



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1236727
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: _____

1236727

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: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Kuhn 2-4
Doc ID	1236727

All Electric Logs Run

DIL
DUCP
MEL
BHCS



*wee
Brad-MG*

INVOICE

PO Box 93999
Southlake, TX 76092

Invoice Number: 146949

Invoice Date: Nov 1, 2014

Page: 1

Voice: (817) 546-7282

Fax: (817) 246-3361

Federal Tax I.D.#: 20-8651475

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	64341	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-01	Oakley	Nov 1, 2014	12/1/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Kuhn #2-4		
170.00	CEMENT MATERIALS	Class A Common	17.90	3,043.00
480.00	CEMENT MATERIALS	Chloride	1.10	528.00
178.50	CEMENT SERVICE	Cubic Feet Charge	2.48	442.68
123.45	CEMENT SERVICE	Ton Mileage Charge	2.75	339.49
1.00	CEMENT SERVICE	Surface	1,512.25	1,512.25
15.00	CEMENT SERVICE	Pump Truck Mileage	7.70	115.50
1.00	CEMENT SERVICE	Swedge Manifold Rental	275.00	275.00
15.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	66.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	EQUIPMENT OPERATOR	Wayne McGhghy		

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

\$ 2,212.67 *dm
2/5/14*

ONLY IF PAID ON OR BEFORE
Dec 1, 2014

Subtotal	6,321.92
Sales Tax	273.18
Total Invoice Amount	6,595.10
Payment/Credit Applied	
TOTAL	6,595.10

- 2212.67
4382.43
OKR

ALLIED OIL & GAS SERVICES, LLC 06434-1

Federal Tax I.D. # 20-8651475

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

SERVICE POINT: Oakley, TX

DATE <u>11-1-19</u>	SEC. <u>4</u>	TWP. <u>13</u>	RANGE <u>32</u>	CALLED OUT	ON LOCATION <u>3:30am</u>	JOB START <u>6:00am</u>	JOB FINISH <u>6:30am</u>
LEASE <u>Kelby</u>	WELL# <u>2-4</u>	LOCATION <u>Oakley, (S, 2W) S, Logan</u>	COUNTY <u>KS</u>	STATE <u>KS</u>			
OLD OR <u>NEW</u> (Circle one)		<u>2 in to</u>					

CONTRACTOR Martini 4
 TYPE OF JOB Surtaco
 HOLE SIZE 12 1/8 T.D. 221'
 CASING SIZE 8 7/8 DEPTH 221.59'
 TUBING SIZE _____ DEPTH _____
 DRILL PIPE _____ DEPTH _____
 TOOL _____ DEPTH _____
 PRES. MAX _____ MINIMUM _____
 MEAS. LINE _____ SHOE JOINT _____
 CEMENT LEFT IN CSG. 15'
 PERFS. _____
 DISPLACEMENT 13.2 bbl

OWNER Same

CEMENT AMOUNT ORDERED 1705 lbs com 390cc

COMMON	<u>1705 lbs @ 17.90</u>	<u>3043.00</u>
POZMIX	@	
GEL	@	
CHLORIDE	<u>480# @ 1.10</u>	<u>528.00</u>
ASC	@	
	@	
	<u>Materia total @</u>	<u>3571.00</u>
	<u>(1,249.05 / 35%)</u>	
	@	
	@	
	@	
	@	
HANDLING	<u>122.5 ft³ @ 2.98</u>	<u>442.68</u>
MILEAGE	<u>2.23 hr @ 15 K 2.99</u>	<u>339.47</u>
TOTAL		

EQUIPMENT

PUMP TRUCK CEMENTER La. Roubidoux
 # 431 HELPER Wayne McCarty
 BULK TRUCK
 # 818/287 DRIVER Juan Salinas (TAS)
 BULK TRUCK
 # _____ DRIVER _____

REMARKS:
Mix 170 lbs cement
Displace with water
Cement dol circulate
10 sta top of

CHARGE TO: Martini
 STREET _____
 CITY _____ STATE _____ ZIP _____

SERVICE

DEPTH OF JOB	<u>222.39'</u>	
PUMP TRUCK CHARGE		<u>1512.25</u>
EXTRA FOOTAGE	@	
MILEAGE <u>MIFU 15</u>	@ <u>7.70</u>	<u>113.50</u>
MANIFOLD <u>Savage</u>	@	<u>275.00</u>
<u>MIFU 15</u>	@ <u>4.40</u>	<u>66.00</u>
	@	
TOTAL		<u>2,100.92</u>

PLUG & FLOAT EQUIPMENT

_____	@	
_____	@	
_____	@	
_____	@	
_____	@	
TOTAL		

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

PRINTED NAME KELLY WILSON
 SIGNATURE Kelly Wilson

SALES TAX (If Any) _____
 TOTAL CHARGES 6,321.92
 DISCOUNT 2,212.67 (35%) IF PAID IN 30 DAYS
4,109.24 Net.



Acct.
Prod-mg

INVOICE

PO Box 93999
Southlake, TX 76092

Invoice Number: 147049
Invoice Date: Nov 11, 2014
Page: 1

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

Federal Tax I.D.#: 20-8651475

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

Customer ID	Field Ticket #	Payment Terms	
Murfin	64351	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS1-03	Oakley	Nov 11, 2014	12/11/14

Quantity	Item	Description	Unit Price	Amount
1.00	WELL NAME	Kuhn #2-4		
156.00	CEMENT MATERIALS	Class A Common	17.90	2,792.40
104.00	CEMENT MATERIALS	Pozmix	9.35	972.40
895.00	CEMENT MATERIALS	Gel	0.50	447.50
65.00	CEMENT MATERIALS	Flo Seal	2.97	193.05
279.24	CEMENT SERVICE	Cubic Feet Charge	2.48	692.52
174.90	CEMENT SERVICE	Ton Mileage Charge	2.75	480.98
1.00	CEMENT SERVICE	Plug to Abandon	2,483.59	2,483.59
15.00	CEMENT SERVICE	Pump Truck Mileage	7.70	115.50
15.00	CEMENT SERVICE	Light Vehicle Mileage	4.40	66.00
1.00	EQUIPMENT SALES	8-5/8 Wooden Plug	110.00	110.00
1.00	CEMENT SUPERVISOR	LaRene Wentz		
1.00	EQUIPMENT OPERATOR	Kevin Ryan		

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

\$ 2,885.37 ✓

ONLY IF PAID ON OR BEFORE
Dec 11, 2014

Subtotal	8,353.94
Sales Tax	639.08
Total Invoice Amount	8,993.02
Payment/Credit Applied	
TOTAL	8,993.02

2885.37
6107.65
OK RR

ALLIED OIL & GAS SERVICES, LLC 064351

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:
Oakley, TX

DATE <u>11-11-14</u>	SEC. <u>4</u>	TWP. <u>13</u>	RANGE <u>32</u>	CALLED OUT	ON LOCATION <u>3:30pm</u>	JOB START <u>7:00pm</u>	JOB FINISH <u>8:00pm</u>
LEASE <u>Kathu</u>	WELL# <u>2-4</u>	LOCATION <u>Oakley, 11S, 2W, S.E.S.E.</u>			COUNTY <u>Logan</u>	STATE <u>KS</u>	
OLD OR <u>(NEW)</u> (Circle one)				<u>into</u>			

CONTRACTOR Martin 4
 TYPE OF JOB PTA
 HOLE SIZE 7 7/8 T.D. 47351
 CASING SIZE _____ DEPTH _____
 TUBING SIZE _____ DEPTH _____
 DRILL PIPE 4 1/2 DEPTH 25501
 TOOL _____ DEPTH _____
 PRES. MAX _____ MINIMUM _____
 MEAS. LINE _____ SHOE JOINT _____
 CEMENT LEFT IN CSG. _____
 PERFS. _____
 DISPLACEMENT 27.15 bbl

OWNER same
 CEMENT AMOUNT ORDERED 260 sks 60/40 492gal
1/4 # flo-seal

EQUIPMENT
 PUMP TRUCK # 423/281 CEMENTER LaRue E. Wank HELPER Kevin Ryan
 BULK TRUCK # 879/241 DRIVER Margo Caval Ruelas
 BULK TRUCK # _____ DRIVER _____

COMMON	<u>156 sks @ 17.90</u>	<u>2792.40</u>
POZMIX	<u>184 sks @ 7.35</u>	<u>972.90</u>
GEL	<u>895 # @ .30</u>	<u>447.50</u>
CHLORIDE	@	
ASC	@	
<u>Flo-seal 65 #</u>	<u>@ 2.97</u>	<u>193.05</u>
<u>Modern - total</u>	<u>@</u>	<u>4108.35</u>
<u>(1541.87 / 35%)</u>	<u>@</u>	
HANDLING <u>279.24 sks</u>	<u>@ 2.48</u>	<u>692.52</u>
MILEAGE <u>11661 mi x 15 x 2.25</u>		<u>480.98</u>

REMARKS:
Mix 50 sks 25501
Mix 100 sks 16251
Mix 50 sks 2251
Mix 10 sks 40' w/ plug
M.H. 20 sks R.H. 30 sks

Thank you

CHARGE TO: Martin
 STREET _____
 CITY _____ STATE _____ ZIP _____

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

PRINTED NAME Kelly Wilson
 SIGNATURE Kelly Wilson

TOTAL _____

SERVICE

DEPTH OF JOB <u>2550'</u>	
PUMP TRUCK CHARGE	<u>2483.59</u>
EXTRA FOOTAGE @	
MILEAGE <u>MHW 15 @ 7.70</u>	<u>115.50</u>
MANIFOLD @	
<u>MILU 15 @ 4.40</u>	<u>66.00</u>

(1343.50 / 35%) TOTAL 3,888.59

PLUG & FLOAT EQUIPMENT

<u>Wooden Plug</u>	@	<u>110.00</u>
_____	@	
_____	@	
_____	@	

TOTAL 110.00

SALES TAX (If Any) _____
 TOTAL CHARGES 8,353.94
 DISCOUNT 2,885.37 (35%) IF PAID IN 30 DAYS

5,468.56 Net.

Kuhn #2-4
 Daily Drilling Report
 Page Two
 11/8/14

Depth 4435'. Cut 120'. DT: None. CT: 15¼ hrs. Dev.: ¾° @ 4315'. **DST #3 4253-4315 (K-L)**: 30-60-60-90. IF: built to ½" blw. FF: no blw. Rec.: 10'M w/oil spts. HP: 2193-2106. FP: 35/41, 43/51. SIP: 856-861. BHT: 119°. **Alt A**: LS, tn, foss, ool in prt, fr fossmold por, ssfo, slt odor, spty stn. **DST #4 4316-4435 (Altamont)**:

11/9/14 Depth 4535'. Cut 100'. DT: None. CT: 16hrs. Dev.: None. **DST #4 4316-4435 (Marm)**: 30-60-60-90. IF: built to 2"blw. FF: built to ½" blw. Rec.: 100'M. HP: 2284-2268. FP: 76/103, 108/141. SIP: 1227-1153. BHT: 123°. **Up Paw**: LS, tn, foss, gran, dolo, int-gran and moldic por, ssfo, slt odor, sct stn. **Lwr Pawn**: LS, tn-gray, foss in prt, rare moldic por, ssfo, slt odor, pr vis stn. **Ft Scott**: LS, tn-brn, ool, sct int-ool por, ssfo, fr odor, sm sat stn. **DST #5 4447-4535 (Paw-Lwr Paw)**:

11/10/14 Depth 4610'. Cut 75'. DT: None. CT: 16½ hrs Dev.: 1° @ 4610'. **DST #5 4447-4535 (Pawnee-Lwr Paw)**: 30-60-60-90. IF: built to 1"blw. FF: no blw. Rec.: 25'M w/trc oil. HP: 2348-2259. FP: 51/68, 71/89. SIP: 636-621. BHT: 122°. **Johnson**: LS, tn to gray, foss, fr mossmold por, fsfo, gd odor, sm sat stn. **DST #6 4550-4610 (Johnson)**: 30-60-60-60. IF: BOB in 14mins. FF: built to 9" blw. Rec.: 100'M. HP: 2428-2288. FP: 37/80, 86/112. SIP: 128-129. BHT: 127°.

