

Confidentiality Requested:

Yes  No

**KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

**Form must be Typed**

**Form must be Signed**

**All blanks must be Filled**

**WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

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

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

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

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

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

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

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

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

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

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

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

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

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

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

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

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

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

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

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

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

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

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

Spud Date or Date Reached TD Completion Date or Recompletion Date

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

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

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

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

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

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

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

Datum:  NAD27  NAD83  WGS84

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

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

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

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

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

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

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

Multiple Stage Cementing Collar Used?  Yes  No

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

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

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

**Drilling Fluid Management Plan**

*(Data must be collected from the Reserve Pit)*

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

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

Location of fluid disposal if hauled offsite:

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

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

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

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

**AFFIDAVIT**

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

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

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

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

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

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

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

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

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

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

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

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

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Farmer, John O., Inc.
Well Name	LEIKER UNIT 1
Doc ID	1321854

Tops

Name	Top	Datum
Anhydrite	2692'	(+394)
Topeka	3710'	(-624)
Heebner	3940'	(-854)
Lansing	3986'	(-900)
Base/KC	4222'	(-1136)
Pawnee	4345'	(-1259)
Cherokee	4422'	(-1336)
Mississippi	4552'	(-1466)
L.T.D.	4612'	(-1526)





# ALLIED OFS, LLC

Federal Tax I.D. #81-2169190

58080

REMIT TO: Allied OFS, LLC  
P.O. Box 205803  
Dallas, TX 75320-5803

SERVICE POINT:

Colley

DATE <u>2-15-16</u>	SEC. <u>12</u>	TWP. <u>63</u>	RANGE <u>33 W</u>	CALLED OUT	ON LOCATION	JOB START <u>7:30 AM</u>	JOB FINISH <u>8:30 AM</u>
Leiker LEASE unit	WELL # <u>1</u>	LOCATION <u>Colley N TO DD SE 1/4</u>	COUNTY <u>Thomas</u>		STATE <u>KS</u>		
OLD OR (NEW) (Circle one)			<u>E. into</u>				

CONTRACTOR Discovery 1

TYPE OF JOB Surface

HOLE SIZE 12 1/4 T.D. 263'

CASING SIZE 858 DEPTH 26.3'

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 15'

PERFS.

DISPLACEMENT 15.09 BBL

OWNER Same

CEMENT

AMOUNT ORDERED 175 SKS COM 386 CC  
2% GEL

COMMON 175 SKS @ 17.90 3132.50

POZMIX @

GEL 329<sup>cc</sup> @ 1.50 164.50

CHLORIDE 494<sup>cc</sup> @ 1.10 543.40

ASC @

@

@

@

@

@

@

@

@

EQUIPMENT

PUMP TRUCK CEMENTER Andrew Forslund  
# 431 HELPER Wayne McElhugh

BULK TRUCK DRIVER Andrew Forslund  
# 323

BULK TRUCK DRIVER

TOTAL 3840.40  
DISCOUNT 50% 1920.20

REMARKS:

CEMENT  
2 BBL

Thank you

CHARGE TO: John O Farmer inc

STREET \_\_\_\_\_

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

SERVICE

HANDLING 189.23 @ 2.48 469.29

MILEAGE 2.25 @ 207/mile 465.75

DEPTH OF JOB 26.3'

PUMP TRUCK CHARGE 1512.25

EXTRA FOOTAGE @

HV MILEAGE 20 miles @ 7.70 154.00

LV MILEAGE @

@

@

TOTAL 2,610.19  
DISCOUNT 50% 1,305.09

PLUG & FLOAT EQUIPMENT

@

@

@

@

@

TOTAL \_\_\_\_\_

DISCOUNT \_\_\_\_\_ %

To: Allied OFS, 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 \_\_\_\_\_

SIGNATURE [Signature]

TRILL PRINTING CO., INC. - GREAT BEND, KS

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

TOTAL CHARGES 6,450.59

DISCOUNT 3,225.29 (50%) IF PAID IN 30 DAYS

NET TOTAL 3,225.29 IF PAID IN 30 DAYS

Bid

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 1737

Date	7-25-16	Sec.	12	Twp.	6	Range	33	County	Thomas	State	Ks	On Location		Finish	11:30AM
------	---------	------	----	------	---	-------	----	--------	--------	-------	----	-------------	--	--------	---------

Lease *Leiker unit* Location *Colby Ks - 11 N to DD Rd, 5 E*

Lease Well No. *1* Owner *1/2 S' E Hinto*

Contractor *Discovery* Type Job *Plug*  
To Quality Oilwell Cementing, Inc.  
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Hole Size *7 7/8"* T.D. *4610'* Charge To *J.O. Farmer*

Csg. Depth Street

Tbg. Size *4 1/2" D.P.* Depth *2725'* City State

Tool Depth The above was done to satisfaction and supervision of owner agent or contractor.

Cement Left in Csg. Shoe Joint Cement Amount Ordered *255 60/40 4 1/2 Gel 1/4 # Flt Seal*

Meas Line Displace *H2O/mud*

**EQUIPMENT** Common *153*

Pumptrk *20* No. Cementer *Craig* Poz. Mix *102*

Bulktrk *14* No. Driver *Doug* Gel. *9*

Bulktrk *p.u.* No. Driver *Rick* Calcium

**JOB SERVICES & REMARKS** Hulls

Remarks: *2725' - 50 SX* Salt

Rat Hole *1900' - 100 SX* Flowseal *56#*

Mouse Hole *300' - 50 SX* Kol-Seal

Centralizers *40' - 10 SX w/ plug* Mud CLR 48

Baskets *Rathole w/ 30 SX* CFL-117 or CD110 CAF 38

D/V or Port Collar *Mousehole w/ 15 SX* Sand

Handling *264*

Mileage

*Cement did Circulate*

**FLOAT EQUIPMENT**

Guide Shoe

Centralizer *1 - Dry hole plug*

Baskets

AFU Inserts

Float Shoe

Latch Down

Pumptrk Charge *Plug*

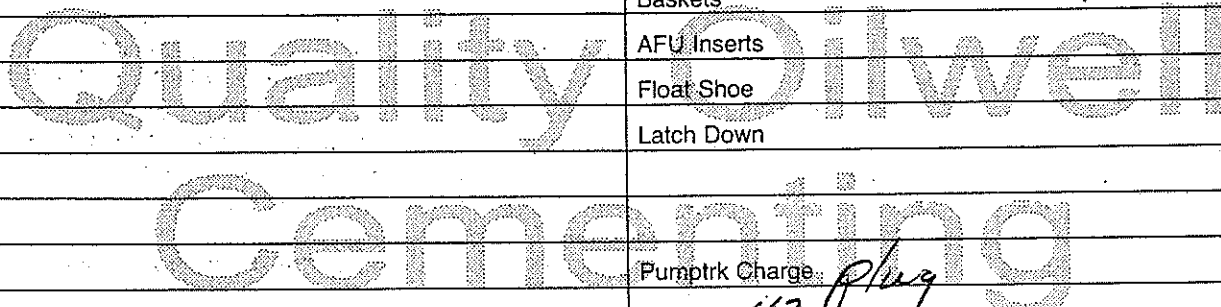
Mileage *43*

Tax

Discount

Total Charge

X Signature *[Signature]*





## DRILL STEM TEST REPORT

Prepared For: **John O. Farmer Inc.**

PO Box 352  
Russell, KS 67665

ATTN: Austin Klaus

### **Leiker Unit #1**

#### **12-6s-33w Thomas,KS**

Start Date: 2016.07.20 @ 15:32:00

End Date: 2016.07.20 @ 22:39:45

Job Ticket #: 65400                      DST #: 1

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

Printed: 2016.07.26 @ 09:54:48



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65400

**DST#: 1**

ATTN: Austin Klaus

Test Start: 2016.07.20 @ 15:32:00

## GENERAL INFORMATION:

Formation: **LKC "A - C"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:53:45

Time Test Ended: 22:39:45

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

**Interval: 3936.00 ft (KB) To 4023.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4023.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6625**

**Inside**

Press@RunDepth: 691.67 psig @ 3937.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.20

End Date:

2016.07.20

Last Calib.:

2016.07.20

Start Time: 15:32:05

End Time:

22:39:44

Time On Btm:

2016.07.20 @ 17:53:30

Time Off Btm:

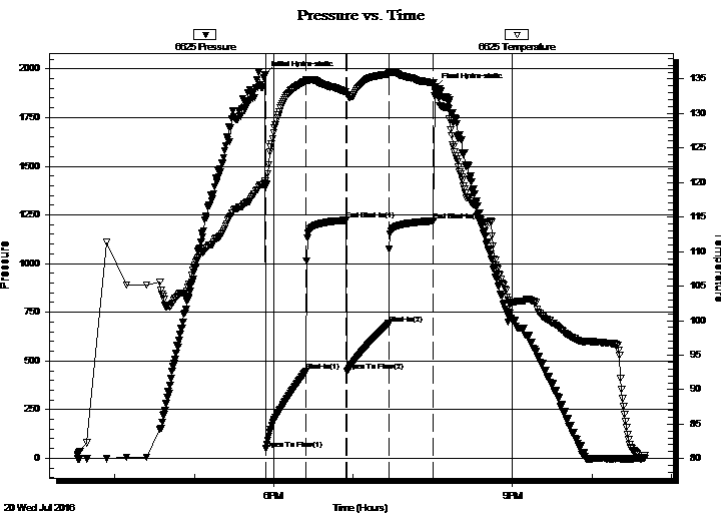
2016.07.20 @ 20:01:30

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 3 1/2 min.

30 - IS: No blow back

30 - FF: Blow built to BOB at 4 1/2 min.

30 - FS: No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1968.47	120.20	Initial Hydro-static
1	48.41	119.73	Open To Flow (1)
31	446.09	134.68	Shut-In(1)
61	1222.95	133.19	End Shut-In(1)
62	448.46	132.76	Open To Flow (2)
93	691.67	135.73	Shut-In(2)
127	1219.01	134.50	End Shut-In(2)
128	1906.06	132.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
948.00	SMCW 92%w, 8%m	11.22
510.00	MCW 65%w, 35%m	7.15
32.00	Mud 100%	0.45
0.00	Trace of Oil in tool	0.00

## Gas Rates

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





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65400

**DST#: 1**

ATTN: Austin Klaus

Test Start: 2016.07.20 @ 15:32:00

### GENERAL INFORMATION:

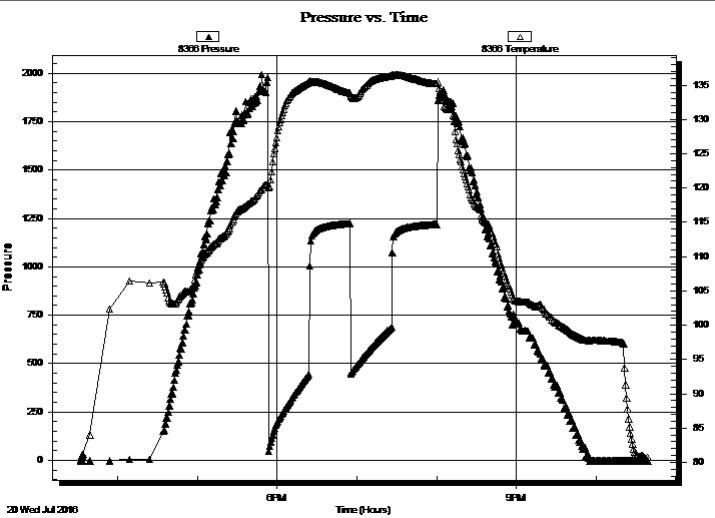
Formation: **LKC "A - C"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:53:45  
 Time Test Ended: 22:39:45  
 Interval: **3936.00 ft (KB) To 4023.00 ft (KB) (TVD)**  
 Total Depth: 4023.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: James Winder  
 Unit No: 83  
 Reference Elevations: 3086.00 ft (KB)  
 3078.00 ft (CF)  
 KB to GR/CF: 8.00 ft

### Serial #: 8366

Outside

Press@RunDepth: psig @ 3937.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2016.07.20 End Date: 2016.07.20	Last Calib.: 2016.07.20
Start Time: 15:32:05 End Time: 22:38:59	Time On Btm:
	Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 3 1/2 min.  
 30 - IS!: No blow back  
 30 - FF: Blow built to BOB at 4 1/2 min.  
 30 - FS!: No blow back



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
948.00	SMCW 92%w, 8%m	11.22
510.00	MCW 65%w, 35%m	7.15
32.00	Mud 100%	0.45
0.00	Trace of Oil in tool	0.00

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65400

**DST#: 1**

ATTN: Austin Klaus

Test Start: 2016.07.20 @ 15:32:00

## Tool Information

Drill Pipe:	Length: 3629.00 ft	Diameter: 3.80 inches	Volume: 50.91 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume: 53.19 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial	44000.00 lb
Depth to Top Packer:	3936.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	87.00 ft				
Tool Length:	108.00 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			3916.00	
Shut In Tool	5.00			3921.00	
Hydraulic tool	5.00			3926.00	
Packer	5.00			3931.00	21.00 Bottom Of Top Packer
Packer	5.00			3936.00	
Stubb	1.00			3937.00	
Recorder	0.00	6625	Inside	3937.00	
Recorder	0.00	8366	Outside	3937.00	
Perforations	17.00			3954.00	
Blank Spacing	66.00			4020.00	
Bullnose	3.00			4023.00	87.00 Bottom Packers & Anchor

**Total Tool Length: 108.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65400

**DST#: 1**

ATTN: Austin Klaus

Test Start: 2016.07.20 @ 15:32:00

## 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:

16000 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
948.00	SMCW 92%w , 8%m	11.220
510.00	MCW 65%w , 35%m	7.154
32.00	Mud 100%	0.449
0.00	Trace of Oil in tool	0.000

