Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1226969

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 5135
Name: Farmer, John O., Inc.
Address 1: 370 W WICHITA AVE
Address 2: PO BOX 352
City: RUSSELL State: KS Zip: 67665 + 2635
Contact Person: Marge Schulte
Phone: (785) 483-3144
CONTRACTOR: License # 31548
Name: Discovery Drilling
Wellsite Geologist: Austin Klaus
Purchaser: NCRA

Designate Type of Completion:
☑ New Well ☐ Re-Entry ☐ Workover

☑ Oil ☐ WSW ☐ SWD ☐ SIOW
☐ Gas ☐ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:
Operator:
Well Name:
Original Comp. Date: Original Total Depth:

☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

06/27/2014	07/03/2014	08/07/2014
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-167-23978-00-00
Spot Description:
W2 NW NE NE Sec. 35 Twp. 13 S. R. 15 ☐ East ☑ West
330 Feet from ☑ North / ☐ South Line of Section
1160 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Russell
Lease Name: Patterson C Well #: 1
Field Name: Gorham
Producing Formation: Arbuckle
Elevation: Ground: 1884 Kelly Bushing: 1892
Total Vertical Depth: 3380 Plug Back Total Depth: 3336
Amount of Surface Pipe Set and Cemented at: 516 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: 41000 ppm Fluid volume: 320 bbls
Dewatering method used: Evaporated
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: 10/09/2014
☑ **Confidential Release Date:** 10/08/2016
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 10/10/2014

[redacted] 1226969

Operator Name: Farmer, John O., Inc. Lease Name: Patterson C Well #: 1

Sec. 35 Twp. 13 S. R. 15 ☐ East ☑ West County: Russell

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:
Attached

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name: Attached Top: Attached Datum: Attached

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	23	516	Common	250	3% C.C., 2% gel
Production	7.875	5.50	15.5	3378	Common	130	10% salt

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ Plug Off Zone	-			
	-			

Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☑ No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth
4	3312-14' (Arbuckle)	None - completed natural	

TUBING RECORD: Size: 2.875 Set At: 3330 Packer At:

Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 08/28/2014

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	4.95		32.30		

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)*

PRODUCTION INTERVAL:
3312-14'
(Arbuckle)

Form	ACO1 - Well Completion
Operator	Farmer, John O., Inc.
Well Name	Patterson C 1
Doc ID	1226969

All Electric Logs Run

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

Form	ACO1 - Well Completion
Operator	Farmer, John O., Inc.
Well Name	Patterson C 1
Doc ID	1226969

Tops

Name	Top	Datum
Anhydrite	934'	(+958)
Tarkio	2570'	(-678)
Topeka	2766'	(-874)
Heebner	2994'	(-1102)
Lansing	3050'	(-1158)
Base/KC	3291'	(-1399)
Arbuckle	3308'	(-1416)
L.T.D.	3380'	(-1488)

Form	ACO1 - Well Completion
Operator	Farmer, John O., Inc.
Well Name	Patterson C 1
Doc ID	1226969

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	23	516	Common	250	3% C.C., 2% gel
Production	7.875	5.50	15.5	3378	Common	130	10% salt

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
370 West Wichita Avenue - P.O. Box 352
Russell, KS 67665-2635

Contractor: **Discovery Drilling Co., Inc. LIC#31548**
PO Box 763
Hays, KS 67601

Lease: Patterson "C" # 1

Location: 330 FNL - 1160 FEL
W/2-NW-NE-NE
Section 35/ 13S/ 15W
Russell County, KS

Loggers Total Depth: 3380'
Rotary Total Depth: 3380'
Commenced: ~~7/4/2014~~ 6/27/14
Casing: 8 5/8" @ 515'W/250sks
5 1/2" @ 3378'W/130sks

API#15- 167-23,978-00-00
Elevation: 1884 GL - 1892 KB
Completed: ~~6/27/2014~~ 7/3/14
Status: Oilwell

DEPTHS & FORMATIONS
(All from KB)

Surface, Sand & Shale	0'	Shale	975'
Dakota Sand	343'	Shale & Lime	1588'
Shale	433'	Shale	2036'
Cedar Hill Sand	460'	Shale & Lime	2385'
Red Bed Shale	612'	Lime & Shale	2967'
Anhydrite	937'	RTD	3380'
Base Anhydrite	975'		

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 7-14-14

My Commission expires: 8-9-15

(Place stamp or seal below)

Glenna S. Alm
Notary Public

NOTARY PUBLIC - State of Kansas
GLENNA S. ALM
My Appt. Exp. 8-9-15

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. 148

Date	Sec.	Twp.	Range	County	State	On Location	Finish
6-27-14	35	15	13	Russell	Kansas		9:00 PM

Location Russell KS. Hwy 40 4W 1/4N 1/4E Into

Lease Patterson "C" Well No. #1

Contractor Discovery DRLG. Rig #2 "Terry"

Type Job Cement Long Surface

Hole Size 12 1/4 T.D. 516'

Csg. 8 5/8 New Depth 516

Tbg. Size 23# csg. Depth

Tool Depth

Cement Left in Csg. 15' Shoe Joint 15'

Meas Line Displace 31.85 BBL

EQUIPMENT

Pumptrk 18	No.	Cementer	Glenn G.
		Helper	Cody B.
Bulktrk 15	No.	Driver	Heath F.
		Driver	
Bulktrk	No.	Driver	
		Driver	

JOB SERVICES & REMARKS

Remarks:

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

Ran 12 New Joints of 23# 8 5/8 Csg. Set @ 516

Recieved Circulation, & Cement w/ 250 sx Com 3 & 2 x

Release Wooden Cup Plug & Displaced 31 3/4 BBL H2O,

Shut in @ 350 #.

