

1269096



Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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

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

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

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

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

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

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i>			PRODUCTION INTERVAL: Top _____ Bottom _____	

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	Ken 2-17
Doc ID	1269096

All Electric Logs Run

DIL
DUCP
MEL
BHCS

ALLIED OIL & GAS SERVICES, LLC

Federal Tax I.D. #20-5975804

0677 35

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

SERVICE POINT
Delby, KS

DATE <u>10-10-15</u>	SEC. <u>17</u>	TWP. <u>1</u>	RANGE <u>35</u>	CALLED OUT	ON LOCATION <u>4:10 p.m.</u>	JOB START <u>4:30 p.m.</u>	JOB FINISH <u>5:00 p.m.</u>
LEASE <u>Ken</u>	WELL# <u>2-17</u>	LOCATION <u>Beardsley, N to Rd CC, 2W,</u>			COUNTY <u>Rabbits</u>	STATE <u>KS</u>	
OLD OR <u>NEW</u> (Circle one)				Sinto			

CONTRACTOR Murfin 2 OWNER Same

TYPE OF JOB Surface
 HOLE SIZE 12 1/4 T.D. 265'
 CASING SIZE 8 5/8 DEPTH 265'
 TUBING SIZE DEPTH
 DRILL PIPE DEPTH
 TOOL DEPTH

CEMENT
 AMOUNT ORDERED 210 sks Com 3% CC
2 1/2 gal

PRES. MAX MINIMUM
 MEAS. LINE SHOE JOINT
 CEMENT LEFT IN CSG. 15
 PERFS.
 DISPLACEMENT 15.5 bbl H2O

COMMON 210 sks @ 17.90 3757.00
 POZMIX @
 GEL 395 # @ .50 197.50
 CHLORIDE 592 # @ 1.10 651.20
 ASC @

EQUIPMENT
 PUMP TRUCK CEMENTER Paul Bauer
 # HELPER Wayne Meghly
 BULK TRUCK
 # DRIVER Cory Brown
 BULK TRUCK
 # DRIVER

@
 @
 @
 @
 @
 @
 @
 @
 @
 @

TOTAL 4,667.70

DISCOUNT 50% 2303.85

REMARKS:

Mix 210 sks
Displace w/ water
cement did circ
5 bbl to pit

SERVICE

HANDLING 220.50 ft³ @ 2.48 546.84
 MILEAGE 10.17 hrs @ 50 mix 2.75 1398.38
 DEPTH OF JOB 265'
 PUMP TRUCK CHARGE 1512.25
 EXTRA FOOTAGE @
 HV MILEAGE 50 @ 7.70 385.00
 LV MILEAGE 50 @ 4.40 220.00
Sledge @ 275.00 275.00
 @

TOTAL 3,842.47

DISCOUNT 50% 1921.23

CHARGE TO: Murfin Drlg.
 STREET _____
 CITY _____ STATE _____ ZIP _____

PLUG & FLOAT EQUIPMENT

@
 @
 @
 @
 @

TOTAL _____

DISCOUNT _____ %

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 Alvaro Cabezas
 SIGNATURE Alvaro Cabezas

SALES TAX (If Any) _____
 TOTAL CHARGES 8,456.17
 DISCOUNT 4,225.08 (50%) IF PAID IN 30 DAYS
 NET TOTAL 4,225.08 IF PAID IN 30 DAYS

ALLIED OIL & GAS SERVICES, LLC

Federal Tax I.D. #20-5975804

067693

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

SERVICE POINT:
Oakley, TX

DATE <i>10/17/15</i>	SEC. <i>17</i>	TWP. <i>1</i>	RANGE <i>35</i>	CALLED OUT	ON LOCATION	JOB START <i>10:30 AM</i>	JOB FINISH <i>11:30 AM</i>
LEASE <i>Wes?</i>	WELL # <i>2-17</i>	LOCATION <i>Beardley W TOCC 2nd</i>	COUNTY <i>Madison</i>	STATE <i>TX</i>			

OLD OR NEW (Circle one)

CONTRACTOR *Mur Fin 2*

TYPE OF JOB *PTOL*

HOLE SIZE *2 7/8* T.D.

CASING SIZE *2 5/8* DEPTH *205'*

TUBING SIZE DEPTH

DRILL PIPE *4 1/2* DEPTH *3120'*

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG.

PERFS.

DISPLACEMENT

OWNER *Same*

CEMENT AMOUNT ORDERED *255 60/40 400 gal*

EQUIPMENT

PUMP TRUCK CEMENTER *Alan Ryan*

495 HELPER *Kevin Ryan*

BULK TRUCK

373 DRIVER *Tracy (Russell)*

BULK TRUCK DRIVER *Jordan*

60/40 400 gal
COMMON *255 gal @ 18.92 = 4824.00*

POZMIX @

GEL @

CHLORIDE @

ASC @

Flo Seal *64 lb @ 2.97 = 190.00*

TOTAL *5014.00*

REMARKS:

50 SIL @ 3120'

100 SIL @ 2350'

50 SIL @ 315'

10 SIL @ 40'

30-RH

15-Mnt

DISCOUNT *50% 2507.00*

CHARGE TO: *Mur Fin*

STREET

CITY STATE ZIP

SERVICE

HANDLING *273.874 @ 2.40 = 629.20*

MILEAGE *700/mile 11.44 ton 15.23*

DEPTH OF JOB *3120'*

PUMP TRUCK CHARGE *2600.00*

EXTRA FOOTAGE @

HV MILEAGE *50 @ 2.20 = 110.00*

LV MILEAGE *50 @ 4.40 = 220.00*

TOTAL *5407.67*

DISCOUNT *50% 2703.83*

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.

PLUG & FLOAT EQUIPMENT

8" P.W. Rod in Plug @ 110.00

TOTAL *110.00*

DISCOUNT *0%*

PRINTED NAME *Arwa Cibeza*

SIGNATURE *Arwa Cibeza*

SALES TAX (if Any)

TOTAL CHARGES *10,532.35*

DISCOUNT *5,211.17 (50%)* IF PAID IN 30 DAYS

NET TOTAL *5,321.17* IF PAID IN 30 DAYS

Ken #2-17
 2640 FNL 660 FWL
 Sec. 17-1S-35W
 3214' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3103	+111	-2	3107	+107	-6
B/Anhydrite	3140	+74	-1	3145	+69	-6
Foraker	3712	-498	-1	3716	-502	-5
Topeka	3921	-707	FLAT	3926	-712	-5
Oread	4036	-822	-5	4040	-826	-9
Lansing	4145	-931	-5	4148	-934	-8
Stark	4360	-1146	-6	4360	-1146	-6
BKC	4408	-1194	-4	4412	-1198	-8
RTD	4510	-1296				
LTD				4514	-1300	



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Ken #2-17

17-1s-35w Rawlins, KS

Start Date: 2015.10.13 @ 08:05:00

End Date: 2015.10.13 @ 14:53:15

Job Ticket #: 65228 DST #: 1

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

Printed: 2015.10.16 @ 17:13:31



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65228

DST#: 1

ATTN: Jeff Christian

Test Start: 2015.10.13 @ 08:05:00

GENERAL INFORMATION:

Formation: **Foraker**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:06:45

Time Test Ended: 14:53:15

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 3677.00 ft (KB) To 3725.00 ft (KB) (TVD)

Reference Elevations: 3214.00 ft (KB)

Total Depth: 3725.00 ft (KB) (TVD)

3203.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8791

Inside

Press@RunDepth: 43.06 psig @ 3678.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.10.13

End Date:

2015.10.13

Last Calib.:

2015.10.13

Start Time:

08:05:05

End Time:

14:53:14

Time On Btm:

2015.10.13 @ 10:06:15

Time Off Btm:

2015.10.13 @ 13:18:00

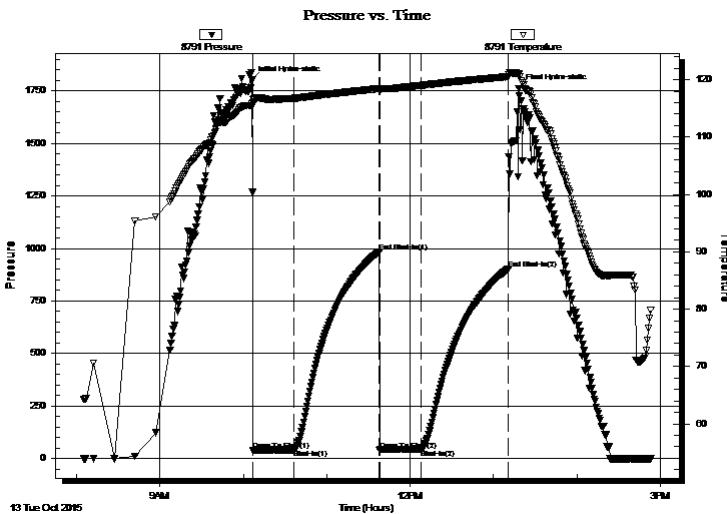
TEST COMMENT: 30 - IF: 2 1/2" surge blow at open, built slightly, slowly died back to 1 3/4" at close

60 - ISI: No blow back

30 - FF: No blow

60 - FSI: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1801.22	115.71	Initial Hydro-static
1	40.05	115.93	Open To Flow (1)
31	42.11	116.75	Shut-In(1)
92	984.72	118.45	End Shut-In(1)
92	40.23	117.88	Open To Flow (2)
122	43.06	118.99	Shut-In(2)
185	903.48	120.53	End Shut-In(2)
192	1759.70	121.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mud 100%	0.30
0.00	Oil spots in tool	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65228

DST#: 1

ATTN: Jeff Christian

Test Start: 2015.10.13 @ 08:05:00

Tool Information

Drill Pipe:	Length: 3496.00 ft	Diameter: 3.80 inches	Volume: 49.04 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: 182.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 49.94 bbl</u>	Tool Chased 4.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3677.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: tool chased 4-5' to bottom at open - hole lost 2 - 3' of mud at top - 2 1/2" surge blow at open tool landed 8-9' low