Total Length: 1490.00 ft      Total Volume: 18.823 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

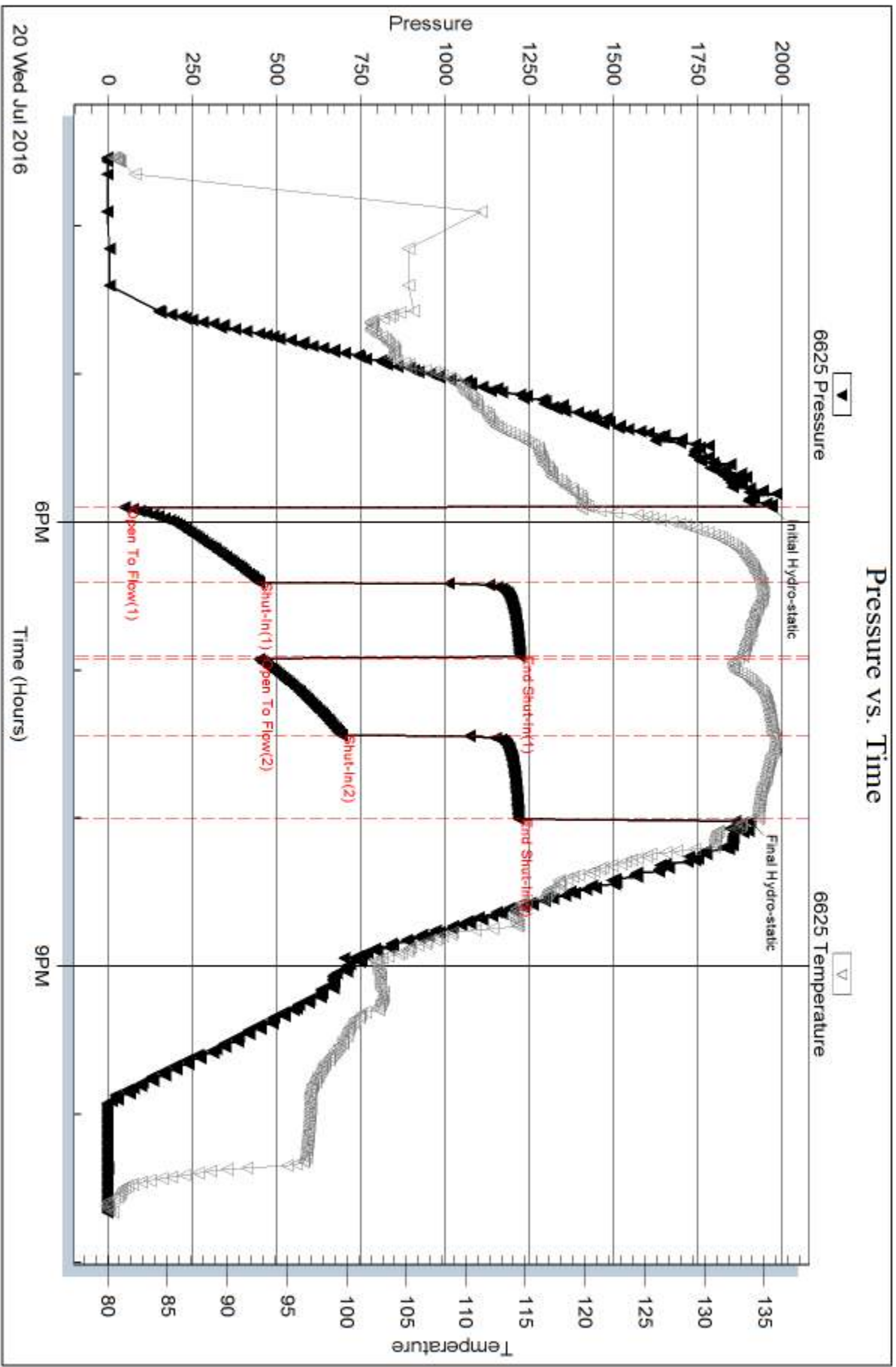
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .338 ohms @ 84.5 deg F

Chlorides = 16,000 ppm

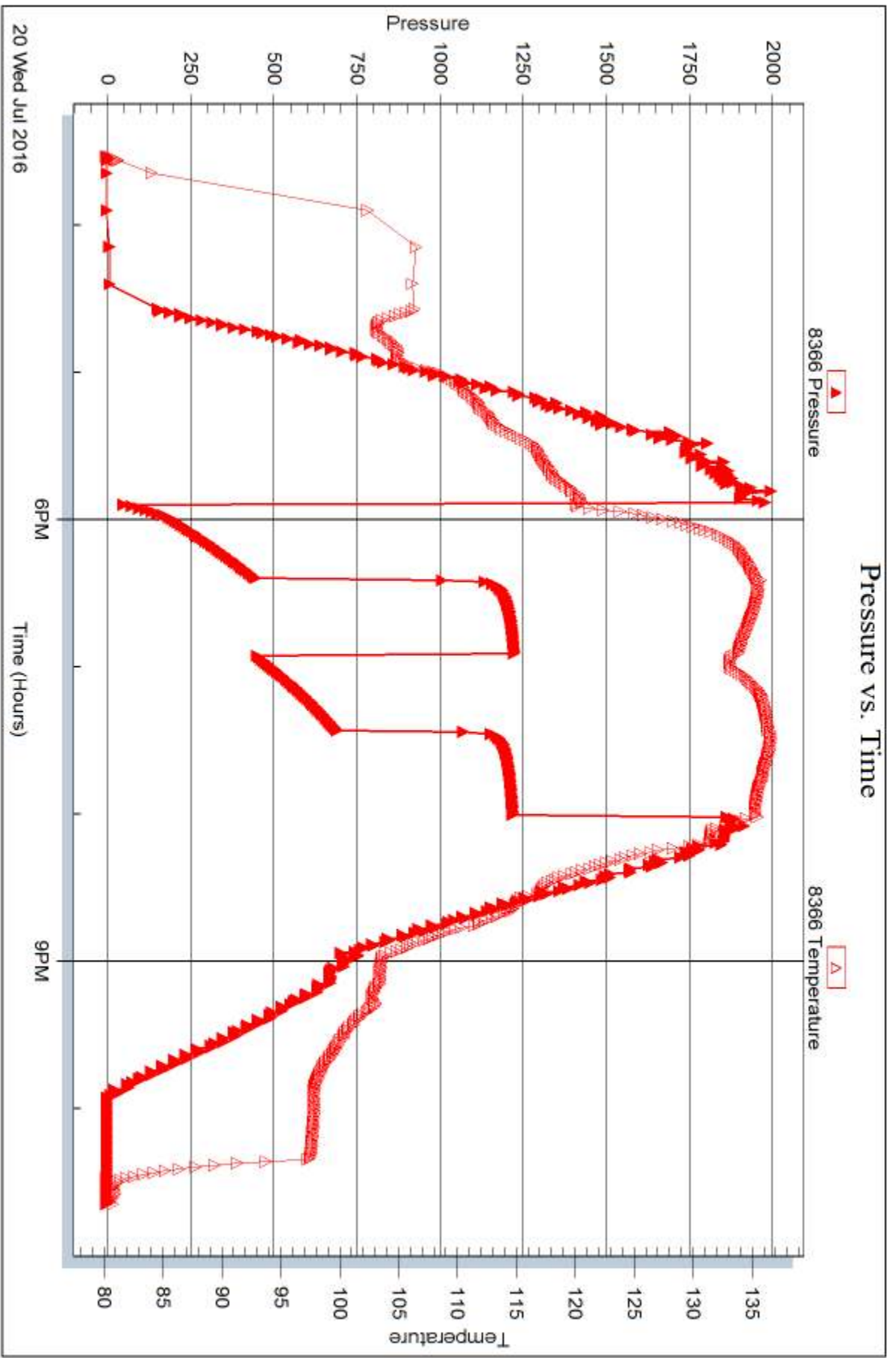


Serial #: 8366

Outside John O. Farmer Inc.

Leiker Unit #1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 65400

Printed: 2016.07.26 @ 09:54:49



## DRILL STEM TEST REPORT

Prepared For: **John O. Farmer Inc.**

PO Box 352  
Russell, KS 67665

ATTN: Austin Klaus

### **Leiker Unit #1**

#### **12-6s-33w Thomas,KS**

Start Date: 2016.07.21 @ 08:51:00

End Date: 2016.07.21 @ 15:24:30

Job Ticket #: 65401                      DST #: 2

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

Printed: 2016.07.26 @ 09:54:23



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65401

**DST#: 2**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 08:51:00

## GENERAL INFORMATION:

Formation: **LKC "F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:41:30

Time Test Ended: 15:24:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4019.00 ft (KB) To 4042.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4042.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6625 Inside**

Press@RunDepth: 190.97 psig @ 4020.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.21

End Date:

2016.07.21

Last Calib.:

2016.07.21

Start Time: 08:51:05

End Time:

15:24:29

Time On Btm:

2016.07.21 @ 10:41:00

Time Off Btm:

2016.07.21 @ 12:51:30

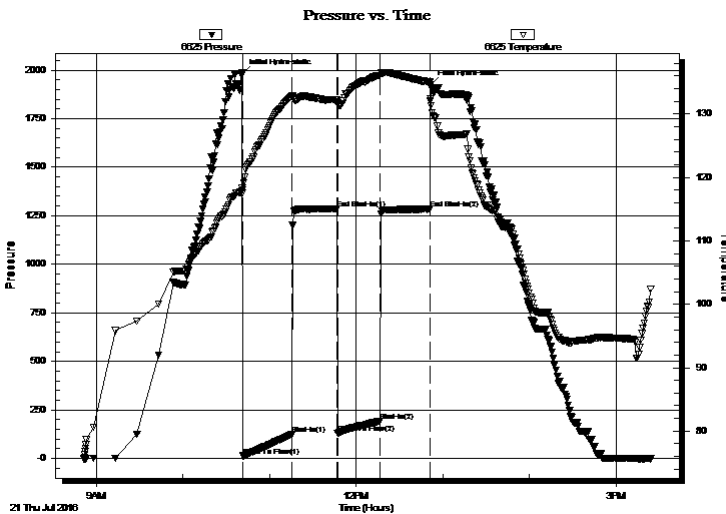
TEST COMMENT: 30 - IF: Blow built to BOB (11") at 26 1/2 min.

30 - IS: No blow back

30 - FF: Blow built to BOB at 29 min.

30 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1981.87	118.27	Initial Hydro-static
1	12.11	118.05	Open To Flow (1)
34	122.40	132.68	Shut-In(1)
66	1287.23	132.22	End Shut-In(1)
66	129.32	131.80	Open To Flow (2)
96	190.97	136.09	Shut-In(2)
130	1283.96	134.97	End Shut-In(2)
131	1926.35	132.44	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
311.00	SMCW 92%w, 8%m	2.28
74.00	MCW 61%w, 39%m	1.04

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas, KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65401

**DST#: 2**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 08:51:00

## GENERAL INFORMATION:

Formation: **LKC "F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:41:30

Time Test Ended: 15:24:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4019.00 ft (KB) To 4042.00 ft (KB) (TVD)**

Total Depth: 4042.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3086.00 ft (KB)

3078.00 ft (CF)

KB to GR/CF: 8.00 ft

**Serial #: 8366**

**Outside**

Press@RunDepth: psig @ 4020.00 ft (KB)

Start Date: 2016.07.21

End Date: 2016.07.21

Start Time: 08:51:05

End Time: 15:24:14

Capacity: 8000.00 psig

Last Calib.: 2016.07.21

Time On Btm:

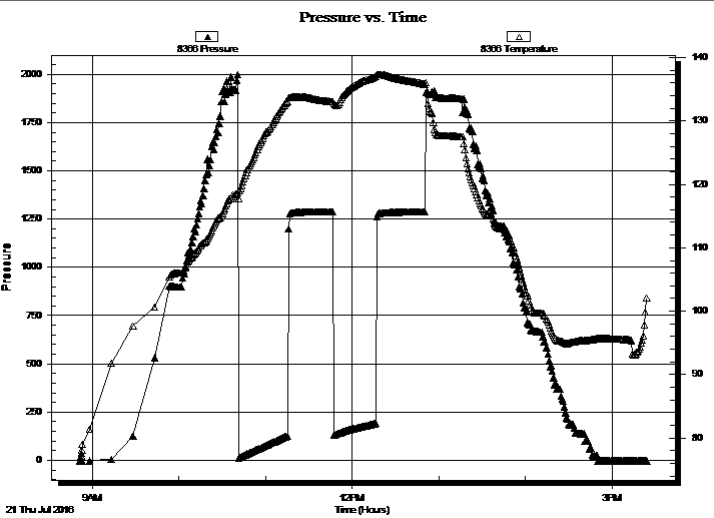
Time Off Btm:

**TEST COMMENT:** 30 - IF: Blow built to BOB (11") at 26 1/2 min.

30 - IS: No blow back

30 - FF: Blow built to BOB at 29 min.