11/11/14 RTD: 4735'. Cut 125'. DT: ¼ hr Air. CT: 13¾ hrs. Dev.: ¾° @ 4735'. HC @ 9:30PM 11/10. Pioneer logged @ 2:00AM – 7:00AM 11/11. LTD: 4736'. To plug

11/12/14 RTD: 4735'. CT: 17hrs. Allied plugged hole (3:00PM-8:00PM 11/11) as follows using 60/40Poz, 4%Gel, ¼# Floseal, 50sxs @ 2550', 100sxs @ 1625', 50sxs @ 275', 10sxs @ 40', 30sxs RH, 20sxs MH. Orders: Case Morris KCC Hays. RR @ 12:00AM 11/12/14. FINAL REPORT.

MDCI Kuhn #2-4 1810' FSL 1780' FWL Sec. 4-T13S-R32W 3035' KB							MDCI Kuhn #1-4 1378' FSL 1030' FWL Sec. 4-T13S-R32W 3022' KB	
Formation	SampleTops	Datum	Ref	Log Tops	Datum	Ref	Log Tops	Datum
Anhydrite	2520	+515	-2	2520	+515	-2	2502	+517
B/Anhydrite	2542	+493	-2	2543	+492	-3	2527	+495
Topeka	3761	-726	-7	3760	-725	-6	3741	-719
Heebner	3986	-951	-7	3986	-951	-7	3966	-944
Lansing	4032	-997	-10	4029	-994	-7	4009	-987
Stark	4256	-1221	-7	4256	-1221	-7	4236	-1214
BKC	4316	-1281	-5	4321	-1286	-10	4298	-1276
Up Pawnee	4458	-1423	-15	4458	-1423	-15	4430	-1408
Chero Sh	4543	-1508	-15	4545	-1510	-17	4515	-1493
Johnson	4586	-1551	-16	4589	-1554	-19	4557	-1535
Mississippi	4659	-1624	-27	4661	-1626	-29	4619	-1597
RTD	4635						4720	
LTD				4736			4722	



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.05 @ 16:52:15

End Date: 2014.11.06 @ 01:45:30

Job Ticket #: 59211 DST #: 1

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

Printed: 2014.11.12 @ 16:41:01



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59211

DST#: 1

Test Start: 2014.11.05 @ 16:52:15

GENERAL INFORMATION:

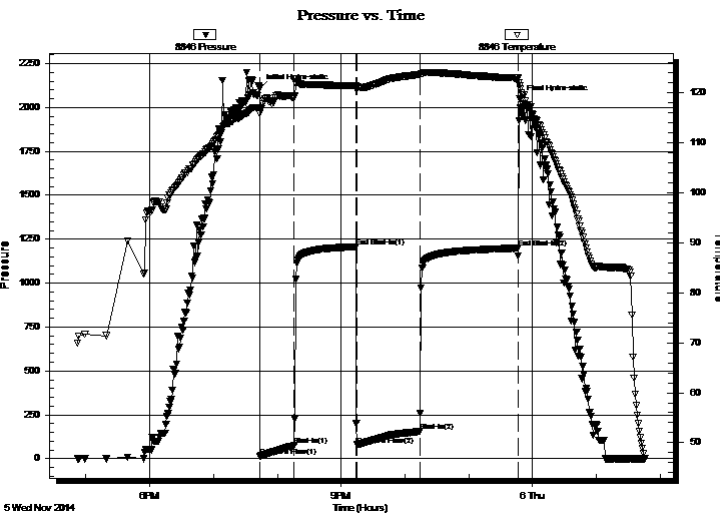
Formation: **LKC E-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:43:45
 Time Test Ended: 01:45:30
 Interval: **4096.00 ft (KB) To 4130.00 ft (KB) (TVD)**
 Total Depth: 4130.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 3035.00 ft (KB)
 3025.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8846

Inside

Press@RunDepth: 156.05 psig @ 4125.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.11.05 End Date: 2014.11.06 Last Calib.: 2014.11.06
 Start Time: 16:52:15 End Time: 01:45:30 Time On Btm: 2014.11.05 @ 19:43:30
 Time Off Btm: 2014.11.05 @ 23:48:00

TEST COMMENT: IF: Built to 4" blow
 IS: No return blow
 FF: Built to weak surface blow
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2109.63	117.01	Initial Hydro-static
1	14.57	115.81	Open To Flow (1)
33	75.08	119.23	Shut-In(1)
91	1207.30	121.44	End Shut-In(1)
91	79.43	121.16	Open To Flow (2)
151	156.05	123.69	Shut-In(2)
243	1199.18	122.98	End Shut-In(2)
245	2047.30	121.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
271.00	mcw 20% m 80 % w with a trace of oil	1.33

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

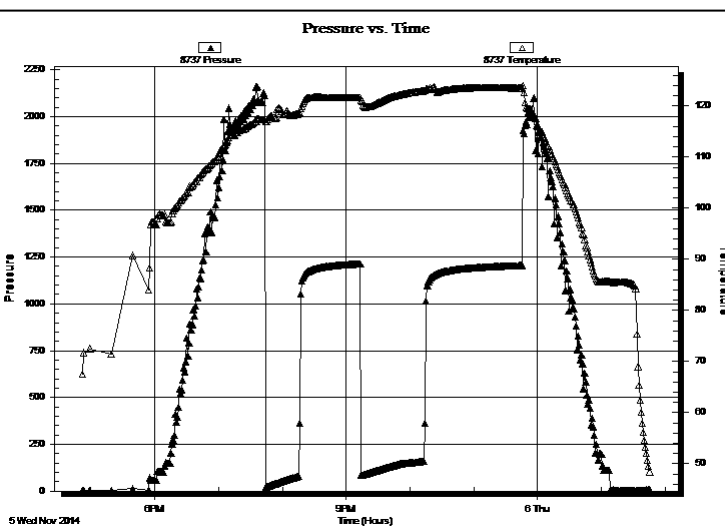
4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59211 **DST#: 1**
Test Start: 2014.11.05 @ 16:52:15

GENERAL INFORMATION:

Formation: LKC E-F		Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)		Tester: Mike Roberts
Time Tool Opened: 19:43:45		Unit No: 65
Time Test Ended: 01:45:30		
Interval: 4096.00 ft (KB) To 4130.00 ft (KB) (TVD)		Reference Elevations: 3035.00 ft (KB)
Total Depth: 4130.00 ft (KB) (TVD)		3025.00 ft (CF)
Hole Diameter: 7.88 inchesHole Condition: Fair		KB to GR/CF: 10.00 ft

Serial #: 8737 Outside		Capacity: 8000.00 psig
Press@RunDepth: psig @ 4125.00 ft (KB)		Last Calib.: 2014.11.06
Start Date: 2014.11.05	End Date: 2014.11.06	Time On Btm:
Start Time: 16:52:15	End Time: 01:45:30	Time Off Btm:

TEST COMMENT:
IF: Built to 4" blow
IS: No return blow
FF: Built to weak surface blow
FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
271.00	mcw 20% m 80 % w with a trace of oil	1.33

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59211 **DST#: 1**
Test Start: 2014.11.05 @ 16:52:15

Tool Information

Drill Pipe:	Length: 3832.00 ft	Diameter: 3.80 inches	Volume: 53.75 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 55.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4096.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	34.00 ft			
Tool Length:	55.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4076.00	
Shut In Tool	5.00			4081.00	
Hydraulic tool	5.00			4086.00	
Packer	5.00			4091.00	21.00 Bottom Of Top Packer
Packer	5.00			4096.00	
Stubb	1.00			4097.00	
Perforations	28.00			4125.00	
Recorder	0.00	8846	Inside	4125.00	
Recorder	0.00	8737	Outside	4125.00	
Bullnose	5.00			4130.00	34.00 Bottom Packers & Anchor
Total Tool Length:	55.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59211 **DST#: 1**
Test Start: 2014.11.05 @ 16:52:15

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 40000 ppm
Viscosity: 69.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.34 in ³	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2600.00 ppm		
Filter Cake: 1.00 inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
271.00	mcw 20%m 80 % w w with a trace of oil	1.333

Total Length: 271.00 ft Total Volume: 1.333 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: RW= 42.8@ 35*= 40,000 ppm



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.06 @ 16:36:15

End Date: 2014.11.07 @ 00:18:15

Job Ticket #: 59212 DST #: 2

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

Printed: 2014.11.12 @ 16:39:58

Murfin Drilling Co Inc. 4-13s-32w Logan,KS Kuhn #2-4 DST # 2 LKC I-J 2014.11.06



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59212

DST#: 2

Test Start: 2014.11.06 @ 16:36:15

GENERAL INFORMATION:

Formation: **LKC I-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:31:45
 Time Test Ended: 00:18:15
 Interval: **4198.00 ft (KB) To 4246.00 ft (KB) (TVD)**
 Total Depth: 4246.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 3035.00 ft (KB)
 3025.00 ft (CF)
 KB to GR/CF: 10.00 ft

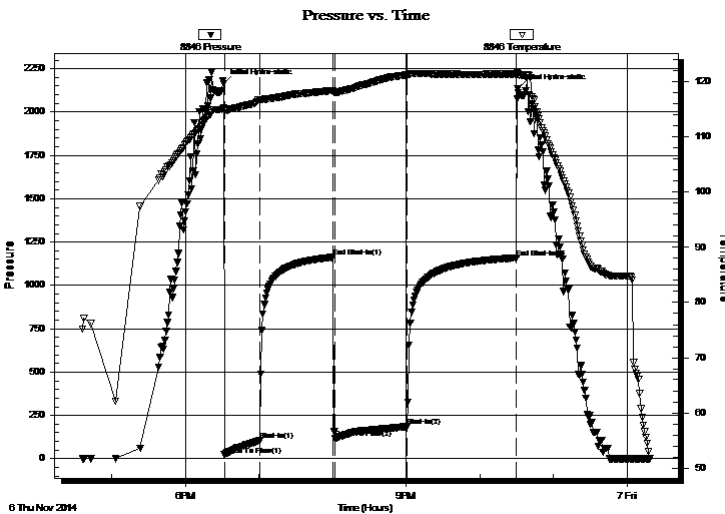
Serial #: 8846

Inside

Press@RunDepth: 185.05 psig @ 4241.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.11.06 End Date: 2014.11.07 Last Calib.: 2014.11.07
 Start Time: 16:36:15 End Time: 00:18:15 Time On Btm: 2014.11.06 @ 18:31:15
 Time Off Btm: 2014.11.06 @ 22:30:45