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3654.00	
Hydraulic tool	5.00			3659.00	
Jars	5.00			3664.00	
Safety Joint	3.00			3667.00	
Packer	5.00			3672.00	28.00 Bottom Of Top Packer
Packer	5.00			3677.00	
Stubb	1.00			3678.00	
Recorder	0.00	8791	Inside	3678.00	
Recorder	0.00	8366	Outside	3678.00	
Perforations	10.00			3688.00	
Blank Spacing	34.00			3722.00	
Bullnose	3.00			3725.00	48.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65228

DST#: 1

ATTN: Jeff Christian

Test Start: 2015.10.13 @ 08:05:00

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Mud 100%	0.295
0.00	Oil spots in tool	0.000

Total Length: 60.00 ft Total Volume: 0.295 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

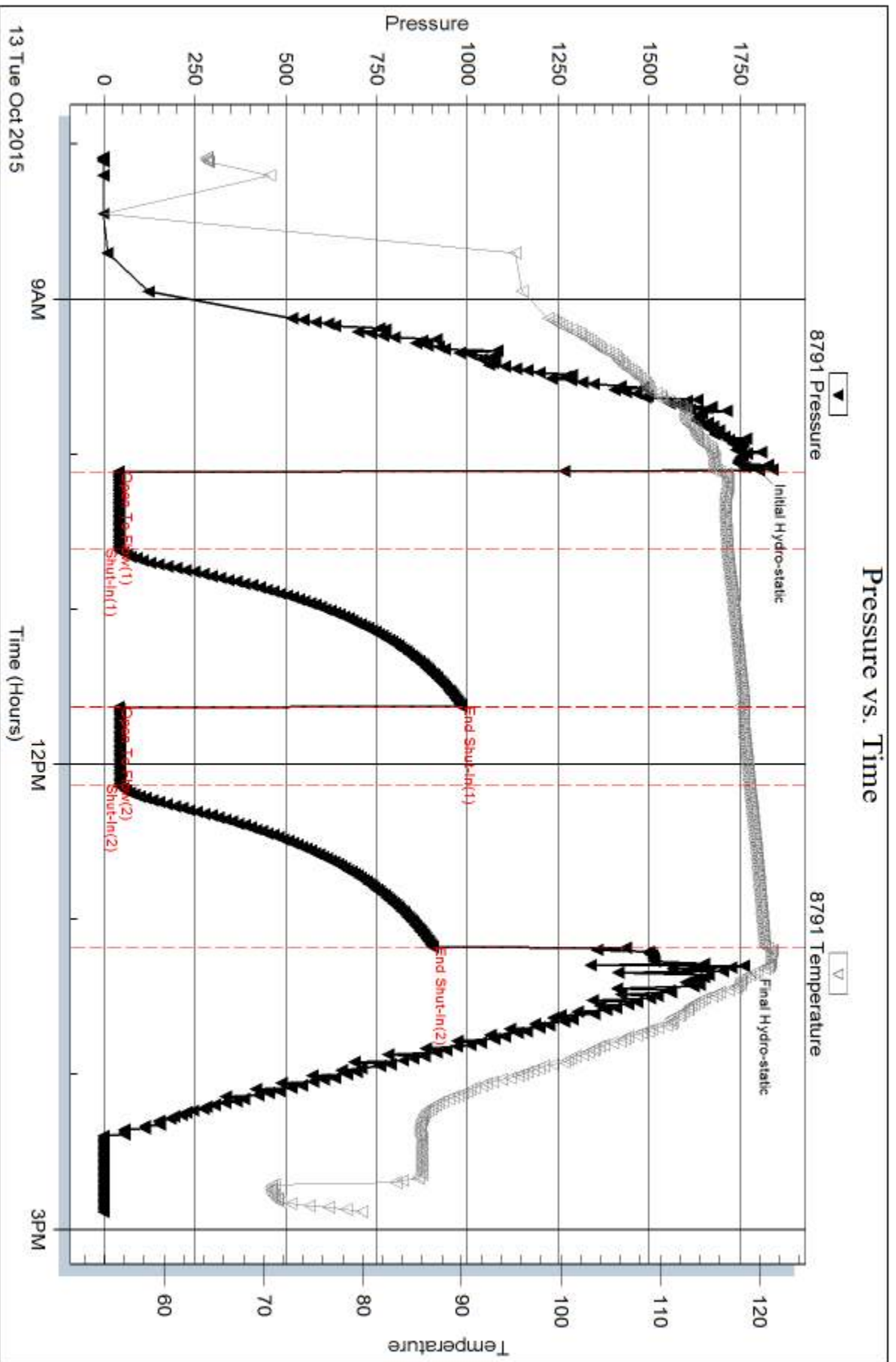
Serial #:

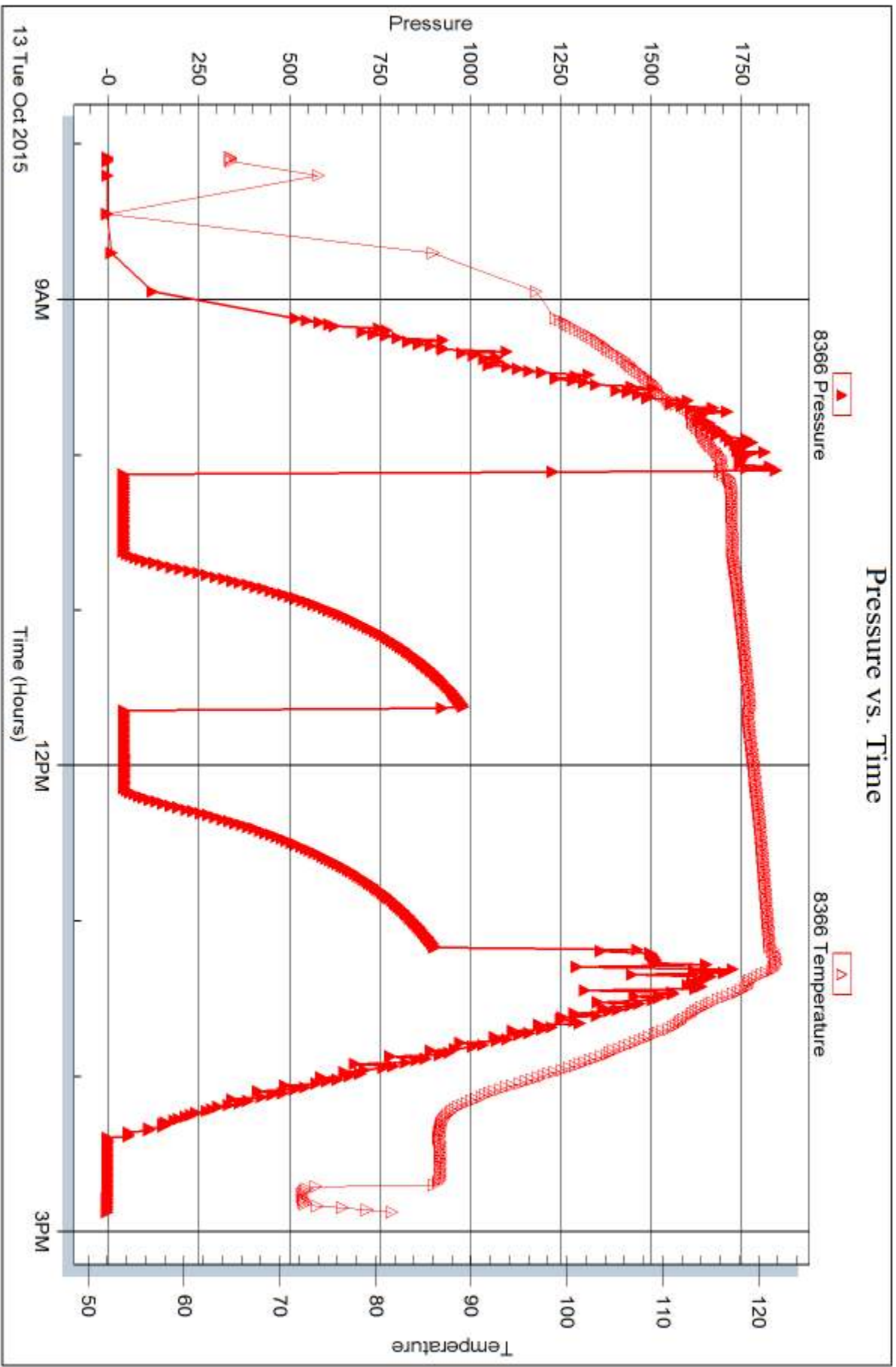
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Ken #2-17

17-1s-35w Rawlins, KS

Start Date: 2015.10.15 @ 00:37:00

End Date: 2015.10.15 @ 07:48:00

Job Ticket #: 65229 DST #: 2

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

Printed: 2015.10.16 @ 17:13:10



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65229

DST#: 2

ATTN: Jeff Christian

Test Start: 2015.10.15 @ 00:37:00

GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:38:00

Time Test Ended: 07:48:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4079.00 ft (KB) To 4216.00 ft (KB) (TVD)

Reference Elevations: 3214.00 ft (KB)

Total Depth: 4216.00 ft (KB) (TVD)

3203.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8791

Inside

Press@RunDepth: 62.88 psig @ 4080.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.10.15

End Date:

2015.10.15

Last Calib.: 2015.10.15

Start Time: 00:37:05

End Time:

07:47:59

Time On Btm: 2015.10.15 @ 02:37:45

Time Off Btm: 2015.10.15 @ 05:42:45

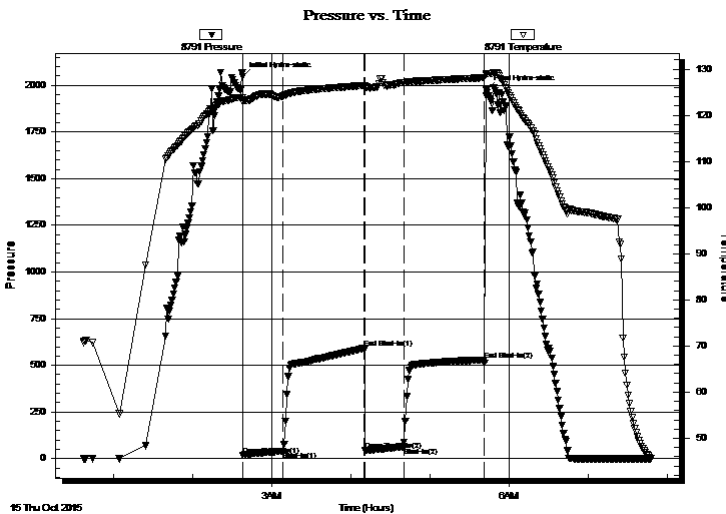
TEST COMMENT: 30 - IF: Blow built to 1 3/4"