30 - FS: No blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
311.00	SMCW 92%w, 8%m	2.28
74.00	MCW 61%w, 39%m	1.04

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65401

**DST#: 2**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 08:51:00

## Tool Information

Drill Pipe:	Length: 3694.00 ft	Diameter: 3.80 inches	Volume: 51.82 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	52000.00 lb
			<u>Total Volume: 54.10 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	4019.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	23.00 ft				
Tool Length:	44.00 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			3999.00	
Shut In Tool	5.00			4004.00	
Hydraulic tool	5.00			4009.00	
Packer	5.00			4014.00	21.00 Bottom Of Top Packer
Packer	5.00			4019.00	
Stubb	1.00			4020.00	
Recorder	0.00	6625	Inside	4020.00	
Recorder	0.00	8366	Outside	4020.00	
Perforations	19.00			4039.00	
Bullnose	3.00			4042.00	23.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>44.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65401

**DST#: 2**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 08:51:00

### 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:

21000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
311.00	SMCW 92%w , 8%m	2.285
74.00	MCW 61%w , 39%m	1.038

Total Length: 385.00 ft      Total Volume: 3.323 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

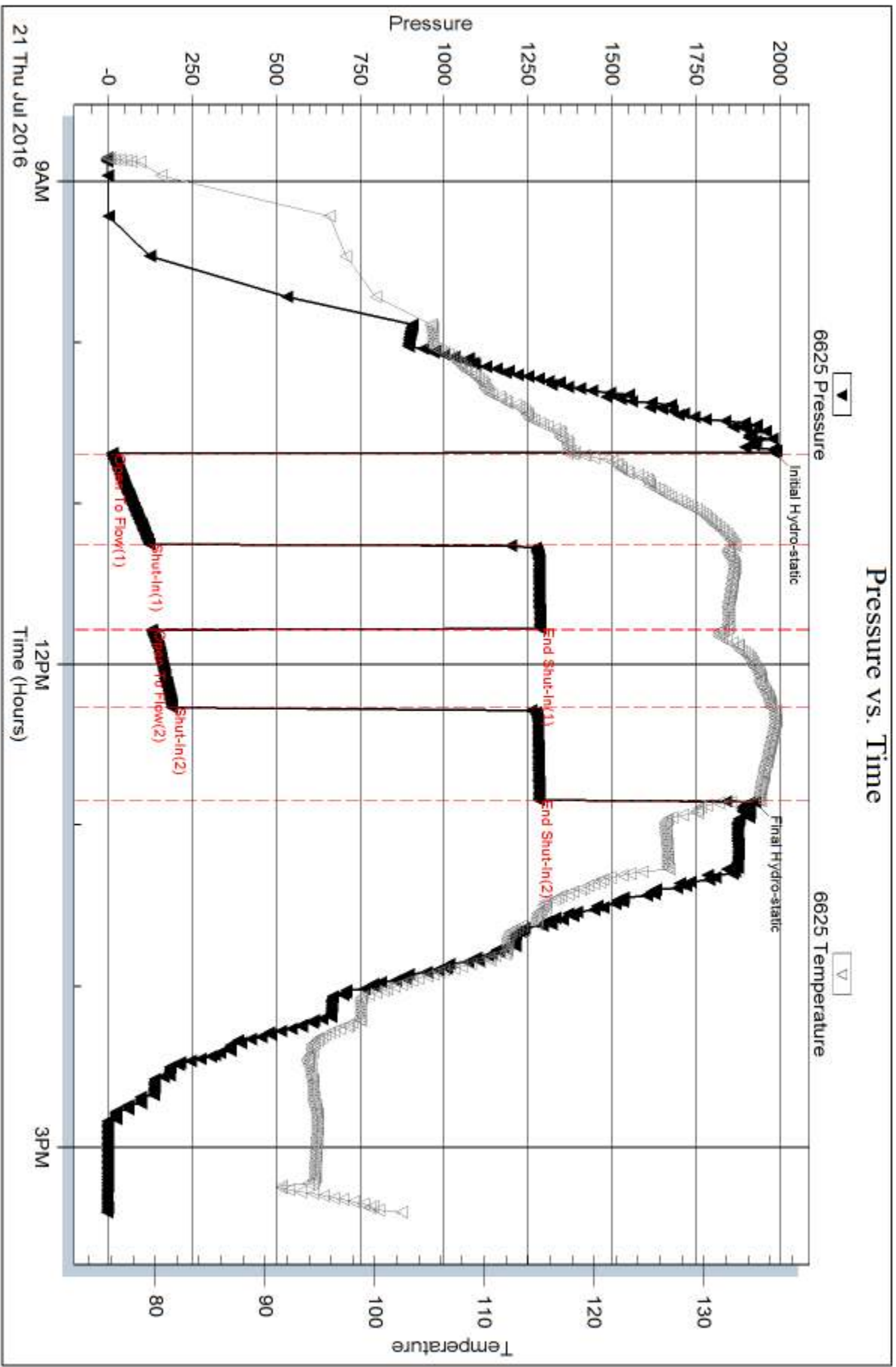
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .216 ohms @ 104 deg F

Chlorides = 21,000 ppm

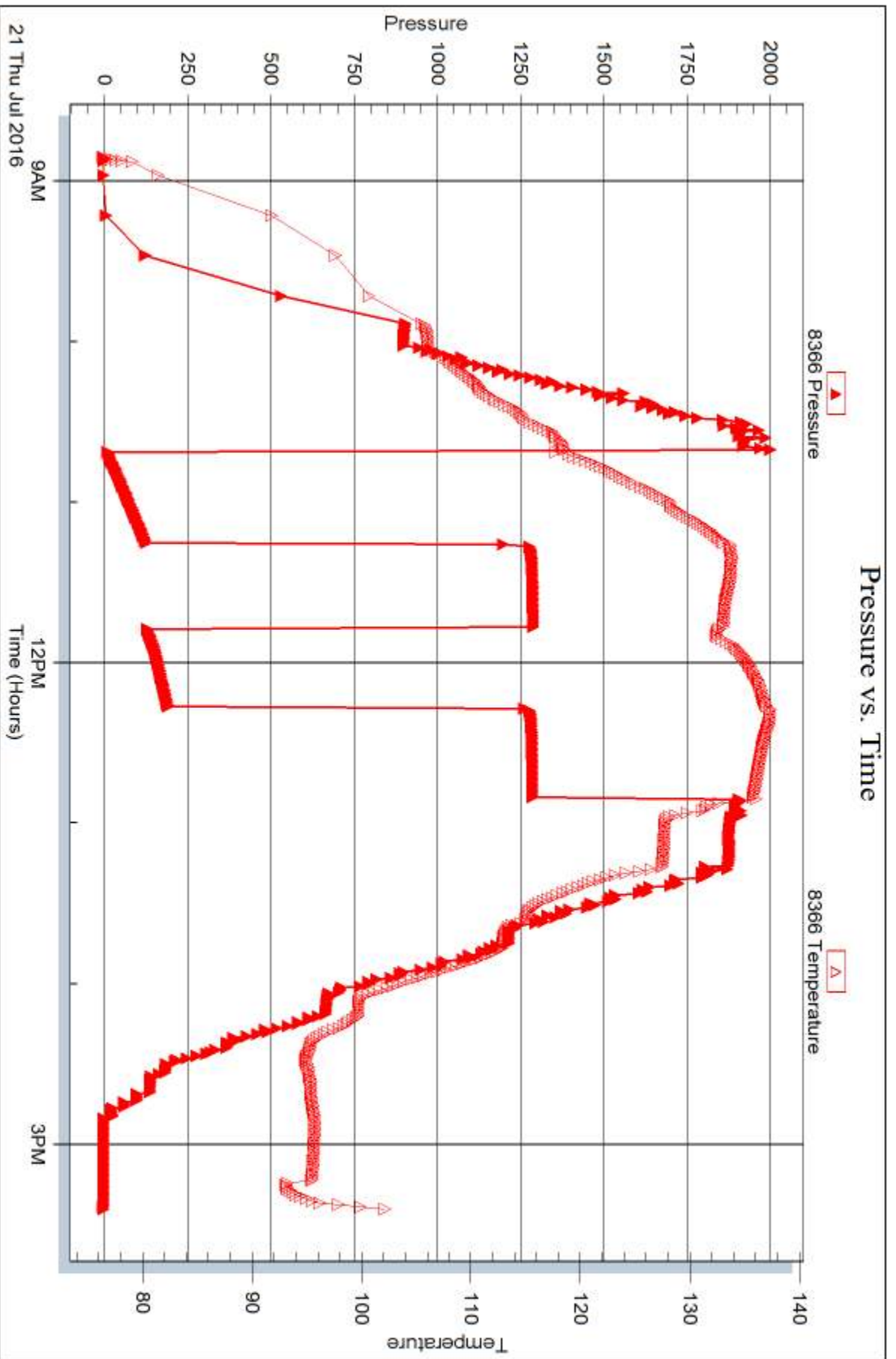


Serial #: 8366

Outside John O. Farmer Inc.

Leiker Unit #1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65401

Printed: 2016.07.26 @ 09:54:25



## DRILL STEM TEST REPORT

Prepared For: **John O. Farmer Inc.**

PO Box 352  
Russell, KS 67665

ATTN: Austin Klaus

### **Leiker Unit #1**

#### **12-6s-33w Thomas,KS**

Start Date: 2016.07.21 @ 23:59:00

End Date: 2016.07.22 @ 07:07:00

Job Ticket #: 65402                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.07.26 @ 09:53:09



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65402

**DST#: 3**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 23:59:00

## GENERAL INFORMATION:

Formation: **LKC "F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:06:15

Time Test Ended: 07:07:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4038.00 ft (KB) To 4066.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4066.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6625 Inside**

Press@RunDepth: 21.77 psig @ 4039.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.21

End Date:

2016.07.22

Last Calib.:

2016.07.22

Start Time: 23:59:05

End Time:

07:06:59

Time On Btm:

2016.07.22 @ 02:05:45

Time Off Btm:

2016.07.22 @ 05:13:30

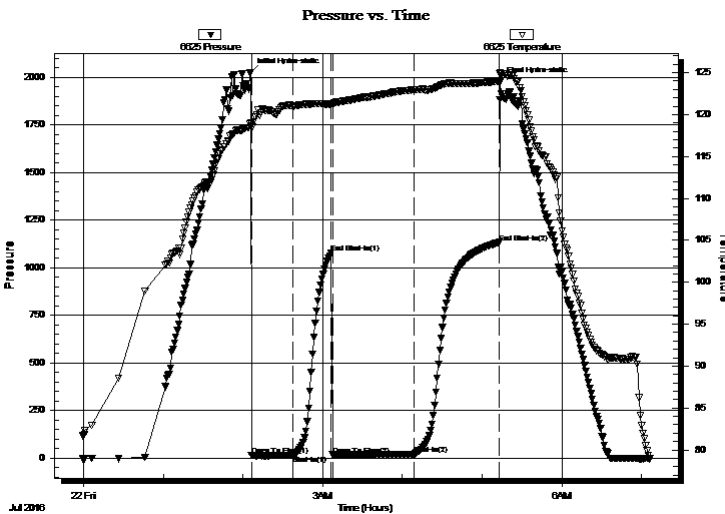
TEST COMMENT: 30 - IF: Blow built to 1 1/4"

30 - IS: No blow back

60 - FF: Blow built to 1/2"

60 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2025.92	119.07	Initial Hydro-static
1	14.86	118.69	Open To Flow (1)
32	15.71	121.00	Shut-In(1)
61	1077.53	121.20	End Shut-In(1)
62	17.37	121.26	Open To Flow (2)
123	21.77	122.97	Shut-In(2)
187	1133.03	123.95	End Shut-In(2)
188	1975.67	125.03	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 83% m, 15% o, 2% g	0.11
15.00	SMCO 92% o, 6% m, 2% g	0.11

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65402

**DST#: 3**

ATTN: Austin Klaus

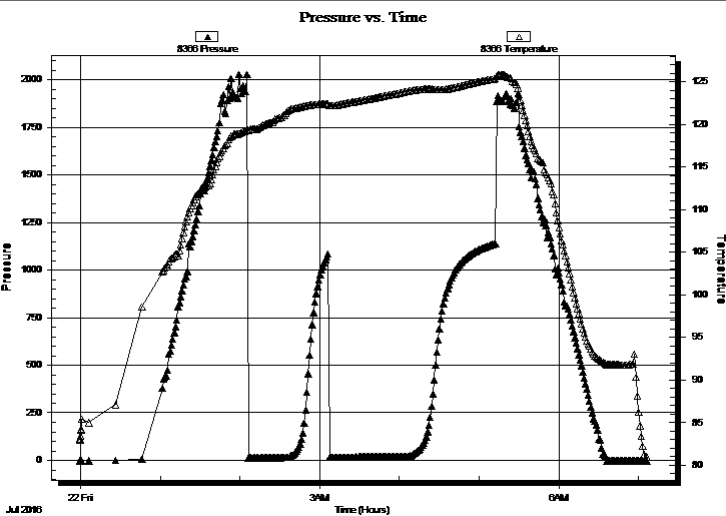
Test Start: 2016.07.21 @ 23:59:00

## GENERAL INFORMATION:

Formation: <b>LKC "F"</b>				Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock:		ft (KB)		Tester: James Winder
Time Tool Opened: 02:06:15				Unit No: 83
Time Test Ended: 07:07:00				
<b>Interval: 4038.00 ft (KB) To 4066.00 ft (KB) (TVD)</b>				Reference Elevations: 3086.00 ft (KB)
Total Depth: 4066.00 ft (KB) (TVD)				3078.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair			KB to GR/CF: 8.00 ft

<b>Serial #: 8366</b>	<b>Outside</b>				
Press@RunDepth:	psig @	4039.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2016.07.21	End Date:	2016.07.22	Last Calib.:	2016.07.22
Start Time:	23:59:05	End Time:	07:06:59	Time On Btm:	
				Time Off Btm:	

**TEST COMMENT:** 30 - IF: Blow built to 1 1/4"  
30 - IS: No blow back  
60 - FF: Blow built to 1/2"  
60 - FS: No blow back



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM 83% m, 15% o, 2% g	0.11
15.00	SMCO 92% o, 6% m, 2% g	0.11

