

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)</i> <i>(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	MORGENSTERN B 1
Doc ID	1368598

All Electric Logs Run

Compensated Density Neutron Log
Dual Induction Log
Micro Resistivity Log
Cement Bond Log

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. 179

Date	6-6-17	Sec.	13	Twp.	16	Range	14	County	Barton	State	Ks	On Location		Finish	1:00 PM	
Location								Russell S to 210 Rd, 1/4 E, S+E Int								
Lease	Morganstern			Well No.	B#1			Owner								
Contractor	Discovery #2			To Quality Oilwell Cementing, Inc.												
Type Job	Surface			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	12 1/4"			T.D.	474'			Charge To	J. O. Farmer							
Csg.	8 5/8"			Depth	474'			Street								
Tbg. Size				Depth				City								
Tool				Depth				State								
Cement Left in Csg.	20'			Shoe Joint	20'			The above was done to satisfaction and supervision of owner agent or contractor.								
Meas Line				Displace	29 BLS			Cement Amount Ordered (90 80/20 3%cc 2%wt)								
EQUIPMENT																
Pumptrk	16	No.		Cementer	T. Lewis			Common	150							
Bulktrk	3	No.		Helper	Rick			Poz. Mi	40							
Bulktrk		No.		Driver				Gel.	3							
Bulktrk		No.		Driver				Calcium	7							
JOB SERVICES & REMARKS																
Remarks	Cement did Circulate															
Rat Hole																
Mouse Hole																
Centralizers																
Baskets																
D/V or Port Collar																
Handling	200															
Mileage																
FLOAT EQUIPMENT																
Guide Shoe																
Centralizer																
Baskets																
AFU Inserts																
Float Shoe																
Latch Down																
Pumptrk Charge	Surface															
Mileage	20															
												Tax				
												Discount				
												Total Charge				
X Signature <i>[Handwritten Signature]</i>																

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. 187

Date	6-13-17	Sec.	13	Twp.	16	Range	14	County	Barton	State	Ks	On Location		Finish	6:30 PM
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Lease Morganstern Well No. B #1 Location Barton + Russell County Line, 25,

Owner 1/4 E, 3/4 S
Contractor Discovery 2 To Quality Oilwell Cementing, Inc.

Type Job Longstring 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. 3410' Charge To J.O. Farmer

Csg. (5 1/2" 14# New) Depth (3409') Street

Tbg. Size Depth City State

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

Cement Left in Csg. 24' Shoe Joint 24' Cement Amount Ordered 175 Com 10% Salt 5% Gilsomite

Meas Line Displace 82 1/2 BLS 500 gal mud Class 48 - 20 BLS KCL

EQUIPMENT Common 175

Pumptrk <u>16</u> No.	Cementer <u>Traut</u>	Poz. Mix
Bulktrk <u>3</u> No.	Driver <u>Jordan</u>	Gel.
Bulktrk <u>pin.</u> No.	Driver <u>Rick</u>	Calcium <u>15</u>

JOB SERVICES & REMARKS Hulls

Remarks: Salt KCL 2 gal

Rat Hole Flowseal

Mouse Hole Kol-Seal 750 #

Centralizers 1, 3, 5, 7, 9, 11 Mud CLR 48 500 gal

Baskets 12 CFL-117 or CD110 CAF 36

D/V or Port Collar pipe on bottom break Circulation Sand

pump 500 gal mud Clear 48 pump 20 Handling 192

BLS KCL plug Rathole w/ 30 sx Mileage

plug Mousehole w/ 15 sx Hook to Casings FLOAT EQUIPMENT

+ (mix 130 sx Cement) Shut down Guide Shoe

Wash pump + lines Displaced Plug Centralizer 6

w/ 82 1/2 BLS. Released & held. Baskets 1

Lift pressure 800 # AFU Inserts

Land plug to 1500 # Float Shoe

Latch Down

150' - Socrates's Rotating head Pumptrk Charge prod string

Mileage 15 Tax Discount Total Charge

X Signature Am W. eawley



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: Morgenstern "B" # 1 Location: 2310 FNL - 2310 FEL
SW/SW/NE
Section 13/ 16S/ 14W
Barton County, KS

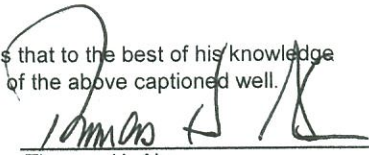
Loggers Total Depth: 3412' API#15- 009-26,174-00-00
 Rotary Total Depth: 3410' Elevation: 1906 GL - 1914 KB
 Commenced: 6/5/2017 Completed: 6/13/2017
 Casing: 8 5/8" @ 474 W/190sks Status: Oil Well
5 1/2" @ 340 W/130sks

DEPTHS & FORMATIONS (All from KB)

Surface, Sand & Shale	<u>0'</u>	Shale	<u>902'</u>
Dakota Sand	<u>182'</u>	Shale & Lime	<u>1597'</u>
Shale	<u>249'</u>	Shale	<u>1892'</u>
Cedar Hill Sand	<u>331'</u>	Shale & Lime	<u>2415'</u>
Red Bed Shale	<u>505'</u>	Lime & Shale	<u>3060'</u>
Anhydrite	<u>874'</u>	RTD	<u>3410'</u>
Base Anhydrite	<u>902'</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.

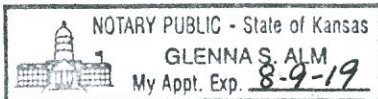

 Thomas H. Alm

Subscribed and sworn to before me on 6-14-17

My Commission expires: 8-9-19

(Place stamp or seal below)


 Notary Public





DRILL STEM TEST REPORT

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

PO Box 352
Russell, KS 67665

ATTN: Austin Klaus

Morgenstern B #1

13-16S-14W Barton,KS

Start Date: 2017.06.11 @ 02:30:10

End Date: 2017.06.11 @ 09:16:40

Job Ticket #: 63253 DST #: 1

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

Printed: 2017.06.13 @ 15:21:12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

John O. Farmer, Inc.
 PO Box 352
 Russell, KS 67665
 ATTN: Austin Klaus

13-16S-14W Barton, KS
Morgenstern B #1
 Job Ticket: 63253 **DST#: 1**
 Test Start: 2017.06.11 @ 02:30:10

GENERAL INFORMATION:

Formation: **LKC "A-C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:43:00
 Time Test Ended: 09:16:40
 Interval: **3116.00 ft (KB) To 3164.00 ft (KB) (TVD)**
 Total Depth: 3164.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 65
 Reference Elevations: 1914.00 ft (KB)
 1906.00 ft (CF)
 KB to GR/CF: 8.00 ft

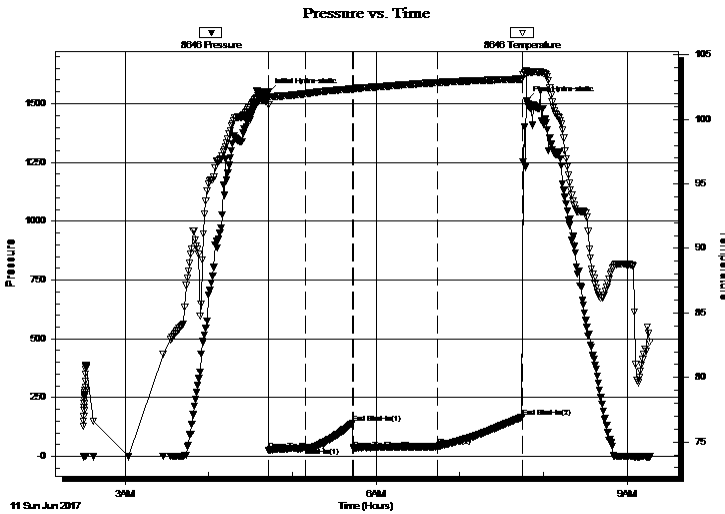
Serial #: 8646

Outside

Press@RunDepth: 42.36 psig @ 3117.00 ft (KB)
 Start Date: 2017.06.11 End Date: 2017.06.11
 Start Time: 02:30:11 End Time: 09:16:40
 Capacity: 8000.00 psig
 Last Calib.: 2017.06.11
 Time On Btm: 2017.06.11 @ 04:42:50
 Time Off Btm: 2017.06.11 @ 07:48:00

TEST COMMENT: 30- IF- Weak blow built very slow ly to 2 1/2"
 30- IS- No blow
 60- FF- Weak blow built very slow ly to 1"
 60- FSI- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1546.41	102.15	Initial Hydro-static
1	25.21	101.14	Open To Flow (1)
27	37.99	102.00	Shut-In(1)
61	141.96	102.36	End Shut-In(1)
61	32.13	102.39	Open To Flow (2)
121	42.36	102.85	Shut-In(2)
182	165.74	103.14	End Shut-In(2)
186	1513.31	103.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mw / few oil spots	0.22

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

John O. Farmer, Inc.

13-16S-14W Barton, KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

ATTN: Austin Klaus

Job Ticket: 63253

DST#: 1

Test Start: 2017.06.11 @ 02:30:10

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:43:00

Time Test Ended: 09:16:40

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan Lonsdale

Unit No: 65

Interval: 3116.00 ft (KB) To 3164.00 ft (KB) (TVD)

Reference Elevations: 1914.00 ft (KB)

Total Depth: 3164.00 ft (KB) (TVD)

1906.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8653

Inside

Press@RunDepth: psig @ 3117.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.06.11

End Date:

2017.06.11

Last Calib.:

2017.06.11

Start Time: 02:30:05

End Time:

09:16:34

Time On Btm:

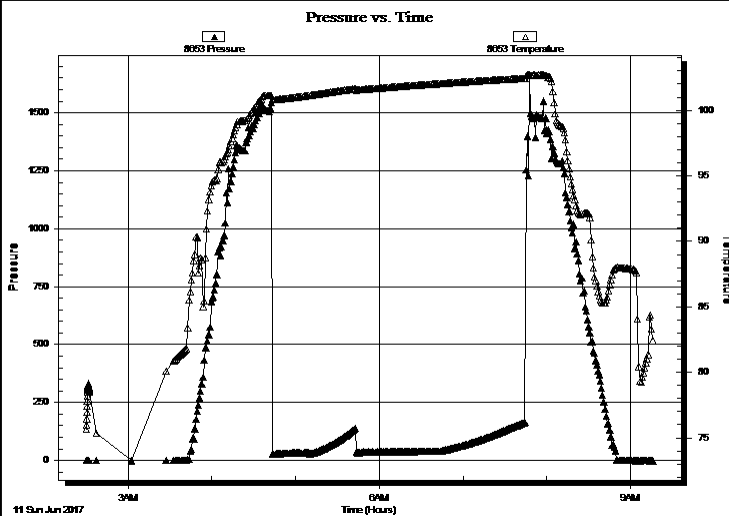
Time Off Btm:

TEST COMMENT: 30- IF- Weak blow built very slowly to 2 1/2"

30- IS- No blow

60- FF- Weak blow built very slowly to 1"

60- FS- No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mw / few oil spots	0.22

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O. Farmer, Inc.