60 - ISI: No blow back

30 - FF: No blow

60 - FSI: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2047.74	123.88	Initial Hydro-static
1	18.33	122.83	Open To Flow (1)
31	40.42	124.17	Shut-In(1)
93	592.95	126.45	End Shut-In(1)
93	42.23	126.25	Open To Flow (2)
122	62.88	127.12	Shut-In(2)
184	527.50	128.15	End Shut-In(2)
185	1975.59	128.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
100.00	Mud 100%	0.49
0.00	trace of oil in bottom	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.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65229

DST#: 2

ATTN: Jeff Christian

Test Start: 2015.10.15 @ 00:37:00

Tool Information

Drill Pipe:	Length: 3909.00 ft	Diameter: 3.80 inches	Volume: 54.83 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: 182.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 55.73 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	40.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4079.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	137.00 ft				
Tool Length:	165.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: tool landed 9' low again - added up the board 2 more times and only found small mistakes - they strapped pipe coming out for dst#1 and was only .25' off so I'm not sure where its off

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4056.00	
Hydraulic tool	5.00			4061.00	
Jars	5.00			4066.00	
Safety Joint	3.00			4069.00	
Packer	5.00			4074.00	28.00 Bottom Of Top Packer
Packer	5.00			4079.00	
Stubb	1.00			4080.00	
Recorder	0.00	8791	Inside	4080.00	
Recorder	0.00	8366	Outside	4080.00	
Perforations	37.00			4117.00	
Blank Spacing	96.00			4213.00	
Bullnose	3.00			4216.00	137.00 Bottom Packers & Anchor

Total Tool Length: 165.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65229

DST#: 2

ATTN: Jeff Christian

Test Start: 2015.10.15 @ 00:37:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	Mud 100%	0.492
0.00	trace of oil in bottom	0.000

Total Length: 100.00 ft Total Volume: 0.492 bbl

Num Fluid Samples: 0

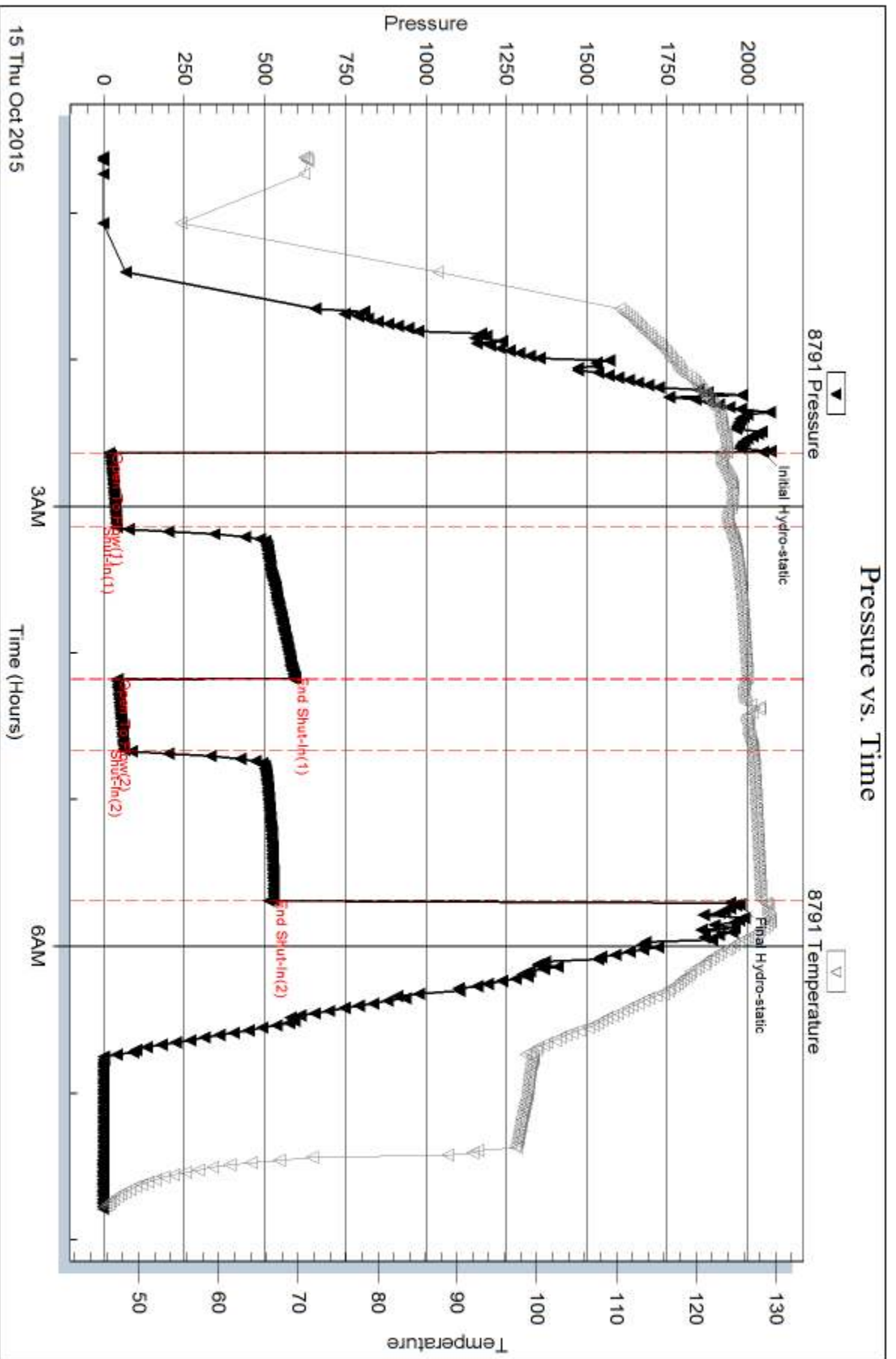
Num Gas Bombs: 0

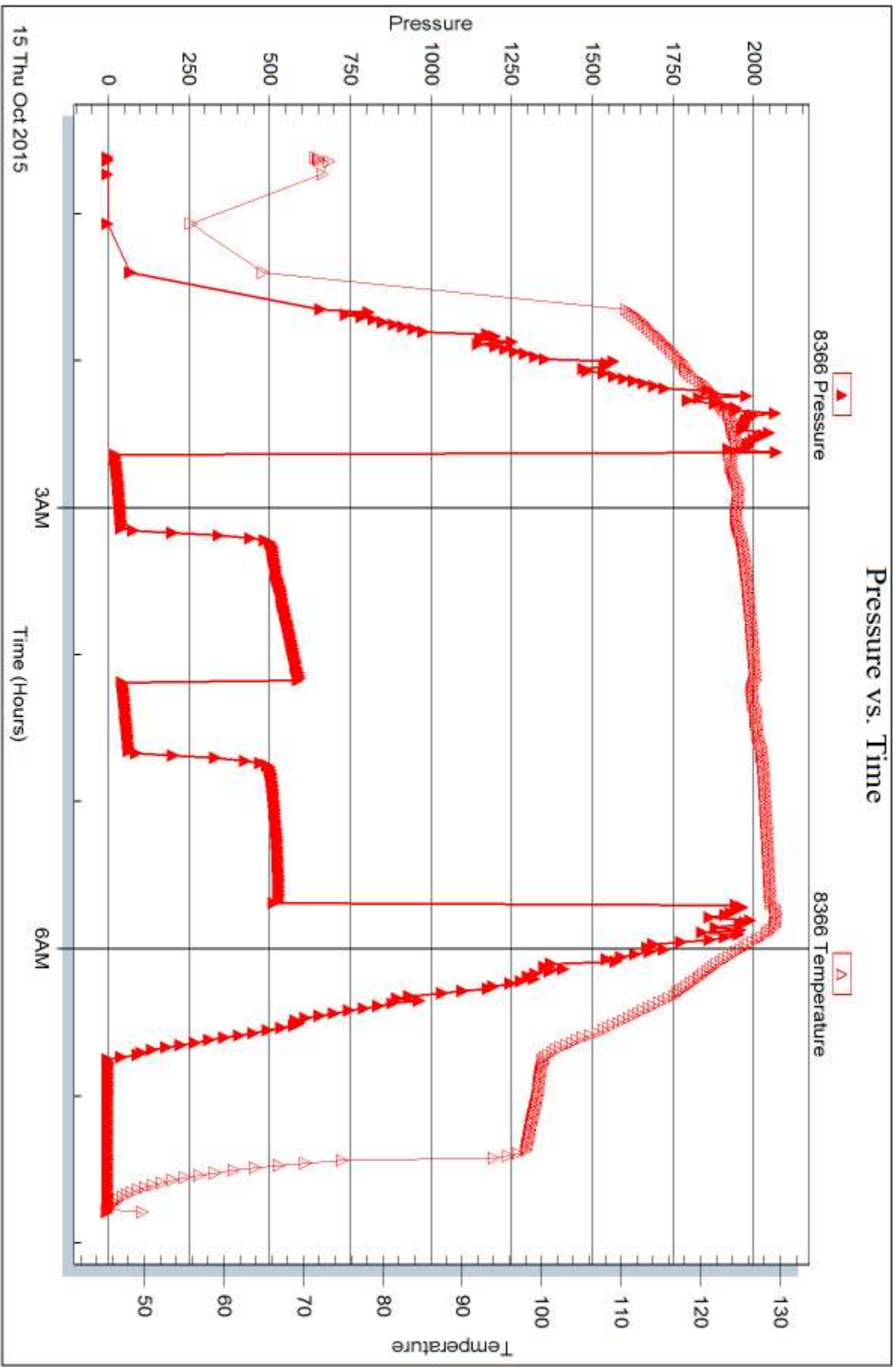
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Ken #2-17

17-1s-35w Rawlins, KS

Start Date: 2015.10.15 @ 16:06:00

End Date: 2015.10.15 @ 22:59:00

Job Ticket #: 65230 DST #: 3

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

Printed: 2015.10.16 @ 17:12:44



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

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

17-1s-35w Rawlins, KS

Ken #2-17

Job Ticket: 65230

DST#: 3

Test Start: 2015.10.15 @ 16:06:00

GENERAL INFORMATION:

Formation: **LKC "G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:04:30
 Time Test Ended: 22:59:00
 Interval: **4213.00 ft (KB) To 4269.00 ft (KB) (TVD)**
 Total Depth: 4269.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3214.00 ft (KB)
 3203.00 ft (CF)
 KB to GR/CF: 11.00 ft

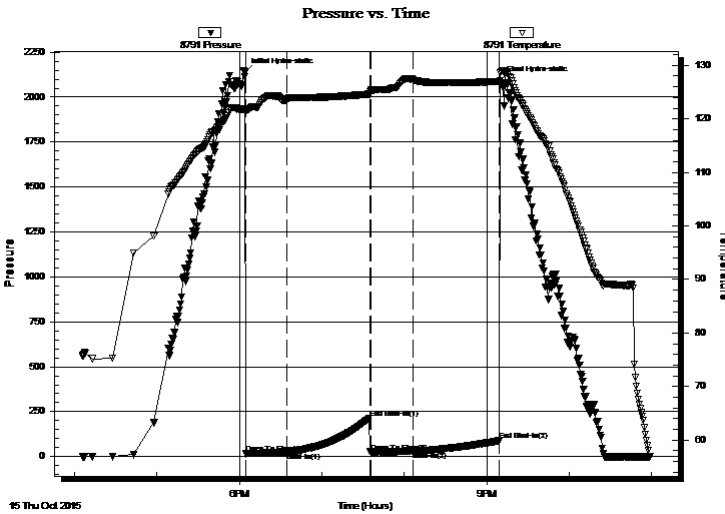
Serial #: 8791

Inside

Press@RunDepth: 28.19 psig @ 4214.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2015.10.15 End Date: 2015.10.15 Last Calib.: 2015.10.15
 Start Time: 16:06:05 End Time: 22:58:59 Time On Btm: 2015.10.15 @ 18:04:15
 Time Off Btm: 2015.10.15 @ 21:09:45

TEST COMMENT: 30 - IF: Blow built to 1/4", slowly died back, dead at 25 min.
 60 - IS!: No blow
 30 - FF: No blow
 60 - FS!: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2138.69	121.95	Initial Hydro-static
1	16.25	121.47	Open To Flow (1)
31	22.18	123.60	Shut-In(1)
91	214.53	124.63	End Shut-In(1)
92	25.76	125.05	Open To Flow (2)
122	28.19	127.29	Shut-In(2)
185	88.61	127.02	End Shut-In(2)
186	2092.64	128.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 87% m, 13% o	0.10

* 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.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65230

DST#: 3

ATTN: Jeff Christian

Test Start: 2015.10.15 @ 16:06:00

Tool Information

Drill Pipe:	Length: 4035.00 ft	Diameter: 3.80 inches	Volume: 56.60 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: 182.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume: 57.50 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	64000.00 lb
Depth to Top Packer:	4213.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	56.00 ft				
Tool Length:	84.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: tool landed 9' low

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

Shut In Tool	5.00			4190.00	
Hydraulic tool	5.00			4195.00	
Jars	5.00			4200.00	
Safety Joint	3.00			4203.00	
Packer	5.00			4208.00	28.00 Bottom Of Top Packer
Packer	5.00			4213.00	
Stubb	1.00			4214.00	
Recorder	0.00	8791	Inside	4214.00	
Recorder	0.00	8366	Outside	4214.00	
Perforations	18.00			4232.00	
Blank Spacing	34.00			4266.00	
Bullnose	3.00			4269.00	56.00 Bottom Packers & Anchor

Total Tool Length: 84.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65230

DST#: 3

ATTN: Jeff Christian

Test Start: 2015.10.15 @ 16:06:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OCM 87% _m , 13% _o	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

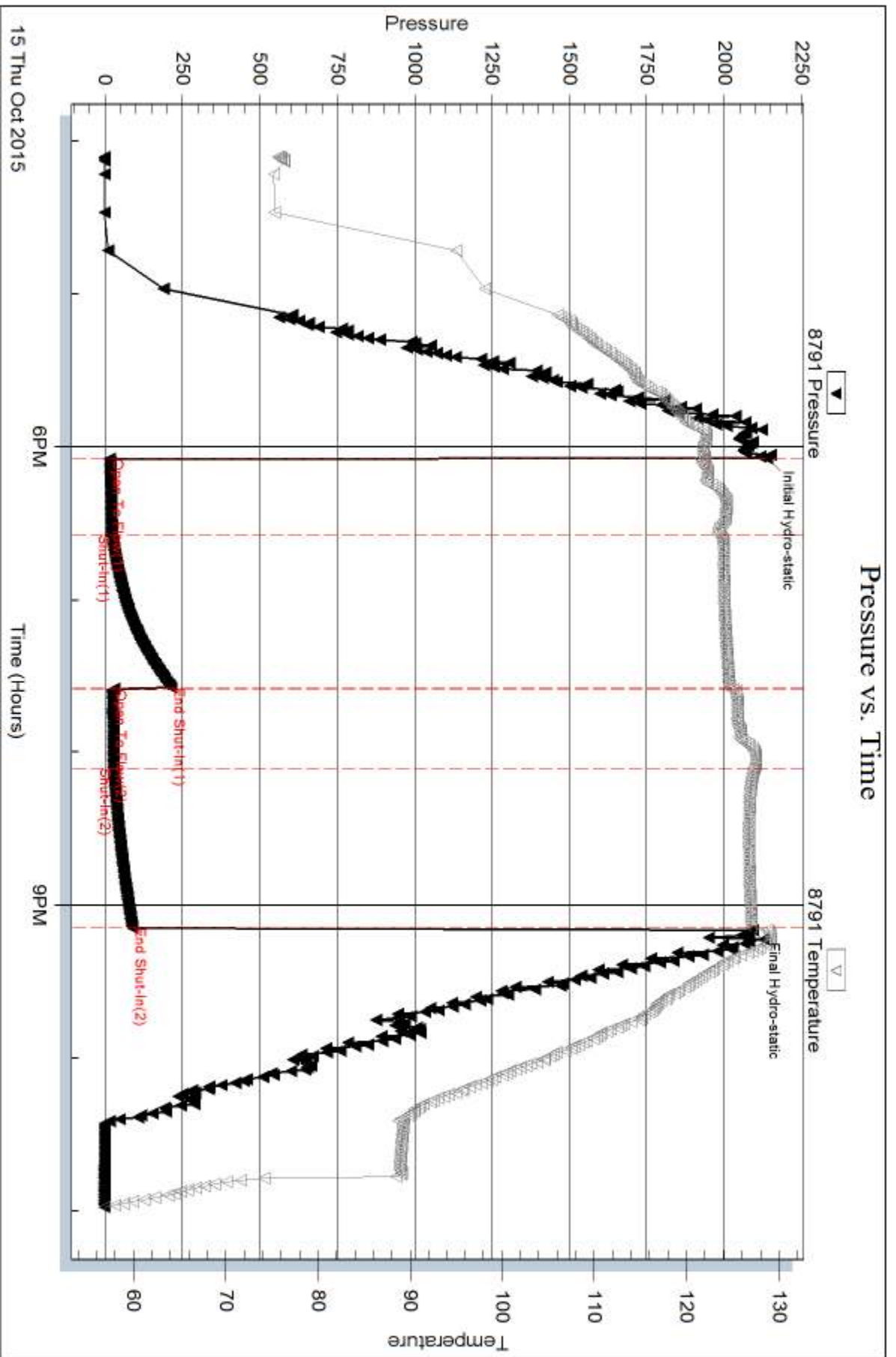
Num Gas Bombs: 0

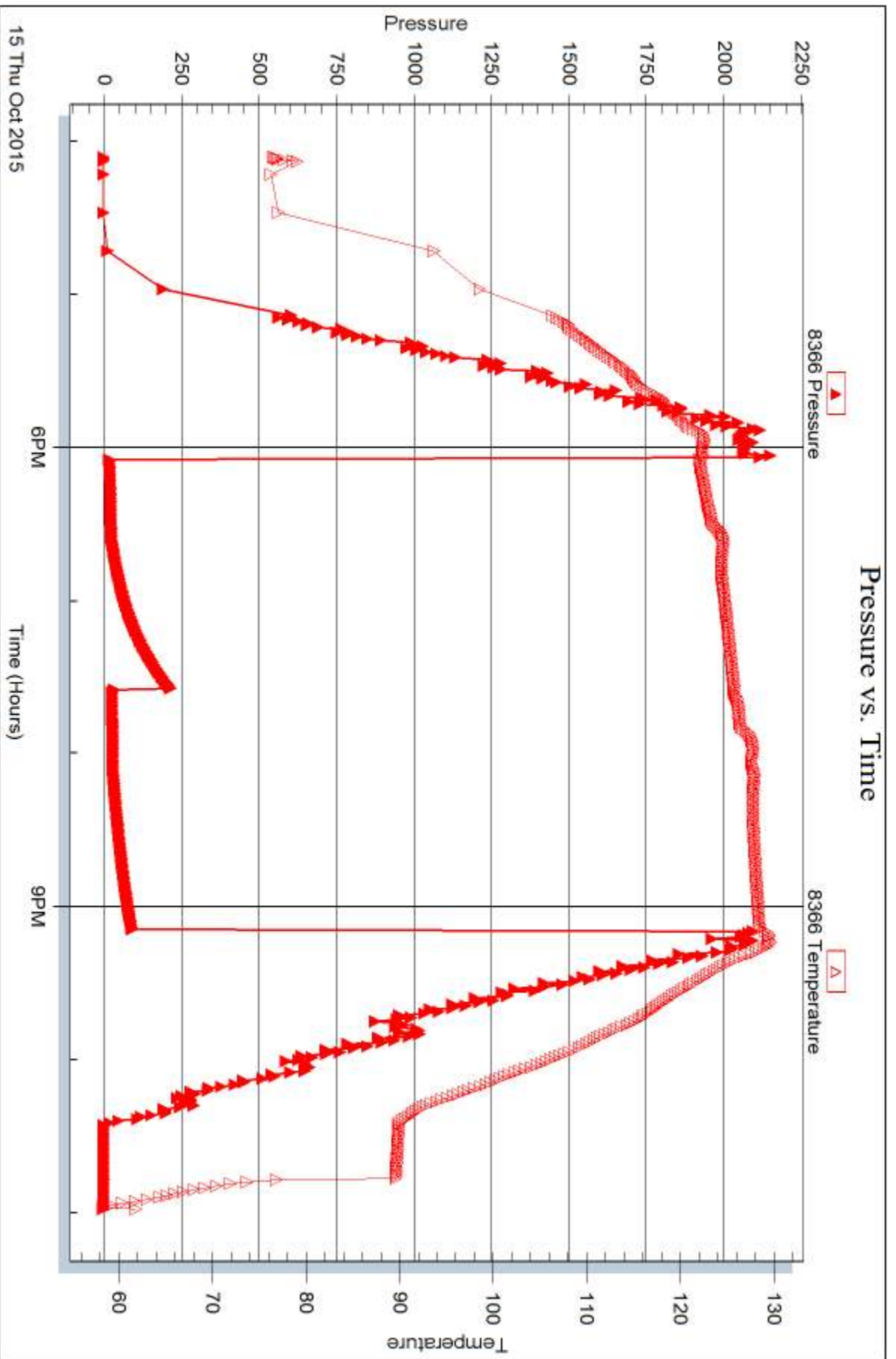
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Ken #2-17