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65402

**DST#: 3**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 23:59:00

## Tool Information

Drill Pipe:	Length: 3726.00 ft	Diameter: 3.80 inches	Volume: 52.27 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	55000.00 lb
			<u>Total Volume: 54.55 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	4038.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	28.00 ft				
Tool Length:	49.00 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			4018.00	
Shut In Tool	5.00			4023.00	
Hydraulic tool	5.00			4028.00	
Packer	5.00			4033.00	21.00 Bottom Of Top Packer
Packer	5.00			4038.00	
Stubb	1.00			4039.00	
Recorder	0.00	6625	Inside	4039.00	
Recorder	0.00	8366	Outside	4039.00	
Perforations	24.00			4063.00	
Bullnose	3.00			4066.00	28.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>49.00</b>				





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65402

**DST#: 3**

ATTN: Austin Klaus

Test Start: 2016.07.21 @ 23:59:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 53.00 sec/qt  
Water Loss: 9.59 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 3000.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: 29 deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OCM 83%m, 15%o, 2%g	0.110
15.00	SMCO 92%o, 6%m, 2%g	0.110

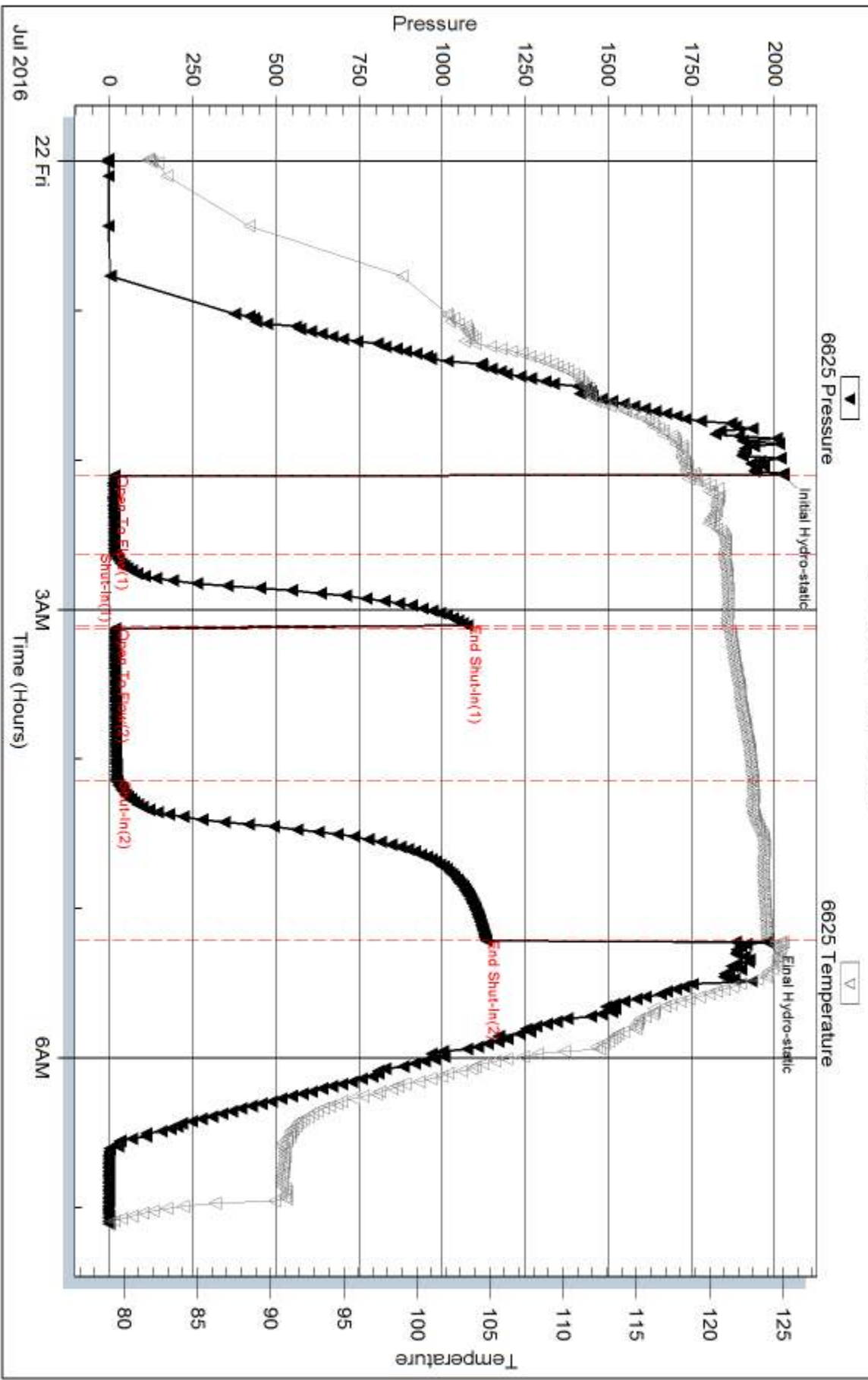
Total Length: 30.00 ft      Total Volume: 0.220 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: Gravity = 31 api @ 80 deg F  
Corrected Gravity = 29 api

# Pressure vs. Time

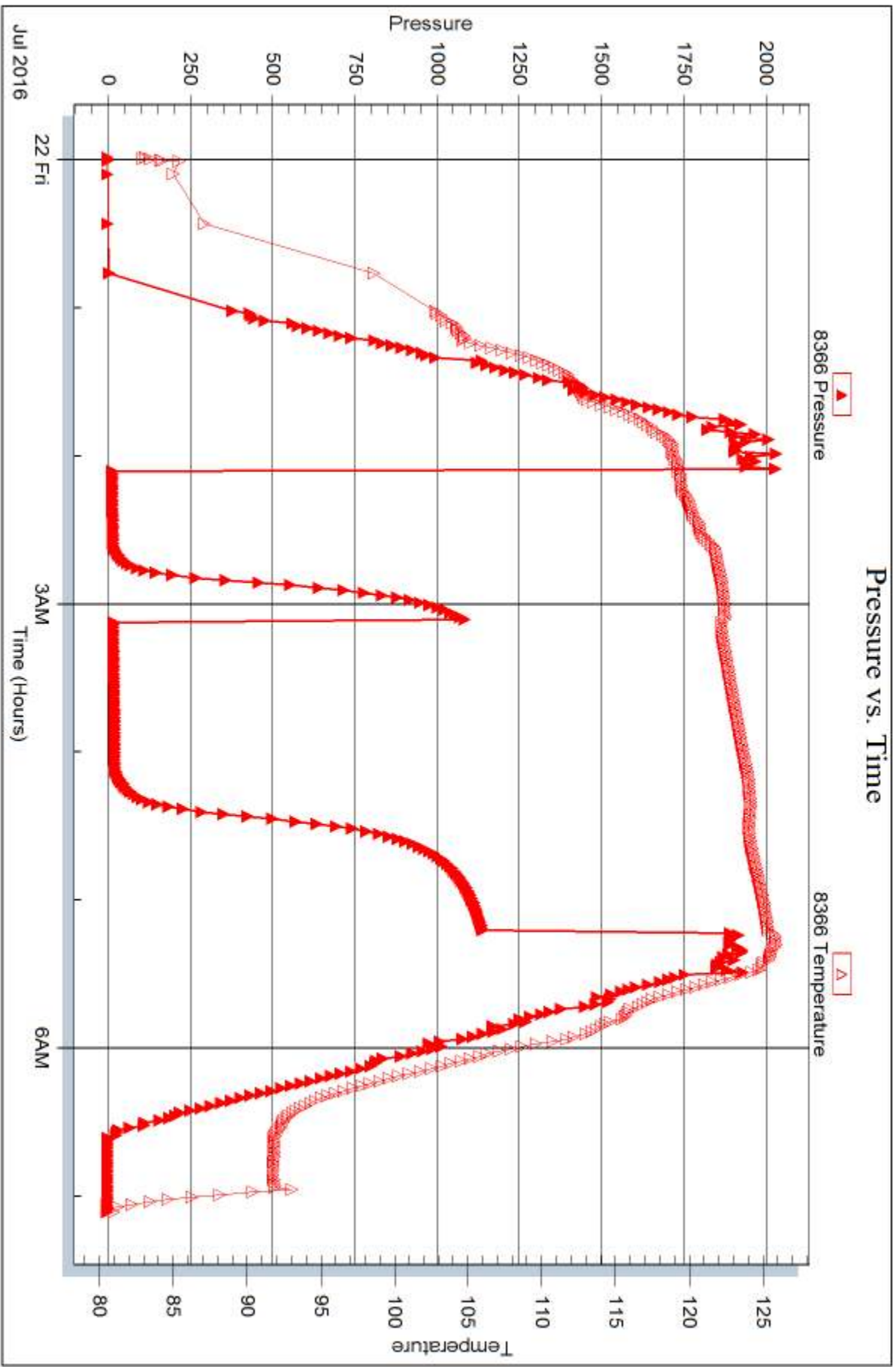


Serial #: 8366

Outside John O. Farmer Inc.

Leiker Unit #1

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **John O. Farmer Inc.**

PO Box 352  
Russell, KS 67665

ATTN: Austin Klaus

### **Leiker Unit #1**

#### **12-6s-33w Thomas,KS**

Start Date: 2016.07.22 @ 20:05:00

End Date: 2016.07.23 @ 02:11:30

Job Ticket #: 65403                      DST #: 4

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

Printed: 2016.07.26 @ 09:52:34



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65403

**DST#: 4**

ATTN: Austin Klaus

Test Start: 2016.07.22 @ 20:05:00

## GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:48:30

Time Test Ended: 02:11:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4117.00 ft (KB) To 4160.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4160.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6625**

**Inside**

Press@RunDepth: 182.99 psig @ 4118.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.22

End Date:

2016.07.23

Last Calib.:

2016.07.23

Start Time: 20:05:05

End Time:

02:11:29

Time On Btm:

2016.07.22 @ 21:48:00

Time Off Btm:

2016.07.22 @ 23:53:15

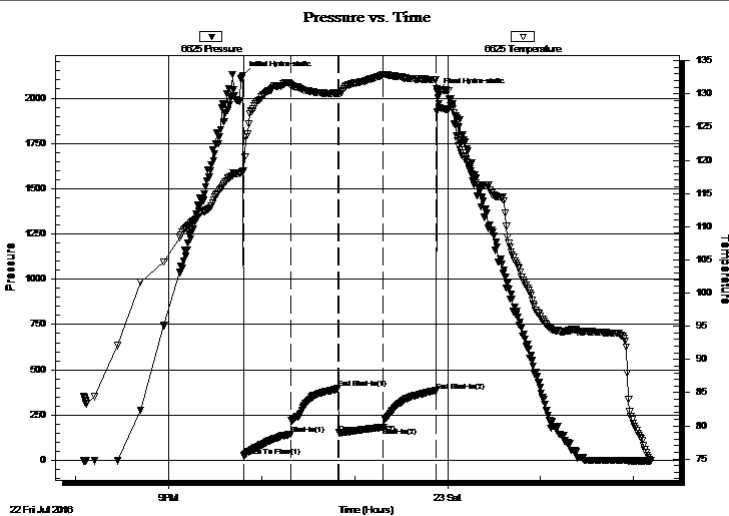
**TEST COMMENT:** 30 - IF: Blow built to BOB (11") at 16 1/4 min.

30 - IS: No blow back

30 - FF: Blow built to 7 1/2"

30 - FS: No blow back

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2124.55	118.41	Initial Hydro-static
1	24.82	118.41	Open To Flow (1)
31	145.11	131.40	Shut-In(1)
62	398.11	130.12	End Shut-In(1)
62	151.88	130.05	Open To Flow (2)
91	182.99	132.89	Shut-In(2)
125	384.35	132.14	End Shut-In(2)
126	2033.42	130.64	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	SO/MCW 88%w , 18%m, 2%o, 2%g	0.46
187.00	SO/GMCW 54%w , 29%m, 13%g, 4%o	1.37
125.00	SO/GWCM 57%w , 29%w , 9%g, 5%o	1.34
2.00	SMCO 94%o, 6%m	0.03

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65403

**DST#: 4**

ATTN: Austin Klaus

Test Start: 2016.07.22 @ 20:05:00

## GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:48:30

Time Test Ended: 02:11:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4117.00 ft (KB) To 4160.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4160.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 8366 Outside**

Press@RunDepth: psig @ 4118.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.22

End Date:

2016.07.23

Last Calib.:

2016.07.23

Start Time: 20:05:05

End Time:

02:10:59

Time On Btm:

Time Off Btm:

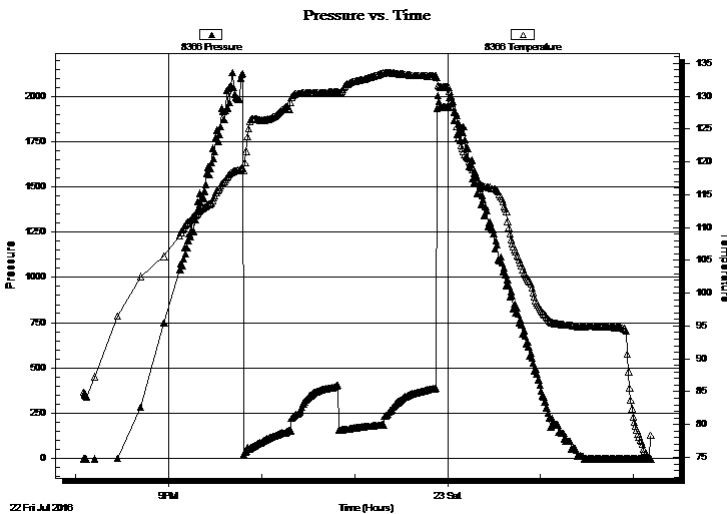
**TEST COMMENT:** 30 - IF: Blow built to BOB (11") at 16 1/4 min.