Cement Did Circulate to Surface.

THANKS,

X Signature

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.

Owner

Charge To John O. Farmer

Street

City State

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

Cement Amount Ordered 250 sx Com. 2% Gel 3% CC.

Common 250

Poz. Mix

Gel. 5

Calcium 9

Hulls

Salt

Flowseal

Kol-Seal

Mud CLR 48

CFL-117 or CD110 CAF 38

Sand

Handling 264

Mileage

FLOAT EQUIPMENT

~~Guide~~ Shoe Wooden 2 cup Plug

Centralizer

Baskets

AFU Inserts

Float Shoe

Latch Down

Pumptrk Charge Long Surface

Mileage 8

Tax

Discount

Total Charge

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025 Home Office P.O. Box 32 Russell, KS 67665 No. 082

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
7-4-14	35	13	15	Russell	KS		4:15 PM

Location Russell, Ks - 4½ W on Hwy 40

Lease Patterson "C" Well No. 1 Owner To Into east & Rig

Contractor Discovery 2

Type Job Longstring

Hole Size 7 7/8 T.D. 3380'

Csg. 5½ New 15.5# Depth ~~3380'~~ 3378'

Tbg. Size Depth

Tool Depth

Cement Left in Csg. 38.58 Shoe Joint 38.58

Meas Line Displace 81.5 BLS

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.

Charge To J. D. Farmer

Street

City State

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

Cement Amount Ordered 175 Common 10% Salt 500 gal Mud Clear 48, 20 Bbls KCL

EQUIPMENT

Pumptrk 16	No.	Cementer Helper	Billy
Bulktrk 15	No.	Driver Driver	Nick
~~Bulktrk~~ P.U.	No.	Driver Driver	Rick

JOB SERVICES & REMARKS

Remarks:

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar Pipe on bottom break Circulation, pump 500 gal mud Clear 48, pump 10 Bbl KCL, plug Rathole w/ 30 sx Plug Mouse hole w/ 15 sx. Hook to Casing + Mix 130 sx Cement. Shut down Release plug wash pump + lines Displaced w/ 81½ Bbls of mud. Flt 10 Bbl KCL Released + held Lift pressure 700 # Land plug to 1500 #

Common	
Poz. Mix	5/6
Gel.	
Calcium	
Hulls	
Salt	
Flowseal	
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	
Mileage	

FLOAT EQUIPMENT

~~Guide Shoe~~	125 Rotat. toy Scratchers
Centralizer	6 Reg.
Baskets	1
AFU Inserts	
Float Shoe	1
Latch Down	1
	Rotating head Assy
Pumptrk Charge	
Mileage	
Tax	
Discount	
Total Charge	

X Signature

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

PO Box 352
Russell KS 67665

ATTN: Austin Klause

Patterson C# 1

35-13s-15w Russell,KS

Start Date: 2014.07.01 @ 10:10:00
End Date: 2014.07.01 @ 15:43:00
Job Ticket #: 59409 DST #: 1

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

Printed: 2014.07.08 @ 10:19:03

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59409 **DST#: 1**

Test Start: 2014.07.01 @ 10:10:00

GENERAL INFORMATION:

Formation: **Toronto - LKC "B"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:17:45
Time Test Ended: 15:43:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 2993.00 ft (KB) To 3086.00 ft (KB) (TVD)
Total Depth: 3086.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

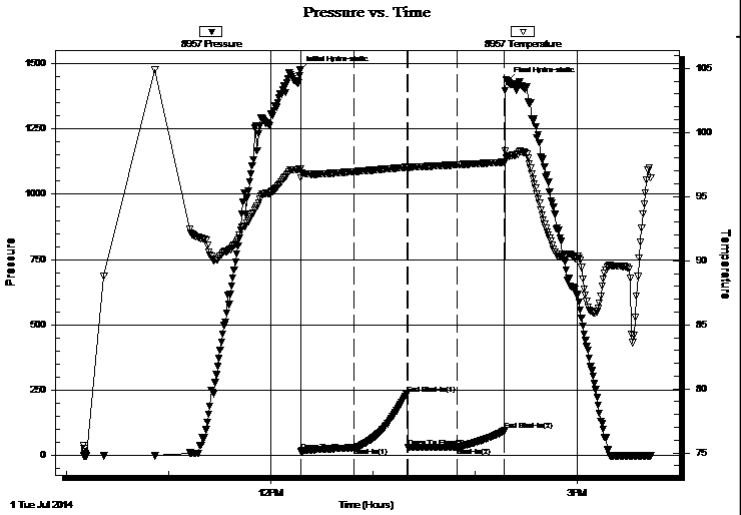
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8957 **Inside**

Press@RunDepth: 32.63 psig @ 2994.00 ft (KB)
Start Date: 2014.07.01 End Date: 2014.07.01
Start Time: 10:10:05 End Time: 15:42:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.01
Time On Btm: 2014.07.01 @ 12:17:15
Time Off Btm: 2014.07.01 @ 14:18:45

TEST COMMENT: IF-1" blow
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1475.40	97.16	Initial Hydro-static
1	16.65	96.46	Open To Flow (1)
32	29.51	96.95	Shut-In(1)
63	233.46	97.29	End Shut-In(1)
64	31.21	97.25	Open To Flow (2)
93	32.63	97.48	Shut-In(2)
120	95.06	97.69	End Shut-In(2)
122	1433.01	98.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
35.00	OS Mud	0.22

