to GR/CF:      10.00 ft

### Serial #: 8320

**Outside**

Press @ RunDepth:                      psig @      4104.00 ft (KB)	Capacity:                      8000.00 psig
Start Date:                      2013.06.10      End Date:                      2013.06.11	Last Calib.:                      2013.06.11
Start Time:                      22:18:05      End Time:                      07:44:45	Time On Btm:
	Time Off Btm:

**TEST COMMENT:** 30 - IF: Blow built to BOB (11") in 9 min.  
60 - IS: Blow back built to BOB in 40 min.  
75 - FF: Blow built to BOB in 8 1/2 min.  
90 - FS: Blow back built to BOB in 41 min.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
533.00	MCW w/oil spots 76%w , 20%m, 2%o, 2%	2.62
286.00	GOWCM 67%m, 16%w , 10%g, 7%o	4.01
441.00	GO 72%o, 26%g, 2%m	6.19
0.00	GIP = 550'	0.00

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52622

**DST#: 2**

ATTN: Terry McLeod

Test Start: 2013.06.10 @ 22:18:00

## Tool Information

Drill Pipe:	Length: 3581.00 ft	Diameter: 3.80 inches	Volume: 50.23 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: 533.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 86000.00 lb
			<u>Total Volume: 52.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4103.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	57.00 ft			
Tool Length:	80.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Tool opened w hile going through bridge about 10' above bottom  
reset tool and bled off before opening at bottom

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4085.00	
Hydraulic tool	5.00			4090.00	
Safety Joint	3.00			4093.00	
Packer	5.00			4098.00	23.00 Bottom Of Top Packer
Packer	5.00			4103.00	
Stubb	1.00			4104.00	
Recorder	0.00	8671	Inside	4104.00	
Recorder	0.00	8320	Outside	4104.00	
Perforations	15.00			4119.00	
Blank Spacing	33.00			4152.00	
Perforations	5.00			4157.00	
Bullnose	3.00			4160.00	57.00 Bottom Packers & Anchor

**Total Tool Length: 80.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52622

**DST#: 2**

ATTN: Terry McLeod

Test Start: 2013.06.10 @ 22:18:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

23.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

22500 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.75 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
533.00	MCW w/oil spots 76%w , 20%m, 2%o, 2%g	2.621
286.00	GOWCM 67%m, 16%w , 10%g, 7%o	4.012
441.00	GO 72%o, 26%g, 2%m	6.186
0.00	GIP = 550'	0.000

Total Length: 1260.00 ft

Total Volume: 12.819 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

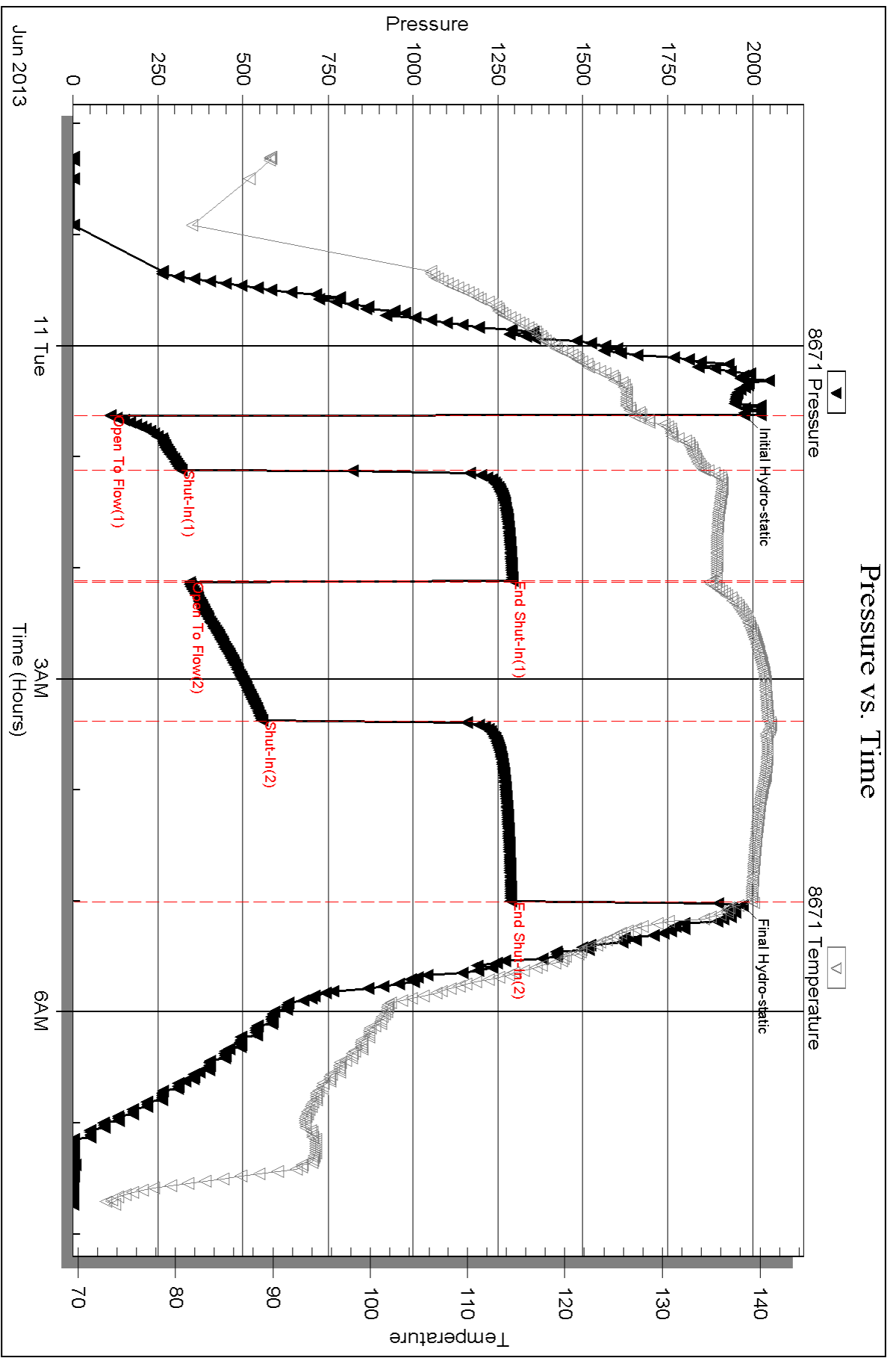
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 24.6 api @ 74 deg F Corrected Gravity = 23.2 api