17-1s-35w Rawlins, KS

Start Date: 2015.10.16 @ 08:52:00

End Date: 2015.10.16 @ 16:22:30

Job Ticket #: 65231 DST #: 4

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

Printed: 2015.10.16 @ 17:12:21



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65231

DST#: 4

ATTN: Jeff Christian

Test Start: 2015.10.16 @ 08:52:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:40:00

Time Test Ended: 16:22:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4268.00 ft (KB) To 4363.00 ft (KB) (TVD)

Reference Elevations: 3214.00 ft (KB)

Total Depth: 4363.00 ft (KB) (TVD)

3203.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8791

Inside

Press@RunDepth: 35.98 psig @ 4269.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2015.10.16

End Date:

2015.10.16

Last Calib.:

2015.10.16

Start Time: 08:52:05

End Time:

16:22:29

Time On Btm:

2015.10.16 @ 10:39:45

Time Off Btm:

2015.10.16 @ 13:47:30

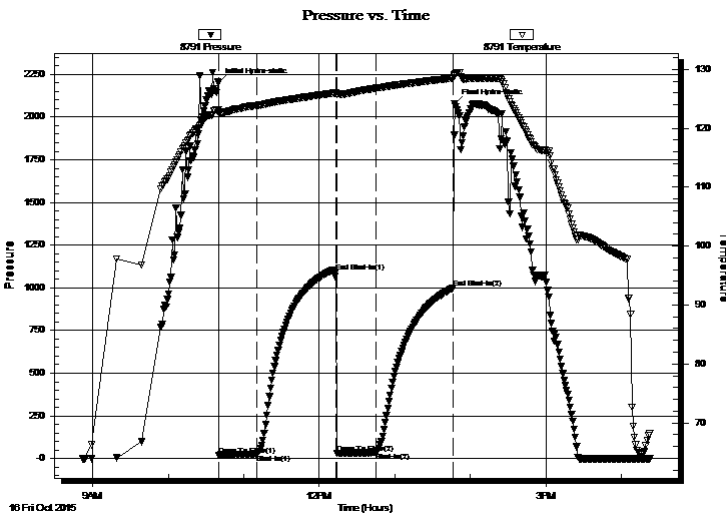
TEST COMMENT: 30 - IF: Blow built slowly to 1 1/2"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2200.54	123.20	Initial Hydro-static
1	18.56	122.62	Open To Flow (1)
31	27.41	123.86	Shut-In(1)
94	1093.78	126.03	End Shut-In(1)
95	31.36	125.73	Open To Flow (2)
126	35.98	126.84	Shut-In(2)
187	1000.18	128.51	End Shut-In(2)
188	2081.18	129.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM 82% m, 17% o, 1% g	0.22
0.00	15' Slight odor GIP	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.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65231

DST#: 4

ATTN: Jeff Christian

Test Start: 2015.10.16 @ 08:52:00

Tool Information

Drill Pipe:	Length: 4088.00 ft	Diameter: 3.80 inches	Volume: 57.34 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: 182.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.24 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4268.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	123.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: tool still landing about 9' low

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

Shut In Tool	5.00			4245.00	
Hydraulic tool	5.00			4250.00	
Jars	5.00			4255.00	
Safety Joint	3.00			4258.00	
Packer	5.00			4263.00	28.00 Bottom Of Top Packer
Packer	5.00			4268.00	
Stubb	1.00			4269.00	
Recorder	0.00	8791	Inside	4269.00	
Recorder	0.00	8366	Outside	4269.00	
Perforations	26.00			4295.00	
Blank Spacing	65.00			4360.00	
Bullnose	3.00			4363.00	95.00 Bottom Packers & Anchor

Total Tool Length: 123.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

17-1s-35w Rawlins, KS

250 N. Water STE 300
Wichita, KS 67202

Ken #2-17

Job Ticket: 65231

DST#: 4

ATTN: Jeff Christian

Test Start: 2015.10.16 @ 08:52:00

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: 54.00 sec/qt

Cushion Volume: bbl

Water Loss: 6.00 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	OCM 82% _m , 17% _o , 1% _g	0.221
0.00	15' Slight odor GIP	0.000