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59409 **DST#: 1**

Test Start: 2014.07.01 @ 10:10:00

GENERAL INFORMATION:

Formation: **Toronto - LKC "B"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:17:45
Time Test Ended: 15:43:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Brett Dickinson
Unit No: 59

Interval: 2993.00 ft (KB) To 3086.00 ft (KB) (TVD)
Total Depth: 3086.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

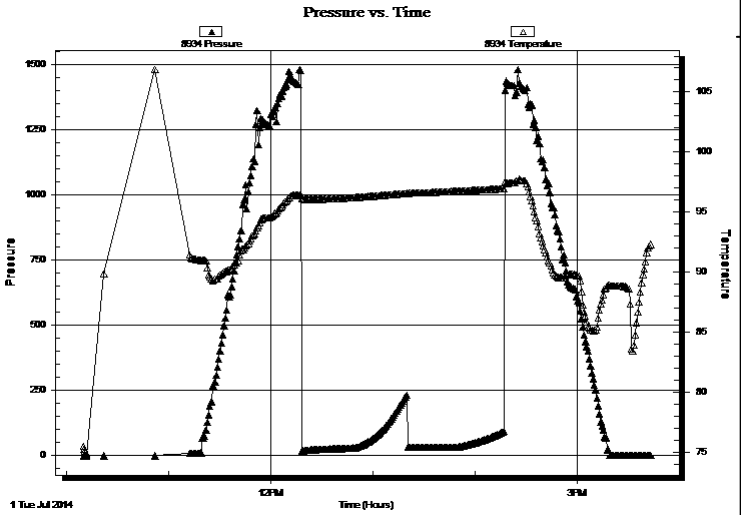
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Outside**

Press@RunDepth: psig @ 2994.00 ft (KB)
Start Date: 2014.07.01 End Date: 2014.07.01
Start Time: 10:10:05 End Time: 15:42:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.01
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-1" blow
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
35.00	OS Mud	0.22

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59409 **DST#: 1**

Test Start: 2014.07.01 @ 10:10:00

Tool Information

Drill Pipe:	Length:	2975.00 ft	Diameter:	3.80	inches	Volume:	41.73	bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70	inches	Volume:	-	bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length:	30.00 ft	Diameter:	2.25	inches	Volume:	0.15	bbl	Weight to Pull Loose:	50000.00 lb
						Total Volume:	-	bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		32.00 ft							String Weight: Initial	46000.00 lb
Depth to Top Packer:		2993.00 ft							Final	46000.00 lb
Depth to Bottom Packer:		ft								
Interval betw een Packers:		93.00 ft								
Tool Length:		113.00 ft								
Number of Packers:		2	Diameter:	6.75	inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			2978.00		
Hydraulic tool	5.00			2983.00		
Packer	5.00			2988.00	20.00	Bottom Of Top Packer
Packer	5.00			2993.00		
Stubb	1.00			2994.00		
Recorder	0.00	8957	Inside	2994.00		
Recorder	0.00	8934	Outside	2994.00		
Perforations	5.00			2999.00		
Change Over Sub	1.00			3000.00		
Drill Pipe	63.00			3063.00		
Change Over Sub	1.00			3064.00		
Perforations	19.00			3083.00		
Bullnose	3.00			3086.00	93.00	Bottom Packers & Anchor
Total Tool Length:	**113.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59409 **DST#: 1**

Test Start: 2014.07.01 @ 10:10:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	inches				