RW = .275 ohms @ 77.7 deg F Chlorides = 22,500 ppm

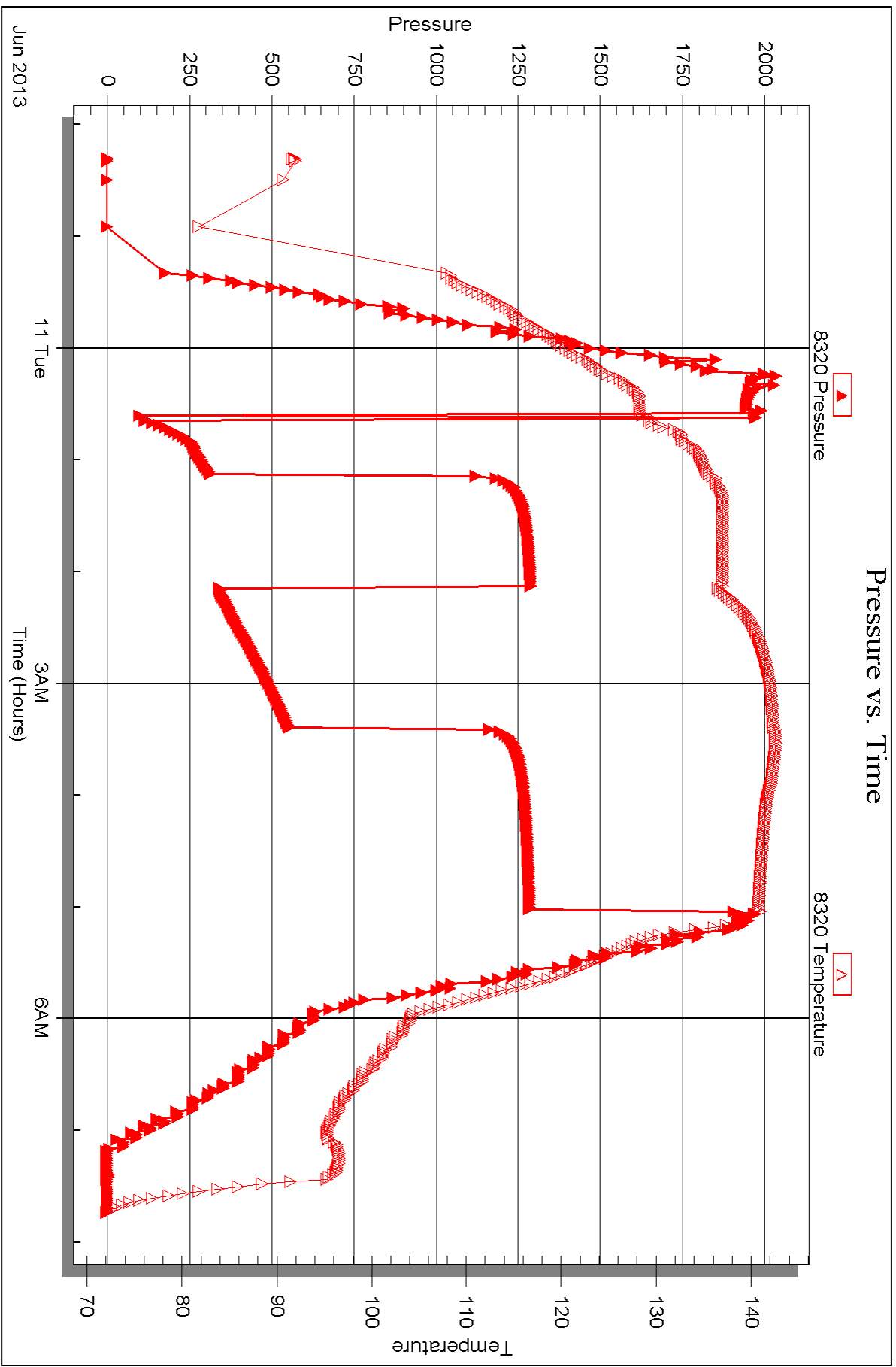


Serial #: 8320

Outside Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 2





## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

### **Culwell 'B' #1-11**

#### **11-1s-37w Cheyenne KS**

Start Date: 2013.06.11 @ 16:25:00

End Date: 2013.06.12 @ 00:30:15

Job Ticket #: 52623                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.17 @ 14:14:36

Murfin Drilling Co., Inc

11-1s-37w Cheyenne KS

Culwell 'B' #1-11

DST # 3

LKC "G"

2013.06.11



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52623

**DST#: 3**

Test Start: 2013.06.11 @ 16:25:00

## GENERAL INFORMATION:

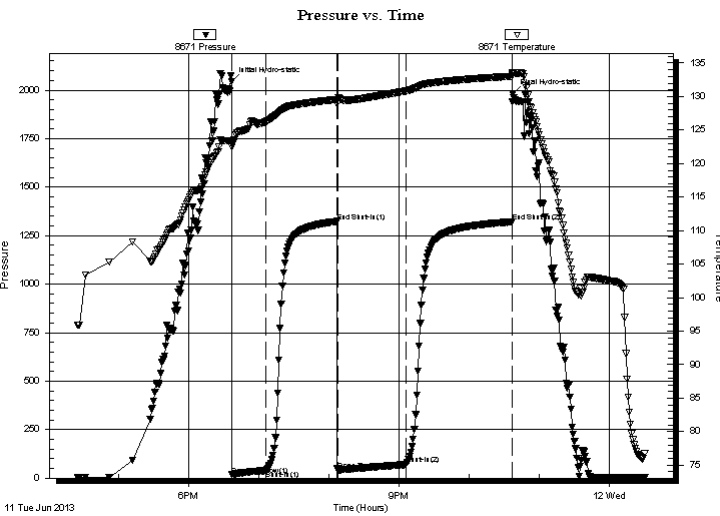
Formation: **LKC "G"**  
 Deviated: **No Whipstock:** ft (KB)  
 Test Type: **Conventional Bottom Hole (Reset)**  
 Time Tool Opened: 18:37:00  
 Tester: **James Winder**  
 Time Test Ended: 00:30:15  
 Unit No: **57**  
**Interval: 4169.00 ft (KB) To 4220.00 ft (KB) (TVD)**  
 Reference Elevations: **3150.00 ft (KB)**  
 Total Depth: **4220.00 ft (KB) (TVD)**  
 Reference Elevations: **3140.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Fair**  
 KB to GR/CF: **10.00 ft**

## Serial #: 8671

**Inside**

Press @ Run Depth: **70.38 psig @ 4170.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2013.06.11** End Date: **2013.06.12** Last Calib.: **2013.06.12**  
 Start Time: **16:25:05** End Time: **00:30:14** Time On Btm: **2013.06.11 @ 18:36:45**  
 Time Off Btm: **2013.06.11 @ 22:37:30**

**TEST COMMENT:** 30 - IF: Blow built to 3 3/4"  
 60 - IS: No blow back  
 60 - FF: Blow built to 7 1/4"  
 90 - FS: No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2043.42	123.47	Initial Hydro-static
1	17.33	122.42	Open To Flow (1)
30	39.17	126.24	Shut-In(1)
91	1323.13	129.57	End Shut-In(1)
91	42.27	129.52	Open To Flow (2)
150	70.38	130.85	Shut-In(2)
240	1320.72	133.03	End Shut-In(2)
241	1981.50	133.61	Final Hydro-static

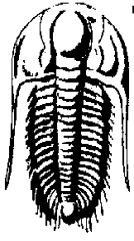
## Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOM 51% <sub>m</sub> , 36% <sub>o</sub> , 13% <sub>g</sub>	0.30
30.00	MCO 76% <sub>o</sub> , 22% <sub>m</sub> , 2% <sub>g</sub>	0.15
45.00	CGO 84% <sub>o</sub> , 10% <sub>g</sub> , 6% <sub>m</sub>	0.22
0.00	GIP = 45'+	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52623

**DST#: 3**

Test Start: 2013.06.11 @ 16:25:00

## GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 18:37:00

Time Test Ended: 00:30:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 57

**Interval: 4169.00 ft (KB) To 4220.00 ft (KB) (TVD)**

Reference Elevations: 3150.00 ft (KB)

Total Depth: 4220.00 ft (KB) (TVD)

3140.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 8320** **Outside**

Press @ RunDepth: psig @ 4170.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.06.11 End Date: 2013.06.12

Last Calib.: 2013.06.12

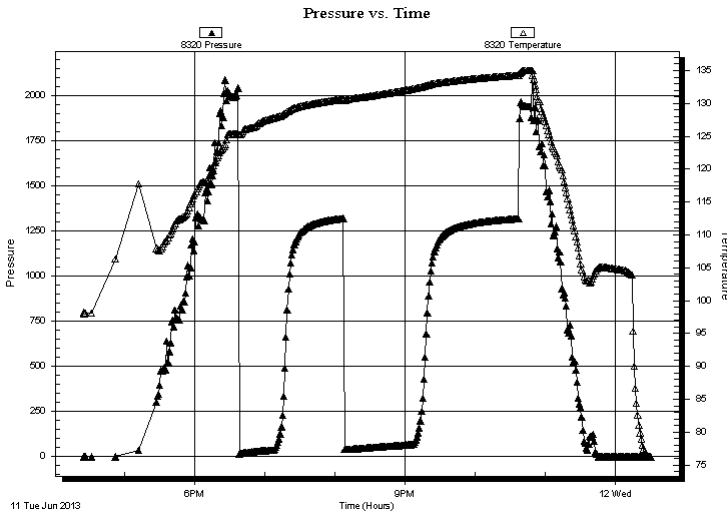
Start Time: 16:25:05 End Time: 00:30:59

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30 - IF: Blow built to 3 3/4"  
60 - IS: No blow back  
60 - FF: Blow built to 7 1/4"  
90 - FS: No blow back

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOM 51% <sub>m</sub> , 36% <sub>o</sub> , 13% <sub>g</sub>	0.30
30.00	MCO 76% <sub>o</sub> , 22% <sub>m</sub> , 2% <sub>g</sub>	0.15
45.00	CGO 84% <sub>o</sub> , 10% <sub>g</sub> , 6% <sub>m</sub>	0.22
0.00	GIP = 45'+	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52623

**DST#: 3**

ATTN: Terry McLeod

Test Start: 2013.06.11 @ 16:25:00

## Tool Information

Drill Pipe:	Length: 3646.00 ft	Diameter: 3.80 inches	Volume: 51.14 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: 533.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 53.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4169.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	74.00 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			4151.00	
Hydraulic tool	5.00			4156.00	
Safety Joint	3.00			4159.00	
Packer	5.00			4164.00	23.00 Bottom Of Top Packer
Packer	5.00			4169.00	
Stubb	1.00			4170.00	
Recorder	0.00	8671	Inside	4170.00	
Recorder	0.00	8320	Outside	4170.00	
Perforations	10.00			4180.00	
Blank Spacing	33.00			4213.00	
Perforations	4.00			4217.00	
Bullnose	3.00			4220.00	51.00 Bottom Packers & Anchor

**Total Tool Length: 74.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52623

**DST#: 3**

ATTN: Terry McLeod

Test Start: 2013.06.11 @ 16:25:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.57 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	GOM 51% <i>m</i> , 36% <i>o</i> , 13% <i>g</i>	0.295
30.00	MCO 76% <i>o</i> , 22% <i>m</i> , 2% <i>g</i>	0.148
45.00	CGO 84% <i>o</i> , 10% <i>g</i> , 6% <i>m</i>	0.221
0.00	GIP = 45'+	0.000

Total Length: 135.00 ft      Total Volume: 0.664 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 31.4 api @ 82 deg F