13-16S-14W Barton, KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63253

DST#: 1

ATTN: Austin Klaus

Test Start: 2017.06.11 @ 02:30:10

Tool Information

Drill Pipe:	Length: 2819.00 ft	Diameter: 3.82 inches	Volume: 39.96 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 309.00 ft	Diameter: 2.75 inches	Volume: 2.27 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: 68000.00 lb
			<u>Total Volume: 42.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3116.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	68.00 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			3097.00	
Shut In Tool	5.00			3102.00	
Hydraulic tool	5.00			3107.00	
Packer	5.00			3112.00	20.00 Bottom Of Top Packer
Packer	4.00			3116.00	
Stubb	1.00			3117.00	
Recorder	0.00	8653	Inside	3117.00	
Recorder	0.00	8646	Outside	3117.00	
Perforations	11.00			3128.00	
Change Over Sub	1.00			3129.00	
Drill Pipe	31.00			3160.00	
Change Over Sub	1.00			3161.00	
Bullnose	3.00			3164.00	48.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63253

DST#: 1

ATTN: Austin Klaus

Test Start: 2017.06.11 @ 02:30:10

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Mw / few oil spots	0.220

Total Length: 30.00 ft Total Volume: 0.220 bbl

Num Fluid Samples: 0

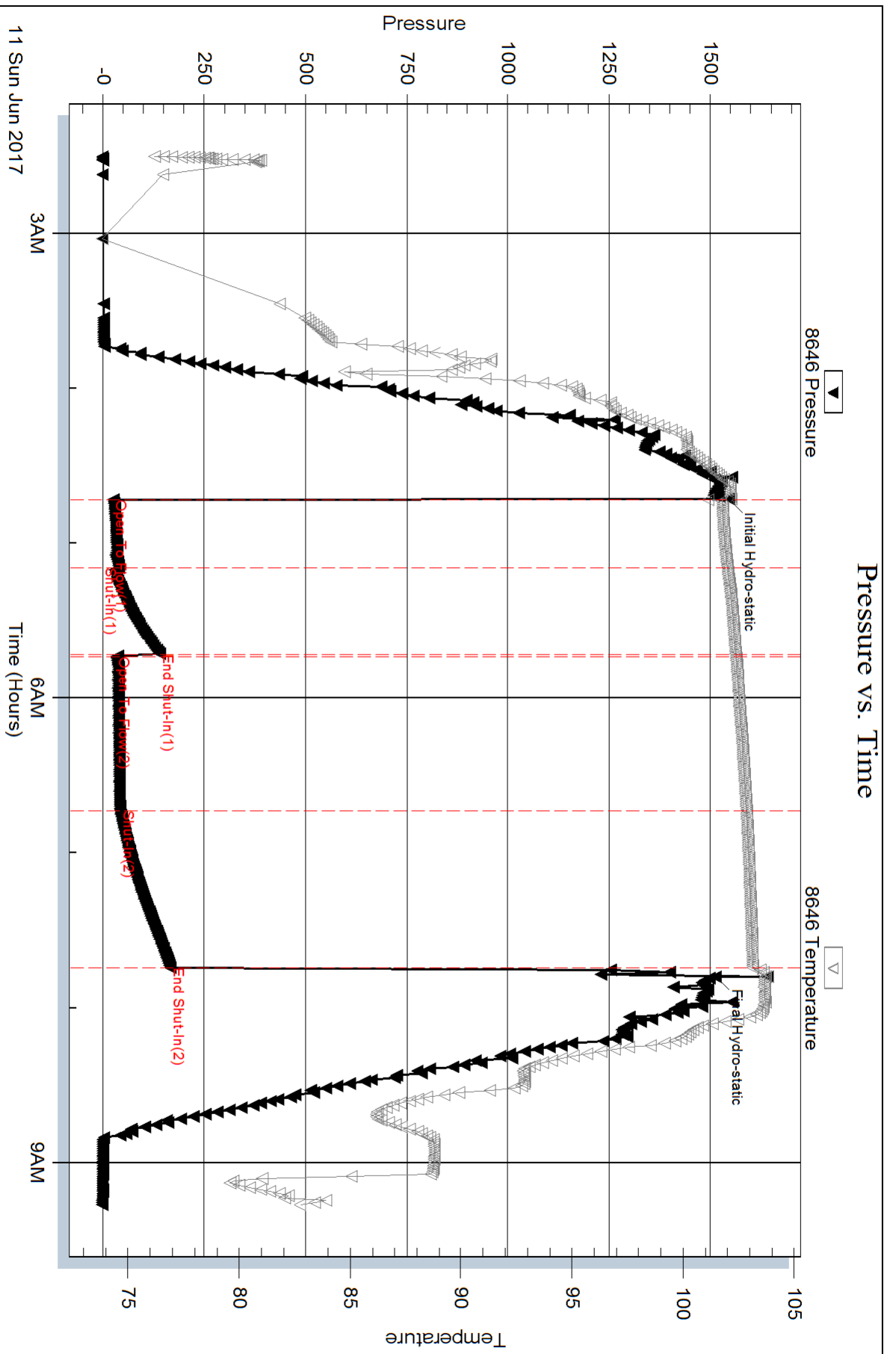
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



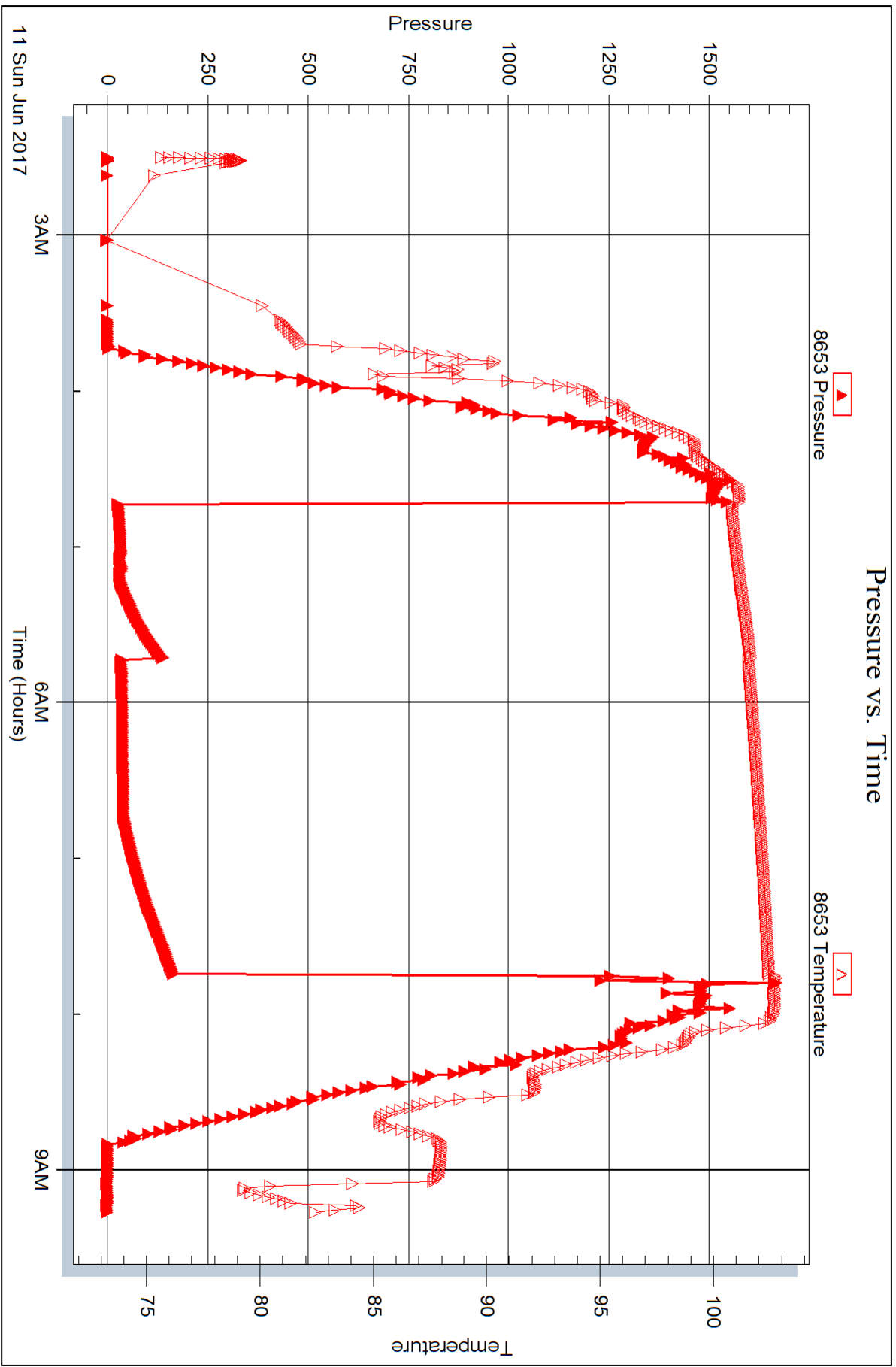
Serial #: 8653

Inside

John O. Farmer, Inc.

Morgenstern B #1

DST Test Number: 1





DRILL STEM TEST REPORT

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

PO Box 352
Russell, KS 67665

ATTN: Austin Klaus

Morgenstern B #1

13-16S-14W Barton,KS

Start Date: 2017.06.11 @ 16:42:26

End Date: 2017.06.11 @ 21:02:46

Job Ticket #: 63254 DST #: 2

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

Printed: 2017.06.13 @ 15:20:14



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63254 **DST#: 2**

ATTN: Austin Klaus

Test Start: 2017.06.11 @ 16:42:26

GENERAL INFORMATION:

Formation: **LKC "E-G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 18:16:36
 Time Test Ended: 21:02:46
 Interval: **3170.00 ft (KB) To 3220.00 ft (KB) (TVD)**
 Total Depth: 3220.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 65
 Reference Elevations: 1914.00 ft (KB)
 1906.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8646

Outside

Press@RunDepth: 20.68 psig @ 3171.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.11 End Date: 2017.06.11 Last Calib.: 1899.12.30
 Start Time: 16:42:27 End Time: 21:02:46 Time On Btm: 2017.06.11 @ 18:16:26
 Time Off Btm: 2017.06.11 @ 19:40:16

TEST COMMENT: 30- IF- Weak surface blow died in 10 mins
 30- IS- No blow
 20- FF- No blow Pulled tool

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1582.69	100.82	Initial Hydro-static
1	21.22	99.78	Open To Flow (1)
30	20.68	100.86	Shut-In(1)
60	86.47	101.20	End Shut-In(1)
61	21.58	101.21	Open To Flow (2)
82	22.10	101.44	Shut-In(2)
84	1542.69	101.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	M 100%	0.02

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63254

DST#: 2

ATTN: Austin Klaus

Test Start: 2017.06.11 @ 16:42:26

Tool Information

Drill Pipe:	Length: 2850.00 ft	Diameter: 3.82 inches	Volume: 40.40 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 309.00 ft	Diameter: 2.75 inches	Volume: 2.27 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: 65000.00 lb
			<u>Total Volume: 42.67 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	3170.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	70.00 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			3151.00	
Shut In Tool	5.00			3156.00	
Hydraulic tool	5.00			3161.00	
Packer	5.00			3166.00	20.00 Bottom Of Top Packer
Packer	4.00			3170.00	
Stubb	1.00			3171.00	
Recorder	0.00	8653	Inside	3171.00	
Recorder	0.00	8646	Outside	3171.00	
Perforations	15.00			3186.00	
Change Over Sub	1.00			3187.00	
Drill Pipe	29.00			3216.00	
Change Over Sub	1.00			3217.00	
Bullnose	3.00			3220.00	50.00 Bottom Packers & Anchor

Total Tool Length: 70.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63254

DST#: 2

ATTN: Austin Klaus

Test Start: 2017.06.11 @ 16:42:26

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: 7.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	M 100%	0.022