Recovery Information

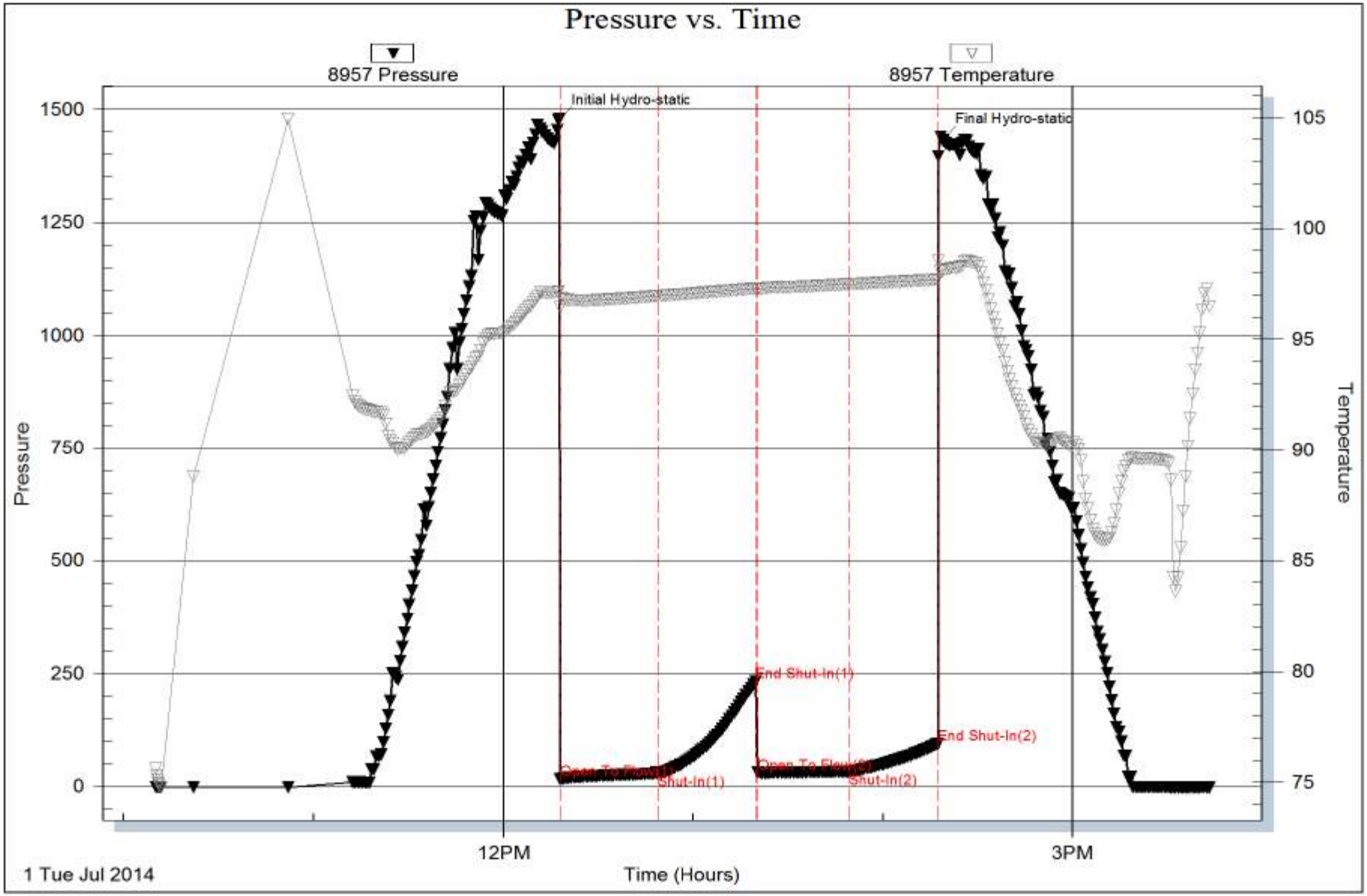
Recovery Table

Length ft	Description	Volume bbl
35.00	OS Mud	0.218

Total Length: 35.00 ft Total Volume: 0.218 bbl

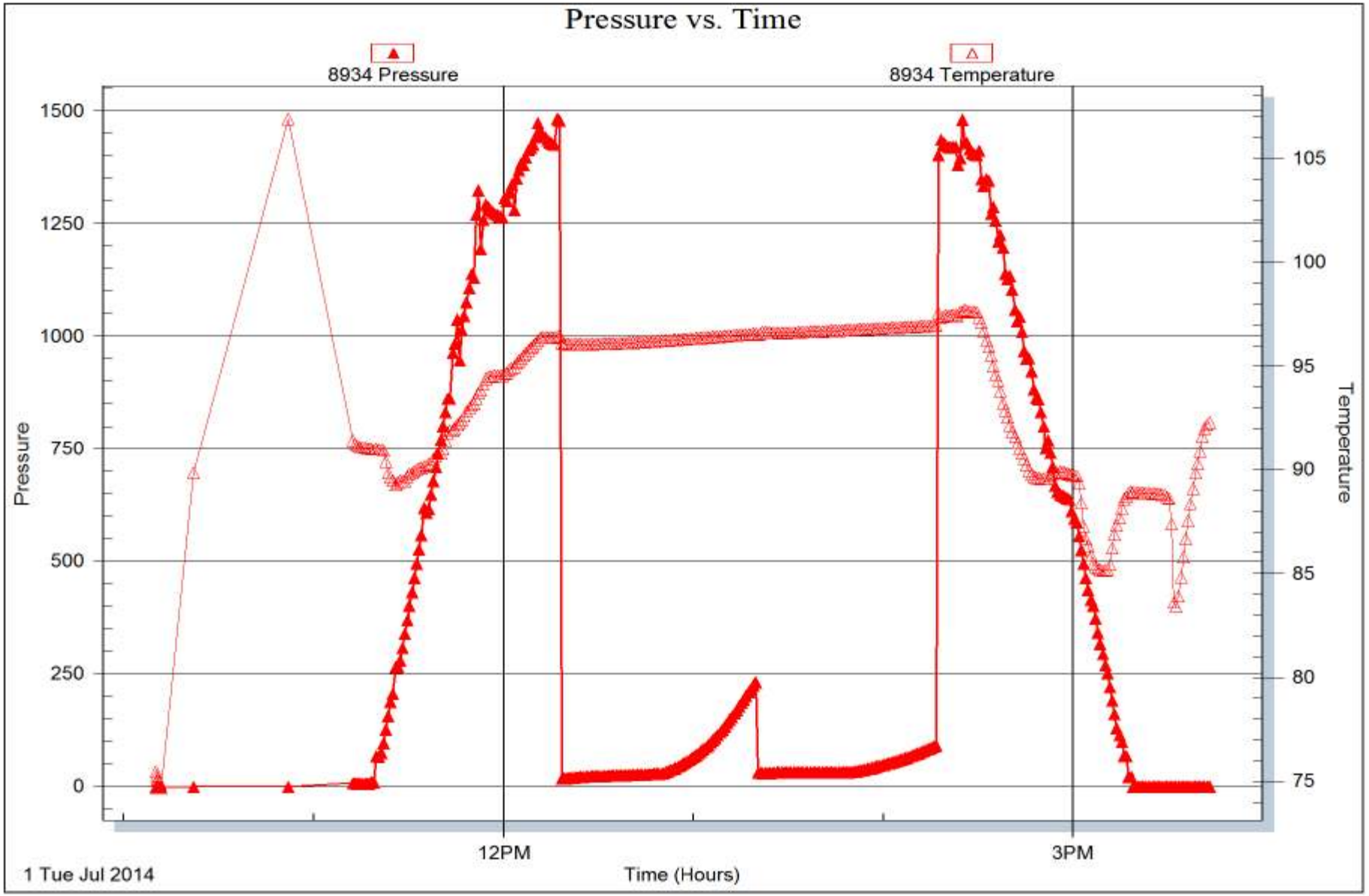
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8957 **Inside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 59409 Printed: 2014.07.08 @ 10:19:04