TEST COMMENT: IF:Built to 5" blow
 IS:No return blow
 FF:Built to 6" blow
 FS:No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.39	115.23	Initial Hydro-static
1	22.24	114.81	Open To Flow (1)
29	104.05	116.73	Shut-In(1)
89	1162.39	118.40	End Shut-In(1)
91	117.72	118.09	Open To Flow (2)
150	185.05	121.26	Shut-In(2)
239	1159.29	121.45	End Shut-In(2)
240	2137.23	121.41	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	mcw 50% m 50% w	0.44
241.00	mud 100% m	1.73

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita KS 67202

Kuhn #2-4

ATTN: Tom Funk

Job Ticket: 59212

DST#: 2

Test Start: 2014.11.06 @ 16:36:15

GENERAL INFORMATION:

Formation: **LKC I-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:31:45

Time Test Ended: 00:18:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4198.00 ft (KB) To 4246.00 ft (KB) (TVD)

Reference Elevations: 3035.00 ft (KB)

Total Depth: 4246.00 ft (KB) (TVD)

3025.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4241.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.06

End Date: 2014.11.07

Last Calib.: 2014.11.07

Start Time: 16:36:15

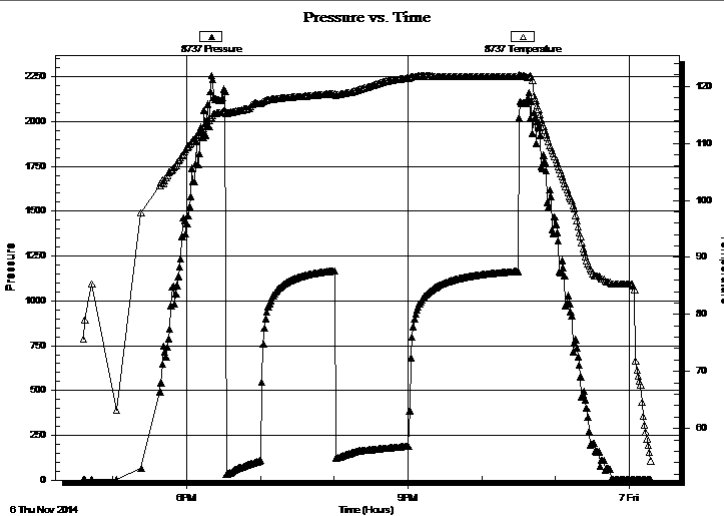
End Time: 00:18:00

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Built to 5" blow
IS: No return blow
FF: Built to 6" blow
FS: No return blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
90.00	mcw 50% m 50% w	0.44
241.00	mud 100% m	1.73

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59212 **DST#: 2**
Test Start: 2014.11.06 @ 16:36:15

Tool Information

Drill Pipe:	Length: 3933.00 ft	Diameter: 3.80 inches	Volume: 55.17 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 56.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4198.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 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
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Change Over Sub	1.00			4178.00	
Shut In Tool	5.00			4183.00	
Hydraulic tool	5.00			4188.00	
Packer	5.00			4193.00	21.00 Bottom Of Top Packer
Packer	5.00			4198.00	
Stubb	1.00			4199.00	
Perforations	8.00			4207.00	
Change Over Sub	1.00			4208.00	
Drill Pipe	32.00			4240.00	
Change Over Sub	1.00			4241.00	
Recorder	0.00	8846	Inside	4241.00	
Recorder	0.00	8737	Outside	4241.00	
Bullnose	5.00			4246.00	48.00 Bottom Packers & Anchor

Total Tool Length: 69.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59212 **DST#: 2**
Test Start: 2014.11.06 @ 16:36:15

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 14000 ppm
Viscosity: 69.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.32 in ³	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2600.00 ppm		
Filter Cake: 1.00 inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	mcw 50%m 50% w	0.443
241.00	mud 100%m	1.732

Total Length: 331.00 ft Total Volume: 2.175 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: RW= .70@ 47.5*= 14,000 ppm



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.07 @ 09:22:15

End Date: 2014.11.07 @ 17:34:00

Job Ticket #: 59213 DST #: 3

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

Printed: 2014.11.12 @ 16:39:31



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59213

DST#: 3

Test Start: 2014.11.07 @ 09:22:15

GENERAL INFORMATION:

Formation: **LKC K-L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:23:30
 Time Test Ended: 17:34:00
 Interval: **4253.00 ft (KB) To 4315.00 ft (KB) (TVD)**
 Total Depth: 4315.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 3035.00 ft (KB)
 3025.00 ft (CF)
 KB to GR/CF: 10.00 ft

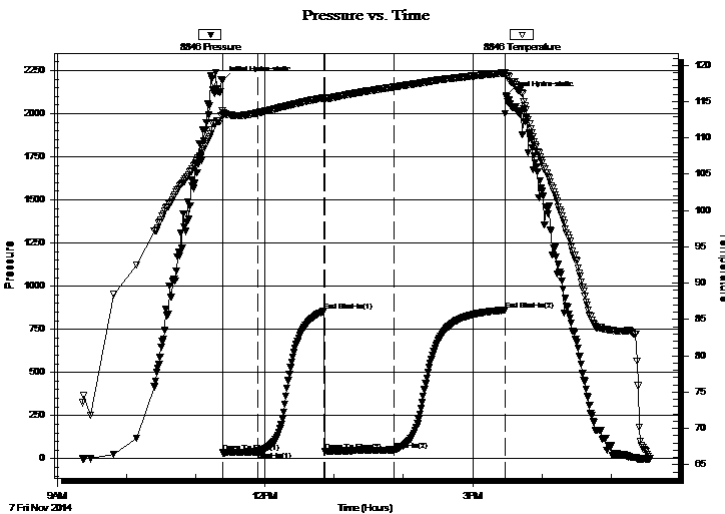
Serial #: 8846

Inside

Press@RunDepth: 51.37 psig @ 4310.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.11.07 End Date: 2014.11.07 Last Calib.: 2014.11.07
 Start Time: 09:22:15 End Time: 17:34:00 Time On Btm: 2014.11.07 @ 11:23:15
 Time Off Btm: 2014.11.07 @ 15:28:45

TEST COMMENT: IF: Built to 1/2" blow
 IS: No return blow
 FF: No blow
 FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2193.14	113.71	Initial Hydro-static
1	34.86	113.18	Open To Flow (1)
31	40.73	113.45	Shut-In(1)
89	856.04	115.55	End Shut-In(1)
89	43.17	115.34	Open To Flow (2)
149	51.37	117.00	Shut-In(2)
245	861.48	118.96	End Shut-In(2)
246	2105.82	118.58	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud w ith oil spots	0.05

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

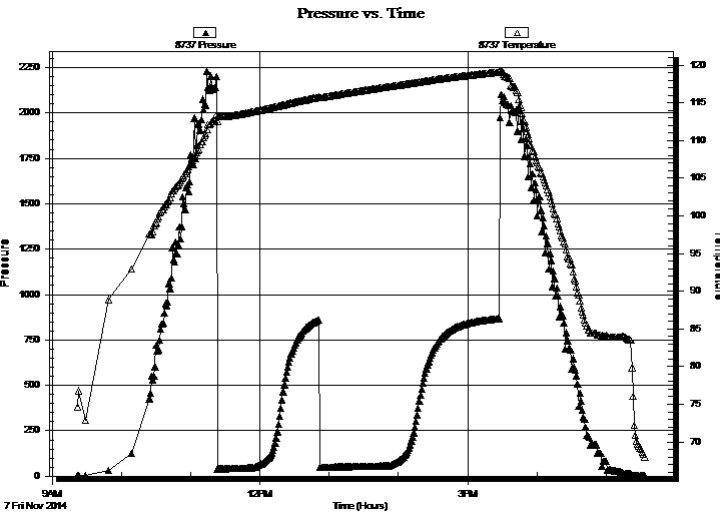
4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59213 **DST#: 3**
Test Start: 2014.11.07 @ 09:22:15

GENERAL INFORMATION:

Formation: **LKC K-L**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 11:23:30 Tester: Mike Roberts
Time Test Ended: 17:34:00 Unit No: 65
Interval: 4253.00 ft (KB) To 4315.00 ft (KB) (TVD) Reference Elevations: 3035.00 ft (KB)
Total Depth: 4315.00 ft (KB) (TVD) 3025.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 8737 Outside
Press@RunDepth: psig @ 4310.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.11.07 End Date: 2014.11.07 Last Calib.: 2014.11.07
Start Time: 09:22:15 End Time: 17:34:00 Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Built to 1/2" blow
IS: No return blow
FF: No blow
FS: No return blow



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

Recovery		
Length (ft)	Description	Volume (bbl)
10.00	mud w ith oil spots	0.05

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59213 **DST#: 3**
Test Start: 2014.11.07 @ 09:22:15

Tool Information

Drill Pipe:	Length: 3969.00 ft	Diameter: 3.80 inches	Volume: 55.67 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 57.00 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4253.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	83.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Change Over Sub	1.00			4233.00	
Shut In Tool	5.00			4238.00	
Hydraulic tool	5.00			4243.00	
Packer	5.00			4248.00	21.00 Bottom Of Top Packer
Packer	5.00			4253.00	
Stubb	1.00			4254.00	
Perforations	8.00			4262.00	
Change Over Sub	1.00			4263.00	
Drill Pipe	32.00			4295.00	
Change Over Sub	1.00			4296.00	
Perforations	14.00			4310.00	
Recorder	0.00	8846	Inside	4310.00	
Recorder	0.00	8737	Outside	4310.00	
Bullnose	5.00			4315.00	62.00 Bottom Packers & Anchor

Total Tool Length: 83.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59213 **DST#: 3**
Test Start: 2014.11.07 @ 09:22:15

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 56.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.95 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2500.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	mud w ith oil spots	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:



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.08 @ 07:24:15

End Date: 2014.11.08 @ 15:48:45

Job Ticket #: 59214 DST #: 4

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

Printed: 2014.11.12 @ 16:39:07



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59214

DST#: 4

Test Start: 2014.11.08 @ 07:24:15

GENERAL INFORMATION:

Formation: **Marmaton-Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:44:15

Time Test Ended: 15:48:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4316.00 ft (KB) To 4435.00 ft (KB) (TVD)

Reference Elevations: 3035.00 ft (KB)

Total Depth: 4435.00 ft (KB) (TVD)

3025.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8846

Inside

Press@RunDepth: 140.87 psig @ 4430.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.08