Corrected Gravity = 29.2 api

Serial #: 8671

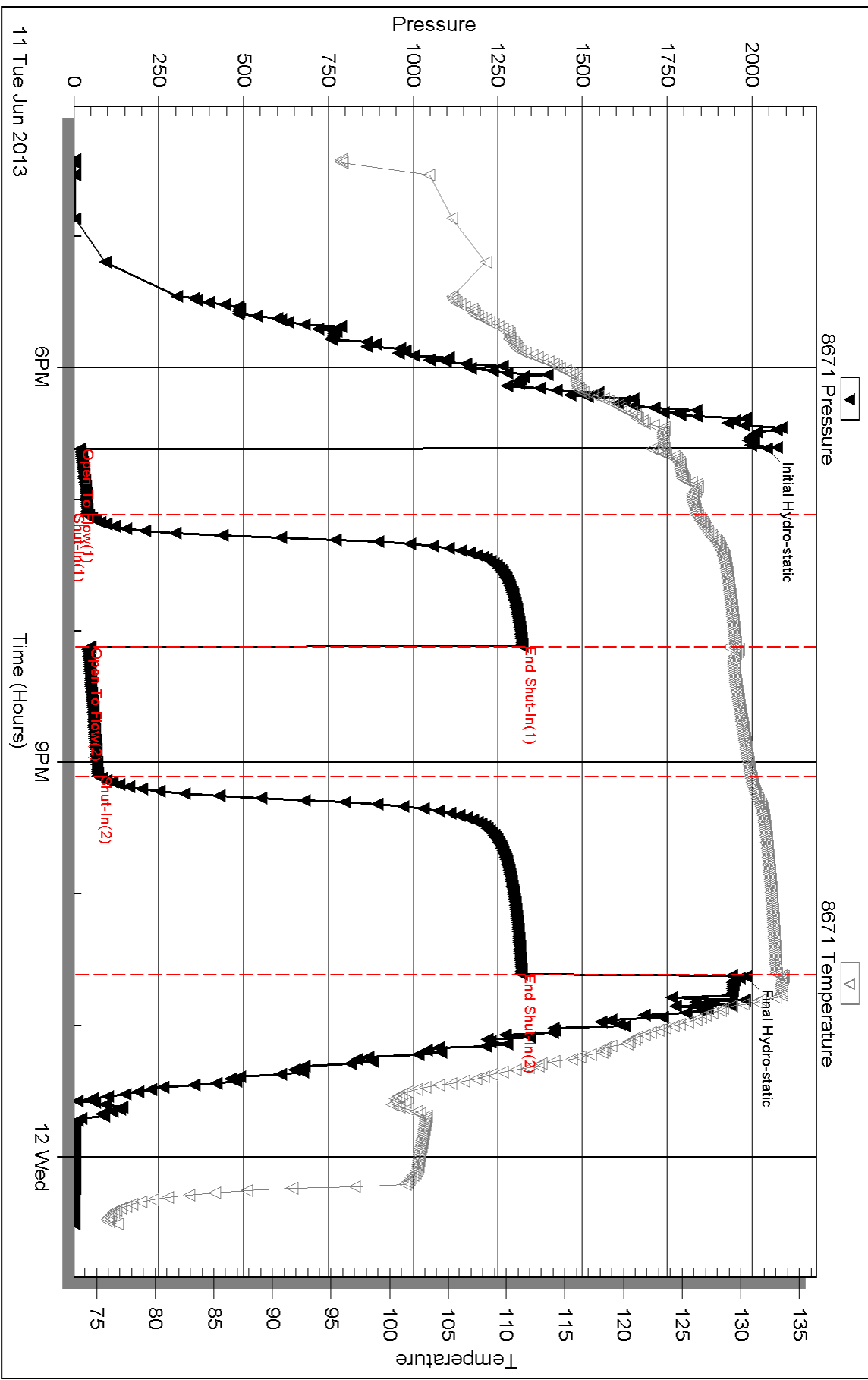
Inside

Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 3

### Pressure vs. Time



Triobite Testing, Inc

Ref. No: 52623

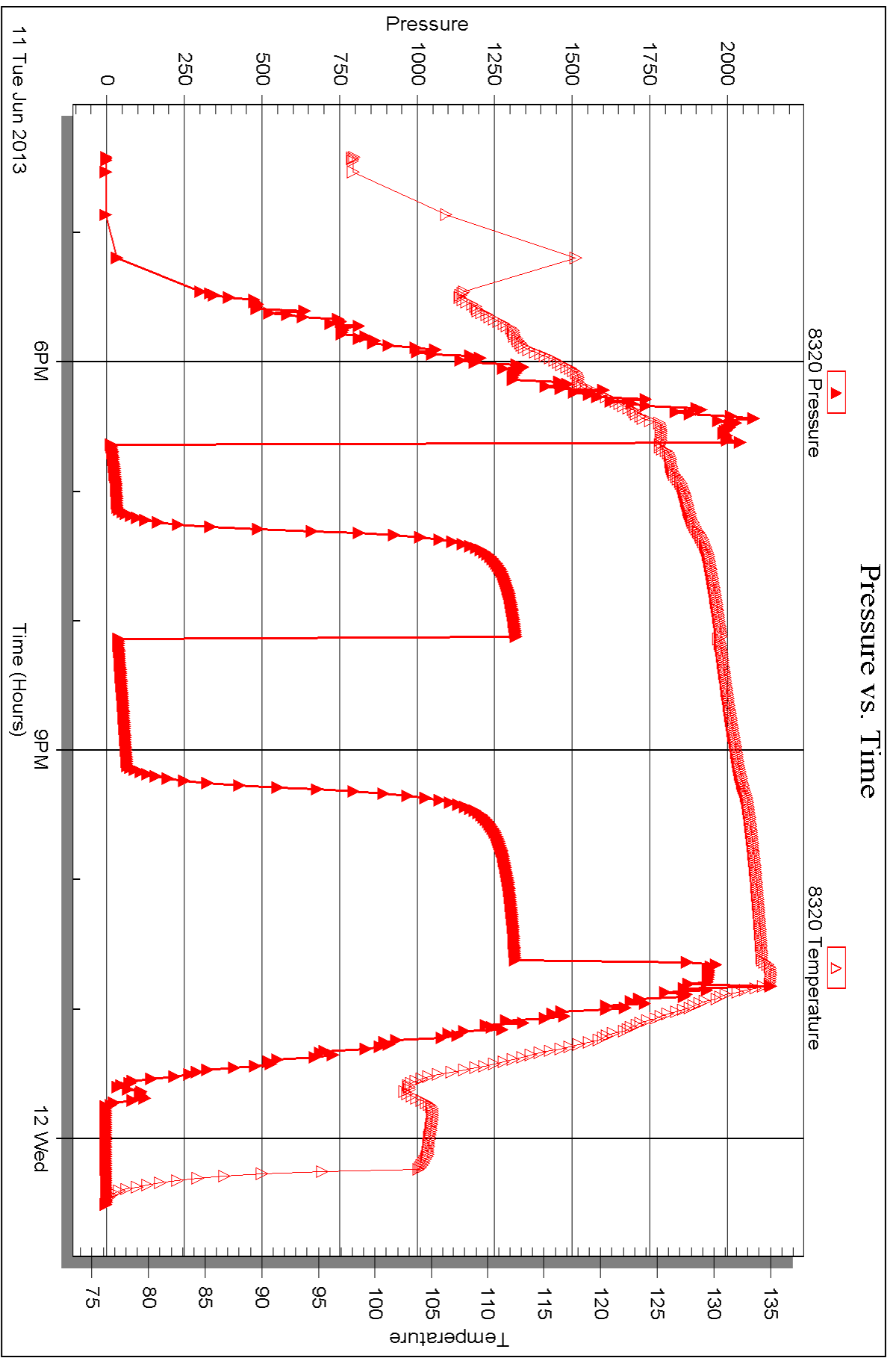
Printed: 2013.06.17 @ 14:14:39

Serial #: 8320

Outside Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 52623

Printed: 2013.06.17 @ 14:14:39



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

### **Culwell 'B' #1-11**

#### **11-1s-37w Cheyenne KS**

Start Date: 2013.06.12 @ 14:54:00

End Date: 2013.06.12 @ 22:25:15

Job Ticket #: 52624                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.17 @ 14:13:41



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52624

**DST#: 4**

Test Start: 2013.06.12 @ 14:54:00

## GENERAL INFORMATION:

Formation: **LKC "H - J"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:41:00  
 Time Test Ended: 22:25:15  
 Interval: **4213.00 ft (KB) To 4320.00 ft (KB) (TVD)**  
 Total Depth: 4320.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: James Winder  
 Unit No: 57  
 Reference Elevations: 3150.00 ft (KB)  
 3140.00 ft (CF)  
 KB to GR/CF: 10.00 ft