Total Length: 3.00 ft Total Volume: 0.022 bbl

Num Fluid Samples: 0

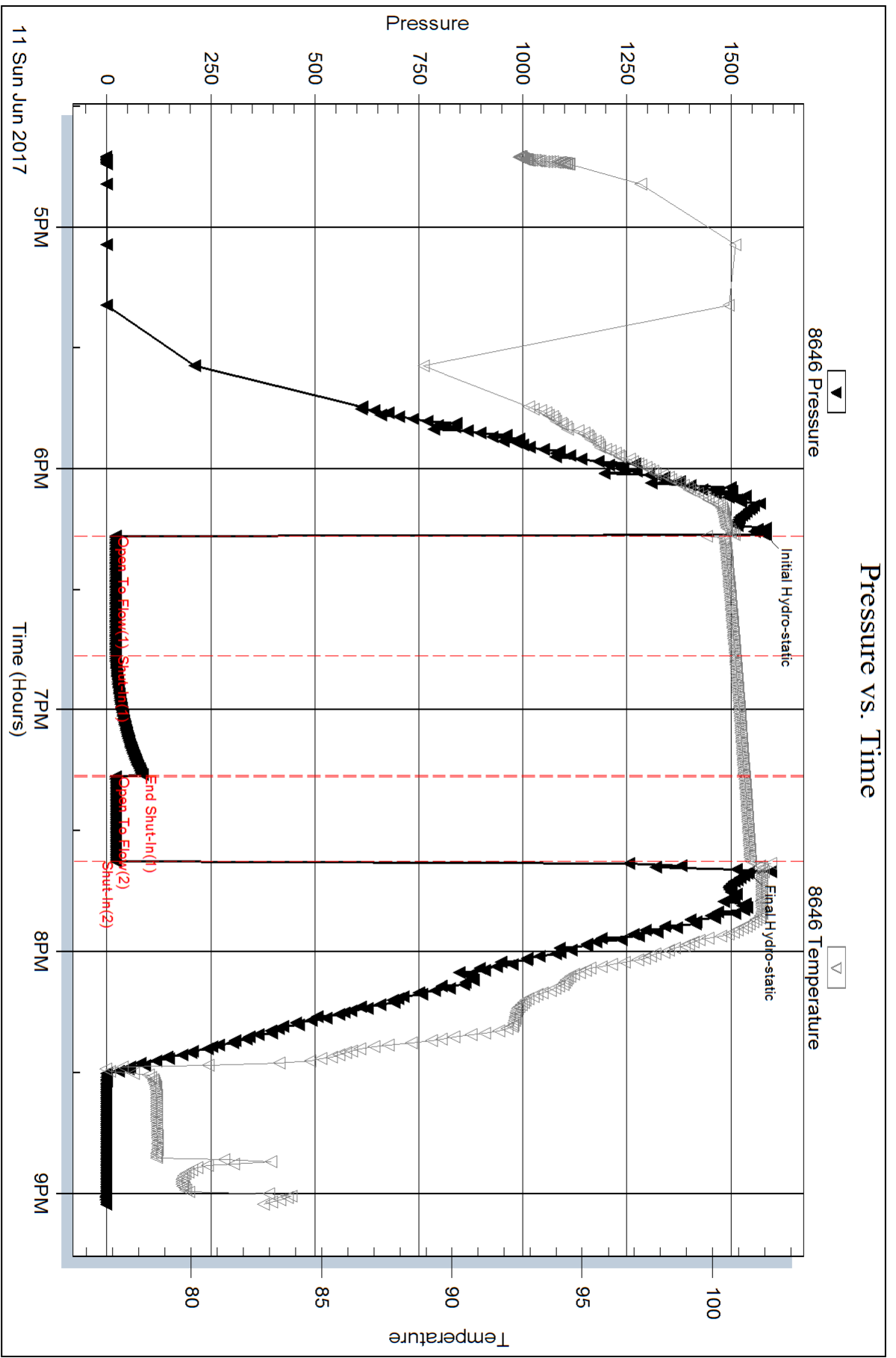
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



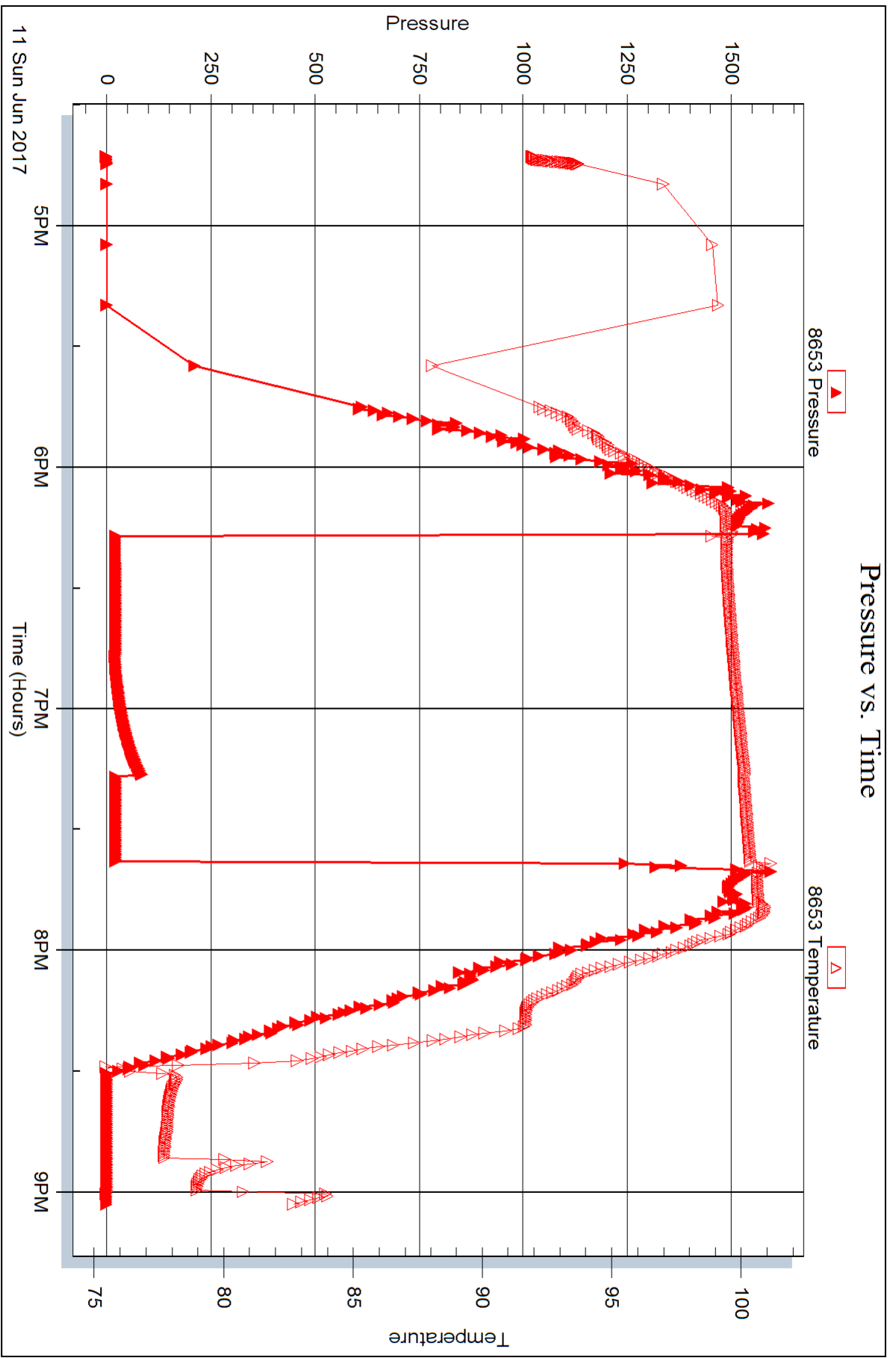
Serial #: 8653

Inside

John O. Farmer, Inc.

Morgenstern B #1

DST Test Number: 2





DRILL STEM TEST REPORT

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

PO Box 352
Russell, KS 67665

ATTN: Austin Klaus

Morgenstern B #1

13-16S-14W Barton,KS

Start Date: 2017.06.12 @ 06:47:02

End Date: 2017.06.12 @ 12:47:02

Job Ticket #: 63255 DST #: 3

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

Printed: 2017.06.13 @ 15:19:51

John O. Farmer, Inc.
13-16S-14W Barton,KS
Morgenstern B #1
DST # 3
LKC "H-J"
2017.06.12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

John O. Farmer, Inc.
 PO Box 352
 Russell, KS 67665
 ATTN: Austin Klaus

13-16S-14W Barton, KS

Morgenstern B #1

Job Ticket: 63255 **DST#: 3**
 Test Start: 2017.06.12 @ 06:47:02

GENERAL INFORMATION:

Formation: **LKC "H-J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:29:32
 Time Test Ended: 12:47:02
 Interval: **3250.00 ft (KB) To 3310.00 ft (KB) (TVD)**
 Total Depth: 3310.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 65
 Reference Elevations: 1914.00 ft (KB)
 1906.00 ft (CF)
 KB to GR/CF: 8.00 ft

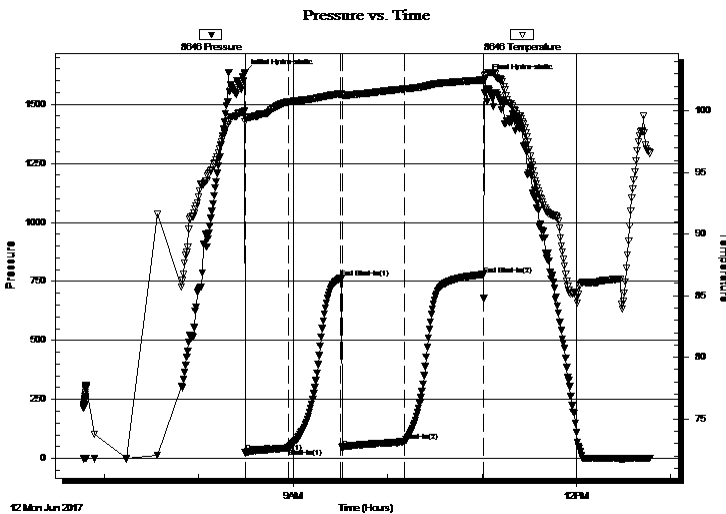
Serial #: 8646

Outside

Press@RunDepth: 71.85 psig @ 3251.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.12 End Date: 2017.06.12 Last Calib.: 2017.06.12
 Start Time: 06:47:03 End Time: 12:47:02 Time On Btm: 2017.06.12 @ 08:29:22
 Time Off Btm: 2017.06.12 @ 11:02:02

TEST COMMENT: 30- IF- Slowly built to 8"
 30- IS- No blow
 45- FF- BOB 18 mins
 45- FSI- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1631.99	99.98	Initial Hydro-static
1	24.88	99.13	Open To Flow (1)
28	44.63	100.74	Shut-In(1)
61	763.91	101.38	End Shut-In(1)
62	45.06	101.27	Open To Flow (2)
102	71.85	101.79	Shut-In(2)
152	779.20	102.52	End Shut-In(2)
153	1609.39	102.95	Final Hydro-static

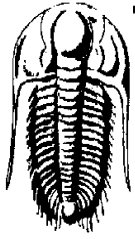
Recovery

Length (ft)	Description	Volume (bbl)
129.00	OCM, 10%O 90%M	0.95
0.00	180' GIP	0.00

* 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.
PO Box 352
Russell, KS 67665
ATTN: Austin Klaus

13-16S-14W Barton, KS
Morgenstern B #1
Job Ticket: 63255 **DST#: 3**
Test Start: 2017.06.12 @ 06:47:02

GENERAL INFORMATION:

Formation: LKC "H-J"		Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock:	ft (KB)	Tester: Brannan Lonsdale
Time Tool Opened: 08:29:32		Unit No: 65
Time Test Ended: 12:47:02		Reference Elevations: 1914.00 ft (KB)
Interval: 3250.00 ft (KB) To 3310.00 ft (KB) (TVD)		1906.00 ft (CF)
Total Depth: 3310.00 ft (KB) (TVD)		KB to GR/CF: 8.00 ft
Hole Diameter: 7.88 inches	Hole Condition: Fair	

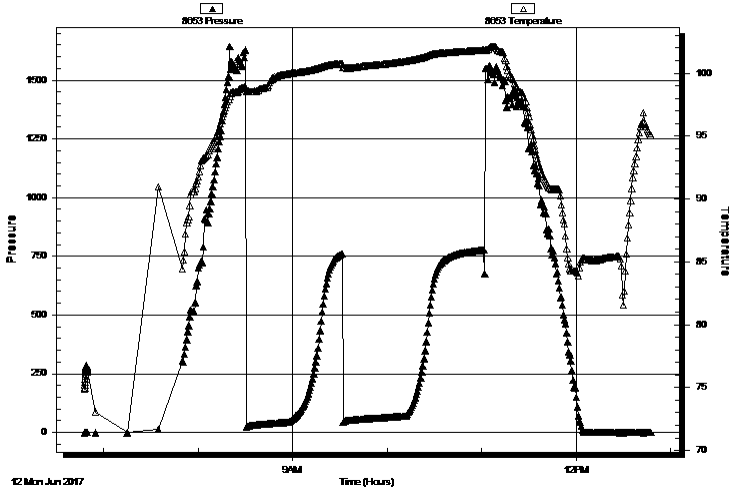
Serial #: 8653

Inside

Press@RunDepth: psig @	3251.00 ft (KB)	Capacity:	8000.00 psig
Start Date: 2017.06.12	End Date: 2017.06.12	Last Calib.:	2017.06.12
Start Time: 06:47:55	End Time: 12:47:54	Time On Btm:	
		Time Off Btm:	

TEST COMMENT: 30- IF- Slow ly built to 8"
30- IS- No blow
45- FF- BOB 18 mins
45- FS- No blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
129.00	OCM, 10% O 90% M	0.95
0.00	180' 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

John O. Farmer, Inc.

13-16S-14W Barton, KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63255

DST#: 3

ATTN: Austin Klaus

Test Start: 2017.06.12 @ 06:47:02

Tool Information

Drill Pipe:	Length: 2943.00 ft	Diameter: 3.82 inches	Volume: 41.72 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 309.00 ft	Diameter: 2.75 inches	Volume: 2.27 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: 65000.00 lb
			<u>Total Volume: 43.99 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3250.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	80.00 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			3231.00	
Shut In Tool	5.00			3236.00	
Hydraulic tool	5.00			3241.00	
Packer	5.00			3246.00	20.00 Bottom Of Top Packer
Packer	4.00			3250.00	
Stubb	1.00			3251.00	
Recorder	0.00	8653	Inside	3251.00	
Recorder	0.00	8646	Outside	3251.00	
Perforations	23.00			3274.00	
Change Over Sub	1.00			3275.00	
Drill Pipe	31.00			3306.00	
Change Over Sub	1.00			3307.00	
Bullnose	3.00			3310.00	60.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63255

DST#: 3

ATTN: Austin Klaus

Test Start: 2017.06.12 @ 06:47:02

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

28 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
129.00	OCM, 10%O 90%M	0.948
0.00	180' GIP	0.000

Total Length: 129.00 ft Total Volume: 0.948 bbl

Num Fluid Samples: 0

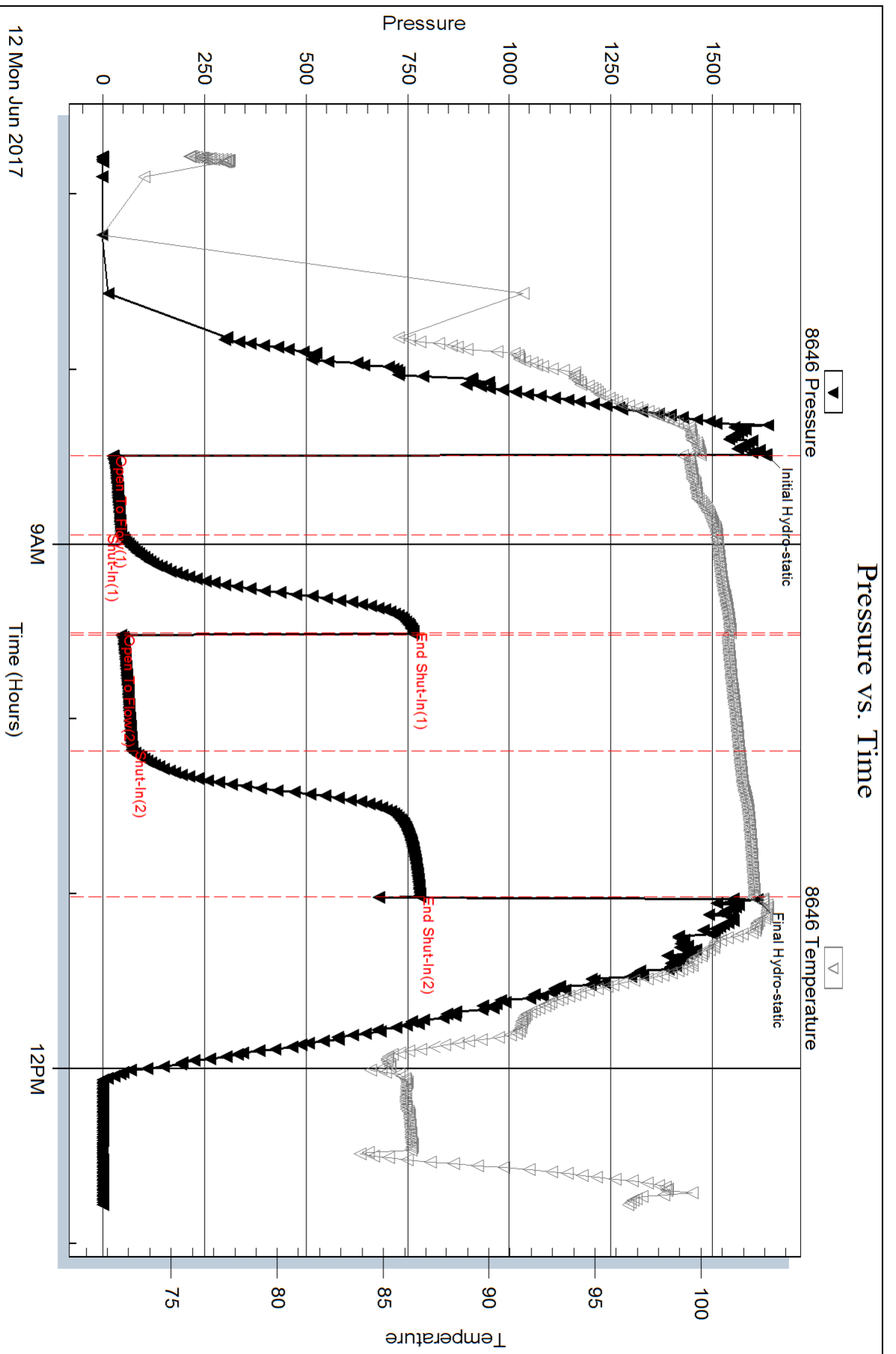
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



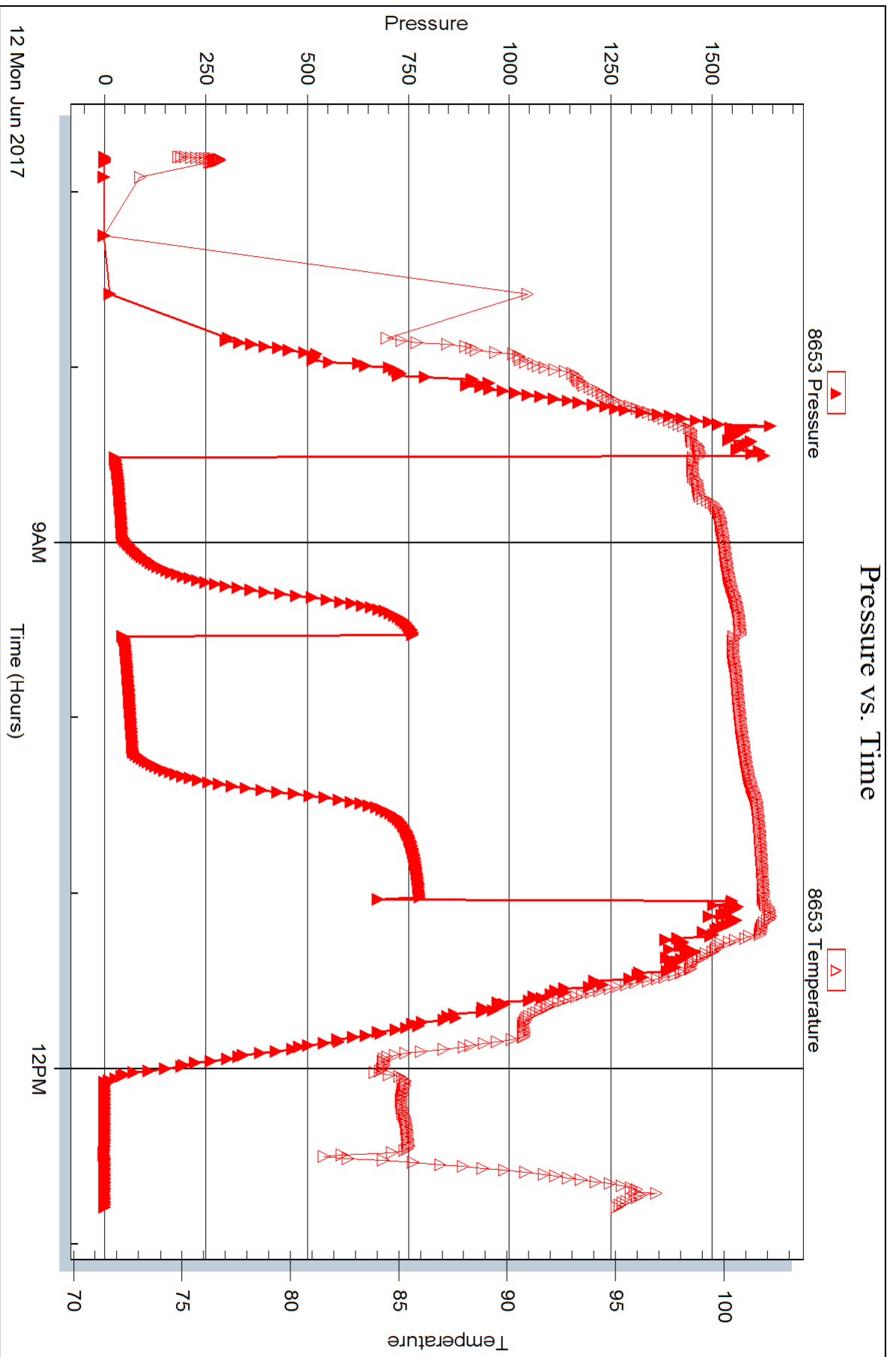
Serial #: 8653

Inside

John O. Farmer, Inc.