End Date: 2014.11.08

Last Calib.: 2014.11.08

Start Time: 07:24:15

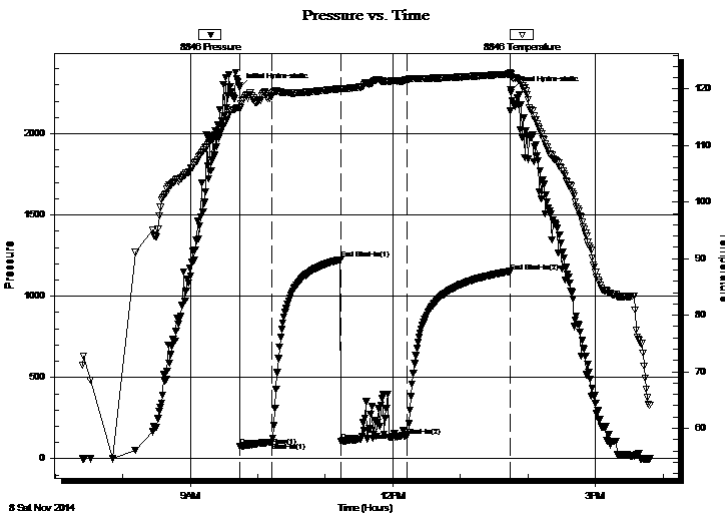
End Time: 15:48:45

Time On Btm: 2014.11.08 @ 09:43:45

Time Off Btm: 2014.11.08 @ 13:44:45

TEST COMMENT: IF: Built to 2" blow
 IS: No return blow
 FF: Built to 1/2" blow
 FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2284.30	116.72	Initial Hydro-static
1	75.94	116.63	Open To Flow (1)
29	103.38	118.75	Shut-In(1)
90	1226.66	120.06	End Shut-In(1)
91	108.36	119.90	Open To Flow (2)
149	140.87	121.54	Shut-In(2)
241	1152.80	122.64	End Shut-In(2)
241	2267.85	122.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	mud 100% m	0.49

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita KS 67202

Kuhn #2-4

Job Ticket: 59214

DST#: 4

ATTN: Tom Funk

Test Start: 2014.11.08 @ 07:24:15

GENERAL INFORMATION:

Formation: **Marmaton-Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:44:15

Time Test Ended: 15:48:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4316.00 ft (KB) To 4435.00 ft (KB) (TVD)

Reference Elevations: 3035.00 ft (KB)

Total Depth: 4435.00 ft (KB) (TVD)

3025.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8737

Outside

Press@RunDepth: psig @ 4430.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.08 End Date: 2014.11.08

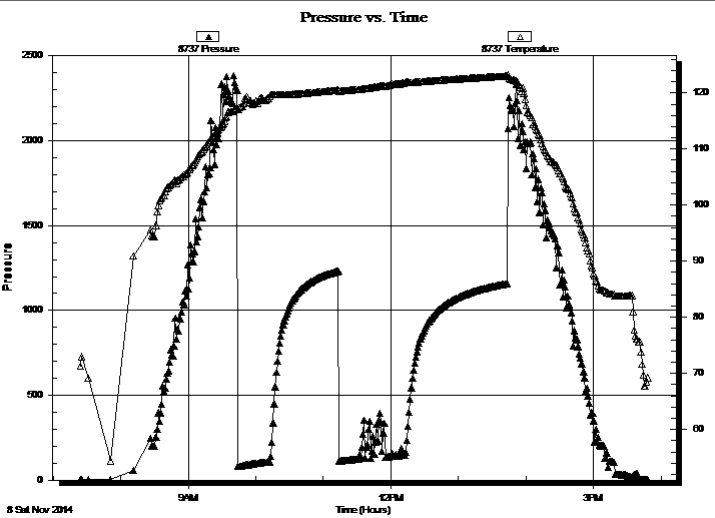
Last Calib.: 2014.11.08

Start Time: 07:24:15 End Time: 15:48:45

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:Built to 2" blow
IS:No return blow
FF:Built to 1/2" blow
FS:No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
100.00	mud 100% m	0.49

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59214 **DST#: 4**
Test Start: 2014.11.08 @ 07:24:15

Tool Information

Drill Pipe:	Length: 4033.00 ft	Diameter: 3.80 inches	Volume: 56.57 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 57.90 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4316.00 ft			Final 79000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	119.00 ft			
Tool Length:	140.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Change Over Sub	1.00			4296.00	
Shut In Tool	5.00			4301.00	
Hydraulic tool	5.00			4306.00	
Packer	5.00			4311.00	21.00 Bottom Of Top Packer
Packer	5.00			4316.00	
Stubb	1.00			4317.00	
Perforations	1.00			4318.00	
Change Over Sub	1.00			4319.00	
Drill Pipe	95.00			4414.00	
Change Over Sub	1.00			4415.00	
Perforations	15.00			4430.00	
Recorder	0.00	8846	Inside	4430.00	
Recorder	0.00	8737	Outside	4430.00	
Bullnose	5.00			4435.00	119.00 Bottom Packers & Anchor

Total Tool Length: 140.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita KS 67202

Kuhn #2-4

Job Ticket: 59214

DST#: 4

ATTN: Tom Funk

Test Start: 2014.11.08 @ 07:24:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.96 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	mud 100% m	0.492

Total Length: 100.00 ft Total Volume: 0.492 bbl

Num Fluid Samples: 0

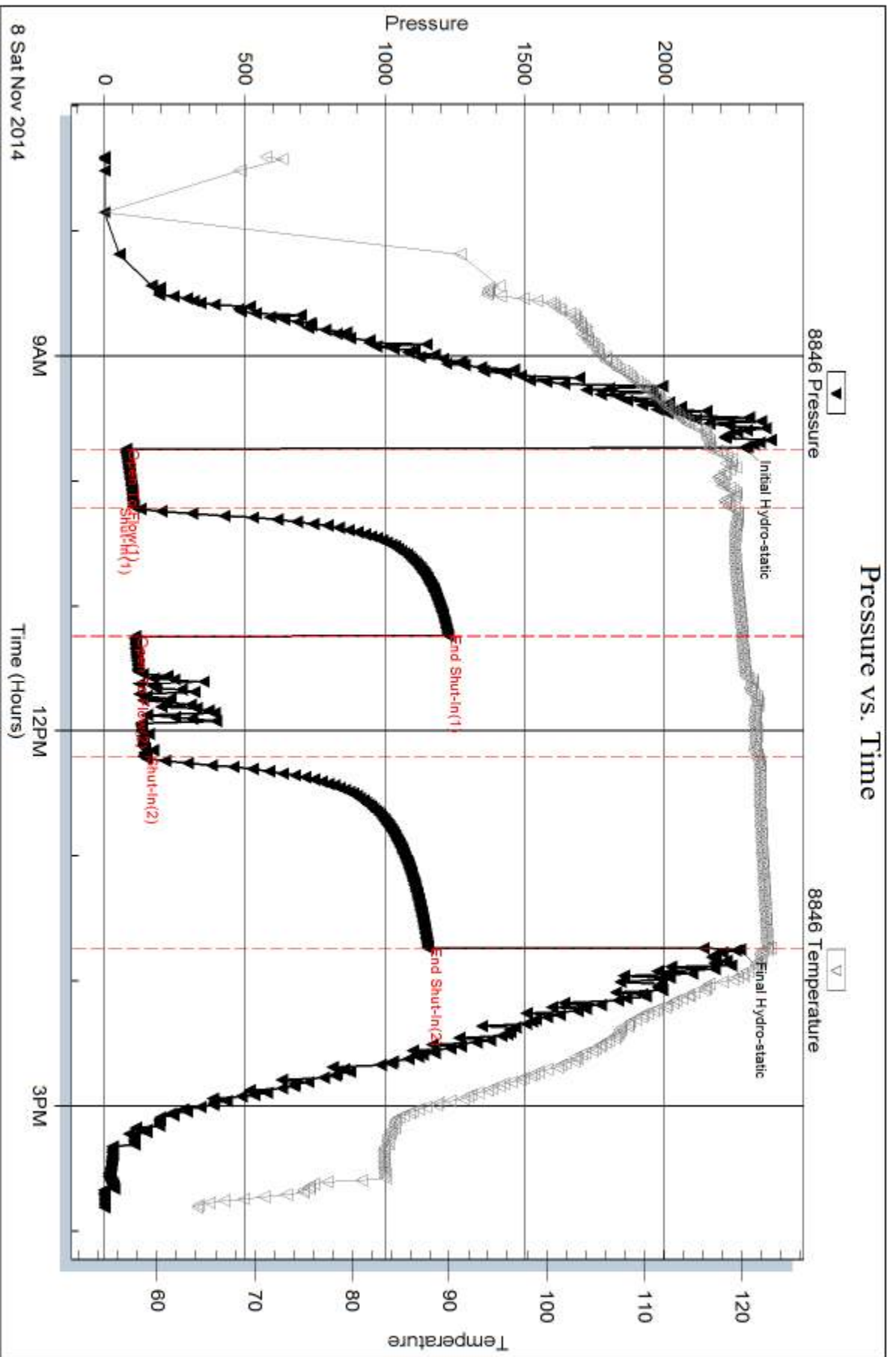
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

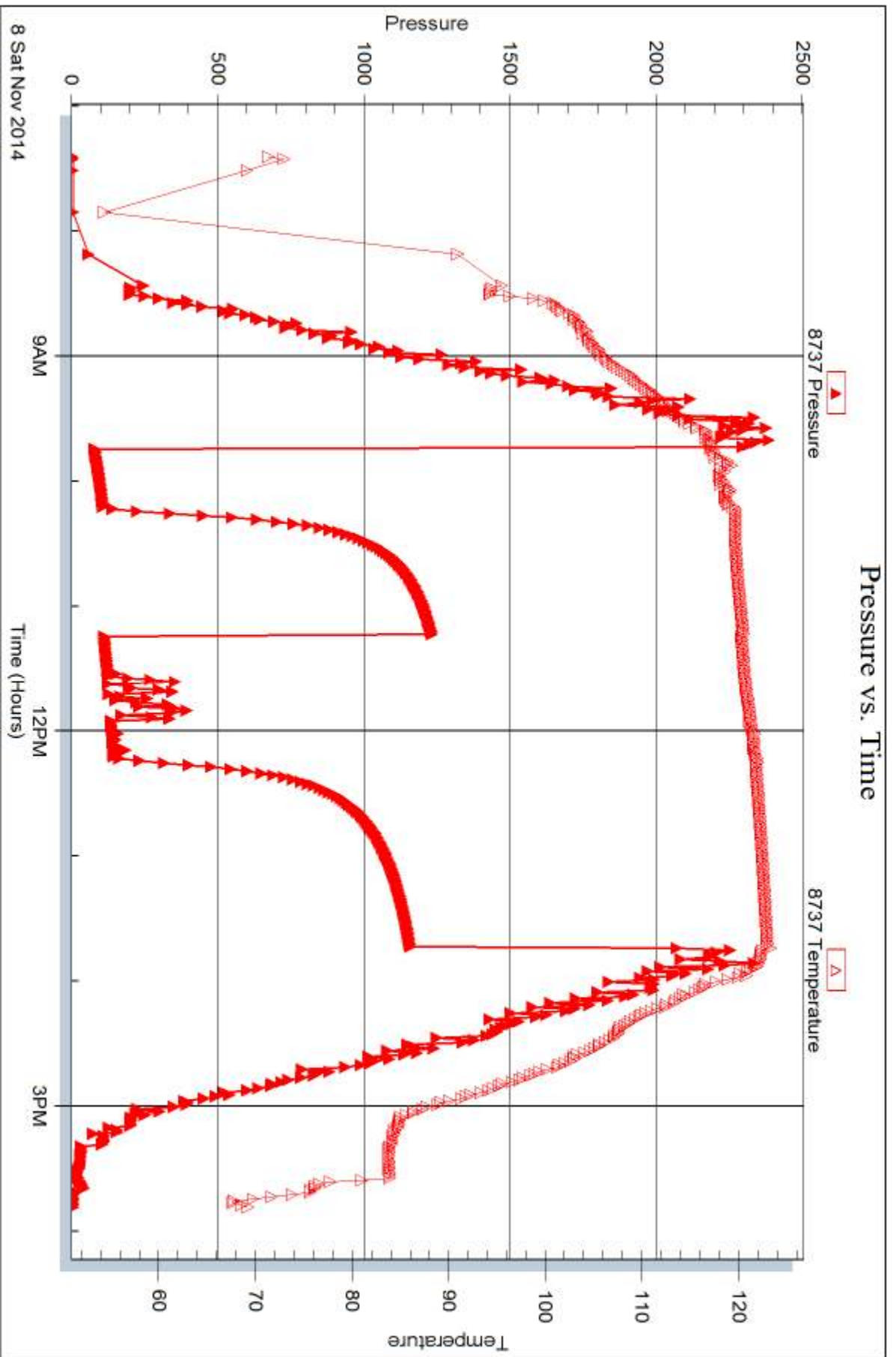


Serial #: 8737

Outside Murfin Drilling Co Inc.