Total Length: 45.00 ft Total Volume: 0.221 bbl

Num Fluid Samples: 0

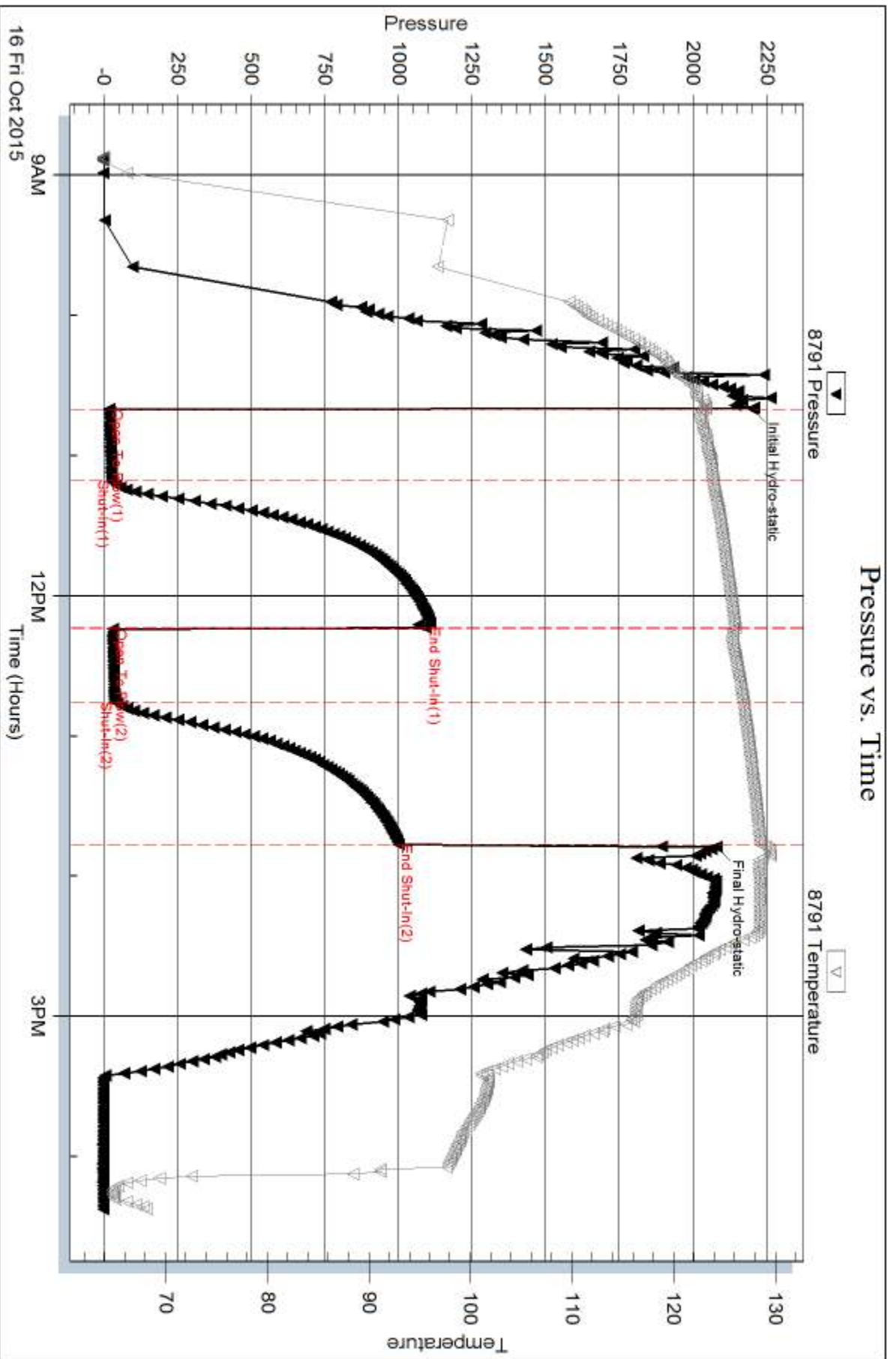
Num Gas Bombs: 0

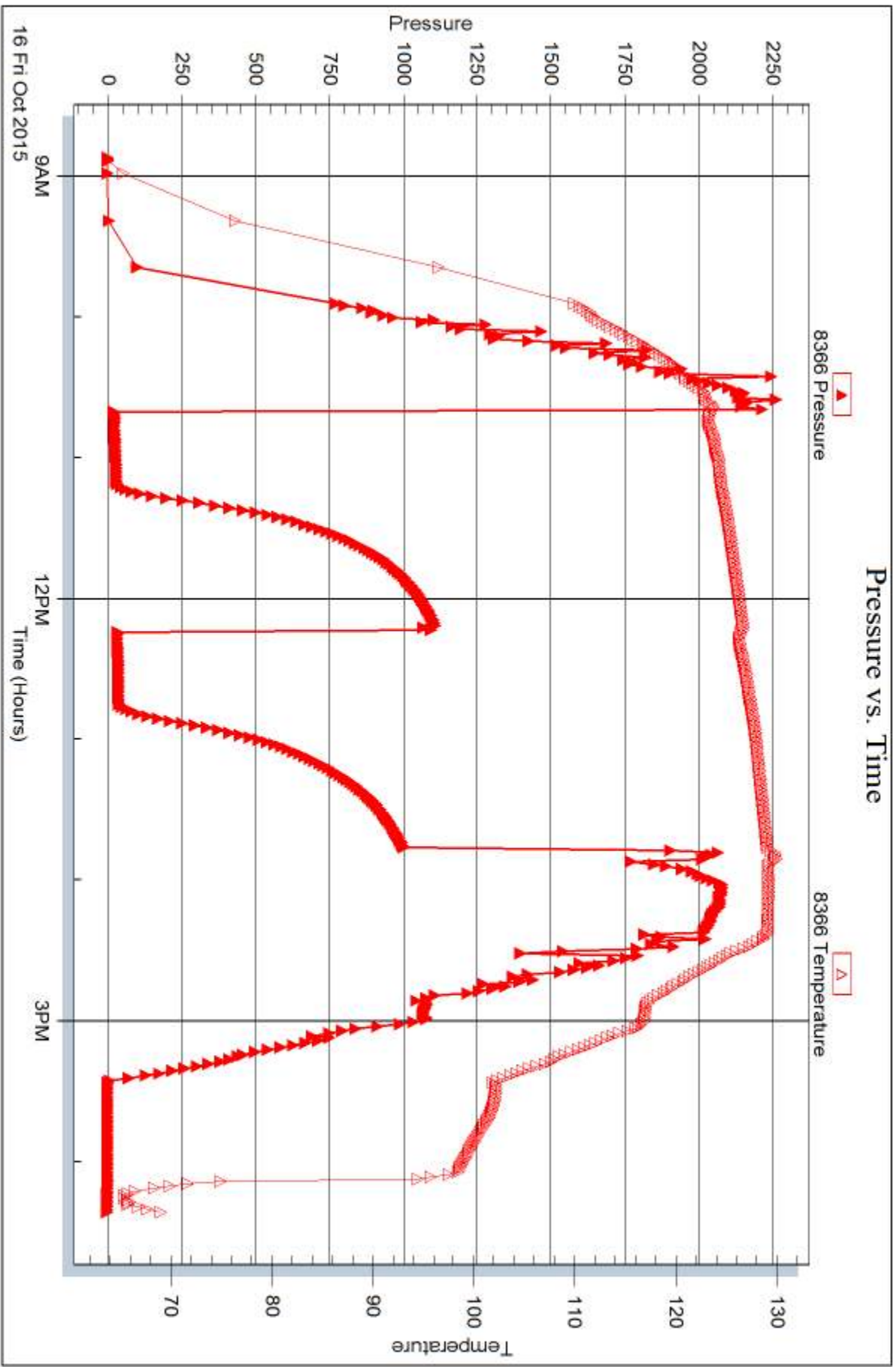
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65228**

Well Name & No. Ken #2-17 Test No. 1 Date 10-13-15
 Company Murfin Drilling Co. Inc Elevation 3214 KB 3203 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #2
 Location: Sec. 17 Twp. 1S Rge. 35W Co. Rawlins State KS

Interval Tested 3677-3725 Zone Tested Foraker
 Anchor Length 48 Drill Pipe Run 3496 Mud Wt. 8.9
 Top Packer Depth 3672 Drill Collars Run 182 Vis 54
 Bottom Packer Depth 3677 Wt. Pipe Run - WL 6.4
 Total Depth 3725 Chlorides 700 ppm System LCM 6
 Blow Description IF: 2 1/2" surge blow at open, built slightly, slowly died back to 1 3/4"
ISI: No blowback
FF: No blow
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>Mud</u>			<u>100%</u>	
	<u>Oil spots in tool</u>				

Rec Total 60 BHT 121 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1801 Test 1050 T-On Location 6:45
 (B) First Initial Flow 40 Jars 250 T-Started 8:05
 (C) First Final Flow 42 Safety Joint 75 T-Open 10:06
 (D) Initial Shut-In 985 Circ Sub _____ T-Pulled 13:10
 (E) Second Initial Flow 40 Hourly Standby _____ T-Out 14:45
 (F) Second Final Flow 43 Mileage 104RT Comments tool chased 4-5" at
open - lost 2-3' of mud - 2 1/2"
surge blow at open
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 (G) Final Shut-In 903 Sampler _____ Sub Total 0
 Straddle _____ Total 1479
 Shale Packer _____ MP/DST Disc't _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1479

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

Approved By [Signature] Our Representative James Windu

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. **65229**

Well Name & No. Ken # 2-17 Test No. 2 Date 10-15-15
 Company Murfin Drilling Co. Inc Elevation 3214 KB 3203 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #2
 Location: Sec. 17 Twp. 1S Rge. 35W Co. Rawlins State KS

Interval Tested 4079-4216 Zone Tested LKC "A-D"
 Anchor Length 137 Drill Pipe Run 3909 Mud Wt. 9.2
 Top Packer Depth 4074 Drill Collars Run 182 Vis 52
 Bottom Packer Depth 4079 Wt. Pipe Run - WL 6.8
 Total Depth 4216 Chlorides 700 ppm System LCM 6

Blow Description IF: Blow built to 1 3/4"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</u>	<u>Mud</u>			<u>100</u>	
	<u>Trace of oil in bottom</u>				

Rec Total 100 BHT 128 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

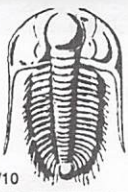
(A) Initial Hydrostatic 2048 Test 1150 T-On Location 00:05
 (B) First Initial Flow 18 Jars 250 T-Started 00:37
 (C) First Final Flow 40 Safety Joint 75 T-Open 2:38
 (D) Initial Shut-In 593 Circ Sub _____ T-Pulled 5:41
 (E) Second Initial Flow 42 Hourly Standby _____ T-Out 7:45
 (F) Second Final Flow 63 Mileage 104RT Comments _____
 (G) Final Shut-In 528 Sampler _____
 (H) Final Hydrostatic 1976 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1579

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1579
 MP/DST Disc't _____

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

Approved By Jeff Christian Our Representative James Windes

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65230**

Well Name & No. Ken #2-17 Test No. 3 Date 10-15-15
 Company Murfin Drilling Co. Inc Elevation 3214 KB 3203 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #2
 Location: Sec. 17 Twp. 1S Rge. 35W Co. Rawlins State KS

Interval Tested 4213 - 4269 Zone Tested LKC "G"
 Anchor Length 56 Drill Pipe Run 4035 Mud Wt. 9.1
 Top Packer Depth 4208 Drill Collars Run 182 Vis 57
 Bottom Packer Depth 4213 Wt. Pipe Run - WL 5.6
 Total Depth 4269 Chlorides 700 ppm System LCM 8
 Blow Description IF: Blow built to 1/4", slowly died back, dead at 25 min.
ISI: No blow
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>OCM</u>	<u>13</u>		<u>87</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 20 BHT 127 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2139 Test 1150 T-On Location 15:45
 (B) First Initial Flow 16 Jars 250 T-Started 16:06
 (C) First Final Flow 22 Safety Joint 75 T-Open 18:04
 (D) Initial Shut-In 215 Circ Sub _____ T-Pulled 21:09
 (E) Second Initial Flow 26 Hourly Standby _____ T-Out 22:55
 (F) Second Final Flow 28 Mileage 104RT Comments _____
 (G) Final Shut-In 89 Sampler _____
 (H) Final Hydrostatic 2093 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1579

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

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1579
 MP/DST Disc't _____

Approved By Jeff Christian 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. **65231**

Well Name & No. Ken #2-17 Test No. 4 Date 10-16-15
 Company Murfin Drilling Co. Inc. Elevation 3214 KB 3203 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #2
 Location: Sec. 17 Twp. 1s Rge. 35w Co. Rawlins State KS

Interval Tested 4268-4363 Zone Tested LKC "H-J"
 Anchor Length 95 Drill Pipe Run 4088 Mud Wt. 9.4
 Top Packer Depth 4263 Drill Collars Run 182 Vis 54
 Bottom Packer Depth 4268 Wt. Pipe Run - WL 6.0
 Total Depth 4363 Chlorides 900 ppm System LCM 7

Blow Description IF: Blow built slowly to 1 1/2"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>0cm</u>	<u>1</u>	<u>17</u>	<u>-</u>	<u>82</u>
Rec	Feet of <u>15' light odor GIP</u>	%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 45 BHT 129 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2201 Test 1150 T-On Location 8:20
 (B) First Initial Flow 19 Jars 250 T-Started 8:52
 (C) First Final Flow 27 Safety Joint 75 T-Open 10:40
 (D) Initial Shut-In 1094 Circ Sub _____ T-Pulled 13:46
 (E) Second Initial Flow 31 Hourly Standby _____ T-Out 16:20
 (F) Second Final Flow 36 Mileage 104 RT Comments _____
 (G) Final Shut-In 1000 Sampler _____
 (H) Final Hydrostatic 2081 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1579
 MP/DST Disc't _____

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

Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1579

Approved By Jeff Christian 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.

Remarks

The Ken # 2-17 was declared dry and abandoned.
 All shows of free oil were drill stem tested and condemned.

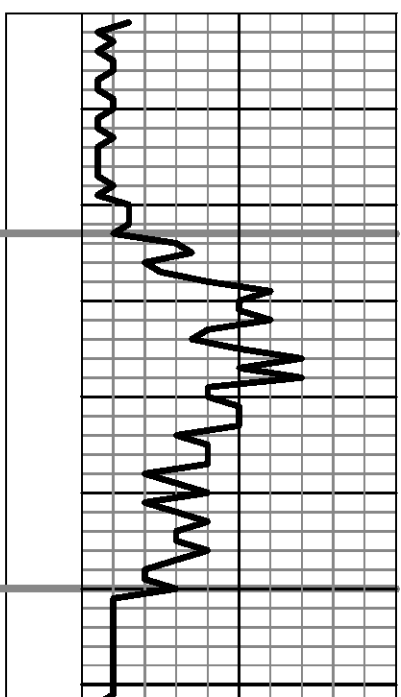
Electric log measurements correlate about 3' to 4' low compared to rotary measurements.