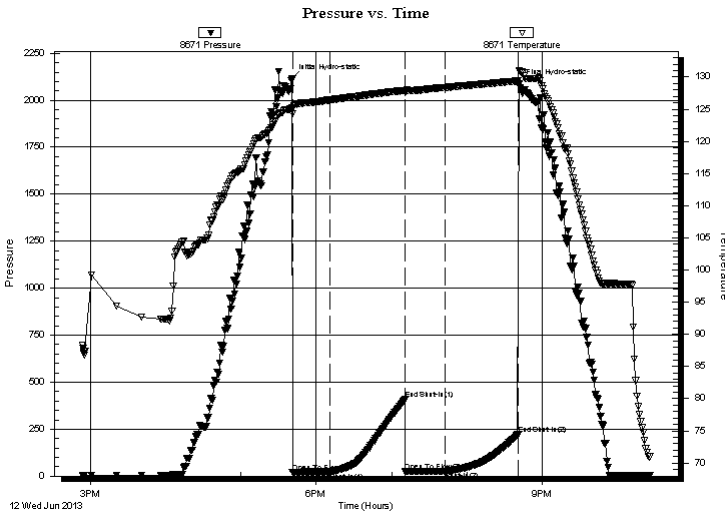
## Serial #: 8671

Inside

Press @ Run Depth: 24.90 psig @ 4214.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.06.12 End Date: 2013.06.12 Last Calib.: 2013.06.12  
 Start Time: 14:54:05 End Time: 22:25:14 Time On Btm: 2013.06.12 @ 17:40:45  
 Time Off Btm: 2013.06.12 @ 20:41:15

TEST COMMENT: 30 - IF: 1/8" blow at open, dead in 9 min.  
 60 - IS: No blow back  
 30 - FF: No blow  
 60 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2114.55	125.14	Initial Hydro-static
1	19.83	124.28	Open To Flow (1)
30	22.80	126.43	Shut-In(1)
90	408.75	127.93	End Shut-In(1)
91	23.42	127.63	Open To Flow (2)
122	24.90	128.34	Shut-In(2)
180	221.79	129.40	End Shut-In(2)
181	2087.00	131.03	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /trace oil 100%m	0.05

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52624

**DST#: 4**

ATTN: Terry McLeod

Test Start: 2013.06.12 @ 14:54:00

### Tool Information

Drill Pipe:	Length: 3677.00 ft	Diameter: 3.80 inches	Volume: 51.58 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 533.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 88000.00 lb
			<u>Total Volume: 54.20 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4213.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	107.00 ft			
Tool Length:	130.00 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			4195.00	
Hydraulic tool	5.00			4200.00	
Safety Joint	3.00			4203.00	
Packer	5.00			4208.00	23.00 Bottom Of Top Packer
Packer	5.00			4213.00	
Stubb	1.00			4214.00	
Recorder	0.00	8671	Inside	4214.00	
Recorder	0.00	8320	Outside	4214.00	
Perforations	5.00			4219.00	
Blank Spacing	97.00			4316.00	
Perforations	1.00			4317.00	
Bullnose	3.00			4320.00	107.00 Bottom Packers & Anchor

**Total Tool Length: 130.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52624

**DST#: 4**

ATTN: Terry McLeod

Test Start: 2013.06.12 @ 14:54:00

## 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: 71.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud w /trace oil 100%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 #: 8671