Kuhn #2-4

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 59214

Printed: 2014.11.12 @ 16:39:08



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.09 @ 04:43:15

End Date: 2014.11.09 @ 12:48:00

Job Ticket #: 59215 DST #: 5

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

Printed: 2014.11.12 @ 16:38:36

Murfin Drilling Co Inc. 4-13s-32w Logan,KS Kuhn #2-4 DST # 5 Pawnee-Lower Pawnee 2014.11.09



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59215

DST#: 5

Test Start: 2014.11.09 @ 04:43:15

GENERAL INFORMATION:

Formation: **Pawnee-Lower Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:54:15

Time Test Ended: 12:48:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4447.00 ft (KB) To 4535.00 ft (KB) (TVD)

Reference Elevations: 3035.00 ft (KB)

Total Depth: 4535.00 ft (KB) (TVD)

3025.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8846

Inside

Press@RunDepth: 89.26 psig @ 4449.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.09

End Date:

2014.11.09

Last Calib.:

2014.11.09

Start Time: 04:43:15

End Time:

12:48:00

Time On Btm:

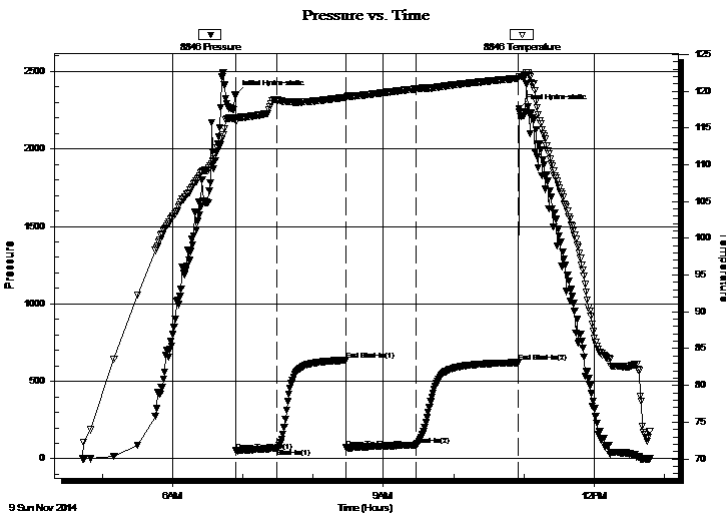
2014.11.09 @ 06:54:00

Time Off Btm:

2014.11.09 @ 10:56:00

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

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2348.40	116.27	Initial Hydro-static
1	51.30	115.90	Open To Flow (1)
36	67.64	118.80	Shut-In(1)
94	636.22	119.16	End Shut-In(1)
95	70.73	119.09	Open To Flow (2)
154	89.26	120.30	Shut-In(2)
242	621.48	121.74	End Shut-In(2)
242	2259.24	121.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
25.00	mud w with a trace of oil 100%m	0.12

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

4-13s-32w Logan, KS
Kuhn #2-4
 Job Ticket: 59215 **DST#: 5**
 Test Start: 2014.11.09 @ 04:43:15

GENERAL INFORMATION:

Formation: **Pawnee-Lower Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:54:15

Time Test Ended: 12:48:00

Interval: 4447.00 ft (KB) To 4535.00 ft (KB) (TVD)

Total Depth: 4535.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Reference Elevations: 3035.00 ft (KB)

3025.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4449.00 ft (KB)

Start Date: 2014.11.09 End Date: 2014.11.09

Start Time: 04:43:15 End Time: 12:48:00

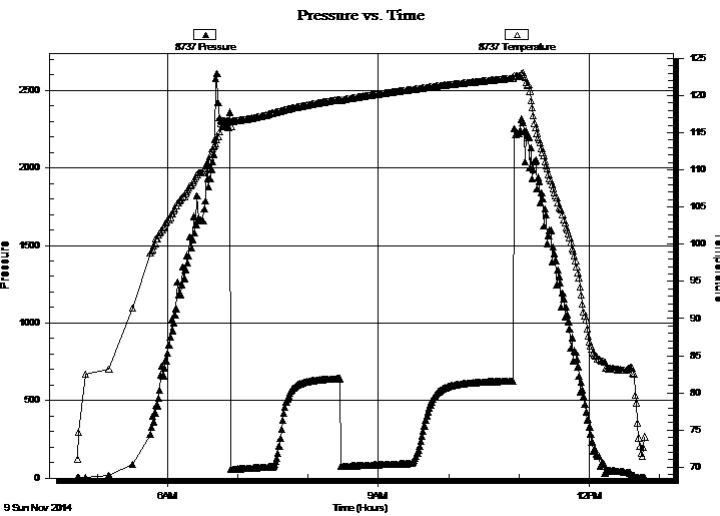
Capacity: 8000.00 psig

Last Calib.: 2014.11.09

Time On Btm:

Time Off Btm:

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



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
25.00	mud w with a trace of oil 100%m	0.12

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59215 **DST#: 5**
Test Start: 2014.11.09 @ 04:43:15

Tool Information

Drill Pipe:	Length: 4178.00 ft	Diameter: 3.80 inches	Volume: 58.61 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 59.94 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 78000.00 lb
Depth to Top Packer:	4447.00 ft			Final 78000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	108.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4428.00	
Shut In Tool	5.00			4433.00	
Hydraulic tool	5.00			4438.00	
Packer	5.00			4443.00	20.00 Bottom Of Top Packer
Packer	4.00			4447.00	
Stubb	1.00			4448.00	
Perforations	1.00			4449.00	
Recorder	0.00	8846	Inside	4449.00	
Recorder	0.00	8737	Outside	4449.00	
Change Over Sub	1.00			4450.00	
Blank Spacing	64.00			4514.00	
Change Over Sub	1.00			4515.00	
Perforations	15.00			4530.00	
Bullnose	5.00			4535.00	88.00 Bottom Packers & Anchor

Total Tool Length: 108.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59215 **DST#: 5**
Test Start: 2014.11.09 @ 04:43:15

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.77 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2700.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
25.00	mud w ith a trace of oil 100%m	0.123

Total Length: 25.00 ft Total Volume: 0.123 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

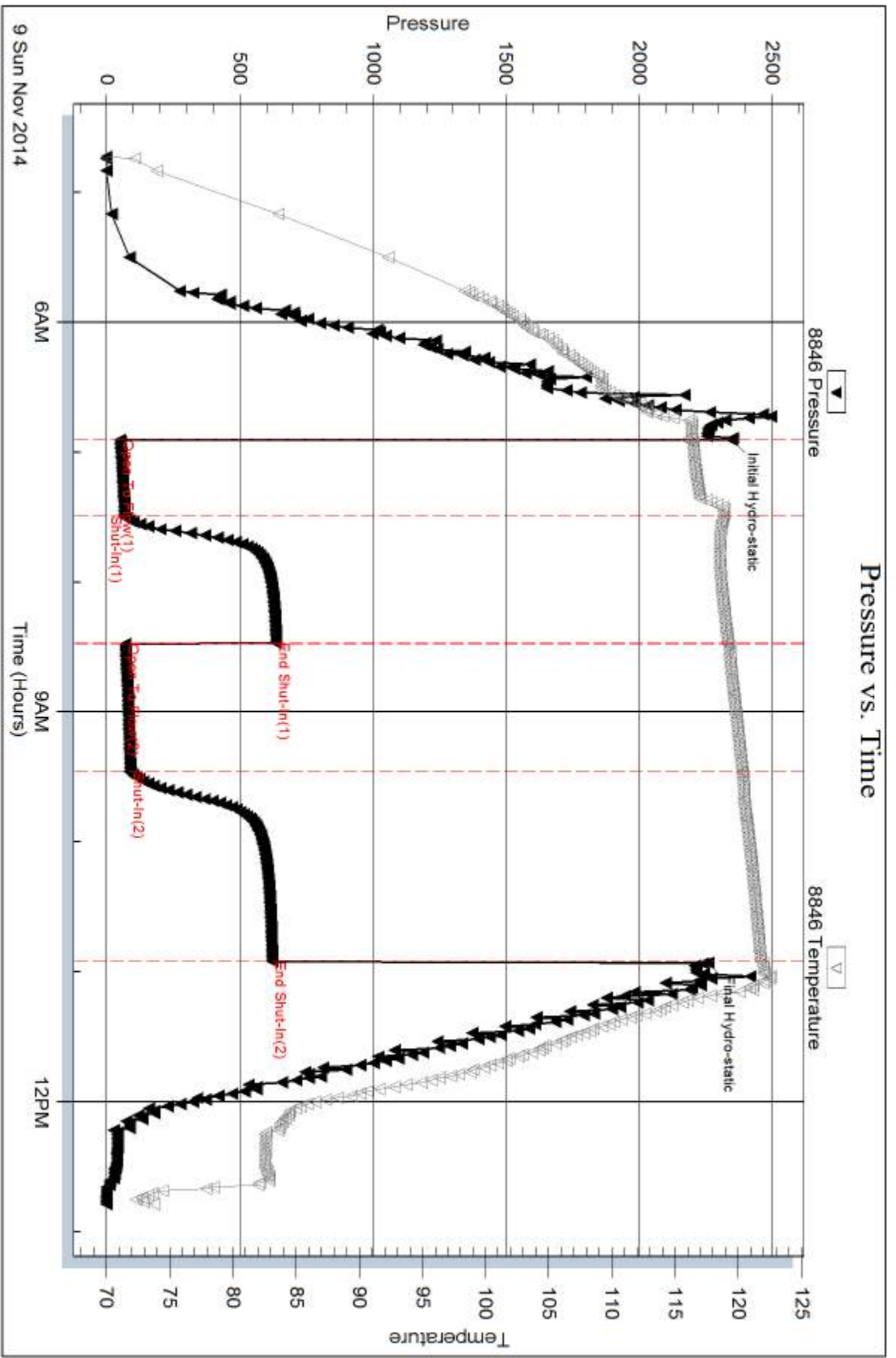
Serial #: 8846

Inside

Murfin Drilling Co Inc.