Serial #: 8934 **Outside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 59409 Printed: 2014.07.08 @ 10:19:04

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

PO Box 352
Russell KS 67665

ATTN: Austin Klause

Patterson C# 1

35-13s-15w Russell,KS

Start Date: 2014.07.01 @ 22:15:00
End Date: 2014.07.02 @ 04:02:00
Job Ticket #: 59410 DST #: 2

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

Printed: 2014.07.08 @ 10:18:41

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59410 **DST#: 2**

Test Start: 2014.07.01 @ 22:15:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:32:30
Time Test Ended: 04:02:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3079.00 ft (KB) To 3120.00 ft (KB) (TVD)
Total Depth: 3120.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

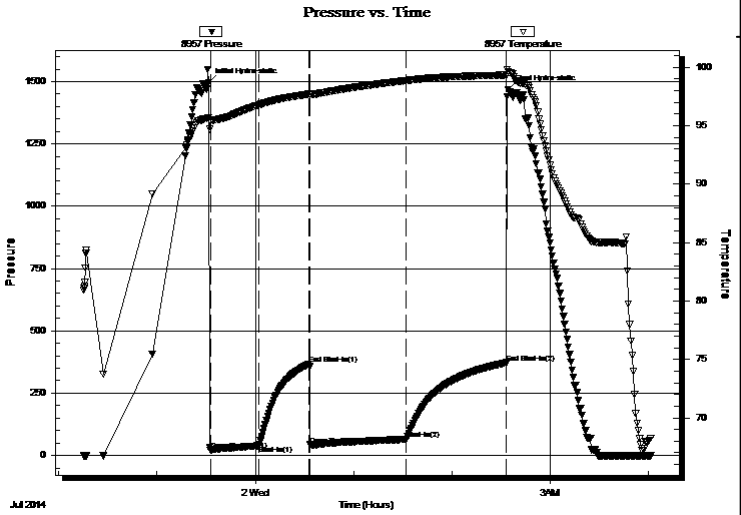
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8957 **Inside**

Press@RunDepth: 65.31 psig @ 3080.00 ft (KB)
Start Date: 2014.07.01 End Date: 2014.07.02
Start Time: 22:15:05 End Time: 04:01:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.02
Time On Btm: 2014.07.01 @ 23:31:30
Time Off Btm: 2014.07.02 @ 02:34:30

TEST COMMENT: IF-BOB in 7 1/2 min
ISI-No blow
FF-BOB in 11 min
FSI-Very w eak surface blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1495.29	95.72	Initial Hydro-static
1	20.68	95.36	Open To Flow (1)
31	38.95	96.78	Shut-In(1)
61	365.87	97.70	End Shut-In(1)
62	41.97	97.65	Open To Flow (2)
121	65.31	98.87	Shut-In(2)
182	372.15	99.35	End Shut-In(2)
183	1469.21	99.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
65.00	OS MCW 80%W 20%M	0.64
30.00	OCM 30%O 70%M	0.42
20.00	SGO 5%G 95%O	0.28
0.00	300ft GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59410 **DST#: 2**

Test Start: 2014.07.01 @ 22:15:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:32:30
Time Test Ended: 04:02:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3079.00 ft (KB) To 3120.00 ft (KB) (TVD)
Total Depth: 3120.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

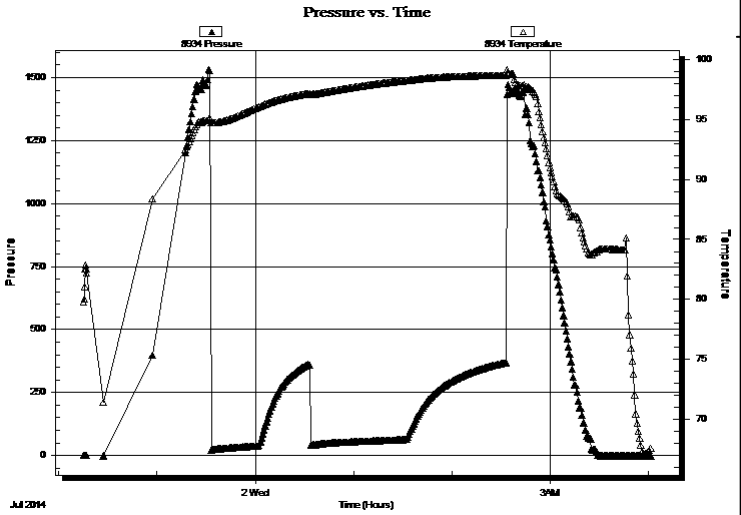
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Outside**