Morgenstern B#1

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63255

Printed: 2017.06.13 @ 15:19:52



DRILL STEM TEST REPORT

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

PO Box 352
Russell, KS 67665

ATTN: Austin Klaus

Morgenstern B #1

13-16S-14W Barton,KS

Start Date: 2017.06.13 @ 02:30:54

End Date: 2017.06.13 @ 09:31:14

Job Ticket #: 63256 DST #: 4

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

Printed: 2017.06.13 @ 15:19:23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63256

DST#: 4

ATTN: Austin Klaus

Test Start: 2017.06.13 @ 02:30:54

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:38:34

Time Test Ended: 09:31:14

Test Type: Conventional Straddle (Reset)

Tester: Brannan Lonsdale

Unit No: 65

Interval: 3316.00 ft (KB) To 3370.00 ft (KB) (TVD)

Reference Elevations: 1914.00 ft (KB)

Total Depth: 3410.00 ft (KB) (TVD)

1906.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8646

Outside

Press@RunDepth: 453.28 psig @ 3317.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.06.13

End Date:

2017.06.13

Last Calib.:

2017.06.13

Start Time: 02:30:55

End Time:

09:31:14

Time On Btm:

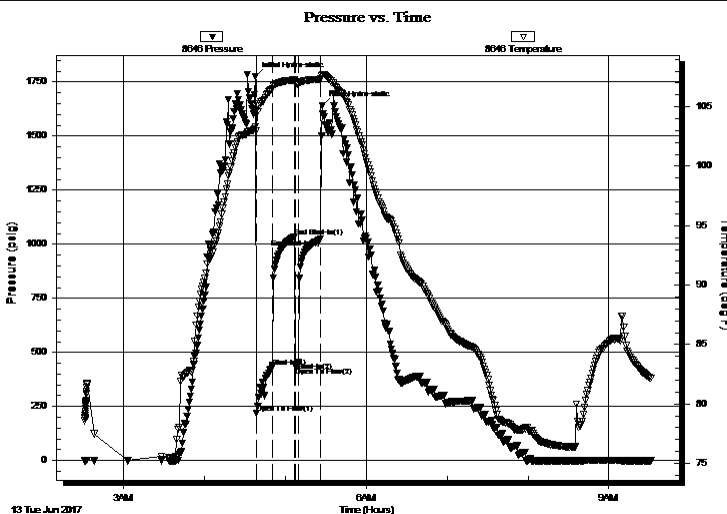
2017.06.13 @ 04:37:44

Time Off Btm:

2017.06.13 @ 05:27:34

TEST COMMENT: 13- IF- BOB 10 secs
15- IS- No blow
05- FF- BOB 30 secs
15- FSI- No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1775.25	103.29	Initial Hydro-static
1	219.40	102.99	Open To Flow (1)
13	430.30	106.52	Shut-In(1)
29	1035.02	107.25	End Shut-In(1)
30	434.37	106.95	Open To Flow (2)
32	453.28	106.85	Shut-In(2)
49	1023.25	107.32	End Shut-In(2)
50	1640.63	107.72	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
815.00	GMCO, 25%G 65%O 10%M	9.44
220.00	OCM, 20%O 80%M	3.12
0.00	95' GIP	0.00

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.

13-16S-14W Barton, KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63256 **DST#: 4**

ATTN: Austin Klaus

Test Start: 2017.06.13 @ 02:30:54

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:38:34

Time Test Ended: 09:31:14

Test Type: Conventional Straddle (Reset)

Tester: Brannan Lonsdale

Unit No: 65

Interval: 3316.00 ft (KB) To 3370.00 ft (KB) (TVD)

Reference Elevations: 1914.00 ft (KB)

Total Depth: 3410.00 ft (KB) (TVD)

1906.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8653

Inside

Press@RunDepth: psig @ 3317.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.06.13

End Date: 2017.06.13

Last Calib.: 2017.06.13

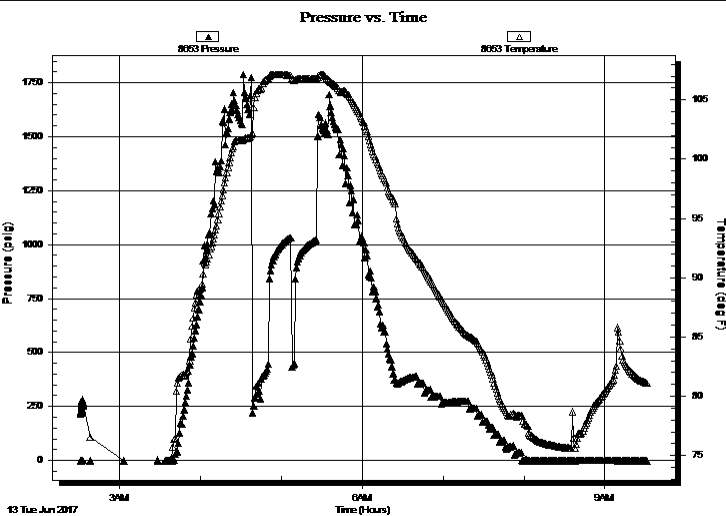
Start Time: 02:30:50

End Time: 09:31:09

Time On Btm:

Time Off Btm:

TEST COMMENT: 13- IF- BOB 10 secs
15- ISL- No blow
05- FF- BOB 30 secs
15- FSL- No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
815.00	GMCO, 25%G 65%O 10%M	9.44
220.00	OCM, 20%O 80%M	3.12
0.00	95' 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

John O. Farmer, Inc.

13-16S-14W Barton, KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63256

DST#: 4

ATTN: Austin Klaus

Test Start: 2017.06.13 @ 02:30:54

Tool Information

Drill Pipe:	Length: 3004.00 ft	Diameter: 3.82 inches	Volume: 42.58 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 309.00 ft	Diameter: 2.75 inches	Volume: 2.27 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: 70000.00 lb
			<u>Total Volume: 44.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	3316.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	3370.00 ft			
Interval between Packers:	54.00 ft			
Tool Length:	112.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3297.00	
Shut In Tool	5.00			3302.00	
Hydraulic tool	5.00			3307.00	
Packer	5.00			3312.00	20.00 Bottom Of Top Packer
Packer	4.00			3316.00	
Stubb	1.00			3317.00	
Recorder	0.00	8653	Inside	3317.00	
Recorder	0.00	8646	Outside	3317.00	
Perforations	6.00			3323.00	
Change Over Sub	1.00			3324.00	
Drill Pipe	31.00			3355.00	
Change Over Sub	1.00			3356.00	
Perforations	10.00			3366.00	
Blank Off Sub	1.00			3367.00	
Blank Spacing	3.00			3370.00	54.00 Tool Interval
Packer	1.00			3371.00	
Stubb	1.00			3372.00	
Recorder	0.00	8737	Below	3372.00	
Change Over Sub	1.00			3373.00	
Drill Pipe	31.00			3404.00	
Change Over Sub	1.00			3405.00	
Bullnose	3.00			3408.00	38.00 Bottom Packers & Anchor
Total Tool Length:	112.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

John O. Farmer, Inc.

13-16S-14W Barton,KS

PO Box 352
Russell, KS 67665

Morgenstern B #1

Job Ticket: 63256

DST#: 4

ATTN: Austin Klaus

Test Start: 2017.06.13 @ 02:30:54

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
815.00	GMCO, 25%G 65%O 10%M	9.443
220.00	OCM, 20%O 80%M	3.119
0.00	95' GIP	0.000

Total Length: 1035.00 ft Total Volume: 12.562 bbl

Num Fluid Samples: 0

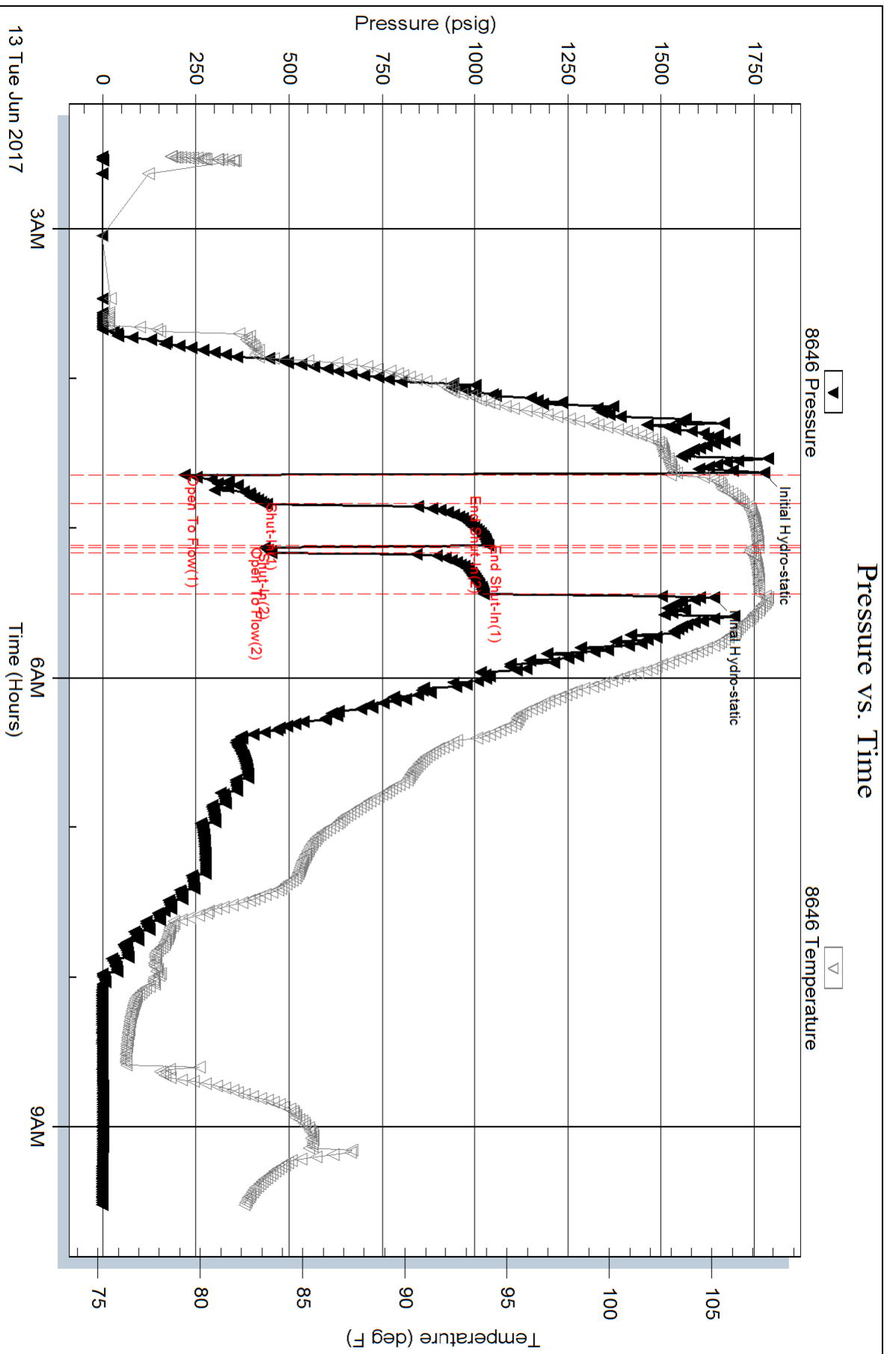
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