Drilling samples deposited at the Kansas Geological Survey.

Respectfully Submitted,

Jeff Christian
 Jeff Christian

LITH.	0	DRILL TIME (MIN/FT)	10	DEPTH	SHW	SAMPLE DESCRIPTIONS	REMARKS
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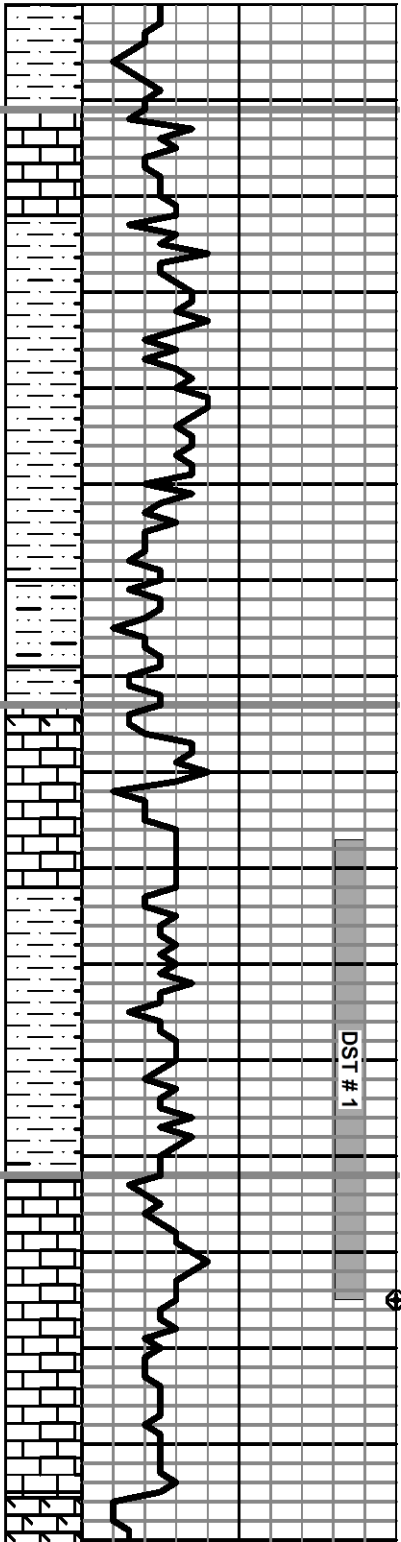


3100

3150

ANHYDRITE 3103' (+111)
 E Log 3107' (+107)

Base ANHYDRITE 3140' (+74)
 E Log 3144' (+70)



3600 Sh: red/orng-some brn & gry, sndy-slty

Ls: crm-lt gry, fn xln, sli grnlr, part chlky, ool-sli foss, pr intrpart por, ns

Ls: as above, part dns

Sh: red/brn, slty & sndy

Sh: red/brn, sli gummy, slty-sndy

Sh: as above, some gry & grn sh

3650 Sst: lt gry, vy fn grn, sli calc, hard-subfri, pr vis por, ns

Dolo Ls: fn xln, chlky, sli foss, chrty, pr vis por, ns

Ls: lt gry, fn xln, part dns, sli foss, chrty (orng), pr vis por, ns

Ls: gry-brn, fn xln, dns, sli grnlr, sli foss, sct orng chrt, pr vis por, ns

Sh: red/brn, sndy-slty, some gry & grn sh

3700 Same

Ls: crm-lt gry, fn xln, grnlr, subchlky, sli foss, pr intrxln, trc pp-vug por, sli-fr sfo, sli odor, dull brn subsat-sat stn

Ls: lt gry, fn xln, dns, vy foss-ool, pr vis por, ns

Ls: crm-gry, fn xln, grnlr in part, dns in part, foss, argil in part, pr vis por, ns

3750 Ls: lt brn-lt gry, fn xln, grnlr, dolo in part, sli foss, pr-fr intrxln-pp por, ns

NEVA 3601' (-387)

E Log 3604' (-390)

RED EAGLE 3663' (-449)

E Log 3667' (-453)

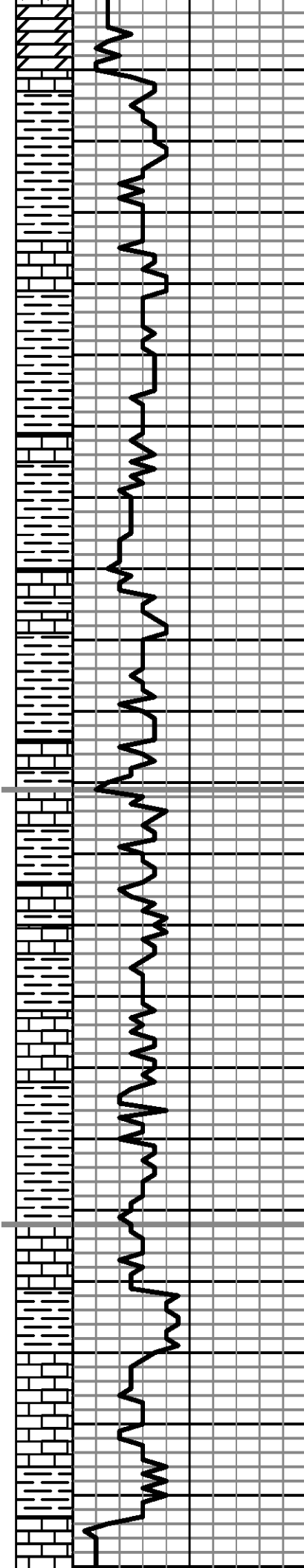
DST # 1 3677' to 3725'
 30"-60"-30"-60"
 IF: Blow Built to 2.5"; Died Back to 1.5"
 FF: No Blow
 RECOVERY: 60' Mud oil spts in tool
 IFP: 40-42# ISIP: 985#
 FFP: 40-43# FSIP: 903#
 IHP: 1801# FHP: 1760#
 BHT: 121 deg. F
 Note: Tool Slid 5'. Lost 2'-3' of mud

Pipe Strap @ 3725': .25' short to board

FORAKER 3712' (-498)

E log 3716' (-502)

Morgan Mud: 3725'; 10/13/15
 Wt. 9.0, Vis. 51, WL. 6.4, Chl. 700, LCM. 7



3750

Dolo: brn, fn xln, suc, sli foss, fr intrxln-vug por, ns

Ls: crm-lt gry, fn xln, dns, sli foss, pr pp-vug por, vy sct blk tarry oil stn, nsfo, no odor

Sh: red/brn, slty, calc, some gry

3800

Ls: crm-lt gry, fn xln, part dns, sli foss-ool, pr vis por, sct blk sptd asph stn, nsfo, no odor

Sh: red/brn, slty, lt prpl, calc

Ls: crm-lt brn-lt gry, fn xln, dns, sli foss, trc asph stn, nsfo, no odor

Sh: red/brn, slty, some gry & grn

Ls: crm-lt gry, fn xln, dns, foss-sli ool, pr vis por, ns

Ls: gry-olive/gry, fn xln, dns, foss, pr vis por, ns

3850

Sh: red/brn, slty, sli gummy, some gry & grn

Ls: off wt-lt gry, fn flx, part chlky, part dns, foss, sptd blk asph stn, nsfo, no odor

Ls: as above

Sh: red/brn, slty, gummy

Ls: crm-lt gry, fn xln, part dns, foss-sli ool, pr vis por, ns

Ls: as above, few pcs asph stn, nsfo, no odor

3900

Ls: off wt-lt gry, fn xln, part chlky, foss, argil, pr vis por, ns

Sh: red/brn, slty, gummy in part w/ Ls: as above

3950

Ls: off wt-crm-lt gry, fn xln, sli chlky, sndy (vy fn grn), sct foss, trc ool, pr vis por, ns

Sh: red/brn, slty, gummy w/ Ls: off wt-crm, fn xln, part chlky, foss, argil, pr vis por, ns

Ls: off wt-lt gry, fn xln, part dns, part chlky, sli foss, pr vis por, ns

Same

Sh: red/brn-mar-lt prpl, calc in part

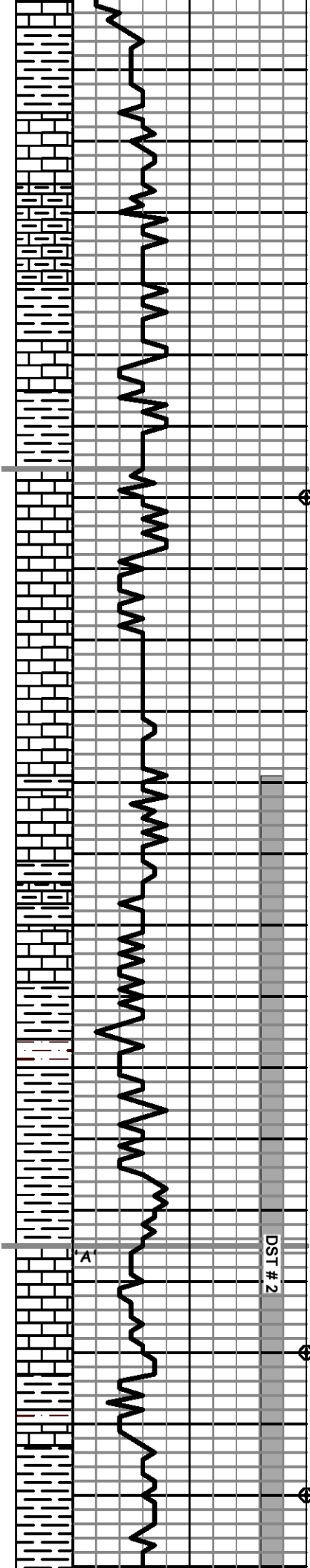
Ls: crm-lt gry, fn xln, sli chlky, foss-ool, pr-sm fr intrpart-vug por, sct blk sptd asph stn, nsfo, no

STOTLER 3861' (-647)

E Log 3865' (-651)

TOPEKA 3922' (-708)