Press@RunDepth: psig @ 3080.00 ft (KB)
Start Date: 2014.07.01 End Date: 2014.07.02
Start Time: 22:15:05 End Time: 04:01:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.02
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-BOB in 7 1/2 min
ISI-No blow
FF-BOB in 11 min
FSI-Very w eak surface blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
65.00	OS MCW 80%W 20%M	0.64
30.00	OCM 30%O 70%M	0.42
20.00	SGO 5%G 95%O	0.28
0.00	300ft GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59410 **DST#: 2**

Test Start: 2014.07.01 @ 22:15:00

Tool Information

Drill Pipe:	Length:	3033.00 ft	Diameter:	3.80	inches	Volume:	42.55	bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70	inches	Volume:	-	bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length:	30.00 ft	Diameter:	2.25	inches	Volume:	0.15	bbl	Weight to Pull Loose:	46000.00 lb
						Total Volume:	-	bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		4.00 ft							String Weight: Initial	46000.00 lb
Depth to Top Packer:		3079.00 ft							Final	46000.00 lb
Depth to Bottom Packer:		ft								
Interval betw een Packers:		41.00 ft								
Tool Length:		61.00 ft								
Number of Packers:		2	Diameter:	6.75	inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3064.00		
Hydraulic tool	5.00			3069.00		
Packer	5.00			3074.00	20.00	Bottom Of Top Packer
Packer	5.00			3079.00		
Stubb	1.00			3080.00		
Recorder	0.00	8957	Inside	3080.00		
Recorder	0.00	8934	Outside	3080.00		
Perforations	4.00			3084.00		
Change Over Sub	1.00			3085.00		
Drill Pipe	31.00			3116.00		
Change Over Sub	1.00			3117.00		
Bullnose	3.00			3120.00	41.00	Bottom Packers & Anchor
Total Tool Length:	**61.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59410 **DST#: 2**

Test Start: 2014.07.01 @ 22:15:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	32 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	88000 ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	inches				

Recovery Information

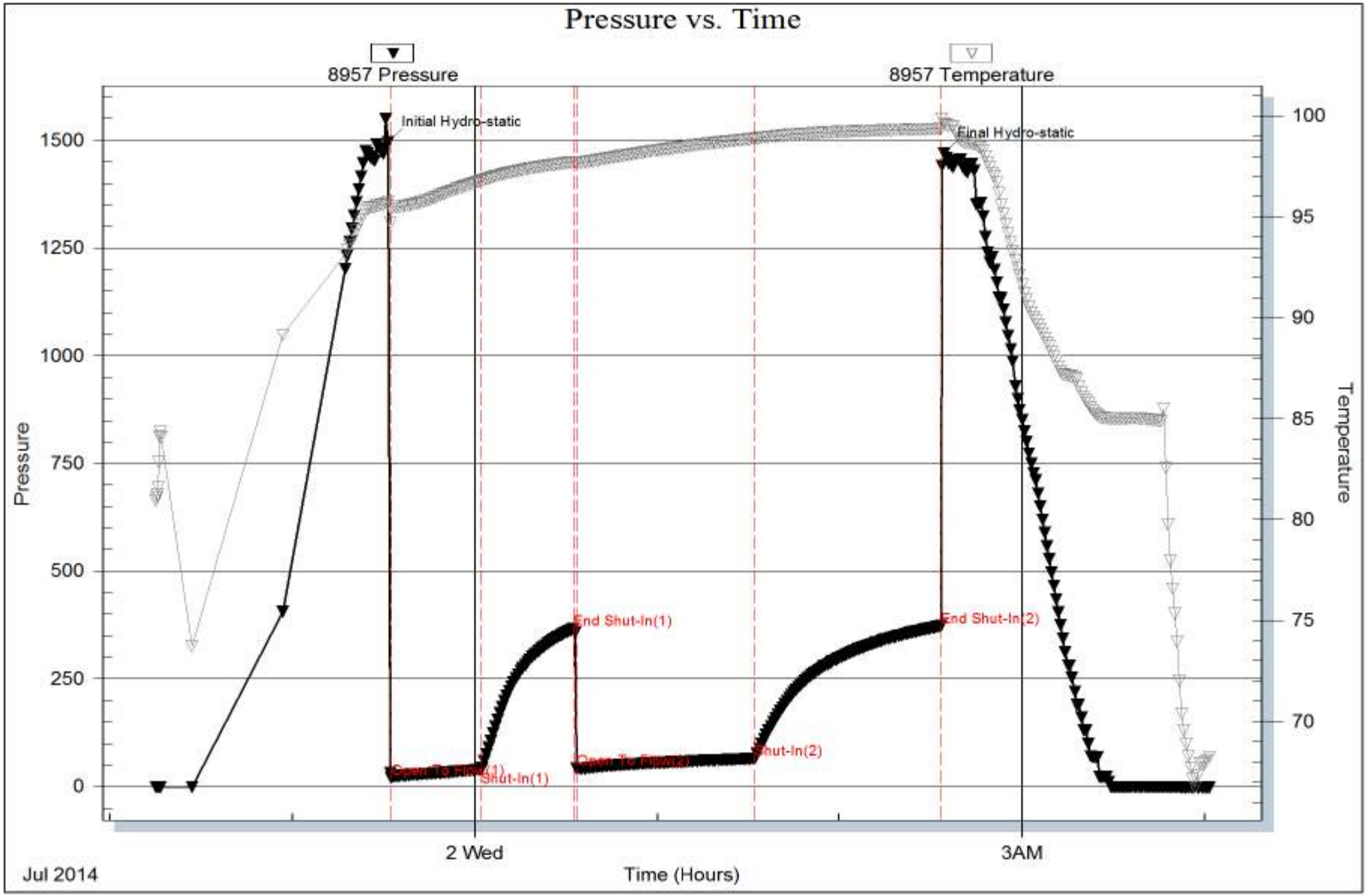
Recovery Table

Length ft	Description	Volume bbl
65.00	OS MCW 80%W 20%M	0.638
30.00	OCM 30%O 70%M	0.421
20.00	SGO 5%G 95%O	0.281
0.00	300ft GIP	0.000