30 - IS!: No blow back

30 - FF: Blow built to 7 1/2"

30 - FS!: No blow back

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	SO/MCW 88%w , 18%m, 2%o, 2%g	0.46
187.00	SO/GMCW 54%w , 29%m, 13%g, 4%o	1.37
125.00	SO/GWCM 57%m, 29%w , 9%g, 5%o	1.34
2.00	SMCO 94%o, 6%m	0.03

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65403

**DST#: 4**

ATTN: Austin Klaus

Test Start: 2016.07.22 @ 20:05:00

## Tool Information

Drill Pipe:	Length: 3789.00 ft	Diameter: 3.80 inches	Volume: 53.15 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 48000.00 lb
			<u>Total Volume: 55.43 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	4117.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	43.00 ft			
Tool Length:	64.00 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			4097.00	
Shut In Tool	5.00			4102.00	
Hydraulic tool	5.00			4107.00	
Packer	5.00			4112.00	21.00 Bottom Of Top Packer
Packer	5.00			4117.00	
Stubb	1.00			4118.00	
Recorder	0.00	6625	Inside	4118.00	
Recorder	0.00	8366	Outside	4118.00	
Perforations	5.00			4123.00	
Blank Spacing	34.00			4157.00	
Bullnose	3.00			4160.00	43.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65403

**DST#: 4**

ATTN: Austin Klaus

Test Start: 2016.07.22 @ 20:05:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 53.00 sec/qt  
Water Loss: 9.59 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 3000.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psig

Oil API: 30 deg API  
Water Salinity: 23000 ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	SO/MCW 88%w , 18%m, 2%o, 2%g	0.455
187.00	SO/GMCW 54%w , 29%m, 13%g, 4%o	1.374
125.00	SO/GWCM 57%m, 29%w , 9%g, 5%o	1.339
2.00	SMCO 94%o, 6%m	0.028

Total Length: 376.00 ft      Total Volume: 3.196 bbl

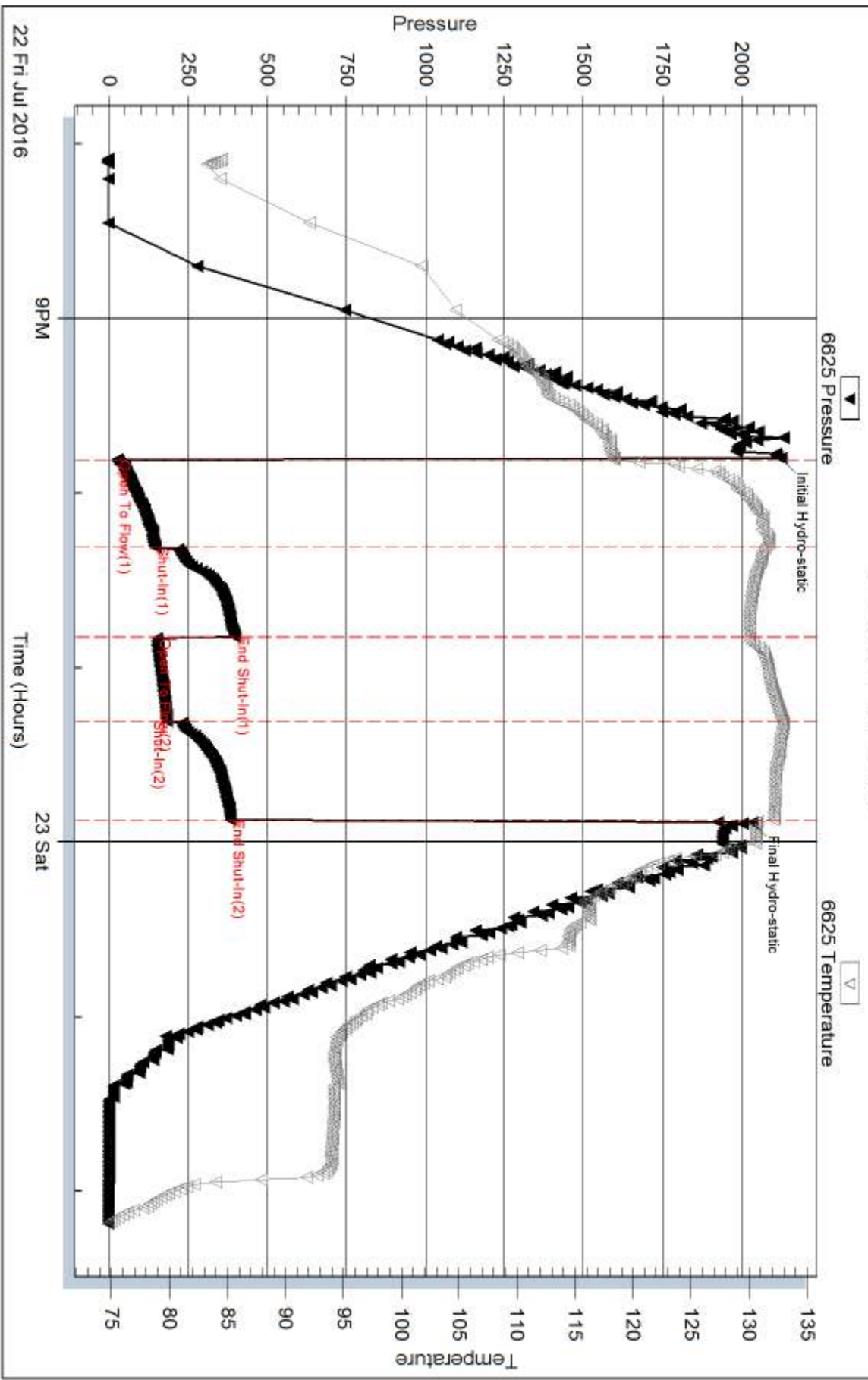
Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:

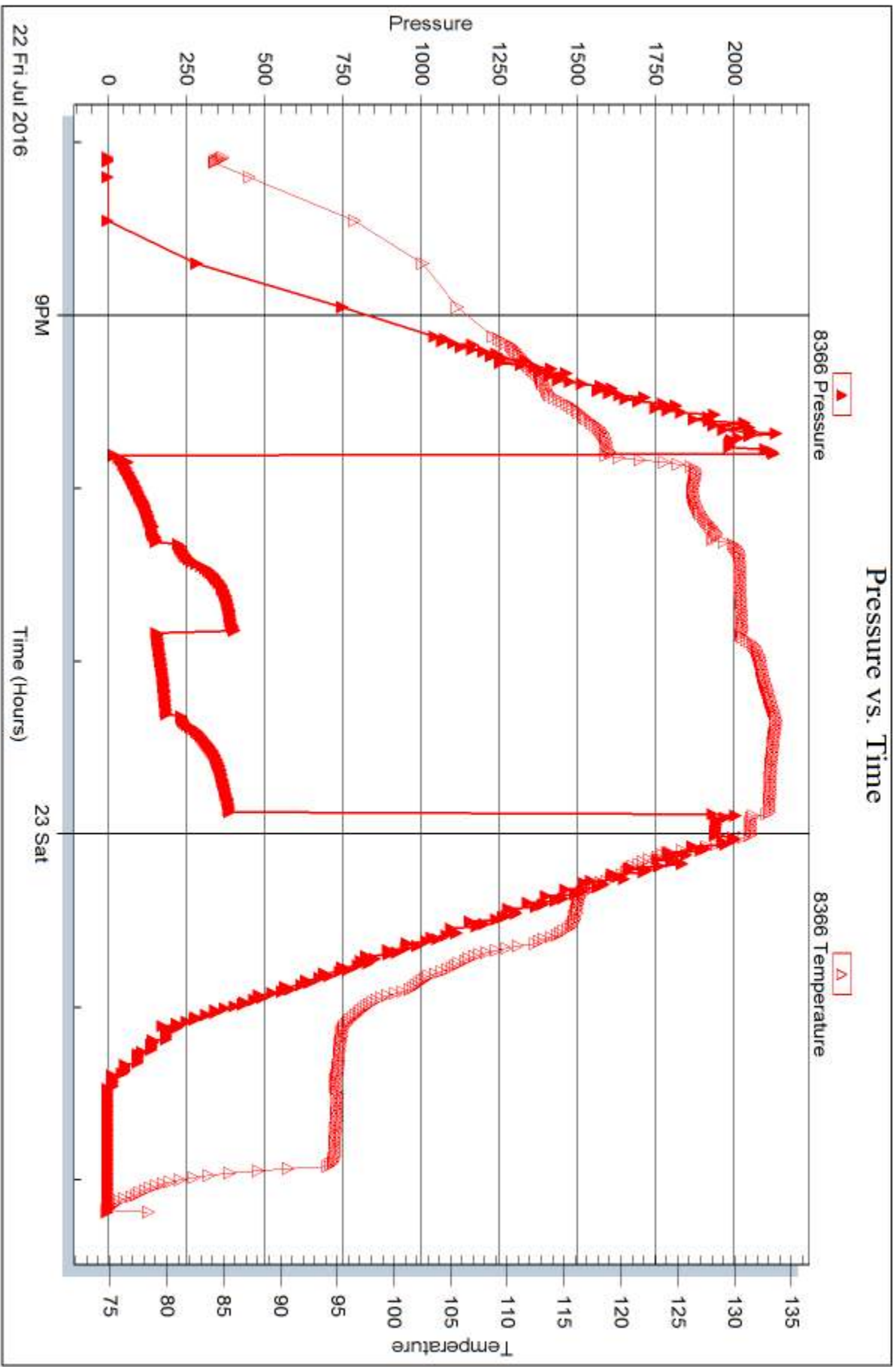
Laboratory Name:      Laboratory Location:

Recovery Comments: Gravity = 31.6 api @ 76 deg F Corrected Gravity = 30 api  
RW = .287 ohms @ 73.8 deg F Chlorides = 23,000 ppm



### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **John O. Farmer Inc.**

PO Box 352  
Russell, KS 67665

ATTN: Austin Klaus

### **Leiker Unit #1**

#### **12-6s-33w Thomas,KS**

Start Date: 2016.07.24 @ 02:48:00

End Date: 2016.07.24 @ 09:38:15

Job Ticket #: 65404                      DST #: 5

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

Printed: 2016.07.26 @ 09:51:22



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65404

**DST#: 5**

ATTN: Austin Klaus

Test Start: 2016.07.24 @ 02:48:00

## GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:37:45

Time Test Ended: 09:38:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

**Interval: 4414.00 ft (KB) To 4452.00 ft (KB) (TVD)**

Reference Elevations: 3086.00 ft (KB)

Total Depth: 4452.00 ft (KB) (TVD)

3078.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

**Serial #: 6625 Inside**

Press@RunDepth: 25.03 psig @ 4415.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.07.24

End Date:

2016.07.24

Last Calib.:

2016.07.24

Start Time: 02:48:05

End Time:

09:38:14

Time On Btm:

2016.07.24 @ 04:37:30

Time Off Btm:

2016.07.24 @ 06:41:45

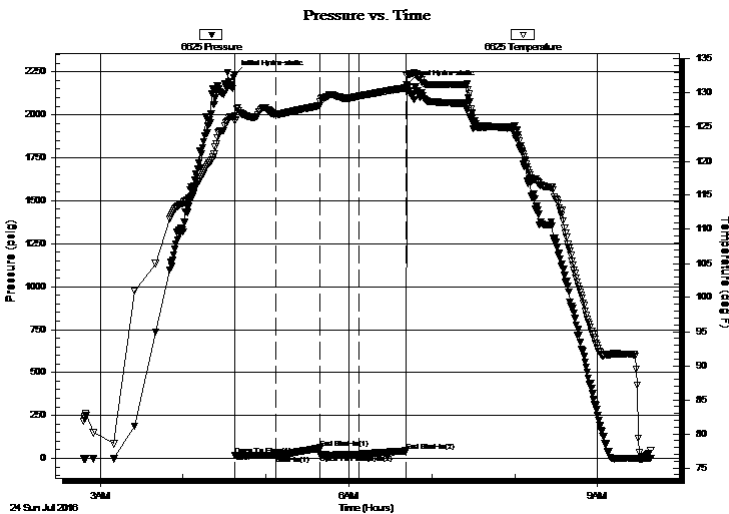
TEST COMMENT: 30 - IF: Blow built to 1 1/8"

30 - ISI: No blow back

30 - FF: No blow

30 - FSI: No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2232.81	126.66	Initial Hydro-static
1	17.02	125.96	Open To Flow (1)
30	19.68	126.89	Shut-In(1)
62	61.21	128.17	End Shut-In(1)
62	21.04	128.70	Open To Flow (2)
90	25.03	129.53	Shut-In(2)
124	43.97	130.77	End Shut-In(2)
125	2173.93	132.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 92% m, 6% o, 2% g	0.22

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65404

**DST#: 5**

ATTN: Austin Klaus

Test Start: 2016.07.24 @ 02:48:00

## Tool Information

Drill Pipe:	Length: 4108.00 ft	Diameter: 3.80 inches	Volume: 57.62 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 59.90 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4414.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	38.00 ft			
Tool Length:	59.00 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			4394.00	
Shut In Tool	5.00			4399.00	
Hydraulic tool	5.00			4404.00	
Packer	5.00			4409.00	21.00 Bottom Of Top Packer
Packer	5.00			4414.00	
Stubb	1.00			4415.00	
Recorder	0.00	6625	Inside	4415.00	
Recorder	0.00	8366	Outside	4415.00	
Perforations	34.00			4449.00	
Bullnose	3.00			4452.00	38.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>59.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

John O. Farmer Inc.