E Log 3926' (-712)



odor
Sh: red/brn, slty-sndy, some gry & grn

Ls: lt gry, fn xln, dns, sli foss, pr vis por, ns

4000

Sh: lt prpl, slty, calc

Sh: as above, incrs sh: red/brn, soft to gummy

Ls: off wt-lt gry, fn xln, part chlky, ool-sli foss, pr intrpart por, blk sptd asph stn, nsfo, no odor

Sh: red/brn, gummy

Morgan Mud: 4026'; 10/14/15
Wt. 9.3, Vis. 50, WL. 6.8, Chl. 700, LCM. 6

OREAD 4036' (-822)

E Log 4040' (-826)

Ls: off wt-crm, fn xln, chlky in part, blk, sli foss-ool, sli pyrit, pr vis por, vy sct blk sptd stn, nsfo, no odor

4050

Ls: wt-lt gry, fn xln, chlky, part dns, w/ chrt: tan, vit-sli grnlr, pr vis por, ns

Ls: lt grgry, vy fn-fn xln, dns, no vis por, ns

Same

Sh: drk gry, calc w/ Ls: drk gry, micro-vy fn xln, dns, argil, no vis por, ns, sli odor

Same, cpl pcs foss w/ pr vug por, vssfo, fnt odor

4100

Ls: lt gry-gry, fn xln, subchlky, part dns, few pcs edge stn, pr vug por, vssfo, fnt odor

Sh: lt gry-gry, gummy

Sh: gry w/ Sltst: lt gry, vy fn grn, calc, trc asph stn, nsfo, no odor
few pcs Ls: brn, fn xln, foss, pr-fr vug por, blk asph stn, nsfo, no odor

Sh: red/brn, slty, some gry & grn

LANSING 4145' (-931)

E Log 4148' (-934)

4150

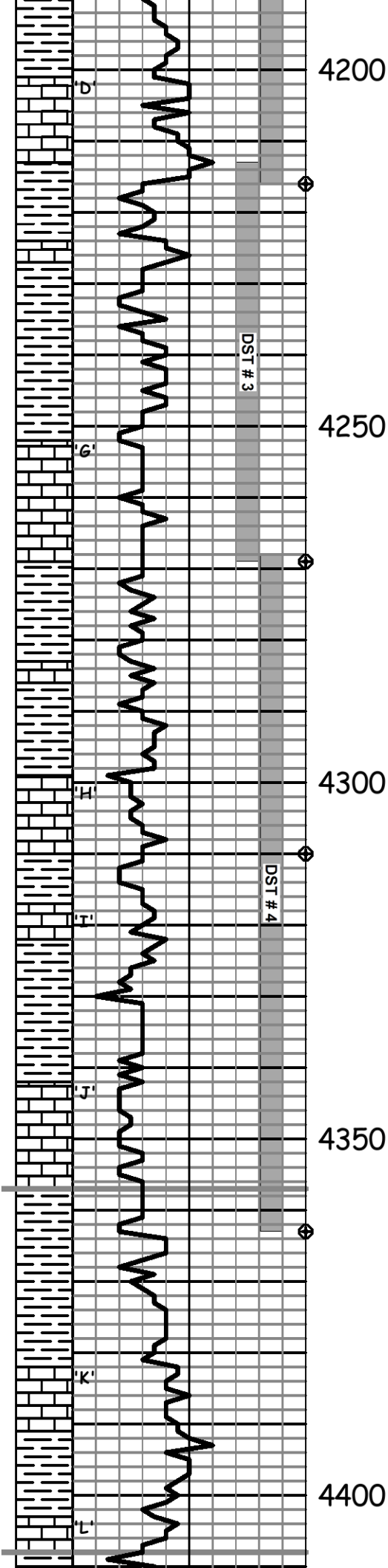
Ls: lt gry-yell/brn, crypto-micro xln, no vis por, trc dead stn, nsfo, no odor

Same

Ls: crm-lt gry, fn xln, subchlky, part dns, sli foss, pr vug por, sct blk asph stn, vssfo, no odor
w/ Sltst: lt gry-lt grn, vy fn grn, calc, pr vis por, trc asph stn

Sh: red/brn, slty, some gry & grn

DST # 2 4079' to 4216'
30"-60"-30"-60"
IF: Blow Built to 1.75"
FF: No Blow
RECOVERY: 100' Mud trc oil in bottom
IFP: 18-40# ISIP: 593#
FFP: 42-63# FSIP: 528#
IHP: 2048# FHP: 1976#
BHT: 128 deg. F



Same

4200

Ls: crm-lt gry, fn xln, dns, sli foss, pr pp-vug por, trc fo, fnt odor, brn-blk sptd stn

Ls: crm-lt gry, fn xln, dns, sli foss, sli pyrit, pr-trc fr pp-vug por, trc fo, fnt odor, lt brn sptd stn

Sh: red/brn- gry & grn

Ls: lt gry-gry, fn xln, dns, sli foss, pr vis por, few pcs w/ edge stn, nsfo, no odor

Sh: red/brn, some grn

Sh: red/brn, gummy, some mar-gry-grn

4250

Ls: lt gry, fn xln, fosspr-fr foss-vug por, fr-sm gd sfo, sli odor, lt brn-brn mostly sat stn

Ls: crm-lt gry-grn/gry, fn xln, dns, subchky in part, pr vis por, ns

Sh: red/brn-gry, some grn, calc in part

Sh: as above w/ Ls: brn, vy fn-fn xln, dns, no vis por, ns

Sh: red/brn, some gry & grn

4300

Ls: crm-lt gry, fn xln, foss, pr-sm fr pp-vug por, ssfo, fnt odor, drk brn sptd-subsat stn, sct blk asph stn

Ls: off wt-lt gry, fn xln, sli chky, sli foss-subool, pr vis por, blk sptd asph stn, nsfo, no odor

Sh: red/brn, slty in part, some gry & grn

Sh: as above

Ls: off wt-crm-lt gry, fn xln, sli chky, part dns, sli foss-ool in part, pr vis por, ns, no odor

Ls: as above, incrs dns ls

4350

Sh: red/brn-gry

Sh: red/brn, slty-gry-some grn

Ls: crm-lt gry, fn xln, part dns, ool-sli foss, pr vis por, ns, no odor

Ls: as above, some lt gry-grn/gry, fn xln, dns, ns

Sh: red/brn-gry

4400

Ls: crm-lt gry, fn xln, subchky, part dns, sli foss-ool, pr vis por, ns, no odor

Morgan Mud: 4216'; 10/15/15
Wt. 9.1, Vis. 57, WL. 5.6, Chl. 700, LCM. 8

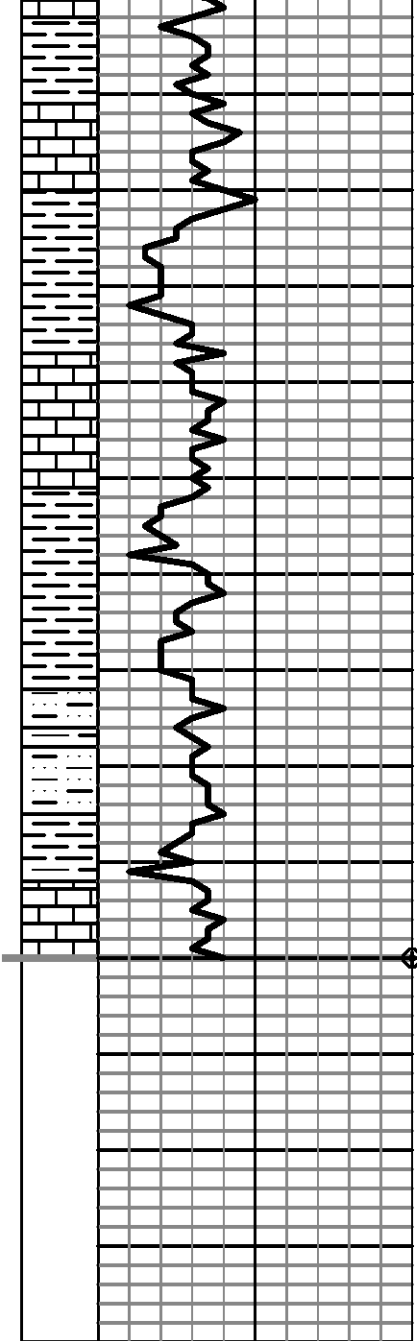
DST # 3 4213' to 4269'
30"-60"-30"-60"
IF: Blow Built to .25"; Dead/25"
FF: No Blow
RECOVERY: 20' OCM (13%O, 87%M)
IFP: 16-22# ISIP: 215#
FFP: 26-28# FSIP: 89#
IHP: 2139# FHP: 2093#
BHT: 127 deg. F

DST # 4 4268' to 4363'
30"-60"-30"-60"
IF: Blow Built to 1.5"
FF: No Blow
RECOVERY: 45' total fluid
15' GIP
45' OCM (1%G, 17%O, 82%M)
IFP: 19-27# ISIP: 1094#
FFP: 31-36# FSIP: 1000#
IHP: 2201# FHP: 2081#
BHT: 129 deg. F

Morgan Mud: 4363'; 10/16/15
Wt. 9.4, Vis. 54, WL. 6.0, Chl. 900, LCM. 6

STARK 4357' (-1143)
E Log 4360' (-1146)

BKC 4408' (-1194)
E Log 4412' (-1198)



4450

4500

4550

Sh: red/brn-gry

Ls: lt gry-gry, fn xln, dns, sli foss, pr vis por, ns

Sh: red/brn, gummy, some gry & grn

Ls: lt gry-red/gry-prpl/gry, fn-sm med xln, foss in part, argil in part, pr vis por, ns

Ls: gry, fn xln, slty, sli foss, pr vis por, ns

Sh: red/brn-gry-lt prpl, calc

Sh: red/brn

Sst-Sltst: lt gry, vy fn-fn grn, calc, subfri, pr vis por, ns

Sh: red/brn

Ls: lt gry, fn xln, dns, sli foss, pr vis por, ns, no odor

Morgan Mud: 4510'; 10/17/15

Wt. 9.1, Vis. 64, WL. 5.6, Chl. 700, LCM. 15

RTD 4510' (1296)

E Log 4514' (-1300)

Drill Stem Test Charts