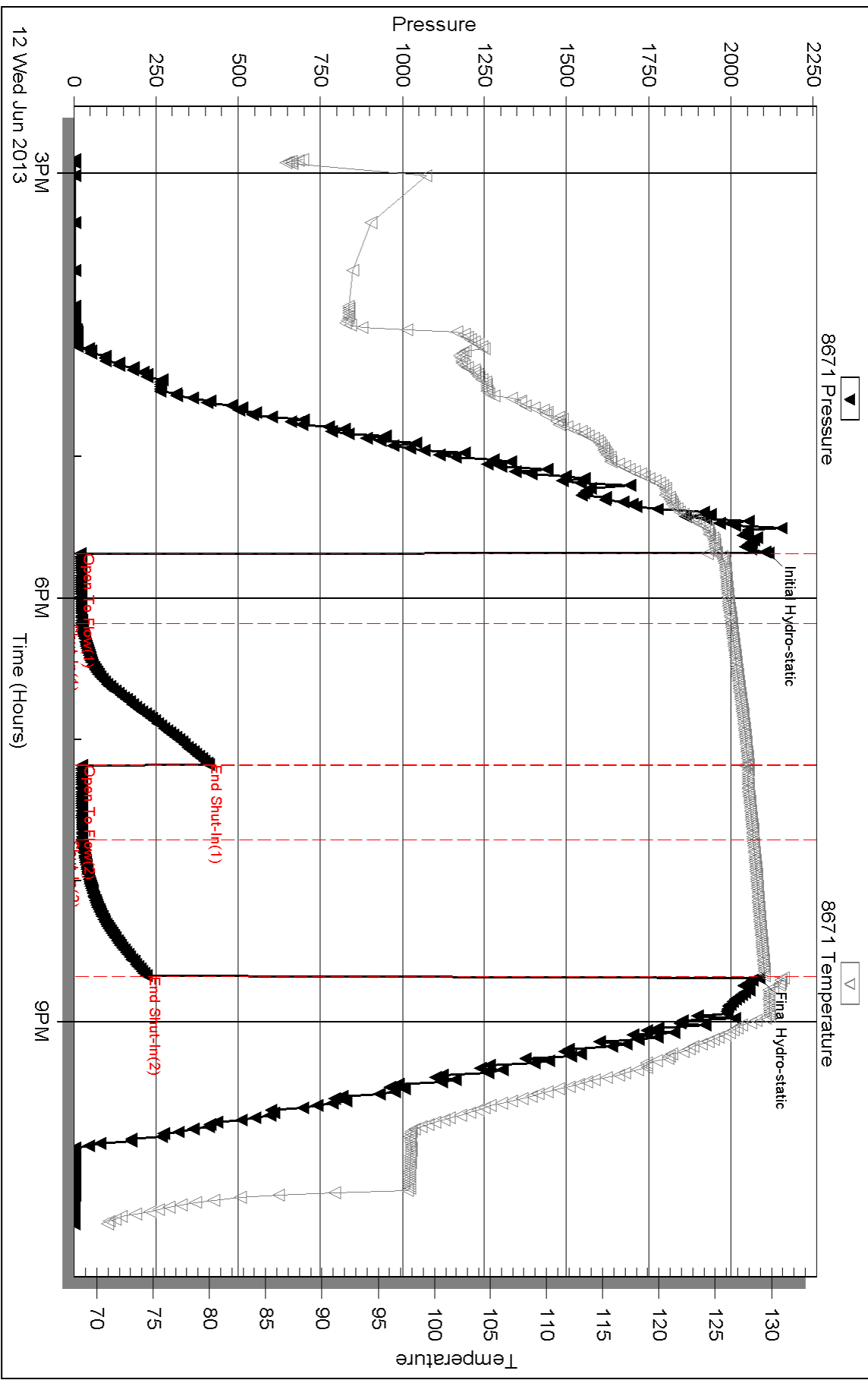
Inside

Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 4

### Pressure vs. Time

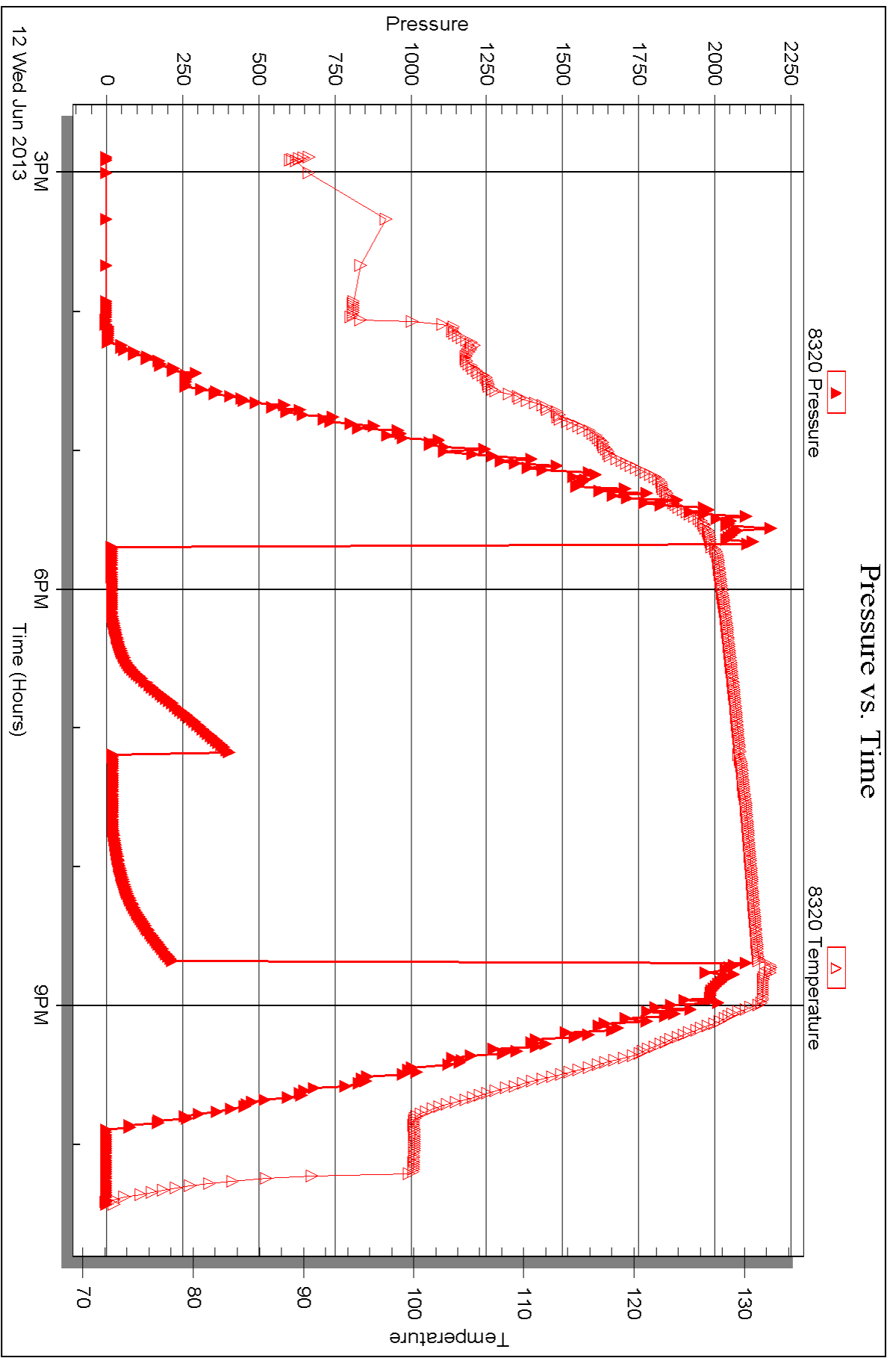


Serial #: 8320

Outside Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 52624

Printed: 2013.06.17 @ 14:13:44



## DRILL STEM TEST REPORT

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

250 N. Water STE 300  
Wichita, KS 67202

ATTN: Terry McLeod

### **Culwell 'B' #1-11**

#### **11-1s-37w Cheyenne KS**

Start Date: 2013.06.13 @ 16:00:00

End Date: 2013.06.13 @ 22:53:15

Job Ticket #: 52625                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.17 @ 14:12:51



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

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

**11-1s-37w Cheyenne KS**

**Culwell 'B' #1-11**

Job Ticket: 52625

**DST#: 5**

Test Start: 2013.06.13 @ 16:00:00

## GENERAL INFORMATION:

Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:11:30  
 Time Test Ended: 22:53:15  
 Interval: **4454.00 ft (KB) To 4500.00 ft (KB) (TVD)**  
 Total Depth: 4500.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: James Winder  
 Unit No: 57  
 Reference Elevations: 3150.00 ft (KB)  
 3140.00 ft (CF)  
 KB to GR/CF: 10.00 ft

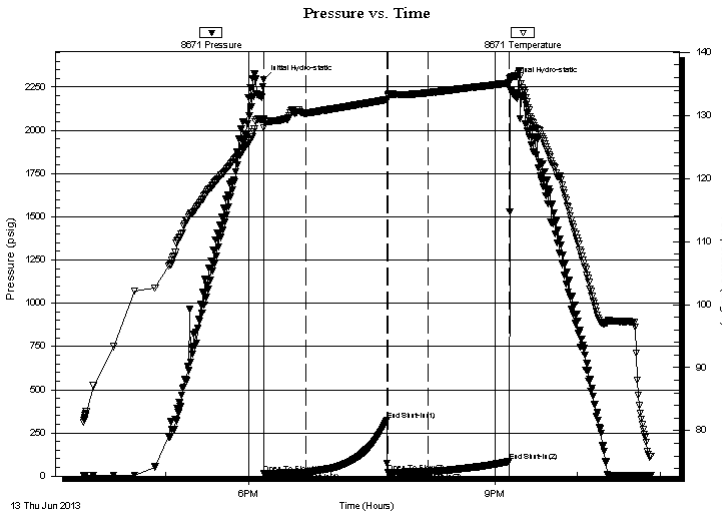
## Serial #: 8671

Inside

Press @ Run Depth: 24.32 psig @ 4455.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.06.13 End Date: 2013.06.13 Last Calib.: 2013.06.13  
 Start Time: 16:00:05 End Time: 22:53:14 Time On Btm: 2013.06.13 @ 18:11:15  
 Time Off Btm: 2013.06.13 @ 21:10:45

TEST COMMENT: 30 - IF: Blow built to 1/8" then died back, dead at 15 min.  
 60 - IS: No blow back  
 30 - FF: No blow  
 60 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2293.58	129.38	Initial Hydro-static
1	17.27	128.09	Open To Flow (1)
31	20.21	130.36	Shut-In(1)
90	321.79	132.50	End Shut-In(1)
91	19.67	133.15	Open To Flow (2)
120	24.32	133.58	Shut-In(2)
179	85.36	135.11	End Shut-In(2)
180	2284.42	136.02	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	OCM 81% <i>m</i> , 16% <i>o</i> , 3% <i>g</i>	0.15
5.00	SMCO 83% <i>o</i> , 10% <i>m</i> , 7% <i>g</i>	0.02

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52625

**DST#: 5**

ATTN: Terry McLeod

Test Start: 2013.06.13 @ 16:00:00

## Tool Information

Drill Pipe:	Length: 3931.00 ft	Diameter: 3.80 inches	Volume: 55.14 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: 533.00 ft	Diameter: 2.25 inches	Volume: 2.62 bbl	Weight to Pull Loose: 84000.00 lb
			<u>Total Volume: 57.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4454.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	69.00 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			4436.00	
Hydraulic tool	5.00			4441.00	
Safety Joint	3.00			4444.00	
Packer	5.00			4449.00	23.00 Bottom Of Top Packer
Packer	5.00			4454.00	
Stubb	1.00			4455.00	
Recorder	0.00	8671	Inside	4455.00	
Recorder	0.00	8320	Outside	4455.00	
Perforations	5.00			4460.00	
Blank Spacing	33.00			4493.00	
Perforations	4.00			4497.00	
Bullnose	3.00			4500.00	46.00 Bottom Packers & Anchor

**Total Tool Length: 69.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Murfin Drilling Co., Inc

**11-1s-37w Cheyenne KS**

250 N. Water STE 300  
Wichita, KS 67202

**Culwell 'B' #1-11**

Job Ticket: 52625

**DST#: 5**

ATTN: Terry McLeod

Test Start: 2013.06.13 @ 16:00:00

## 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: 75.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
30.00	OCM 81% <i>m</i> , 16% <i>o</i> , 3% <i>g</i>	0.148
5.00	SMCO 83% <i>o</i> , 10% <i>m</i> , 7% <i>g</i>	0.025

Total Length: 35.00 ft      Total Volume: 0.173 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: not enough to get a gravity