**12-6s-33w Thomas,KS**

PO Box 352  
Russell, KS 67665

**Leiker Unit #1**

Job Ticket: 65404

**DST#: 5**

ATTN: Austin Klaus

Test Start: 2016.07.24 @ 02:48:00

## 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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4400.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	SOCM 92%m, 6%o, 2%g	0.220

Total Length: 30.00 ft      Total Volume: 0.220 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6625

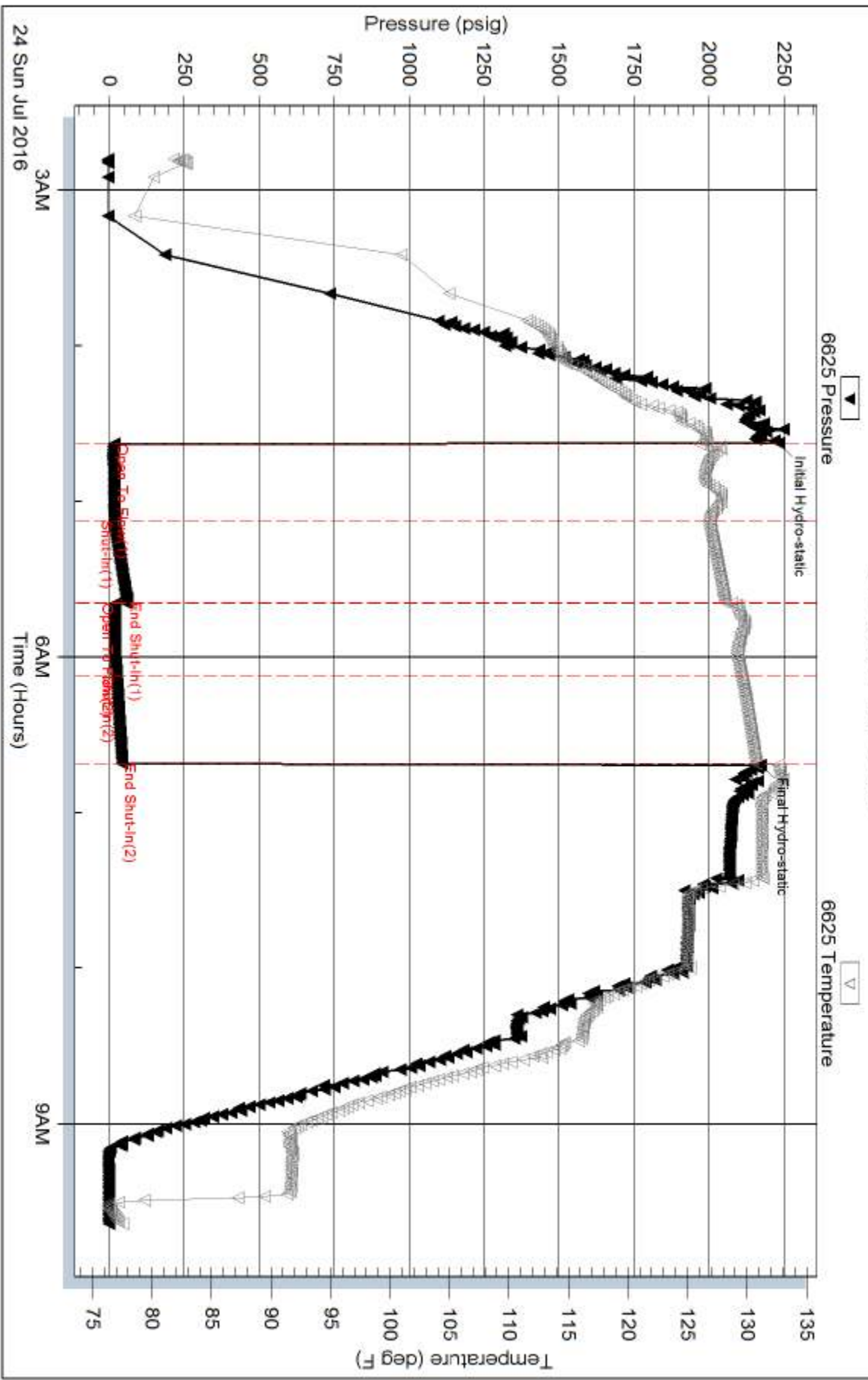
Inside

John O. Farmer Inc.

Leiker Unit #1

DST Test Number: 5

### Pressure vs. Time



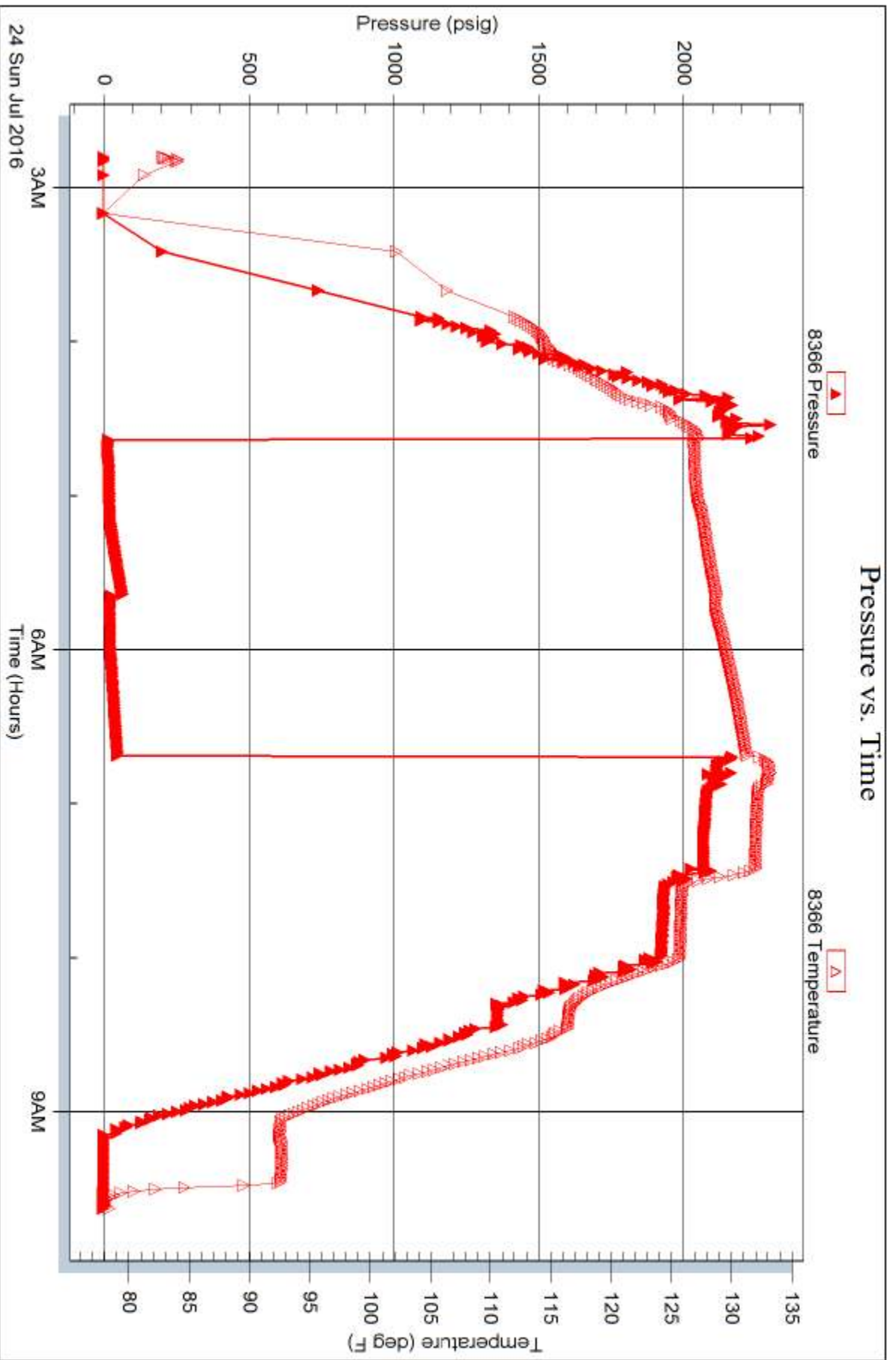


Serial #: 8366

Outside John O. Farmer Inc.

Leiker Unit #1

DST Test Number: 5



Trilobite Testing, Inc

Ref. No: 65404

Printed: 2016.07.26 @ 09:51:24



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65400**

Well Name & No. Leiker Unit #1 Test No. 1 Date 7-20-16  
 Company John O. Farmer Inc. Elevation 3086 KB 3078 GL  
 Address 370 W Wichita Ave PO Box 352 Russell KS 67665  
 Co. Rep / Geo. Austin Klaus Rig Discovery #1  
 Location: Sec. 12 Twp. 6s Rge. 33w Co. Thomas State KS

Interval Tested 3936-4023 Zone Tested LKC-A-C\*  
 Anchor Length 87 Drill Pipe Run 3629 Mud Wt. 9.0  
 Top Packer Depth 3931 Drill Collars Run - Vis 47  
 Bottom Packer Depth 3936 Wt. Pipe Run 311 WL 8.0  
 Total Depth 4023 Chlorides 2500 ppm System LCM 4  
 Blow Description IF: Blow built to BOB(11") at 3 1/2 min.  
ISI: No blowback  
FF: Blow built to BOB at 4 1/2 min  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>32</u>	<u>Mud</u>			<u>100</u>	
<u>510</u>	<u>MCW</u>		<u>65</u>	<u>35</u>	
<u>948</u>	<u>SMCW</u>		<u>92</u>	<u>8</u>	
	<u>Trace of oil in tool</u>				

Rec Total 1490 BHT 135 Gravity \_\_\_\_\_ API RW .338 @ 84.5 °F Chlorides 16,000 ppm  
 (A) Initial Hydrostatic 1968  Test 1150 T-On Location 14:00  
 (B) First Initial Flow 48  Jars \_\_\_\_\_ T-Started 15:32  
 (C) First Final Flow 446  Safety Joint \_\_\_\_\_ T-Open 17:53  
 (D) Initial Shut-In 1223  Circ Sub \_\_\_\_\_ T-Pulled 20:00  
 (E) Second Initial Flow 448  Hourly Standby \_\_\_\_\_ T-Out 22:35  
 (F) Second Final Flow 692  Mileage 106 RT 79.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 1219  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1906  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 30  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 30  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1229.50 Total 1229.50 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative James Windsor

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. **65401**

Well Name & No. Leiker Unit #1 Test No. 2 Date 7-21-16  
 Company John O Farmer Inc. Elevation 3086 KB 3078 GL  
 Address 370 W. Wichita Ave PO Box 352 Russell KS 67665  
 Co. Rep / Geo. Austin Klaus Rig Discovery #1  
 Location: Sec. 12 Twp. 6s Rge. 33w Co. Thomas State KS

Interval Tested 4019 - 4042 Zone Tested LKC "D"  
 Anchor Length 23 Drill Pipe Run 3694 Mud Wt. 9.0  
 Top Packer Depth 4014 Drill Collars Run - Vis 58  
 Bottom Packer Depth 4019 Wt. Pipe Run 311 WL 8.8  
 Total Depth 4042 Chlorides 2500 ppm System LCM 4

Blow Description IF: Blow built to BOB (11") at 26 1/2 min.  
ISI: No blowback  
FF: Blow built to BOB at 29 min.  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>74</u>	<u>mcw</u>		<u>61</u>	<u>39</u>	
<u>311</u>	<u>SMCW</u>		<u>92</u>	<u>8</u>	
	<u>show of oil in tool</u>				

Rec Total 385 BHT 135 Gravity \_\_\_\_\_ API RW .216 @ 104 °F Chlorides 21000 ppm

(A) Initial Hydrostatic 1982  Test 1150 T-On Location 7:25  
 (B) First Initial Flow 12  Jars \_\_\_\_\_ T-Started 8:51  
 (C) First Final Flow 122  Safety Joint \_\_\_\_\_ T-Open 10:41  
 (D) Initial Shut-In 1287  Circ Sub \_\_\_\_\_ T-Pulled 12:50  
 (E) Second Initial Flow 129  Hourly Standby \_\_\_\_\_ T-Out 15:25  
 (F) Second Final Flow 191  Mileage 106 RT 79.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 1284  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1926  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1229.50 MP/DST Disc't \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 30  
 Final Flow 30  
 Final Shut-In 30  
 Approved By \_\_\_\_\_ Our Representative James Winder

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65402**

Well Name & No. Leiker Unit #1 Test No. 3 Date 7-22-16  
 Company John O. Farmer Inc Elevation 3086 KB 3078 GL  
 Address 370 W. Wichita Ave PO Box 352 Russell KS 67665  
 Co. Rep / Geo. Austin Klaus Rig Discovery #1  
 Location: Sec. 12 Twp. 6s Rge. 33w Co. Thomas State KS

Interval Tested 4038 - 4066 Zone Tested LKC "F"  
 Anchor Length 28 Drill Pipe Run 3726 Mud Wt. 9.0  
 Top Packer Depth 4033 Drill Collars Run - Vis 53  
 Bottom Packer Depth 4038 Wt. Pipe Run 311 WL 9.6  
 Total Depth 4066 Chlorides 3000 ppm System LCM 4

Blow Description IF: Blow built to 1'4"  
ISI: No blowback  
FF: Blow built to 1/2"  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>SMCO</u>	<u>2</u>	<u>92</u>	<u>6</u>	
<u>15</u>	<u>OCM</u>	<u>2</u>	<u>15</u>	<u>83</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30 BHT 124 Gravity 29 API RW @ ° F Chlorides ppm  
 (A) Initial Hydrostatic 2026  Test 1150 T-On Location 23:50 7a1  
 (B) First Initial Flow 15  Jars \_\_\_\_\_ T-Started 23:59  
 (C) First Final Flow 16  Safety Joint \_\_\_\_\_ T-Open 2:06  
 (D) Initial Shut-In 1078  Circ Sub \_\_\_\_\_ T-Pulled 5:12  
 (E) Second Initial Flow 17  Hourly Standby \_\_\_\_\_ T-Out 7:25  
 (F) Second Final Flow 22  Mileage 106 RT 79.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 1133  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1976  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 30  Extra Packer \_\_\_\_\_  
 Final Flow 60  Extra Recorder \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1229.50 Sub Total 0  
 Total 1229.50 MP/DST Disc't \_\_\_\_\_