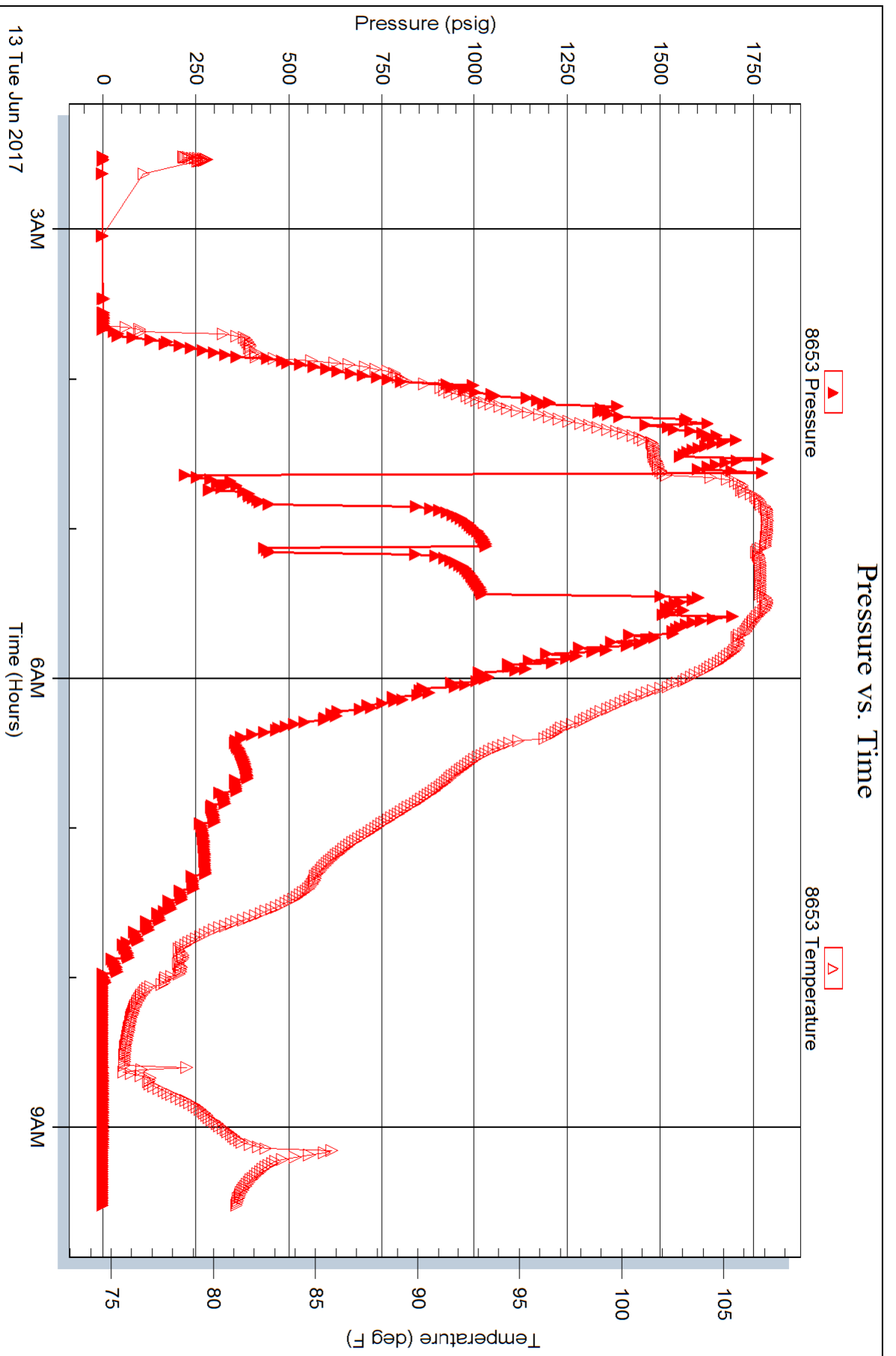
Serial #: 8653

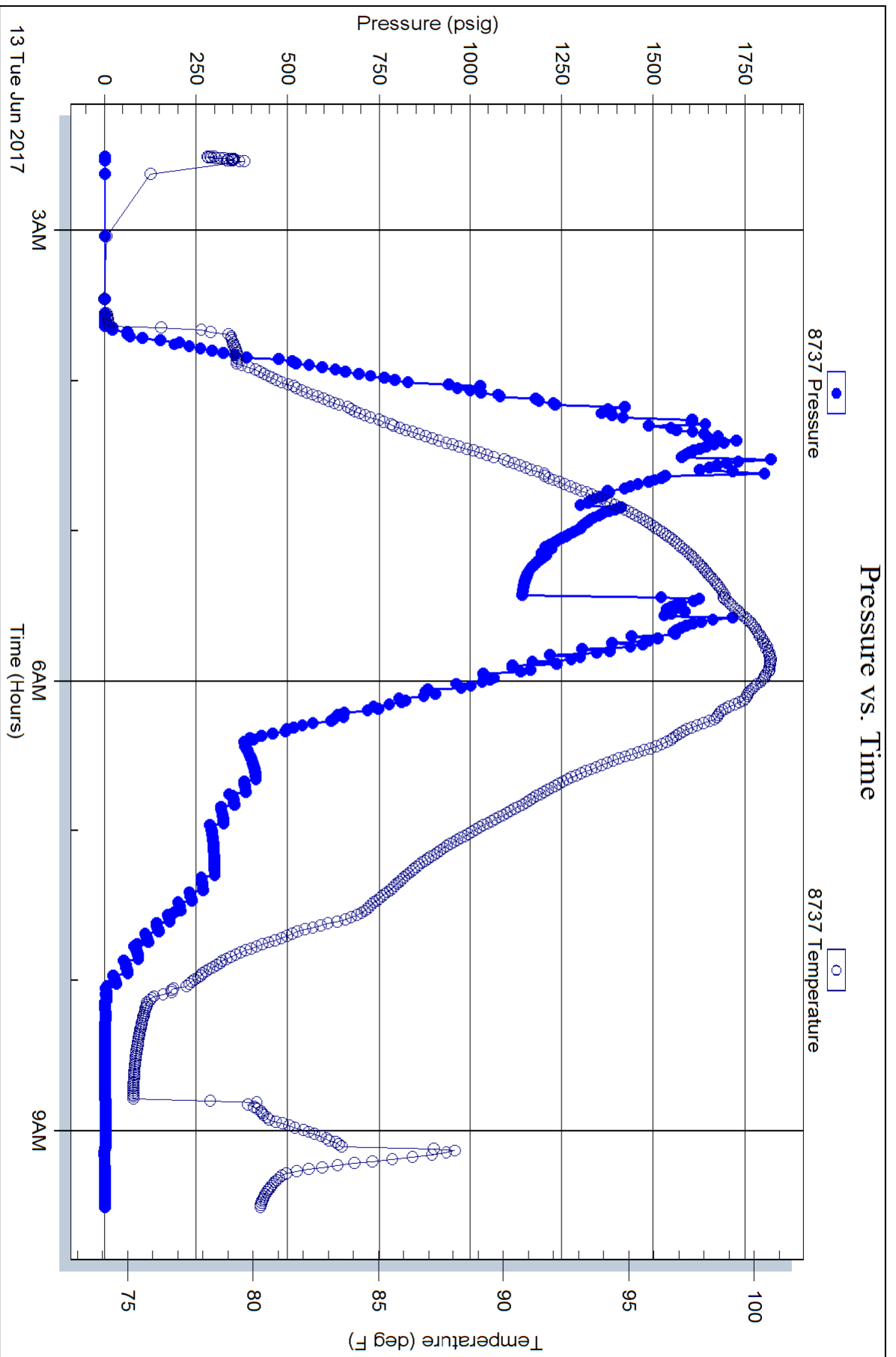
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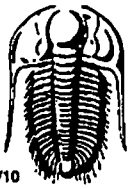
John O. Farmer, Inc.

Morgenstern B#1

DST Test Number: 4







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63253

Well Name & No. Morgenstern B #1 Test No. 1 Date 6/11/17
 Company John O. Farmer, Inc. Elevation 1914 KB 1906GL
 Address 370 W. Wichita Ave. PO Box 352 Russell, KS 67665
 Co. Rep / Geo. Austin Klans Rig Discovery #2
 Location: Sec. 13 Twp. 16 S Rge. 14 W Co. Burdon State KS

Interval Tested 3116-3164 Zone Tested LKC "A-C"
 Anchor Length 48' Drill Pipe Run 2819 Mud Wt. 8.8
 Top Packer Depth 3111 Drill Collars Run --- Vis 49
 Bottom Packer Depth 3116 Wt. Pipe Run 309 WL 7.4
 Total Depth 3164 Chlorides 4,600 ppm System LCM 2#
 Blow Description IF - Weak blow built very slowly to 2 1/2"
ISF - No blow
PF - Weak blow built very slowly to 1"
FSF - No blow

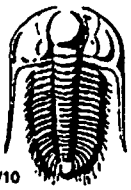
Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>M w/ few oil spots</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30' BHT 103° Gravity --- API RW --- @ --- ° F Chlorides --- ppm
 (A) Initial Hydrostatic 1546 Test 1050 T-On Location 0210
 (B) First Initial Flow 25 Jars --- T-Started 0230
 (C) First Final Flow 38 Safety Joint --- T-Open 0443
 (D) Initial Shut-In 142 Circ Sub --- T-Pulled 0743
 (E) Second Initial Flow 32 Hourly Standby --- T-Out 0917
 (F) Second Final Flow 42 Mileage 80 RT 60 Comments ---
 (G) Final Shut-In 166 Sampler ---
 (H) Final Hydrostatic 1513 Straddle ---
 Shale Packer ---
 Extra Packer ---
 Extra Recorder ---
 Day Standby ---
 Accessibility ---
 Sub Total 1110

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

Sub Total 1110 MP/DST Disc't ---

Approved By _____ Our Representative Brennan Lonsdale
 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. 63254

Well Name & No. Morgenstern B #1 Test No. 2 Date 6/14/17
 Company John O. Farmer, Inc. Elevation 1914 KB 1906 GL
 Address 370 W. Wichita Ave PO Box 352 Russell, KS 67665
 Co. Rep / Geo. Austen Klaus Rig Discovery #2
 Location: Sec. 13 Twp. 16 S Rge. 14 W Co. Barber State KS

Interval Tested 3170-3220 Zone Tested LKC "E-G"
 Anchor Length 50' Drill Pipe Run 2850 Mud Wt. 9.0
 Top Packer Depth 3165 Drill Collars Run 3095 Vis 52
 Bottom Packer Depth 3170 Wt. Pipe Run _____ WL 7.4
 Total Depth 3220 Chlorides 5,700 ppm System LCM 2#
 Blow Description IF - Weak surface blow died in 10 mins
ISI - No blow
FF - No blow Pulled tool

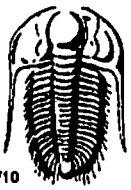
Rec	Feet of	%gas	%oil	%water	%mud
<u>3</u>	<u>M</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 3' BHT 101° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1583</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>1635</u>
(B) First Initial Flow <u>21</u>	<input type="checkbox"/> Jars _____	T-Started <u>1642</u>
(C) First Final Flow <u>21</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>1816</u>
(D) Initial Shut-In <u>86</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1736</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>2102</u>
(F) Second Final Flow <u>22</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT</u> 60	Comments _____
(G) Final Shut-In _____	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1543</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>20</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In _____	<input type="checkbox"/> Day Standby _____	Total <u>1110</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1110</u>	

Approved By _____ Our Representative Brannan LeasDale

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. 63255

Well Name & No. Morgenstern B #1 Test No. 3 Date 6/12/17
 Company John O. Farmer, Inc. Elevation 1914 KB 1906 GL
 Address 370 W. Wochita Ave. PO Box 352 Russell, KS 67665
 Co. Rep / Geo. Austin Klaus Rig Discovery #2
 Location: Sec. 13 Twp. 16 S Rge. 14 W Co. Barber State KS