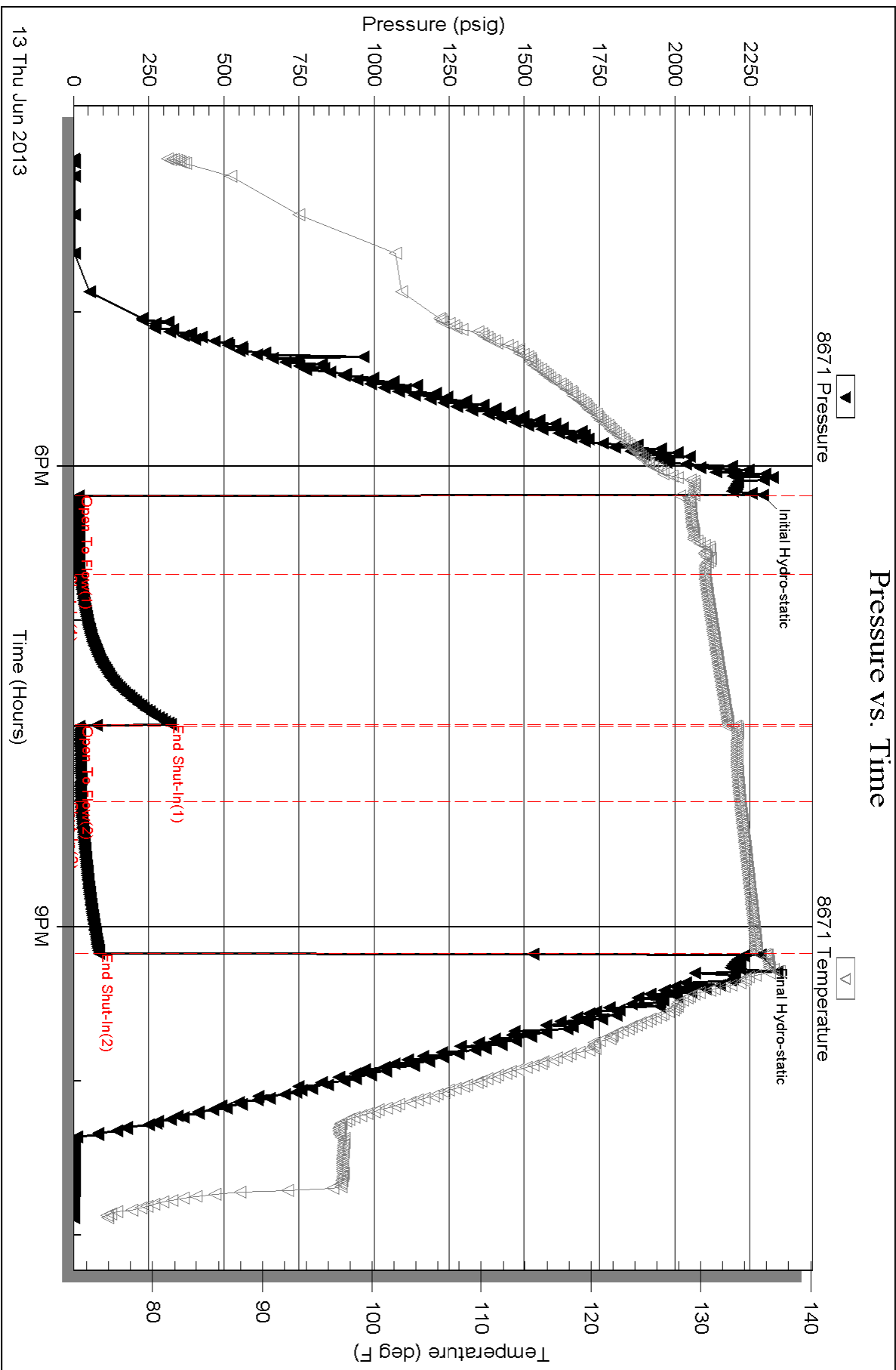
Serial #: 8671

Inside

Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 5



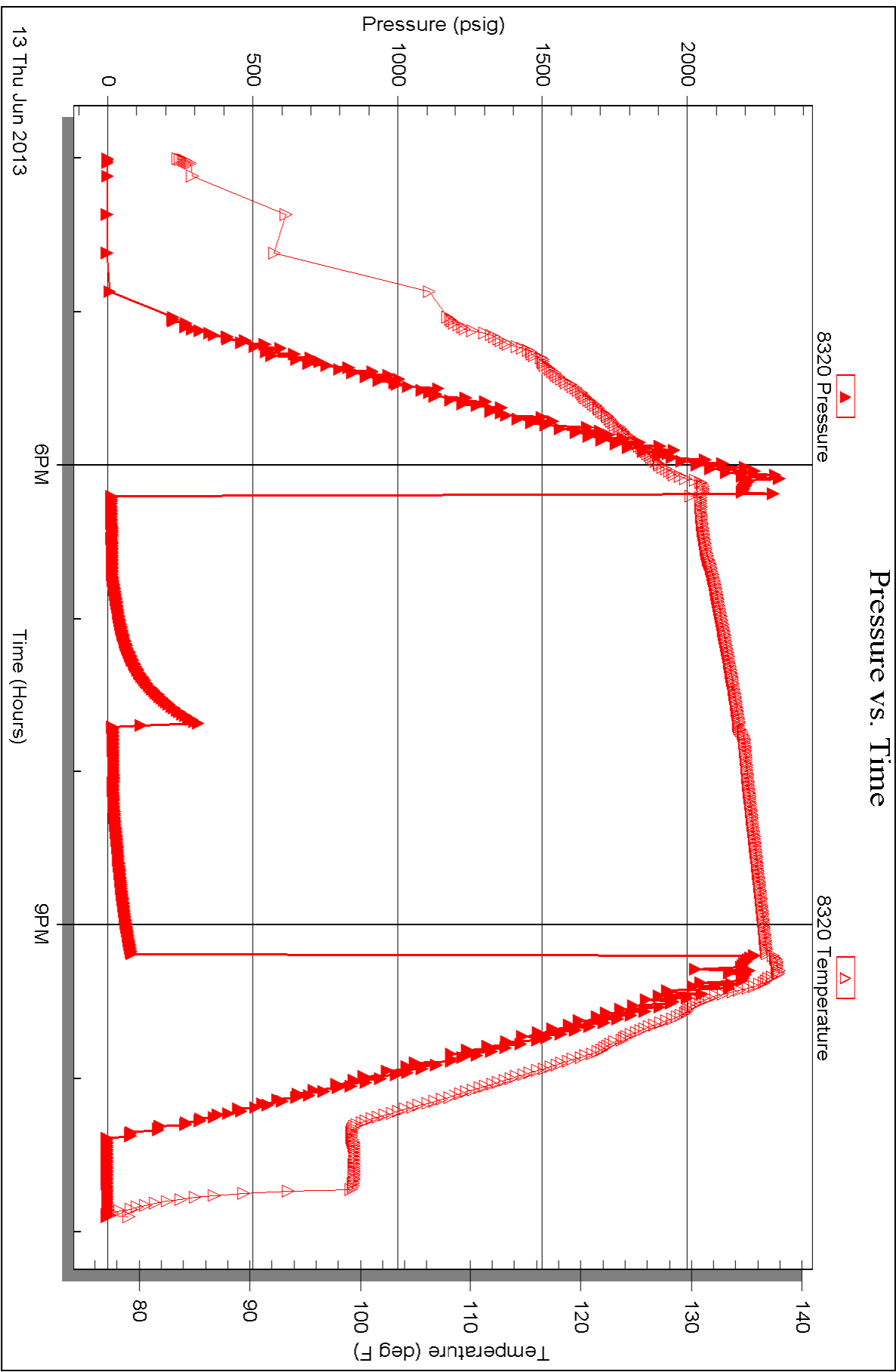


Serial #: 8320

Outside Murfin Drilling Co., Inc

Oilwell 'B' #1-11

DST Test Number: 5





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52621

Well Name & No. Culwell 'B' #1-11 Test No. 1 Date 6-10-13  
 Company Murfin Drilling Co. Inc Elevation 3150 KB 3140 GL  
 Address 250 N. Water STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Terry McLeod Rig Murfin #14  
 Location: Sec. 11 Twp. 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 3958 - 4025 Zone Tested Oread  
 Anchor Length 67 Drill Pipe Run 3425 Mud Wt. 9.3  
 Top Packer Depth 3953 Drill Collars Run 533 Vis 65  
 Bottom Packer Depth 3958 Wt. Pipe Run - WL 6.8  
 Total Depth 4025 Chlorides 800 ppm System LCM 7

Blow Description IF: Blow built to 1/4" then died back dead at 21 min.  
ISI: No blowback  
FF: No blow  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 128 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2043</u>	<input type="checkbox"/> Test <u>★</u> 1250	T-On Location <u>2:15</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars	T-Started <u>3:10</u>
(C) First Final Flow <u>20</u>	<input type="checkbox"/> Safety Joint <u>★</u> 75	T-Open <u>5:26</u>
(D) Initial Shut-In <u>314</u>	<input checked="" type="checkbox"/> Circ Sub <u>★ NA</u>	T-Pulled <u>8:37</u>
(E) Second Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>10:15</u>
(F) Second Final Flow <u>23</u>	<input type="checkbox"/> Mileage <u>134RT</u> 207.70	Comments
(G) Final Shut-In <u>221</u>	<input checked="" type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1960</u>	<input checked="" type="checkbox"/> Straddle	<input checked="" type="checkbox"/> Ruined Shale Packer

Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer	<input checked="" type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input checked="" type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Extra Copies
Final Flow <u>38 40</u>	<input checked="" type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input checked="" type="checkbox"/> Day Standby	Total <u>1532.70</u>
	<input checked="" type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1532.70</u>	

Approved By Terry McLeod Our Representative James Winder

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52622

Well Name & No. Culwell 'B' # 1-11 Test No. 2 Date 6-10-13  
 Company Murfin Drilling Co. Inc. Elevation 3150 KB 3140 GL  
 Address 250 N. Water STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Terry McLeod Rig Murfin #14  
 Location: Sec. 11 Twp. 1s Rge. 37w Co. Cheyenne State KS

Interval Tested 4103 - 4160 Zone Tested LKC "D"  
 Anchor Length 57 Drill Pipe Run 3581 Mud Wt. 9.1  
 Top Packer Depth 4098 Drill Collars Run 533 Vis 56  
 Bottom Packer Depth 4103 Wt. Pipe Run - WL 6.8  
 Total Depth 4160 Chlorides 800 ppm System LCM 4

Blow Description IF: Blow built to BOB (11") in 9 min.  
ISI: Blow<sup>back</sup> built to BOB in 40 min.  
FF: Blow built to BOB in 8 1/2 min.  
FST: Blowback built to BOB in 41 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>441</u>	<u>GO</u>	<u>26</u>	<u>72</u>	<u>-</u>	<u>2</u>
<u>286</u>	<u>60wcm</u>	<u>10</u>	<u>7</u>	<u>16</u>	<u>67</u>
<u>533</u>	<u>mcw w/oil spots</u>	<u>2</u>	<u>2</u>	<u>76</u>	<u>20</u>
Rec	Feet of <u>GIP=550'</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1260 BHT 139 Gravity 23.2 API RW .275 @ 77.7 °F Chlorides 22,500 ppm