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

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65403**

Well Name & No. Leiker Unit Test No. 4 Date 7-22-16  
 Company John O Farmer Inc Elevation 3086 KB 3078 GL  
 Address 370 W Wichita Ave PO Box 352 Russell KS 67665  
 Co. Rep / Geo. Austin Klaus Rig Discovery #1  
 Location: Sec. 12 Twp. 6S Rge. 33w Co. Thomas State KS

Interval Tested 4117-4160 Zone Tested LKC "J"  
 Anchor Length 43 Drill Pipe Run 3789 Mud Wt. 9.0  
 Top Packer Depth 4112 Drill Collars Run - Vis 53  
 Bottom Packer Depth 4117 Wt. Pipe Run 311 WL 9.6  
 Total Depth 4160 Chlorides 3000 ppm System LCM 4

Blow Description IF: Blow built to BOB(11") at 16 1/4 min.  
ISI: No blowback  
FF: Blow built to 7 1/2"  
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>SMCO</u>	<u>-</u>	<u>94</u>	<u>-</u>	<u>6</u>
<u><del>125</del></u>	<u>50/<del>SMCO</del> GWCM</u>	<u>90</u>	<u>5</u>	<u>29</u>	<u>57</u>
<u><del>187</del></u>	<u>50/GMCW</u>	<u>13</u>	<u>4</u>	<u>54</u>	<u>29</u>
<u>62</u>	<u>50/MCW</u>	<u>2</u>	<u>2</u>	<u>88</u>	<u>18</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 376 BHT 132 Gravity 30 API RW .287 @ 73.8 °F Chlorides 23000 ppm

(A) Initial Hydrostatic 2125  Test 1150 T-On Location 19:25 7/22  
 (B) First Initial Flow 25  Jars \_\_\_\_\_ T-Started 20:05  
 (C) First Final Flow 145  Safety Joint \_\_\_\_\_ T-Open 21:48  
 (D) Initial Shut-In 398  Circ Sub \_\_\_\_\_ T-Pulled 23:52  
 (E) Second Initial Flow 152  Hourly Standby \_\_\_\_\_ T-Out 2:05 7/23  
 (F) Second Final Flow 183  Mileage 106 RT 79.50  
 (G) Final Shut-In 384  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2033  Straddle \_\_\_\_\_

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  
 Initial Shut-In 30  
 Final Flow 30  
 Final Shut-In 30  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1229.50  
 Sub Total 1229.50  
 Sub Total 0  
 Total 1229.50  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_

Our Representative James Winder

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65404**

Well Name & No. Leiker Unit #1 Test No. 5 Date 7-24-16  
 Company John O Farmer Inc. Elevation 3086 KB 3078 GL  
 Address 370 W Wichita Ave PO Box 352 Russell, KS 67665  
 Co. Rep / Geo. Austin Klaus Rig Discovery #1  
 Location: Sec. 12 Twp. 6S Rge. 33W Co. Thomas State KS

Interval Tested 4414 - 4452 Zone Tested Cherokee  
 Anchor Length 38 Drill Pipe Run 4108 Mud Wt. 9.3  
 Top Packer Depth 4409 Drill Collars Run - Vis 56  
 Bottom Packer Depth 4414 Wt. Pipe Run 311 WL 9.6  
 Total Depth 4452 Chlorides 4400 ppm System LCM 5  
 Blow Description IF: Blow bit to 1 1/8"  
ISI: No blowback  
FF: No blow  
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>50cm</u>	<u>2</u>	<u>6</u>		<u>92</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 30 BHT 131 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2233  Test 1150 T-On Location 2:30  
 (B) First Initial Flow 17  Jars \_\_\_\_\_ T-Started 2:48  
 (C) First Final Flow 20  Safety Joint \_\_\_\_\_ T-Open 4:37  
 (D) Initial Shut-In 61  Circ Sub \_\_\_\_\_ T-Pulled 6:41  
 (E) Second Initial Flow 21  Hourly Standby \_\_\_\_\_ T-Out 9:35  
 (F) Second Final Flow 25  Mileage 106 RT 79.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 44  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2174  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 30  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 30  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1229.50 Sub Total \_\_\_\_\_  
 Total 1229.50 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_

Our Representative

James Winkler

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# AUSTIN B. KLAUS



**Cell 785.650.3629**  
**Work 785.483.3145**  
**Ext 225**

**PO BOX 352**  
**Russell, KS 67665**  
**austin.klaus@johnofarmer.com**

**Scale 1:240 (5"=100') Imperial**  
**Measured Depth Log**

**Well Name:** Leiker Unit #1  
**Location:** Thomas County  
**License Number:** API #15-193-20964-00-00  
**Spud Date:** 7/15/16  
**Surface Coordinates:** Section 12, Township 6 South, Range 33 West  
2,620' FSL & 540' FWL  
**Bottom Hole Coordinates:** Vertical well with minimal deviation, same as above  
**Ground Elevation (ft):** 3,078'      **K.B. Elevation (ft):** 3,086'  
**Logged Interval (ft):** 3,650'      **To:** RTD      **Total Depth (ft):** 4,620'  
**Formation:** Lkc-Miss  
**Type of Drilling Fluid:** Chemical (Andy's)

**Region:** Kansas  
**Drilling Completed:** 7/24/16

Printed by STRIP.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

## OPERATOR

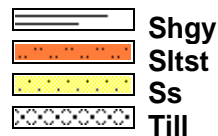
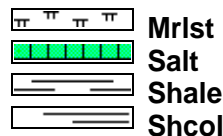
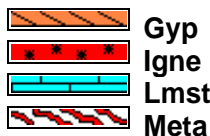
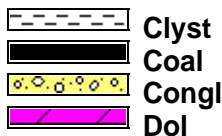
**Company:** John O. Farmer, Inc.  
**Address:** 370 W. Wichita, Ave.  
Russell, KS 67665

## Comments

The Leiker Unit #1 well was drilled by Discovery Drilling Rig #1 (Tool Pusher: Cliff Mayfield).

The location for the Leiker Unit #1 well was found via 3-D seismic survey. Geologic samples were collected and evaluated from 3,650'-4,610'. Structurally, the Leiker Unit #1 ran 9' low at the Lansing and 8' low at the Cherokee, to the Schroeder Unit#1, 4,650' to the southwest. Four bottom-hole tests were conducted in the Lansing, all yielding negative results. A bottom-hole test was also conducted to evaluate the Cherokee, which also contained minimal fluid recovery and poor shut-in pressures. Based upon evaluation of sample shows, electric logs, DST results, and low structural position, the decision was made to plug and abandon the Leiker Unit #1 well on 7/25/16.

### ROCK TYPES



#### Curve Track 1

ROP (min/ft) ———  
 Gas (units) - - - - -  
 Gamma (API) —————

Depth

Lithology

Oil Shows

Geological Descriptions

DST/Mud/Survey

ROP (min/ft) 5  
 Gas (units) 500  
 Gamma (API) 150

35

-7/15/16 - Move in & rig up

-7/16/16 - 487', Drilling

-7/17/16 - 1,725', Drilling

-7/18/16 - 2,722', Drilling

-7/19/16 - 3,376' Trip in hole. Lost returns while displacing

-7/20/16 - 4,000', Circulating for samples

ROP (min/ft) 5  
 Gas (units) 500  
 Gamma (API) 150

3600

-7/21/16 - 4,042', DST #2

-7/22/16 - 4,066', DST #3

-7/23/16 - 4,186', Drilling

-7/24/16 - 4,452', DST #5

-7/25/16 - 4,610', Plugging

3650

3700

The open-hole logging was performed by Mr. Gus Pfanenstiel with Gemini Wireline, LLC (Hays, KS). Logs included: Compensated Density/Compensated Neutron, Dual Induction, and Micro Resistivity. Formation tops and datums from the open-hole logs include the following:

Formation	E-Log	Datum
Anhydrite	2692	394
Topeka	3710	-624
Heebner	3940	-854
Lansing	3986	-900
B/KC	4222	-1136
Pawnee	4345	-1259
Cherokee	4422	-1336
Miss	4552	-1466
LTD	4612	-1526

Tester: James Winder  
 Mud Engineer: Reid Atkins

Sh: lt-drk gry

Ls: tan-lt gry, fn-sub xln, mostly DNS, no visible porosity, scat sh: drk gry

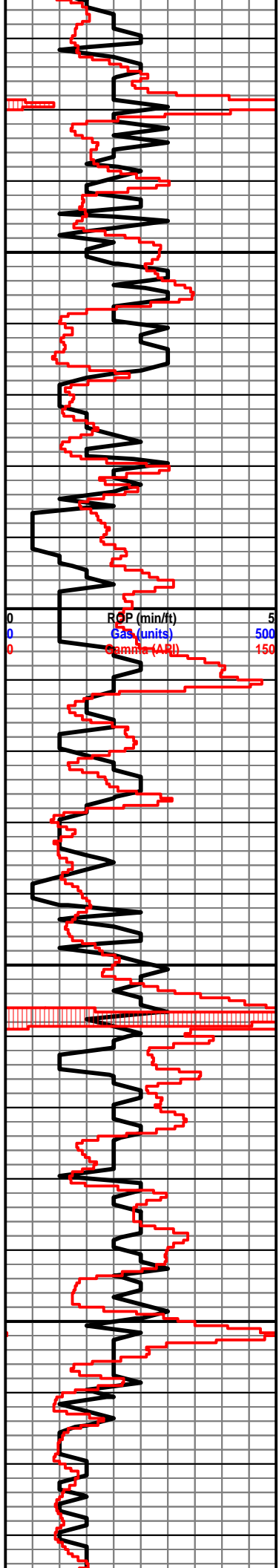
Ls: off wh-tan-lt gry, fn-sub xln, foss, poor int xln porosity, NSFO, no odor

Sh: drk gry-rd, scat pcs soft

**Topeka 3708' (-622)**

Ls: tan-lt gry, fn-sub xln, foss, poor int xln & foss porositv. NSFO, no odor





Ls: tan-lt gry, fn-sub xln, mostly DNS, no visible porosity, NSFO, scat chalk

Wt: 8.9  
Vis: 45

Ls: ala, scat sh: drk gry

Ls: off wh-tan, fn xln, poor int xln & pp porosity, scat dead oil stn, NSFO, no odor, scat chalk

Wt: 9.0  
Vis: 46

Sh: drk gry-brn-rd, soft

Ls: tan-lt gry, fn-sub xln, poor int xln porosity, mostly DNS, scat dead asph stn, NSFO, no odor

Ls: ala, scat sh: drk gry

Ls: off wh-tan, fn xln, foss, scat fair int xln & int foss porosity, mostly barren, NSFO, no odor

Sh: drk gry-rd-grn, soft

Sh: ala

Ls: tan-lt gry, fn-sub xln, mostly DNS, no visible porosity, chalky

Sh: drk gry-brn

Ls: off wh-tan, fn xln, scat fair-good int xln porosity

Ls: ala

Sh: drk gry-blk, carb

Ls: off wh-tan, fn xln, poor int xln porosity, mostly barren, few pcs asph stn, chalky in part

Sh: drk gry-brn-grn

Sh: drk gry-blk, carb

Wt: 9.0  
Vis: 47

Ls: off wh-tan, fn xln, scat fair int xln porosity, mostly barren, scat blk asph stn, scat chalk

DST 3,936-4,023' (Lansing A-C)  
30"-30"-30"-30"

Ls: off wh-tan, fn-md xln, fair int xln porosity, foss, mostly barren, scat asph stn, scat chalk

IF: BOB in 3.5 minutes, no blow on shut in  
FF: BOB in 4.5 minutes, no blow on shut in  
Rec: 948' Mud Cut Water (8%M, 92%W) 510'  
Muddy Water (35%M, 65%W), 32' Mud  
FP: 48-446, 448-692#  
SIP: 1,223-1,219#  
HP: 1.969-1.906#

Heebner 3939' (-853)

Sh: blk, carb, fissile

Sh: drk gry-brn-grn

Sh: ala

Ls: off wh-tan, fn-sub xln, foss, poor int xln porosity, barren

Sh: lt-drk gry

Lansing 3987' (-901)

Ls: off wht-tan, fn xln, scat poor-fair int xln & vuggy porosity, scat brn stn, VSSFO, fnt odor, scat chalk

Ls: off wh-tan, fn-md xln, poor int xln porosity, mostly barren, NSFO, no odor

Sh: drk gry

Ls: off wh-tan, fn-md xln, some pcs ool, poor-fair int xln & vuggy porosity, fair drk brn stn, VSSFO, fnt odor

Ls: off wh-tan, fn-md xln, fair int xln & pp vuggy porosity, fair-good drk brn stn, SSFO, FSFO in cup, fnt odor

Ls: tan-lt gry, fn-sub xln, mostly DNS, no visible porosity, NSFO

Ls: off wh-tan, fn xln, ool, poor int xln porosity, scat fair drk stn, VSSFO, fnt odor

Sh: drk gry-brn-grn

Ls: off wh-tan, fn-md xln, fair int xln & vuggy porosity, fair-good oil stn, SSFO, fair odor

Sh: drk gry-brn

Ls: off wht-tan, fn-md xln, poor-fair int xln porosity, hvy chert gry-wht, mostly barren, NSFO

Sh: blk, carb

Sh: drk gry-brn w/ red

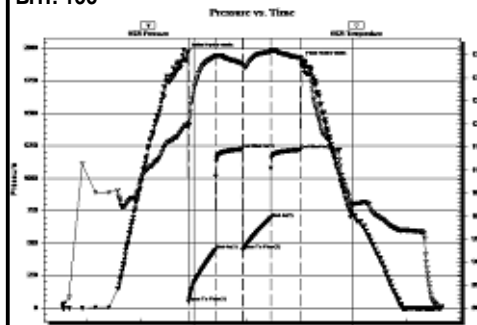
Ls: off wh-tan, fn-md xln, poor int xln porosity, mostly barren, NSFO, no odor, hvy chert-off wht