Total Length: 115.00 ft Total Volume: 1.340 bbl

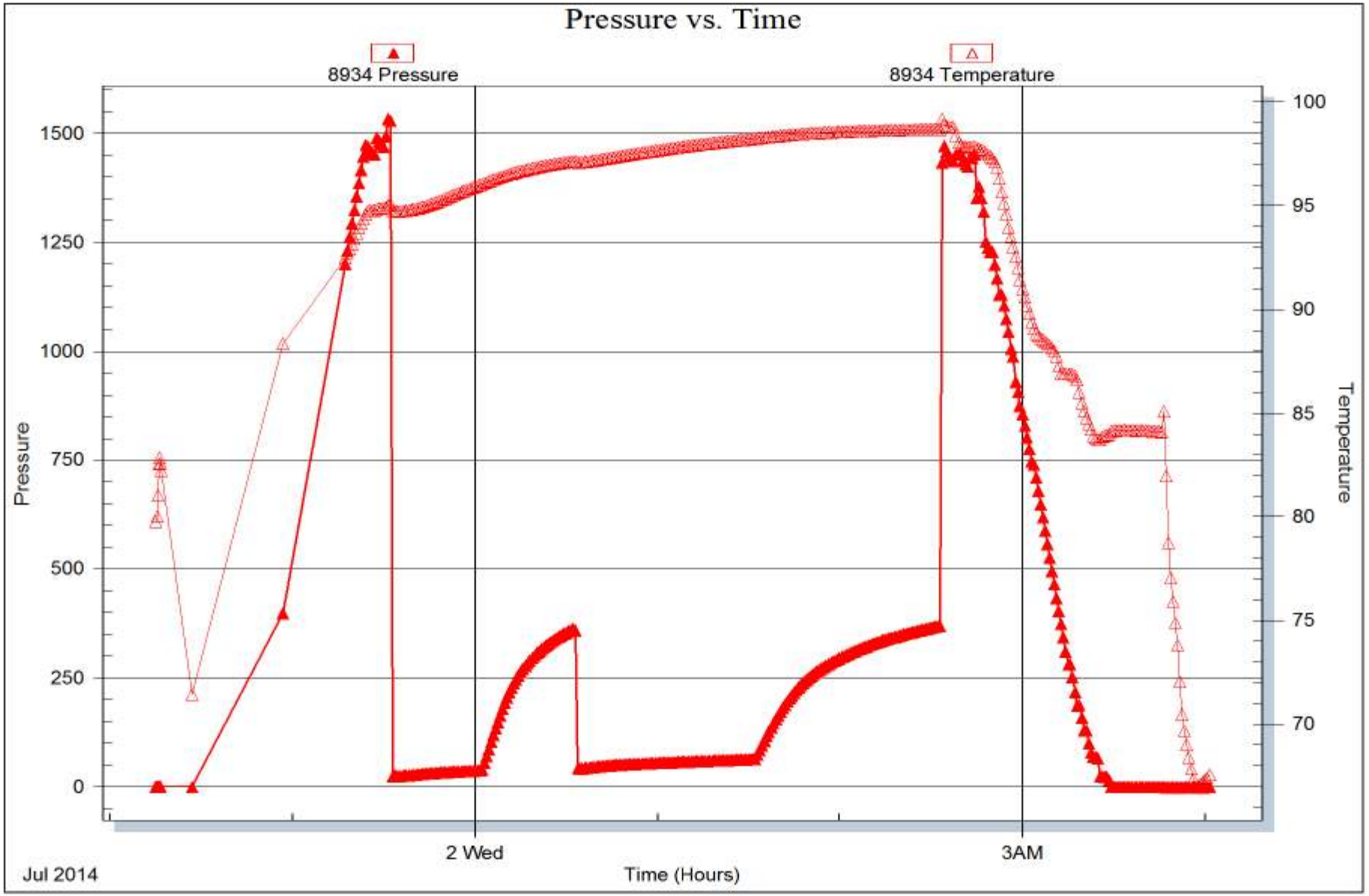
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8957 **Inside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 59410 Printed: 2014.07.08 @ 10:18:42

Serial #: 8934 **Outside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 59410 Printed: 2014.07.08 @ 10:18:43

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

PO Box 352
Russell KS 67665

ATTN: Austin Klause

Patterson C# 1

35-13s-15w Russell,KS

Start Date: 2014.07.02 @ 12:30:00
End Date: 2014.07.02 @ 18:33:00
Job Ticket #: 59411 DST #: 3

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

Printed: 2014.07.08 @ 10:18:21

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59411 **DST#: 3**

Test Start: 2014.07.02 @ 12:30:00

GENERAL INFORMATION:

Formation: **LKC "E-G"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:15:15
Time Test Ended: 18:33:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3112.00 ft (KB) To 3160.00 ft (KB) (TVD)
Total Depth: 3160.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