Kuhn #2-4

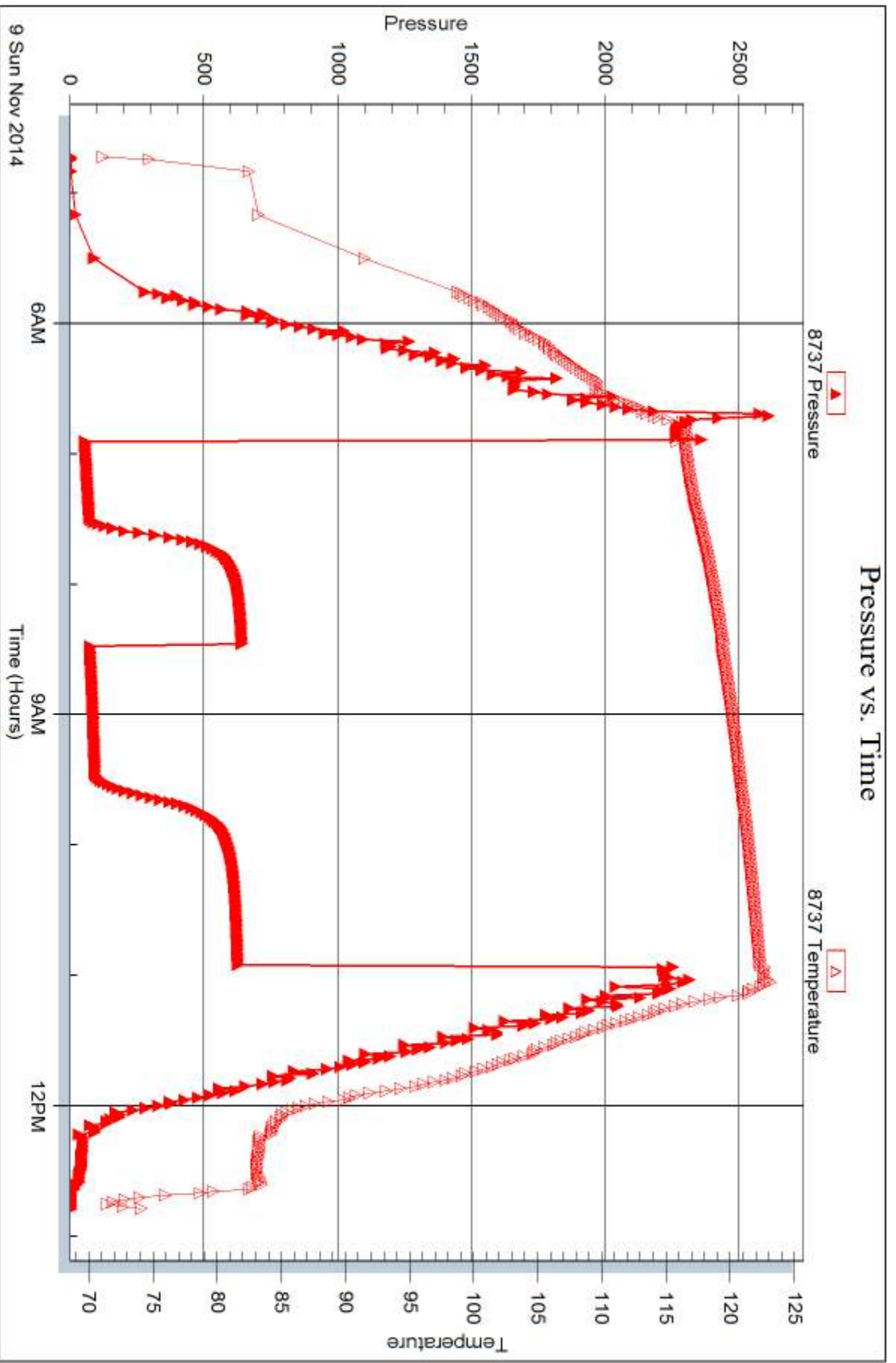
DST Test Number: 5



Tribble Testing, Inc

Ref. No: 59215

Printed: 2014.11.12 @ 16:38:37





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Tom Funk

Kuhn #2-4

4-13s-32w Logan,KS

Start Date: 2014.11.09 @ 01:11:15

End Date: 2014.11.09 @ 09:19:45

Job Ticket #: 59216 DST #: 6

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

Printed: 2014.11.12 @ 16:38:01



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

4-13s-32w Logan,KS

Kuhn #2-4

Job Ticket: 59216

DST#: 6

Test Start: 2014.11.09 @ 01:11:15

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:25:00
 Time Test Ended: 09:19:45
 Interval: **4550.00 ft (KB) To 4610.00 ft (KB) (TVD)**
 Total Depth: 4610.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 3035.00 ft (KB)
 3025.00 ft (CF)
 KB to GR/CF: 10.00 ft

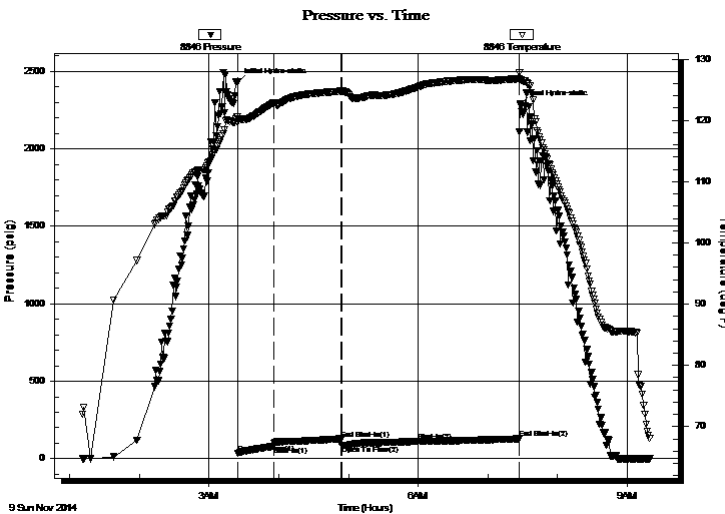
Serial #: 8846

Inside

Press@RunDepth: 111.99 psig @ 4556.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.11.09 End Date: 2014.11.09 Last Calib.: 2014.11.10
 Start Time: 01:11:15 End Time: 09:19:45 Time On Btm: 2014.11.09 @ 03:24:45
 Time Off Btm: 2014.11.09 @ 07:28:00

TEST COMMENT: IF:BOB in 14 min.
 IS:No return blow
 FF:Built to 9" blow
 FS:No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2427.94	120.58	Initial Hydro-static
1	36.59	119.57	Open To Flow (1)
31	79.92	122.83	Shut-In(1)
89	128.13	124.75	End Shut-In(1)
90	86.25	124.72	Open To Flow (2)
156	111.99	125.43	Shut-In(2)
243	128.89	126.78	End Shut-In(2)
244	2288.34	126.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	mud 100%m	0.49

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co Inc.

4-13s-32w Logan, KS

250 N Water STE 300
Wichita KS 67202

Kuhn #2-4

Job Ticket: 59216

DST#: 6

ATTN: Tom Funk

Test Start: 2014.11.09 @ 01:11:15

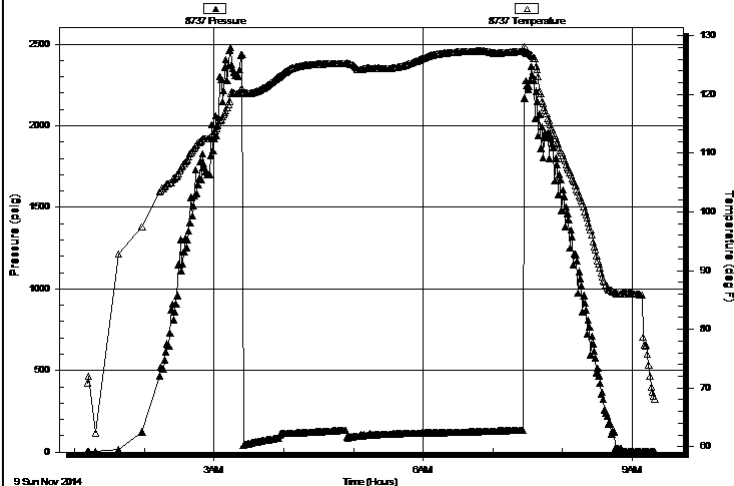
GENERAL INFORMATION:

Formation: Johnson			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Reset)	
Time Tool Opened: 03:25:00		Tester: Mike Roberts	
Time Test Ended: 09:19:45		Unit No: 65	
Interval: 4550.00 ft (KB) To 4610.00 ft (KB) (TVD)		Reference Elevations: 3035.00 ft (KB)	
Total Depth: 4610.00 ft (KB) (TVD)		3025.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 10.00 ft	

Serial #: 8737	Outside				
Press@RunDepth: psig @	4556.00 ft (KB)	Capacity:	8000.00 psig		
Start Date: 2014.11.09	End Date: 2014.11.09	Last Calib.:	2014.11.10		
Start Time: 01:11:15	End Time: 09:19:45	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: IF:BOB in 14 min.
IS:No return blow
FF:Built to 9" blow
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
100.00	mud 100% _m	0.49

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co Inc.

4-13s-32w Logan,KS

250 N Water STE 300
Wichita KS 67202

Kuhn #2-4

Job Ticket: 59216

DST#: 6

ATTN: Tom Funk

Test Start: 2014.11.09 @ 01:11:15

Tool Information

Drill Pipe:	Length: 4277.00 ft	Diameter: 3.80 inches	Volume: 60.00 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 271.00 ft	Diameter: 2.25 inches	Volume: 1.33 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 61.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	4550.00 ft			Final 81000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	84.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4531.00	
Shut In Tool	5.00			4536.00	
Hydraulic tool	5.00			4541.00	
Packer	5.00			4546.00	20.00 Bottom Of Top Packer
Packer	4.00			4550.00	
Stubb	1.00			4551.00	
Perforations	5.00			4556.00	
Recorder	0.00	8846	Inside	4556.00	
Recorder	0.00	8737	Outside	4556.00	
Change Over Sub	1.00			4557.00	
Blank Spacing	32.00			4589.00	
Change Over Sub	1.00			4590.00	
Perforations	19.00			4609.00	
Bullnose	5.00			4614.00	64.00 Bottom Packers & Anchor

Total Tool Length: 84.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

4-13s-32w Logan,KS
Kuhn #2-4
Job Ticket: 59216 **DST#: 6**
Test Start: 2014.11.09 @ 01:11:15

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.18 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2700.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	mud 100%m	0.492

Total Length: 100.00 ft Total Volume: 0.492 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 8846