Sh: drk gry-brn

Sh: drk gry-drk brn-rd, silty, soft

Ls: off wh-tan, fn-md xln, fair int xln & pp vuggy porosity, scat drk oil stn, SSFO, fair odor, scat chalk

BHT: 133



DST #2 4,019-4,042' (Lansing D)

30"-30"-30"-30"

IF: BOB in 26 minutes, no blow on shut in

FF: BOB in 29 minutes, no blow on shut in

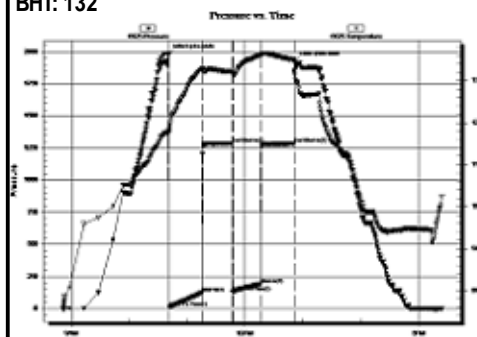
Rec: 311' Mud Cut Water (8%M, 92%W) 74' Muddy Water (39%M, 61%W)

FP: 12-122, 129-191#

SIP: 1,287-1,284#

HP: 1,982-1,926#

BHT: 132



DST #3 4,038-4,066' (Lansing F)

30"-30"-60"-60"

IF: Weak blow, built to 1.25", no blow on shut in

FF: Weak blow, built to .5", no blow on shut in

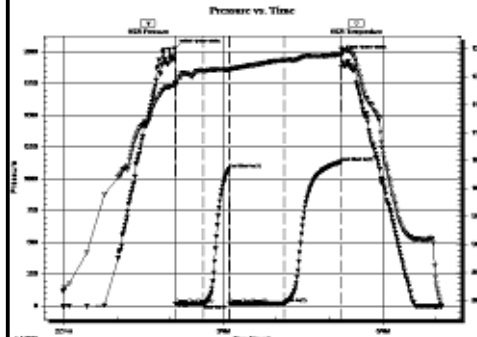
Rec: 15' SG&MCO (2%G, 6%M, 92%O) 15' O&GCM (2%G, 15%O, 83%M)

FP: 15-16, 17-22#

SIP: 1,078-1,133#

HP: 2,026-1,976#

BHT: 125



DST #4 4,117-4,160' (Lansing J)

30"-30"-30"-30"

IF: BOB in 16.25 minutes, no blow on shut in

FF: Weak blow, built to 7.5", no blow on shut in

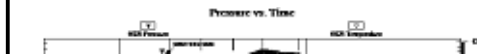
Rec: 2' MCO (6%M, 94%O) 125' O&GCWM (5%O, 9%G, 29%W, 57%M) 187' O&GCMW (4%O, 13%G, 29%M, 54%W), 62' O&GCMW (2%O, 2%G, 18%M, 88%W)

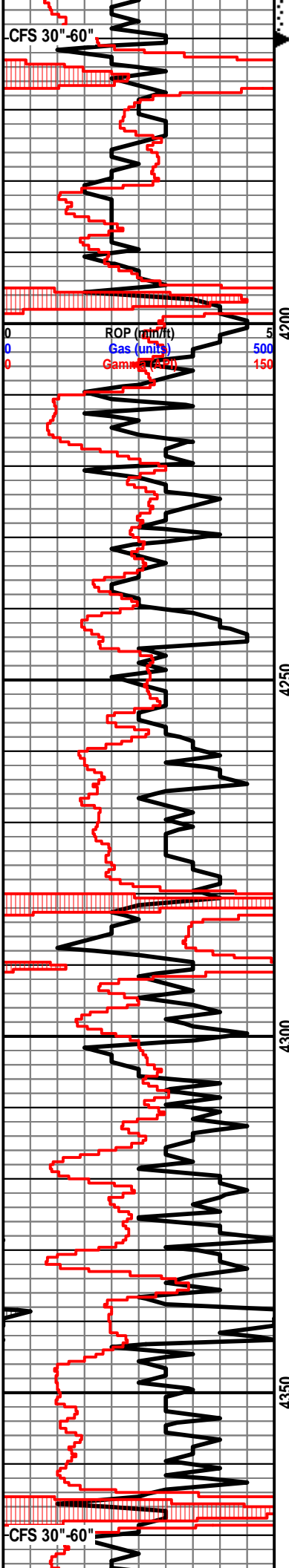
FP: 25-145, 152-183#

SIP: 398-385#

HP: 2,125-2,033#

BHT: 131





Sh: blk, carb

Sh: drk gry-brn-grn

Ls: off wh-lt gry, fn-md xln, scat fair int xln porosity, NSFO, scat chalk

Ls: ala

Sh: drk gry-blk, carb

Sh: drk gry-brn

Ls: off wh-lt gry, fn-md xln, scat chalk, poor-scat fair int xln porosity, NSFO, scat chert-off wh

**B/KC 4223' (-1137)**

Sh: drk gry-brn

Sh: gry-brn

Ls: tan-lt gry, fn-md xln, poor int xln porosity, NSFO

Sh: red-brn, scat gry

**Marmaton 4260' (-1174)**

Ls: off wh-tan, fn xln, poor int xln porosity, scat hvy drk stn in porosity, no odor

Ls: tan-gry, fn-sub xln, mostly DNS, no visible porosity, NSFO

Sh: drk gry-blk, carb

Ls: tan, fn-md xln, poor int xln porosity, DNS, NSFO

Sh: lt gry-brn, gummy, few pcs soft

Sh: drk gry-brn-rd

Ls: off wh-tan, scat ool, poor porosity, NSFO

Ls: tan-lt gry, fn-md xln, scat foss, no visible porosity, NSFO

Sh: lt gry-brn

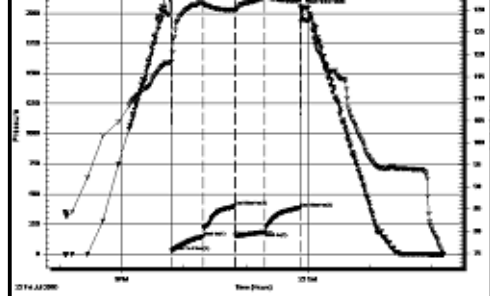
**Pawnee 4342' (-1256)**

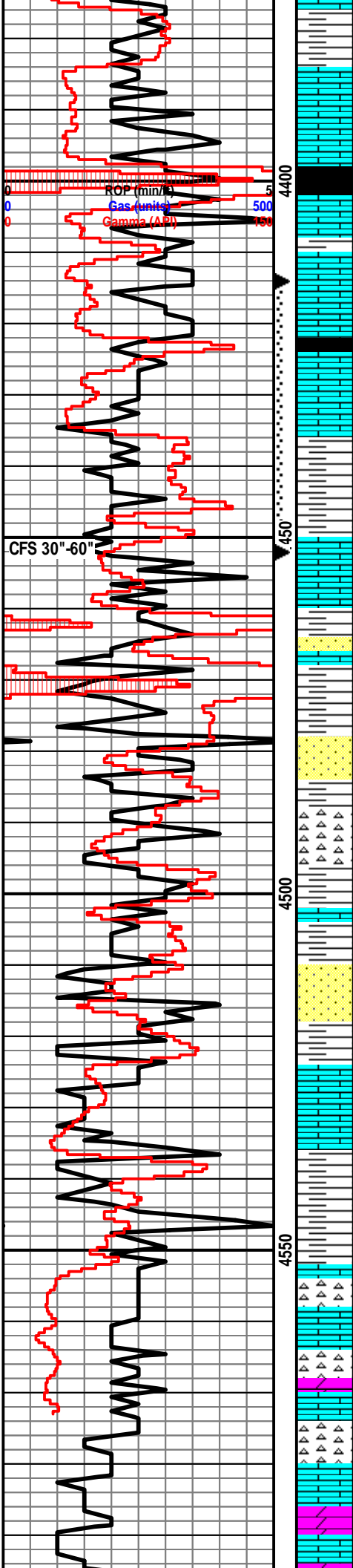
Ls: off wh-tan, fn xln, scat poor int xln porosity, scat foss, mostly DNS, scat chert-off wh, NSFO, no odor

Ls: ala

Sh: blk, carb

Ls: off wh, fn-md xln, mostly DNS, no visible





porosity, NSFO

Ls: off wh-tan, fn-md xln, poor int xln porosity, mostly DNS, scat foss, scat chert-off wh-gry, NSFO

Sh: drk gry-blk

Ls: tan-lt gry, fn-md xln, poor int xln porosity, mostly DNS, NSFO, scat chert-off wh

Ls: ala

**Cherokee Sh. 4421' (-1335)**

Sh: blk, carb

Ls: off wh-tan, fn-md xln, fair vuggy porosity, lt-fair brn stn, VSSFO, sl odor

Sh: lt-drk gry

Sh: drk gry-brn-rd

Ls: off wh-tan, fn-md xln, poor-fair int xln porosity, fair drk brn stn, SSFO, fnt odor, scat chert-off wh-lt gry

Ss: off wh-tan, fn grn, well rounded, well sorted, poor int grn porosity, sl friable, NSFO

Sh: drk gry-rd

Ss: off wh-clr, fn-md grn, sub ang, poorly sorted, poor-fairly well cemented, poor int grn porosity, NSFO, no odor

Chert: vari-colored, DNS

Sh: drk gry-brn-rd

Ss: fn grn, friable, poor-fair int grn porosity, scat chert-off wh, mostly DNS, NSFO

Ls: off wh-tan, fn-md xln, mostly DNS, scat foss, fair int xln porosity, NSFO, scat chert-off wh

Sh: drk gry-rd

**Mississippi 4552' (-1466)**

Ls: off wh-lt gry, fn-md xln, DNS, scat poor int xln porosity, NSFO, scat dolo: off wh, poor int xln porosity, hvy chert-off wh-tan-lt gry

Ls: ala, scat dolo: ala

Ls: off wh-lt gry, fn xln, mostly DNS, scat int xln porosity, NSFO, scat chert-off wh

Dolo: off wh-tan, fn-md xln, vry DNS, NSFO, hvy chert-off wh, ang, vry DNS

DST #5 4,414-4,452' (Cherokee)

30"-30"-30"-30"

IF: Weak blow built to 1.125", no blow on shut in

FF: No blow

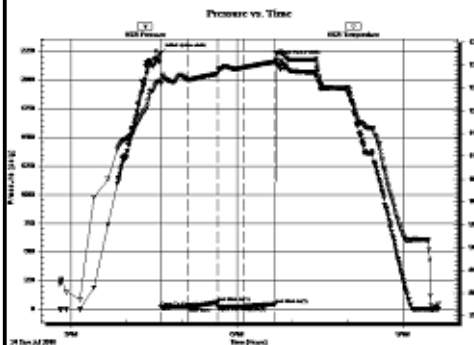
Rec: 30' SG&OCM (2%G, 6%O, 92%M)

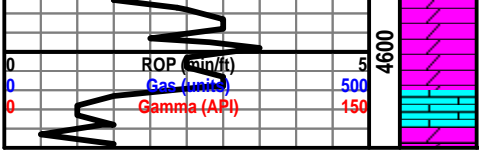
FP: 17-20, 21-25#

SIP: 61-44#

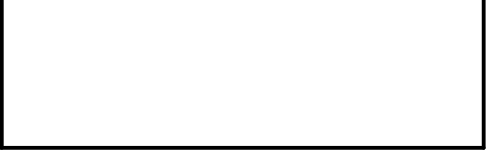
HP: 2,233-2,174#

BHT: 133





Dolo: ala, hvy chert





# Discovery Drilling

P.O. Box 763 • Hays, KS 67601 • OFFICE (785) 623-2920 • CELLULAR (785) 635-1511

## DRILLER'S LOG

Operator: John O. Farmer, Inc. Lic# 5135 Contractor: Discovery Drilling Co., Inc. LIC#31548  
370 West Wichita Avenue - P.O. Box 352 PO Box 763  
Russell, KS 67665 Hays, KS 67601

Lease: Leiker Unit # 1 Location: 2620 FSL - 540 FWL  
NE/NW/NW/SW  
Section 12/ 6S/ 33W  
Thomas County, KS

Loggers Total Depth: 4612' API#15- 193-20,964-00-00  
Rotary Total Depth: 4610' Elevation: 3075 GL - 3086 KB  
Commenced: 7/15/2016 Completed: 7/25/2016  
Casing: 8 5/8" @ 263.29W/175sks Status: D & A

### DEPTHS & FORMATIONS (All from KB)

Surface, Sand & Shale	<u>0'</u>	Shale	<u>2734'</u>
Dakota Sand	<u>1490'</u>	Shale & Lime	<u>3044'</u>
Shale	<u>1645'</u>	Shale	<u>3211'</u>
Cedar Hill Sand	<u>1998'</u>	Shale & Lime	<u>3540'</u>
Red Bed Shale	<u>2213'</u>	Lime & Shale	<u>3881'</u>
Anhydrite	<u>2696'</u>	RTD	<u>4610'</u>
Base Anhydrite	<u>2734'</u>		

STATE OF KANSAS) )  
) ss  
COUNTY OF ELLIS )

Thomas H. Alm of Discovery Drilling states that to the best of his knowledge the above and foregoing is a true and correct log of the above captioned well.

\_\_\_\_\_  
Thomas H. Alm

Subscribed and sworn to before me on 7-28-2016

My Commission expires: 6-28-2018

(Place stamp or seal below)

\_\_\_\_\_  
Notary Public