(A) Initial Hydrostatic 1973  Test ★ 1250 T-On Location 22:00 6/10  
 (B) First Initial Flow 111  Jars ★ T-Started 22:18  
 (C) First Final Flow 318  Safety Joint ★ 75 T-Open 00:37  
 (D) Initial Shut-In 1292  Circ Sub ★ NA T-Pulled 5:00  
 (E) Second Initial Flow 344  Hourly Standby T-Out 7:30 6/11  
 (F) Second Final Flow 556  Mileage 134 207.70 Comments tool opened at bridge  
 (G) Final Shut-In 1289  Sampler about 10' off bottom - Reset  
 (H) Final Hydrostatic 1969  Straddle before open at bottom  
 Shale Packer  Ruined Shale Packer  
 Shale Packer  Ruined Packer  
 Extra Packer  Extra Copies

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 75  
 Final Shut-In 90  
 Sub Total 1532.70  
 Total 1532.70  
 MP/DST Disc't

Approved By Terry McLeod Our Representative James Winder

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52623

Well Name & No. Culwell 'B' #1-11 Test No. 3 Date 6-11-13  
 Company Murfin Drilling Co. Inc Elevation 3150 KB 3140 GL  
 Address 250 N. Water STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Terry McLeod Rig Murfin #14  
 Location: Sec. 11 Twp. 1S Rge. 37W Co. Cheyenne State KS

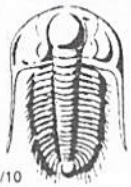
Interval Tested 4169 - 4220 Zone Tested LKC "5"  
 Anchor Length 51 Drill Pipe Run 3646 Mud Wt. 9.0  
 Top Packer Depth 4164 Drill Collars Run 533 Vis 54  
 Bottom Packer Depth 4169 Wt. Pipe Run - WL 5.6  
 Total Depth 4220 Chlorides 2600 ppm System LCM 6  
 Blow Description IF: Blow built to 3 3/4"  
ISI: No blowback  
FF: Blow built to 7 1/4"  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
45	CGO	10	84	-	6
30	MCO	2	76	-	22
60	GOM	13	36	-	51
	GIP=45'				

Rec Total 135 BHT 133 Gravity 29.2 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 2043  Test \* 1250 T-On Location 16:00 9/11  
 (B) First Initial Flow 17  Jars T-Started 16:25  
 (C) First Final Flow 39  Safety Joint \* 75 T-Open 18:37  
 (D) Initial Shut-In 1323  Circ Sub \*NA T-Pulled 22:36  
 (E) Second Initial Flow 42  Hourly Standby T-Out 00:25 4/2  
 (F) Second Final Flow 70  Mileage 134 RT 207.70 Comments \_\_\_\_\_  
 (G) Final Shut-In 1321  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1982  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 1532.70  
 Final Flow 60  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 90 Sub Total 1532.70

Approved By Jay L. McLeod Our Representative James Winder  
 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. 52624

Well Name & No. 2220 Culwell 'B' #1-11 Test No. 4 Date 6-12-13  
 Company Murfin Drilling Co. Inc Elevation 3150 KB 3140 GL  
 Address 250 N. Water STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Terry McLeod Rig Murfin #14  
 Location: Sec. 11 Twp. 1s Rge. 37W Co. Cheyenne State KS

Interval Tested 4213 - 4320 Zone Tested LKC "H-J"  
 Anchor Length 107 Drill Pipe Run 3677 Mud Wt. 9.0  
 Top Packer Depth 4208 Drill Collars Run 533 Vis 71  
 Bottom Packer Depth 4213 Wt. Pipe Run - WL 6.0  
 Total Depth 4320 Chlorides 2600 ppm System LCM 6  
 Blow Description IF: '18" Blow at open, dead in 9 min.  
ISI: No blowback  
FF: No blow  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud w/trace of oil</u>	<u>-</u>	<u>trace</u>	<u>-</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 10 BHT 129 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic <u>2115</u>	<input type="checkbox"/> Test <u>*</u> 1250	T-On Location <u>14:05</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars	T-Started <u>14:54</u>
(C) First Final Flow <u>23</u>	<input type="checkbox"/> Safety Joint <u>*</u> 75	T-Open <u>17:41</u>
(D) Initial Shut-In <u>409</u>	<input checked="" type="checkbox"/> Circ Sub <u>*NA</u>	T-Pulled <u>20:40</u>
(E) Second Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>22:20</u>
(F) Second Final Flow <u>25</u>	<input type="checkbox"/> Mileage <u>134RT</u> 207.70	Comments
(G) Final Shut-In <u>222</u>	<input checked="" type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2087</u>	<input checked="" type="checkbox"/> Straddle	<input checked="" type="checkbox"/> Ruined Shale Packer
	<input checked="" type="checkbox"/> Shale Packer	<input checked="" type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input checked="" type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input checked="" type="checkbox"/> Day Standby	Total <u>1532.70</u>
Final Shut-In <u>60</u>	<input checked="" type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1532.70</u>	

Approved By \_\_\_\_\_ Our Representative James Winder  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52625

Well Name & No. Culwell 'B' #1-11 Test No. 5 Date 6-13-13  
 Company Murfin Drilling Co. Inc. Elevation 3150 KB 3140 GL  
 Address 250 N. Water STE 300 Wichita, KS 67202  
 Co. Rep / Geo. Terry McLeod Rig Murfin #14  
 Location: Sec. 11 Twp. 1s Rge. 37w Co. cheyenne State KS

Interval Tested 4454 - 4500 Zone Tested Pawnee  
 Anchor Length 46 Drill Pipe Run 3931 Mud Wt. 9.2  
 Top Packer Depth 4449 Drill Collars Run 533 Vis 75  
 Bottom Packer Depth 4454 Wt. Pipe Run - WL 6.4  
 Total Depth 4500 Chlorides 2600 ppm System LCM 5

Blow Description IF: Blow built to 1/8" then died back dead at 15 min.  
ISI: No blowback  
FF: No blow  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>SMCO</u>	<u>7</u>	<u>83</u>	<u>-</u>	<u>10</u>
<u>30</u>	<u>OCM</u>	<u>3</u>	<u>16</u>	<u>-</u>	<u>81</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 35 BHT 135 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2294</u>	<input type="checkbox"/> Test <u>*</u> 1250	T-On Location <u>15:30</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars	T-Started <u>16:00</u>
(C) First Final Flow <u>20</u>	<input type="checkbox"/> Safety Joint <u>*</u> 75	T-Open <u>18:11</u>
(D) Initial Shut-In <u>322</u>	<input checked="" type="checkbox"/> Circ Sub <u>*NA</u>	T-Pulled <u>21:10</u>
(E) Second Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Hourly Standby	T-Out <u>22:45</u>
(F) Second Final Flow <u>24</u>	<input type="checkbox"/> Mileage <u>134 RT x 2</u> 415.40	Comments <u>tools loaded at</u>
(G) Final Shut-In <u>85</u>	<input checked="" type="checkbox"/> Sampler	<u>23:00 6/14</u>
(H) Final Hydrostatic <u>2284</u>	<input checked="" type="checkbox"/> Straddle	<input checked="" type="checkbox"/> Ruined Shale Packer

Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer	<input checked="" type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input checked="" type="checkbox"/> Extra Packer	<input checked="" type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input checked="" type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input checked="" type="checkbox"/> Day Standby	Total <u>1740.40</u>
	<input checked="" type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1740.40</u>	

Approved By \_\_\_\_\_ Our Representative James Winder

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# ALLIED OIL & GAS SERVICES, LLC

PO Box 93999  
Southlake, TX 76092

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

# INVOICE

Invoice Number: 136660  
Invoice Date: Jun 5, 2013  
Page: 1

**PROD COPY**

Now Includes:



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

Customer ID	Field Ticket #	Payment Terms	
Murfin	60792	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Jun 5, 2013	7/5/13

Quantity	Item	Description	Unit Price	Amount
200.00	MAT	Cullwell B #1-11		
		Class A Common	17.90	3,580.00
7.00	MAT	Chloride	64.00	448.00
210.00	SER	Cubic Feet	2.48	520.80
997.24	SER	Ton Mileage	2.60	2,592.84
1.00	SER	Surface	1,512.25	1,512.25
103.00	SER	Pump Truck Mileage	7.70	793.10
1.00	SER	Manifold Rental	275.00	275.00
103.00	SER	Light Vehicle Mileage	4.40	453.20
1.00	CEMENTER	Alan Ryan		
1.00	EQUIP OPER	Wayne McGhghy		
1.00	OPER ASSIST	David Scariano		

Account	Unit	Qty	No.	Amount	Description
ED203	3.	1217.0001		6948.20	Cement S. (Sg) # 1-11

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

\$ 3,561.31

ONLY IF PAID ON OR BEFORE Jun 30, 2013

Subtotal	10,175.19
Sales Tax	334.32
Total Invoice Amount	10,509.51
Payment/Credit Applied	
<b>TOTAL</b>	<b>10,509.51</b>

(3561.31)  
6948.20

# ALLIED OIL & GAS SERVICES, LLC 060792

Federal Tax I.D. # 20-8651476

5815 MIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT: Dakota

DATE <u>6/5/13</u>	SEC. <u>11</u>	TWP. <u>1</u>	RANGE <u>37</u>	CALLED OUT	ON LOCATION	JOB START <u>12:00 PM</u>	JOB FINISH <u>12:30 PM</u>
WELL # <u>1-11</u>	LOCATION <u>Bushelman 570 STATION F20 DE</u>	COUNTY <u>Wagoner</u>	STATE <u>OK</u>				
OLD OR NEW (Circle one)	LOCATION <u>8125 E. N. Erato</u>						

CONTRACTOR Markin 14

TYPE OF JOB Cement

OLE SIZE 12 1/4 T.D. 226'

ASING SIZE 8 3/8 DEPTH 226'

UBING SIZE DEPTH

RILL PIPE DEPTH

COL DEPTH

RES. MAX DEPTH

EAS. LINE MINIMUM

EMENT LEFT IN CSQ. SHOE JOINT 15'

ERFS.