Interval Tested 3250-3310 Zone Tested LKC "H-J"
 Anchor Length 60' Drill Pipe Run 2943 Mud Wt. 9.0
 Top Packer Depth 3245 Drill Collars Run — Vis 52
 Bottom Packer Depth 3250 Wt. Pipe Run 309 WL 7.4
 Total Depth 3310 Chlorides 5700 ppm System LCM 2nd

Blow Description IF - slowly built to 8"
FST - No blow
PF - BOB 18 mins
FST - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>129'</u>	<u>OCM</u>		<u>10%</u>		<u>90%</u>
Rec	Feet of <u>100' CIP</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

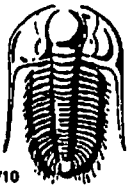
Rec Total 129' BHT 103° Gravity 2.8 API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic 1632 Test 1050 T-On Location 0635
 (B) First Initial Flow 25 Jars — T-Started 0647
 (C) First Final Flow 45 Safety Joint — T-Open 0830
 (D) Initial Shut-In 764 Circ Sub — T-Pulled 1100
 (E) Second Initial Flow 45 Hourly Standby — T-Out 1247
 (F) Second Final Flow 72 Mileage 80 RT 60
 (G) Final Shut-In 779 Sampler —
 (H) Final Hydrostatic 1609 Straddle —

Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Initial Open 30
 Initial Shut-In 30
 Final Flow 45
 Final Shut-In 45
 Sub Total 1110
 Total 1110
 MP/DST Disc't —

Approved By — Our Representative Brannan Lonsdale

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63256

Well Name & No. Morgenstern B #1 Test No. 4 Date 6/13/17
 Company John O. Farmer, Inc. Elevation 1914 KB 1906 GL
 Address 370 W. Wichita Ave. PO Box 352 Russell, KS 67665
 Co. Rep / Geo. Austin Klaus Rig Discovery #2
 Location: Sec. 13 Twp. 16 W Rge. 14 S Co. Barton State KS

Interval Tested 3316-3370 Zone Tested Arbuckle
 Anchor Length 54' Tail: 40' Drill Pipe Run 3004 Mud Wt. 9.0
 Top Packer Depth 3311-3316 Drill Collars Run — Vis 49
 Bottom Packer Depth 3370 Wt. Pipe Run 309 WL 8.0
 Total Depth 3410 Chlorides 9,800 ppm System LCM 1 #
 Blow Description IF-BOB 10secs
ISI-No Blow
PF-BOB 30secs
FSI-No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>815</u>	<u>GMCO</u>	<u>25</u>	<u>65</u>	<u>10</u>	<u>10</u>
<u>220</u>	<u>OCM</u>	<u>—</u>	<u>20</u>	<u>—</u>	<u>80</u>
<u>—</u>	<u>95' GIP</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Rec Total 1035' BHT 107° Gravity 33 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1775</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>0215</u>
(B) First Initial Flow <u>219</u>	<input type="checkbox"/> Jars <u>—</u>	T-Started <u>0230</u>
(C) First Final Flow <u>430</u>	<input type="checkbox"/> Safety Joint <u>—</u>	T-Open <u>0437</u>
(D) Initial Shut-In <u>1035</u>	<input type="checkbox"/> Circ Sub <u>—</u>	T-Pulled <u>0525</u>
(E) Second Initial Flow <u>434</u>	<input type="checkbox"/> Hourly Standby <u>—</u>	T-Out <u>0930</u>
(F) Second Final Flow <u>453</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT</u> 60	Comments <u>—</u>
(G) Final Shut-In <u>1023</u>	<input type="checkbox"/> Sampler <u>—</u>	<u>—</u>
(H) Final Hydrostatic <u>1641</u>	<input checked="" type="checkbox"/> Straddle <u>600</u>	<input type="checkbox"/> Ruined Shale Packer <u>—</u>
Initial Open <u>13</u>	<input type="checkbox"/> Shale Packer <u>—</u>	<input type="checkbox"/> Ruined Packer <u>—</u>
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer <u>—</u>	<input type="checkbox"/> Extra Copies <u>—</u>
Final Flow <u>05</u>	<input type="checkbox"/> Extra Recorder <u>—</u>	Sub Total <u>0</u>
Final Shut-In <u>15</u>	<input type="checkbox"/> Day Standby <u>—</u>	Total <u>1710</u>
	<input type="checkbox"/> Accessibility <u>—</u>	MP/DST Disc't <u>—</u>
	Sub Total <u>1710</u>	

Approved By _____ Our Representative Brannan Lonsdale

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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: Morgenstern B #1
Location: Barton County
License Number: API #15-009-26,174-0000
Spud Date: 6/5/2017
Surface Coordinates: Section 13, Township 16 South, Range 14 West
2,310' FNL & 2,310' FEL
Bottom Hole Coordinates: Vertical well with minimal deviation, same as above
Ground Elevation (ft): 1,906
Logged Interval (ft): 2,800
Formation: LKC-Arbuckle
Type of Drilling Fluid: Chemical (Mud Co.)

Region: Kansas
Drilling Completed: 6/12/2017
K.B. Elevation (ft): 1,914
Total Depth (ft): 3,410
To: RTD

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

OPERATOR

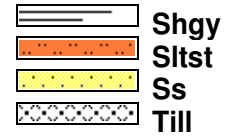
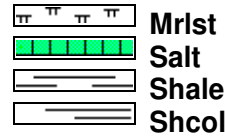
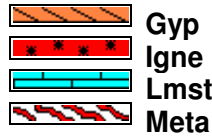
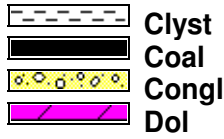
Company: John O. Farmer, Inc.
Address: 370 W. Wichita Ave.
Russell, KS 67665

Comments

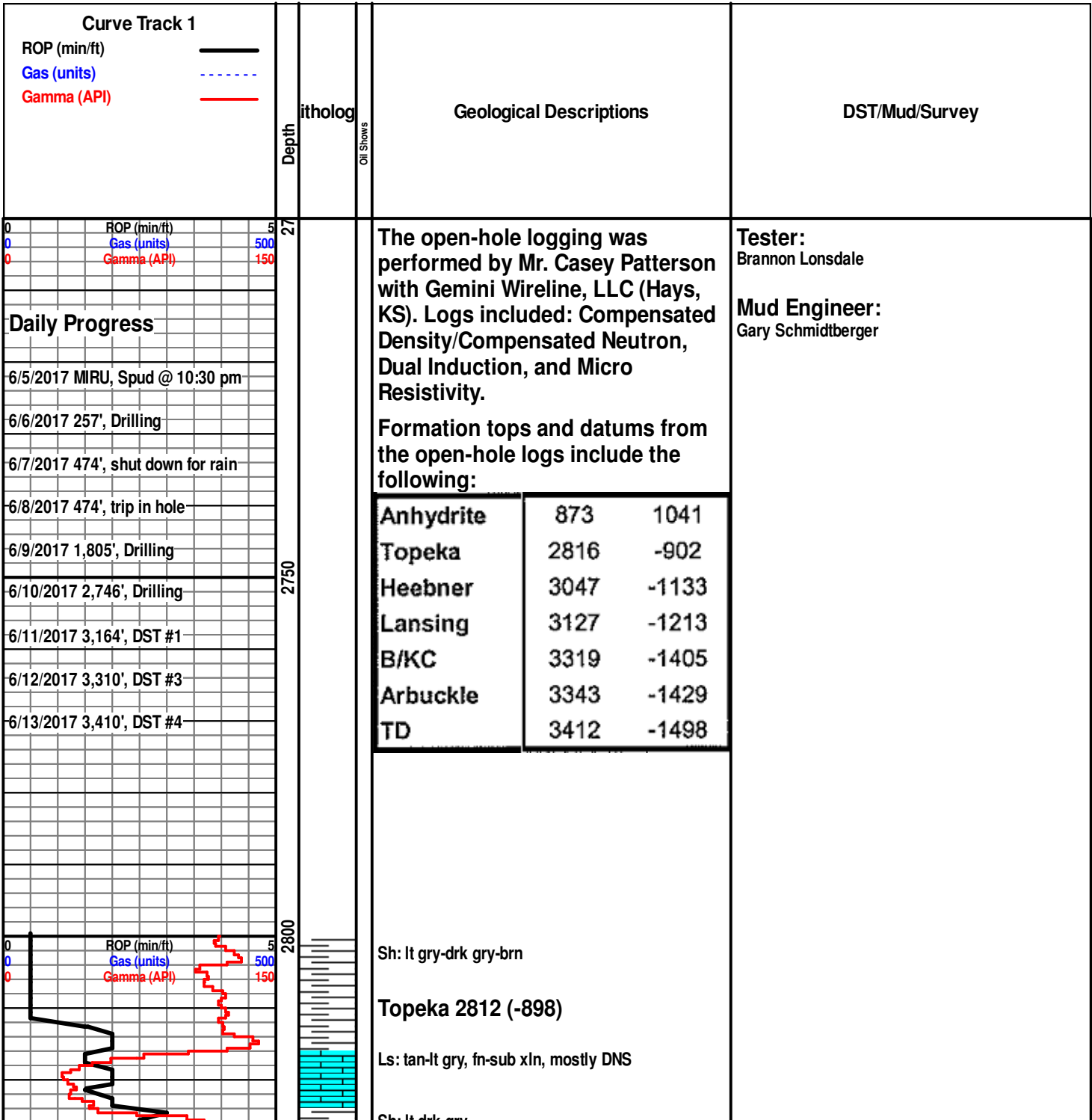
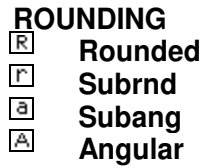
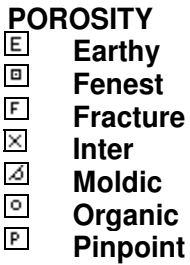
The Morgenstern B #1 well was drilled by Discovery Drilling Rig #2 (Tool Pusher: Terry Wickham).

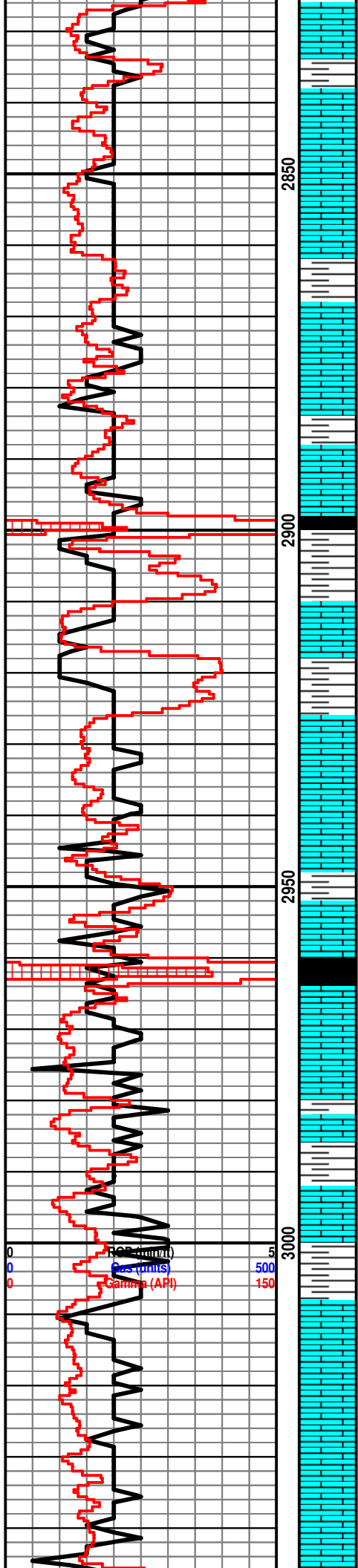
The location for the Morgenstern B #1 well was found via 3-D seismic survey. Geologic samples were collected and evaluated from 2,800'-3,410'. Three bottom-hole drill stem tests were conducted in the Lansing, one of which yielded positive results (Lansing J zone). Structurally, the Morgenstern B #1 ran 1' low at the Lansing and 8' low at the Arbuckle, to the Morgenstern A #1 (990' FNL & 1,270' FWL, Sec 13-16S-14W). Upon completion of the logging operation, a straddle test was conducted over the top 27' of the Arbuckle, which recovered significant oil with good shut-in pressures. Upon completion of the drill stem test, the decision was made to set 5 1/2" production casing to further evaluate the Morgenstern B #1 well on 6/13/17.