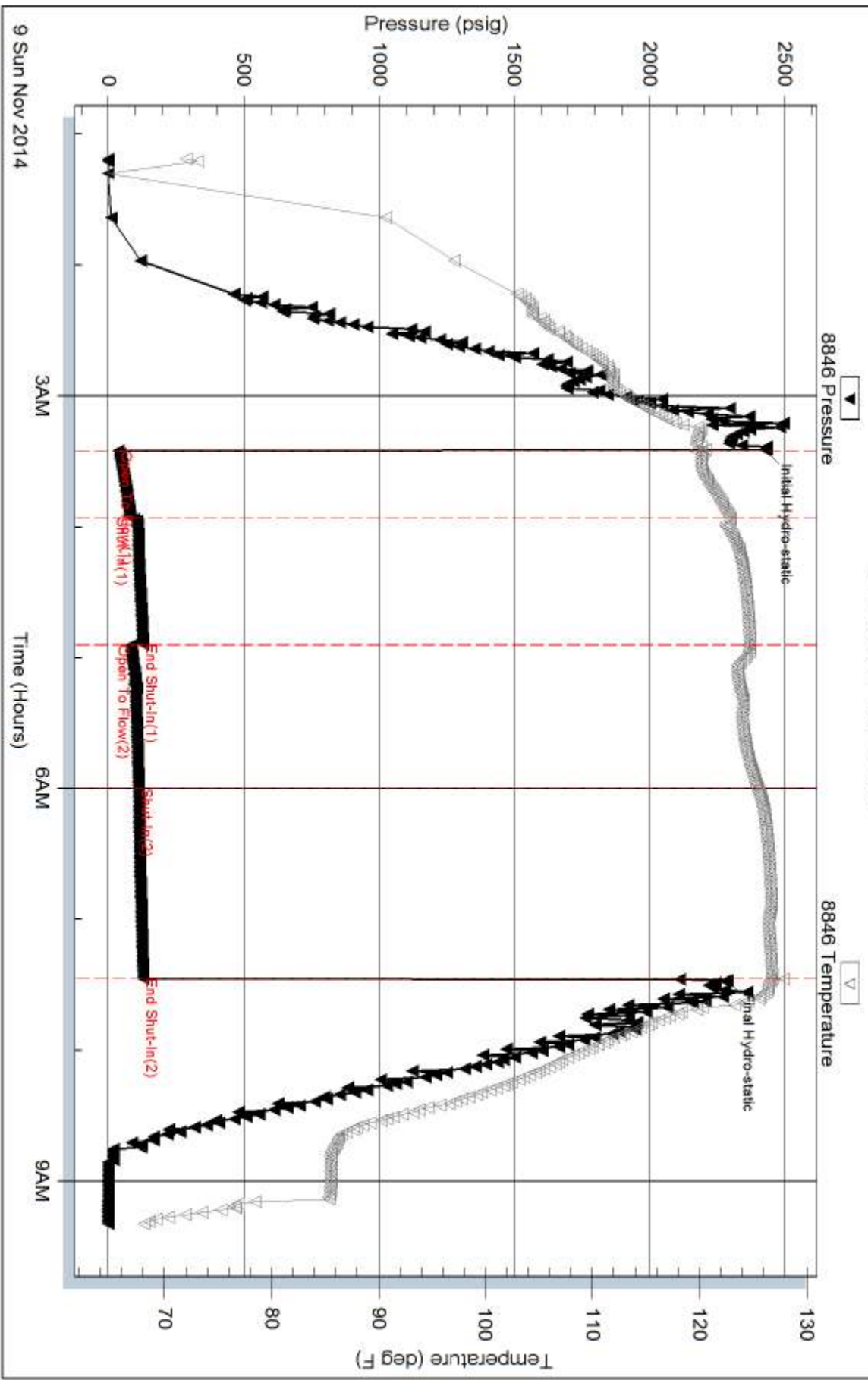
Inside

Murfin Drilling Co Inc.

Kuhn #2-4

DST Test Number: 6

Pressure vs. Time

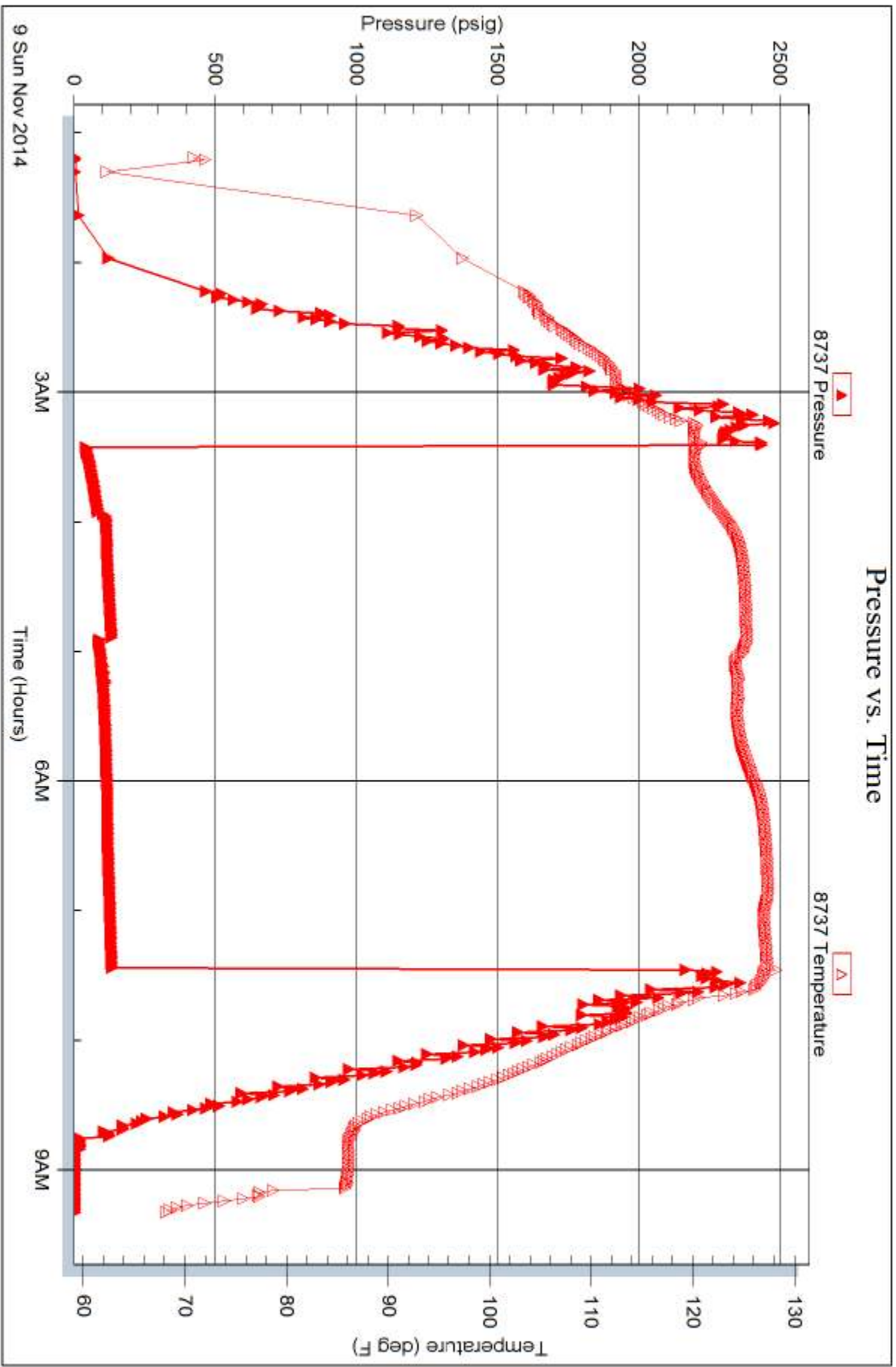


Serial #: 8737

Outside Murfin Drilling Co Inc.

Kuhn #2-4

DST Test Number: 6





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59211

Well Name & No. Kuhn # 2-4 Test No. 1 Date 11-5-14
 Company Murfin Drilling Co Inc Elevation 3035 KB 3025 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Murfin 4
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

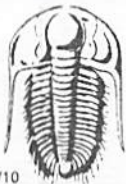
Interval Tested 4096-4130 Zone Tested E-F
 Anchor Length 34 Drill Pipe Run 3832 Mud Wt. 9.2
 Top Packer Depth 4091 Drill Collars Run 276 Vis 6.9
 Bottom Packer Depth 4096 Wt. Pipe Run Ø WL 6.4
 Total Depth 4130 Chlorides 2600 ppm System LCM 5
 Blow Description IF: Built to 4" Blow
IS: No Return Blow
FF: Built to weak surface Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>271</u>	<u>MCW with a trace of oil</u>		<u>80</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 271 BHT 122 Gravity — API RW 42.8 @ 35 °F Chlorides 40,000 ppm
 (A) Initial Hydrostatic 2109 Test 1250.00 T-On Location 16:15
 (B) First Initial Flow 14 Jars _____ T-Started 16:52
 (C) First Final Flow 75 Safety Joint _____ T-Open 19:43
 (D) Initial Shut-In 1207 Circ Sub NC T-Pulled 23:43
 (E) Second Initial Flow 79 Hourly Standby _____ T-Out 01:45
 (F) Second Final Flow 156 Mileage 80 RT 124.00 Comments _____
 (G) Final Shut-In 1199 Sampler _____
 (H) Final Hydrostatic 2047 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1374
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Approved By [Signature] Sub Total 1374.00
 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. 59212

4/10

Well Name & No. Kuhn #2-4 Test No. 2 Date 11-6-14
 Company Murfin Drilling Co Inc. Elevation 3035 KB 3025 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Murfin 4
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

Interval Tested 4198-4246 Zone Tested I-5
 Anchor Length 48 Drill Pipe Run 3933 Mud Wt. 9.1
 Top Packer Depth 4193 Drill Collars Run ~~3710~~ 271 Vis 56
 Bottom Packer Depth 4198 Wt. Pipe Run 0 WL 5.6
 Total Depth 4246 Chlorides 2500 ppm System LCM 5
 Blow Description IF: Built to 5" Blow
IS: No Return Blow
FF: Built to 6" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>mcw</u>			<u>50</u>	<u>50</u>
<u>241</u>	<u>MUD</u>			<u>100</u>	

Rec Total 331 BHT 121 Gravity — API RW .70 @ 47.5° F Chlorides 14,000 ppm
 (A) Initial Hydrostatic 2163 Test 1250.00 T-On Location 15:45
 (B) First Initial Flow 22 Jars _____ T-Started 16:36
 (C) First Final Flow 104 Safety Joint _____ T-Open 18:30
 (D) Initial Shut-In 1162 Circ Sub NO T-Pulled 22:30
 (E) Second Initial Flow 117 Hourly Standby _____ T-Out 00:18
 (F) Second Final Flow 185 Mileage 80 RT = 124.00 Comments _____
 (G) Final Shut-In 1159 Sampler _____
 (H) Final Hydrostatic 2137 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 1374
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 90 Sub Total #1374.00/

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59213

Well Name & No. Kuhn #2-4 Test No. 3 Date 11-7-14
 Company Martin Drilling Co Inc. Elevation 3035 KB 3025 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Martin 4
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

Interval Tested 4253-4315 Zone Tested K-L
 Anchor Length 62 Drill Pipe Run 3969 Mud Wt. 9.2
 Top Packer Depth 4248 Drill Collars Run ~~3969~~ 271 Vis 56
 Bottom Packer Depth 4253 Wt. Pipe Run 0 WL 6.0
 Total Depth 4315 Chlorides 2500 ppm System LCM 4

Blow Description IF: Boilt to 1/2" Blow
IS: No Return Blow
FF: NO Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>mud with oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 121
 (A) Initial Hydrostatic 2193
 (B) First Initial Flow 34
 (C) First Final Flow 40
 (D) Initial Shut-In 856
 (E) Second Initial Flow 43
 (F) Second Final Flow 51
 (G) Final Shut-In 861
 (H) Final Hydrostatic 2105

Gravity ✓ API RW — @ — °F Chlorides — ppm
 Test \$1250.00
 Jars
 Safety Joint
 Circ Sub NC
 Hourly Standby
 Mileage BORT = 124.00
 Sampler
 Straddle
 Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility
 Sub Total 1374