ISPLACEMENT 13,244

OWNER Same

CEMENT AMOUNT ORDERED 200 Com 390 cc

COMMON	<u>200</u>	@	<u>12.98</u>	<u>2596.00</u>
POZMIX		@		
GEL	<u>7</u>	@		
CHLORIDE		@	<u>64.00</u>	<u>448.00</u>
ASC		@		
HANDLING	<u>210 CF</u>	@	<u>2.48</u>	<u>520.80</u>
MILEAGE	<u>203</u>	@	<u>9.66</u>	<u>1971.18</u>
				TOTAL <u>2141.98</u>

EQUIPMENT

JMP TRUCK CEMENTER Alan

ULK TRUCK HELPER Wayne

ULK TRUCK DRIVER David

ULK TRUCK DRIVER

REMARKS:

2 in. Cyl. Circulate, Max Cement

Displace Cement - Shut in.

Cement Acid Circulate 4 1/2 hrs to Pit

Thru 19, 14, 12, David

SERVICE

DEPTH OF JOB	<u>226'</u>		
PUMP TRUCK CHARGE		@	<u>1.82</u>
EXTRA FOOTAGE		@	
MILEAGE	<u>203 miles</u>	@	<u>2.20</u>
MANIFOLD		@	<u>27.50</u>
ULK Vehicle	<u>101 miles</u>	@	<u>4.82</u>
TOTAL <u>3033.13</u>			

CHARGE TO: Markin Drilling

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

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	
TOTAL _____		

I, the undersigned, being duly sworn, certify that I am the owner of the above described well and that I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Corea Urvak

SIGNATURE Corea Urvak

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

TOTAL CHARGES 10,175.19

DISCOUNT 3,561.31 IF PAID IN 30 DAYS

6,613.87 Net





**CONSOLIDATED**  
Oil Well Services, LLC

Consolidated  
P.O.  
Houston

*Acctg*  
*cc: WF*  
*cc: Liz*  
*cc: L-1*

**MAIN OFFICE**  
P.O. Box 884  
Chanute, KS 66720  
620/431-9210 • 1-800/467-8676  
Fax 620/431-0012

INVOICE

Invoice # 259661

Invoice Date: 06/17/2013 Terms: 10/10/30,n/30

Page 1

MURFIN DRILLING  
P.O. BOX 288  
RUSSELL KS 67665  
( ) -

<sup>u</sup>  
CALWELL 'B' 1-11  
37918  
11-1-37  
06-15-2013  
KS

USED FOR 10103  
APPROVED JJR

Part Number	Description	Qty	Unit Price	Total
1126	OIL WELL CEMENT	200.00	23.7000	4740.00
1110A	KOL SEAL (50# BAG)	1000.00	.5600	560.00
1104S	CLASS "A" CEMENT (SALE)	300.00	18.5500	5565.00
1102	CALCIUM CHLORIDE (50#)	564.00	.9400	530.16
1101	CAL SEAL	564.00	.5200	293.28
1111A	SODIUM METASILICATE	564.00	2.5200	1421.28
1118B	PREMIUM GEL / BENTONITE	564.00	.2700	152.28
1142A	KCL SUB MB6875 CC3107 (1	2.00	41.1000	82.20
1144G	MUD FLUSH (SALE)	500.00	1.0000	500.00
4104	CEMENT BASKET 5 1/2"	3.00	290.0000	870.00
4136	TURBOLIZER 5 1/2"	15.00	75.7500	1136.25
4159	FLOAT SHOE AFU 5 1/2"	1.00	433.7500	433.75
4315	ROTATING SCRATCHERS	6.00	94.5000	567.00
4454	5 1/2" LATCH DOWN PLUG	1.00	567.0000	567.00
4310	5 1/2 ROTATING HEAD	1.00	150.0000	150.00
1107	FLO-SEAL (25#)	150.00	2.9700	445.50

Sublet Performed	Description	Total
9996-130	CEMENT MATERIAL DISCOUNT	-1801.37
9995-130	CEMENT EQUIPMENT DISCOUNT	-678.44

Description	Hours	Unit Price	Total
399 SINGLE PUMP	1.00	3175.00	3175.00
399 EQUIPMENT MILEAGE (ONE WAY)	75.00	5.25	393.75
T-129 TON MILEAGE DELIVERY	1.00	1607.81	1607.81
566 TON MILEAGE DELIVERY	1.00	1607.82	1607.82

Amount Due 26293.22 if paid after 07/17/2013

Parts:	18013.70	Freight:	.00	Tax:	1345.63	AR	23663.90
Labor:	.00	Misc:	.00	Total:	23663.90		
Sublt:	-2479.81	Supplies:	.00	Change:	.00		

Signed \_\_\_\_\_

Date \_\_\_\_\_



**CONSOLIDATED**  
Oil Well Services, LLC

259661

TICKET NUMBER 37918

LOCATION Oakley, KS

FOREMAN Jerry V (Trainee)

Russ Shaw

PO Box 884, Chanute, KS 66620  
620-431-9210 or 800-467-8676

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

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
6-15-13	5406	Culwell B 1-11	11	15	37W	Kansas Cheyenne	
CUSTOMER		MCDONALD		TRUCK #	DRIVER	TRUCK #	DRIVER
MAILING ADDRESS		W 733		399	Damon M		
CITY		14 N 3e		566	Jordan L		
STATE		into		52857-121	MIKE P		
ZIP CODE							

JOB TYPE long string HOLE SIZE 7 7/8 HOLE DEPTH 4902 CASING SIZE & WEIGHT 5 1/2 15.5#  
 CASING DEPTH 4893.62 DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
 SLURRY WEIGHT 11.3 + 14.2 SLURRY VOL \_\_\_\_\_ WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING 19.71  
 DISPLACEMENT 116.09 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Salty meeting and rig up on Marston 14 run float equipment tubularizers on jts 1,2,3,5,7,9,10,11,14,16,17,18,19,34,44 baskets on 20,35,45, run first 5.5 jts hook up and circulate 30 minutes @ 2603" run casing to bottom circulate for an hour pumped 300 sks CMDV# Flo seal & tied with access OWC 5# Kol seal per sack, wash pump & lines & dropped plug. Displace with 116 bbl fresh water with final lift of 1200# plug landed @ 2100# released & float held. Circulated approx 2.5 bbl to pit. 30 sks to plug mouse hole 30 sks in rat.

Thank you Jerry - McInnis crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401C	1	PUMP CHARGE	3175 <sup>00</sup>	3175 <sup>00</sup>
5406	75	MILEAGE	5.25	393.75
5407A	24.5	ton mileage delivery	1.75	3215.63
1126	200 sks	OWC	23.70	4740 <sup>00</sup>
1110A	1000	Kol seal	.56	560 <sup>00</sup>
1104S	300 sks	common class "A"	18.55	5565 <sup>00</sup>
1102	564 #	Calcium Chloride	.94	5301.6
1101	564 #	Cal seal	.52	293.28
1111A	564 #	metasilicate	2.52	1421.28
1118B	564 #	bentonite	.27	152.28
1142A	2 gal	KCL	41.10	82.20
1144G	580 gal	mud flush	1.00	580.00
4109	3	5 1/2 basket	290 <sup>00</sup>	870 <sup>00</sup>
4136	15	5 1/2 tubularizers	75.25	1136.25
4159	1	5 1/2 AFU float shoe	433.75	433.75
4315	6	rotating scrubbers	94.50	567.00
4454	1	5 1/2 latchdown	567.00	567.00
4310	1	5 1/2 rotating head	150.00	150.00
1107	1.50	1/2 # Flo seal	297.00	445.50

completed

Subtotal 24,799.02 less 10% discount 2479.81 subtotal 22,318.27 tax 1345.63 ESTIMATED TOTAL 23663.90

AUTHORIZATION Allen Waldman TITLE \_\_\_\_\_ DATE \_\_\_\_\_

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