ROCK TYPES



OTHER SYMBOLS





Sh: lt-drk gry

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

Ls: ala

Sh: lt gry-drk gry

Ls: tan-gry, fn xln, scat int xln porosity, NSFO, no odor, scat chalk

Ls: ala

Sh: lt gry-drk gry, blk

Sh: lt gry-brn

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO

Sh: lt gry-drk gry

Ls: tan-gry, fn-sub xln, poor int xln porosity, NSFO, no odor, scat chalk

Sh: lt gry-drk gry

Sh: lt gry-drk gry, blk

Ls: tan-gry, fn xln, scat pp vuggy porosity, dead oil stn, NSFO, no odor

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO

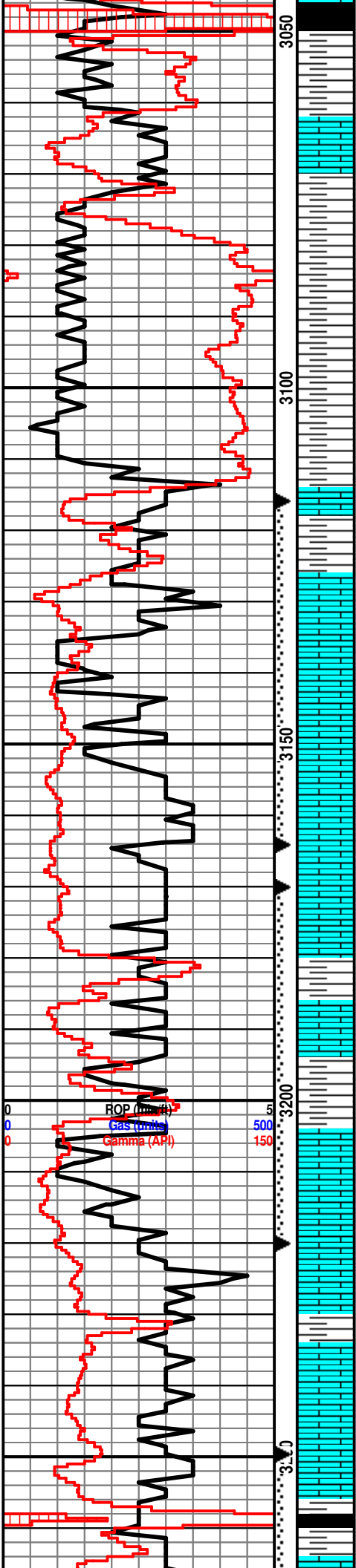
Ls: ala

Sh: lt gry-drk gry-brn

Ls: tan-gry, fn xln, poor int xln porosity, NSFO, no odor, scat chalk

Ls: ala

Heebner 3042 (-1128)



Sh: blk, carb, fissile

Sh: drk gry

Ls: off wh-tan, fn xln, poor-fair int xln porosity, lt brn oil stn in porosity, VSSFO, sl odor, dull yel fluor

Sh: lt gry-drk gry

Sh: lt gry-drk gry-brn

Sh: ala

Sh: lt gry-drk gry

Lansing 3125 (-1211)

Ls: off wh-tan, fn xln, ool, fair oom porosity, sl dead oil stn, NSFO, no odor

Ls: off wh-tan, fn xln, ool, fair-good oom porosity, fair oil stn in porosity, SSFO, sl-fair odor, fair yel fluor

Ls: off wh-tan, fn xln, ool, fair-good oom porosity, fair-good oil stn, SSFO, fair odor, fair yel fluor

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

Ls: ala

Sh: drk gry

Ls: off wh-tan, fn xln, ool, fair-good oom porosity, fair oil stn, SSFO, sl odor

Ls: off wh-tan, fn xln, ool, fair-good oom porosity, fair-good oil stn, SSFO, sl odor, scat chalk

Ls: off wh-tan, fn xln, scat ool, poor-fair int xln & oom porosity, NSFO

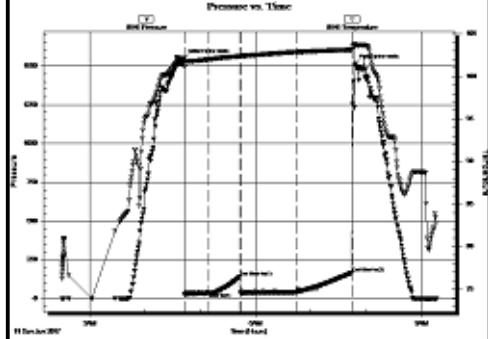
Ls: ala

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO, hvy chert-off wh

Sh: drk gry-blk

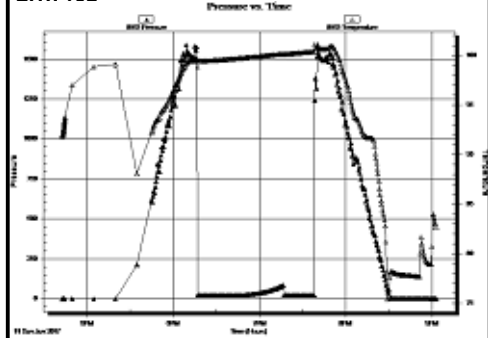
DST #1 3,116-3,164' (LKC A-C)

30"-30"-60"-60"
 IF: weak blow, built to 2.5"
 FF: weak blow, built to 1"
 Rec: 30' Mud with oil spots
 FP: 25-38, 32-42#
 SIP: 142-166#
 HP: 1,546-1,513#
 BHT: 104



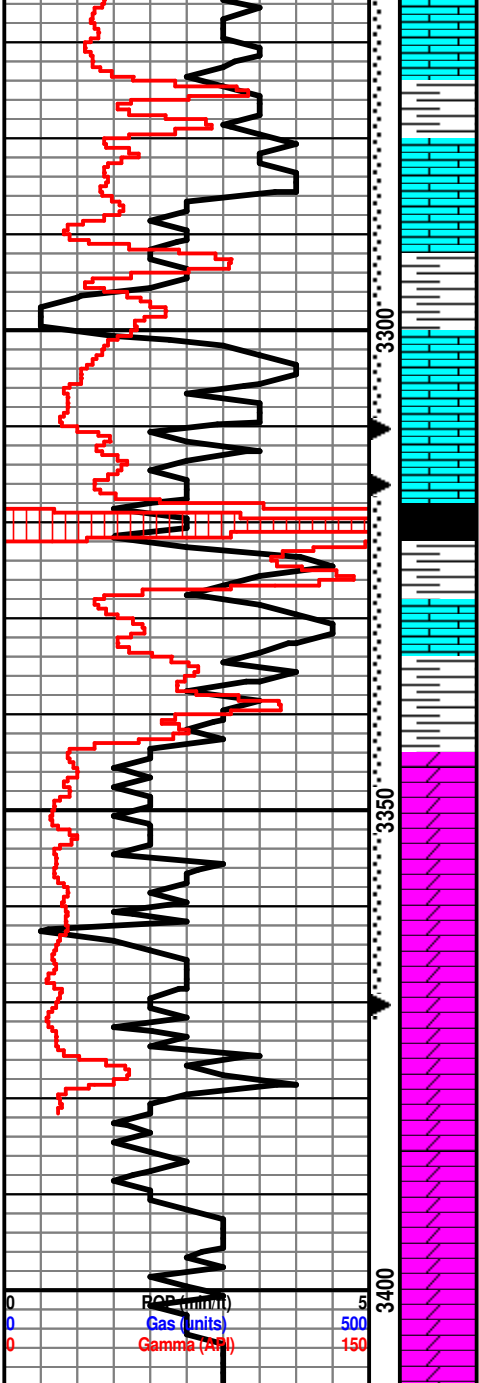
DST #2 3,170-3,220' (LKC E-G)

30"-30"-20"
 IF: weak blow, died in 10 minutes
 FF: no blow
 Rec: 3' Mud
 FP: 21-21, 22-22#
 SIP: 86#
 HP: 1,583-1,543#
 BHT: 102



DST #3 3,250-3,310' (LKC H-J)

30"-30"-45"-45"
 IF: weak blow, built to 8"; no blow on shut in
 FF: BOB in 18 minutes; no blow on shut in
 Rec: 180' GIP, 129' OCM (10% O, 90% M)
 FP: 25-45, 46-72#



Ls: tan-gry, fn-sub xln, vry DNS, NSFO

Sh: lt gry-drk gry

Ls: off wh-tan, fn xln, poor int xln porosity, scat dead oil stn, VSSFO, sl odor, dull yel fluor

Sh: drk gry

Ls: off wh-tan, fn xln, ool, good oom porosity, good oil sat, F-GSFO, good odor, good yel fluor

Ls: off-tan, fn xln, poor int xln porosity, NSFO, no odor

B/KC 3314 (-1400)

Sh: lt gry-drk gry, scat brn, scat pyrite

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO

Arbuckle 3341 (-1527)

Dolo: off wh-tan, fn-md xln, poor-fair int xln porosity, fair oil stn, SSFO, sl odor, dull yel fluor

Dolo: off wh-tan, fn-md xln, fair-good int xln porosity, fair-good oil sat, F-GSFO, good odor, fair yel fluor

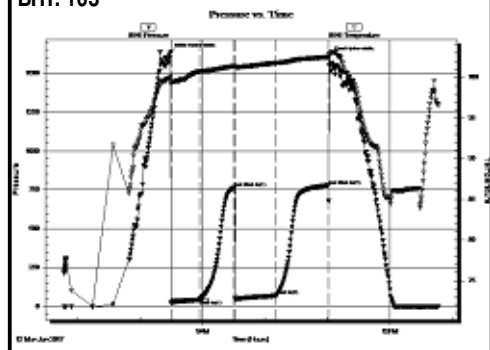
Dolo: off wh-tan, md xln, fair-good int xln porosity, fair-good oil sat, F-GSFO, fair-good odor, fair-scat good yel fluor

Dolo: off wh-tan, md-crs xln, fair int xln porosity, scat dead oil stn, NSFO, sl odor

Dolo: off wh-tan, md-crs xln, fair int xln porosity, NSFO, no odor

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

SIP: 764-779#
 HP: 1,632-1,609#
 BHT: 103



DST #4 3,316-3,370' (Top 27' of Arbuckle

13"-15"-5"-15"
 IF: BOB in 10 seconds; no blow on shut in
 FF: BOB in 30 seconds; no blow on shut in
 Rec: 95' GIP
 815' GMCO (10% M, 25% G, 65% O) 33 API,
 220' HOCM (20% O, 80% M)
 FP: 219-430, 434-453#
 SIP: 1,035-1,023#
 HP: 1,775-1,641#
 BHT: 107