T-On Location 08:45
 T-Started 09:22
 T-Open 11:23
 T-Pulled 15:23
 T-Out 17:34
 Comments
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1374
 MP/DST Disc't

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

Approved By [Signature]

Our Representative \$1374.00/-



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59214

Well Name & No. Kuhn #2-4 Test No. 4 Date 11-8-14
 Company Martin Drilling Co Inc. Elevation 3035 KB 3025 GL
 Address 250 N. Water St 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig _____
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

Interval Tested 4316-4435 Zone Tested Marmaton - Altamont
 Anchor Length 119 Drill Pipe Run 4033 Mud Wt. 9.2
 Top Packer Depth 4311 Drill Collars Run 274 Vis 56
 Bottom Packer Depth 4316 Wt. Pipe Run Ø WL 6.0
 Total Depth 4435 Chlorides 2500 ppm System LCM 4
 Blow Description IF: Built to 2" Blow
IS: No Return Blow
FF: Built to 1/2" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</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 100 BHT 122 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm
 (A) Initial Hydrostatic 2284 Test #1250.00/- T-On Location 06:30
 (B) First Initial Flow 75 Jars _____ T-Started 07:24
 (C) First Final Flow 103 Safety Joint _____ T-Open 09:43
 (D) Initial Shut-In 1226 Circ Sub NC T-Pulled 13:43
 (E) Second Initial Flow 108 Hourly Standby _____ T-Out 15:48
 (F) Second Final Flow 140 Mileage BORT = 124.00/- Comments _____
 (G) Final Shut-In 1152 Sampler _____
 (H) Final Hydrostatic 2267 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1374
 Accessibility _____ MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total \$1374.00/-

Approved By [Signature] Our Representative Mike Roberts

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59215

Well Name & No. Kuhn #2-4 Test No. 5 Date 11-9-14
 Company Murfin Drilling Co Inc. Elevation 3035 KB 3025 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Murfin 4
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

Interval Tested 4447-4535 Zone Tested Pawnee-Lower Pawnee
 Anchor Length 88 Drill Pipe Run 4178 Mud Wt. 9.5
 Top Packer Depth 4442 Drill Collars Run 271 Vis 58
 Bottom Packer Depth 4447 Wt. Pipe Run Ø WL 6.8
 Total Depth 4535 Chlorides 2700 ppm System LCM 5
 Blow Description IF: Built to 1" Blow
IS: No Return Blow
FF: No Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>25</u>	<u>MUD with Ø Trace of oil</u>			<u>25</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 25 BHT 122 Gravity — API RW — @ — °F Chlorides — ppm
 (A) Initial Hydrostatic 2348 Test \$1250.00 T-On Location 04:03
 (B) First Initial Flow 51 Jars — T-Started 04:43
 (C) First Final Flow 67 Safety Joint — T-Open 06:53
 (D) Initial Shut-In 636 Circ Sub NCL T-Pulled 10:53
 (E) Second Initial Flow 70 Hourly Standby — T-Out 12:48
 (F) Second Final Flow 89 Mileage 80 RT = \$124.00 Comments —
 (G) Final Shut-In 621 Sampler —
 (H) Final Hydrostatic 2259 Straddle — Ruined Shale Packer —
 Shale Packer — Ruined Packer —
 Extra Packer — Extra Copies —
 Extra Recorder — Sub Total 0
 Day Standby — Total 1374
 Accessibility — MP/DST Disc't —
 Sub Total \$1374.00/-

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59216

Well Name & No. Kuhn # 2-4 Test No. 6 Date 11-10-14
 Company Martin Drilling Co Inc. Elevation 3035 KB 3025 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Tom Funk Rig Martin 4
 Location: Sec. 4 Twp. 13 Rge. 32 Co. Logan State KS

Interval Tested 4550 - 4610 Zone Tested Johnson
 Anchor Length 60 Drill Pipe Run 4277 Mud Wt. 9.4
 Top Packer Depth 4545 Drill Collars Run 271 Vis 55
 Bottom Packer Depth 4550 Wt. Pipe Run Ø WL 7.2
 Total Depth 4610 Chlorides 2700 ppm System LCM 4
 Blow Description IF: BOB IN 14 Min
IS: No Return Blow
FF: Built to 9" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</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 100 BHT 123 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2427</u>	<input checked="" type="checkbox"/> Test <u>1250.00/-</u>	T-On Location <u>00:15</u>
(B) First Initial Flow <u>36</u>	<input type="checkbox"/> Jars	T-Started <u>01:11</u>
(C) First Final Flow <u>79</u>	<input type="checkbox"/> Safety Joint	T-Open <u>03:25</u>
(D) Initial Shut-In <u>128</u>	<input checked="" type="checkbox"/> Circ Sub <u>NL</u>	T-Pulled <u>07:25</u>
(E) Second Initial Flow <u>86</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>09:19</u>
(F) Second Final Flow <u>111</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT = \$124.00</u>	Comments <u>Mileage</u>
(G) Final Shut-In <u>128</u>	<input type="checkbox"/> Sampler <u>124.00</u>	<u>X-2 Loaded</u>
(H) Final Hydrostatic <u>2288</u>	<input type="checkbox"/> Straddle	<u>11-11- 9 Am</u>

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 96

Sub Total 0
 Total 1498
 MP/DST Disc't

Sub Total \$1374.00/-

Approved By [Signature] Our Representative Mike Roberts

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Thomas J. Funk
Petroleum Geologist

Geologists Report
Drilling Time and Sample Log

OPERATOR Murfin Drilling Co., Inc

LEASE Kuhn
FIELD High Hat
LOCATION 1810' FSL & 1780' FWL
SEC. 4
COUNTY Logan

WELL NO #2-4
API 15-109-21-358
RGE. 32W
STATE Kansas

ELEVATION
KB 3035'
DF
GL 3024'
Measurements Are All From KB

CASING RECORD
SURFACE
8 5/8" at 220' KB w/1705x

CONTRACTOR Murfin Dring Co Reg #4
COMM 11/1/2014
RTD 4/23/15
LOG TD 4736'

DRILLING TIME KEPT FROM 3700' TO 4735'
SAMPLES EXAMINED FROM 3700' TO 4735'
GEOLOGICAL SUPERVISION FROM 3850' TO 4735'
MUD UP 3300' TYPE MUD Chemical

PRODUCTION
N/A

ELECTRICAL SURVEYS
Pioneer Energy Serv
DIL
MEL
DUQP
BHCS

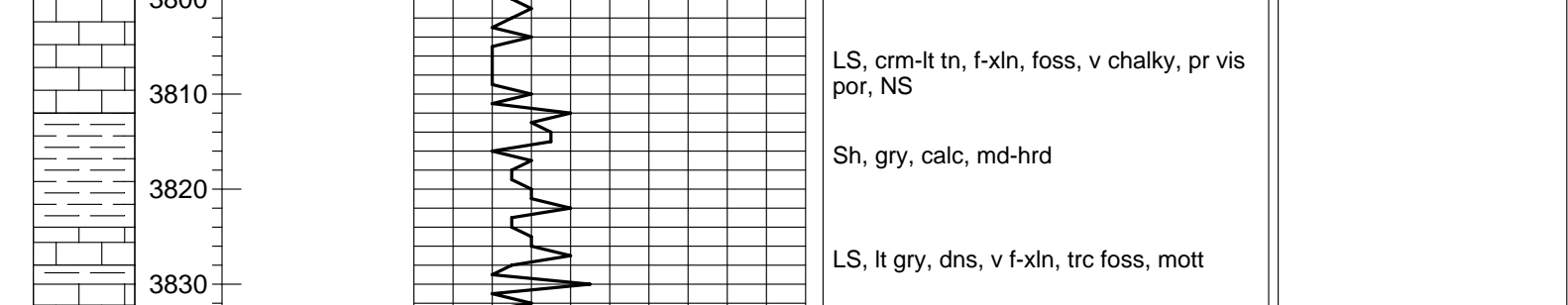
FORMATION	LOG	SAMPLE
TOP DATUM	TOP DATUM	TOP DATUM
Anhydrite	2520 (+515)	2520 (+515)
B/Anhydrite	2543 (+492)	2542 (+493)
Topoka	3760 (-725)	3761 (-726)
Heebner Sh	3986 (-951)	3986 (-951)
Lansing	4029 (-994)	4032 (-997)
Muncie Creek	4171 (-1136)	4170 (-1135)
Start Sh	4256 (-1221)	4256 (-1221)
Marmaton	4362 (-1327)	4360 (-1335)
Pawnee	4458 (-1423)	4458 (-1423)
Cherokee Sh	4545 (-1510)	4543 (-1508)
Johnson Zone	4589 (-1554)	4586 (-1551)
Mississippian	4661 (-1626)	4659 (-1624)

Date	Daily Progress	NO. Stret	Make	Type	Req'd	Depth	Out	Feet	Hours
	Spud	1	12 1/4"	HTC	GTC-1	223		223	3
11/21/14	1870'								
11/23/14	3000'	2	7 7/8"	HTC	DF506	3253		3030	42
11/24/14	3655'	3	7 7/8"	HTC	GX20c	4750		1497	98
11/25/14	4085'								
11/26/14	4155'								
11/27/14	4315'								
11/28/14	4435'								
11/29/14	4535'								
11/30/14	4610'								
1/11/15	4735'								

Remarks And Recommendations:
 Based on sample examination, DST results, and log analysis the #2-4 Kuhn was plugged and abandoned.

Thomas Funk
Petroleum Geologist

LEGEND



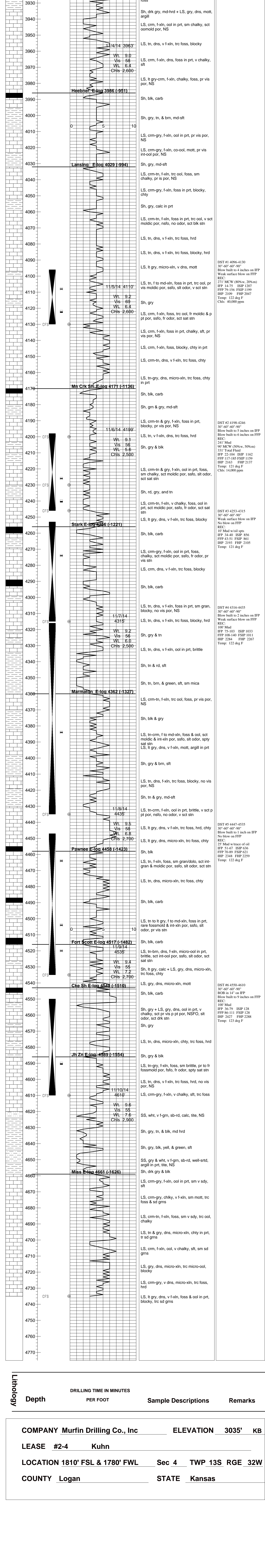
Lithology

Depth

DRILLING TIME IN MINUTES PER FOOT

Sample Descriptions

Remarks



Lithology

Depth

DRILLING TIME IN MINUTES PER FOOT

Sample Descriptions

Remarks

COMPANY Murfin Drilling Co., Inc **ELEVATION** 3035' **KB**

LEASE #2-4 **Kuhn**

LOCATION 1810' FSL & 1780' FWL **Sec 4** **TWP 13S** **RGE 32W**

COUNTY Logan **STATE** Kansas