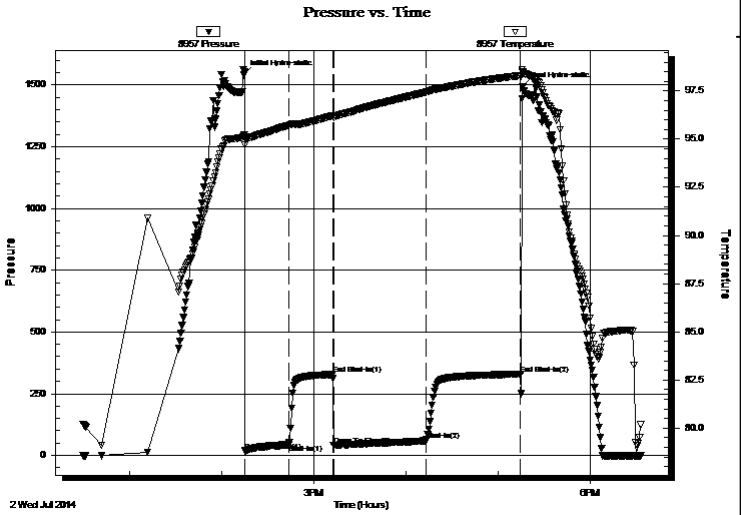
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8957 **Inside**

Press@RunDepth: 60.17 psig @ 3113.00 ft (KB)
Start Date: 2014.07.02 End Date: 2014.07.02
Start Time: 12:30:05 End Time: 18:32:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.02
Time On Btm: 2014.07.02 @ 14:14:30
Time Off Btm: 2014.07.02 @ 17:16:00

TEST COMMENT: IF-1 1/2" blow
ISI-No blow
FF-1 1/4" blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1540.37	95.20	Initial Hydro-static
1	18.56	94.68	Open To Flow (1)
30	43.75	95.71	Shut-In(1)
58	328.14	96.21	End Shut-In(1)
59	41.20	96.12	Open To Flow (2)
119	60.17	97.44	Shut-In(2)
181	328.89	98.30	End Shut-In(2)
182	1493.99	98.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
85.00	OS VSWCM 5%W 95%M	0.92

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59411 **DST#: 3**

Test Start: 2014.07.02 @ 12:30:00

GENERAL INFORMATION:

Formation: **LKC "E-G"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:15:15
Time Test Ended: 18:33:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3112.00 ft (KB) To 3160.00 ft (KB) (TVD)
Total Depth: 3160.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

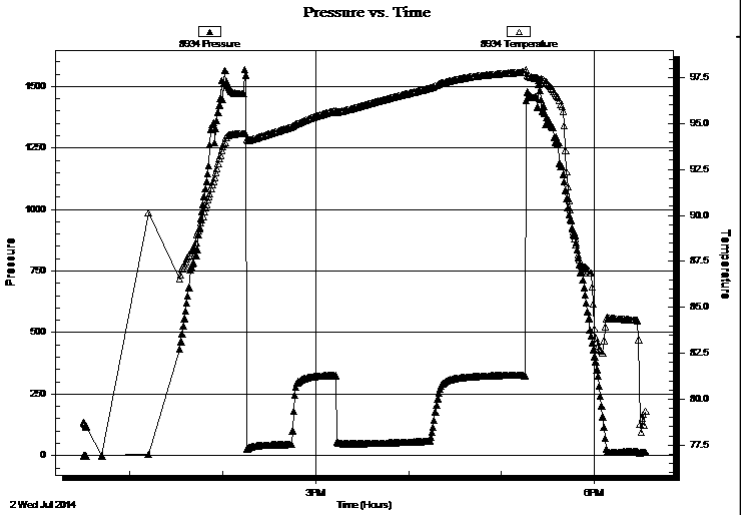
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Outside**

Press@RunDepth: psig @ 3113.00 ft (KB)
Start Date: 2014.07.02 End Date: 2014.07.02
Start Time: 12:30:05 End Time: 18:33:14

Capacity: 8000.00 psig
Last Calib.: 2014.07.02
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-1 1/2" blow
ISI-No blow
FF-1 1/4" blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
85.00	OS VSWCM 5%W 95%M	0.92

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59411 **DST#: 3**

Test Start: 2014.07.02 @ 12:30:00

Tool Information

Drill Pipe:	Length:	3070.00 ft	Diameter:	3.80	inches	Volume:	43.06	bbl	
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70	inches	Volume:	-	bbl	
Drill Collar:	Length:	30.00 ft	Diameter:	2.25	inches	Volume:	0.15	bbl	
						Total Volume:	-	bbl	

Drill Pipe Above KB:	8.00 ft
Depth to Top Packer:	3112.00 ft
Depth to Bottom Packer:	ft
Interval betw een Packers:	48.00 ft
Tool Length:	68.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:		2000.00 lb
Weight set on Packer:		25000.00 lb
Weight to Pull Loose:		55000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	46000.00 lb
	Final	46000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3097.00		
Hydraulic tool	5.00			3102.00		
Packer	5.00			3107.00	20.00	Bottom Of Top Packer
Packer	5.00			3112.00		
Stubb	1.00			3113.00		
Recorder	0.00	8957	Inside	3113.00		
Recorder	0.00	8934	Outside	3113.00		
Perforations	10.00			3123.00		
Change Over Sub	1.00			3124.00		
Drill Pipe	32.00			3156.00		
Change Over Sub	1.00			3157.00		
Bullnose	3.00			3160.00	48.00	Bottom Packers & Anchor
Total Tool Length:	**68.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59411 **DST#: 3**

Test Start: 2014.07.02 @ 12:30:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	inches				

Recovery Information

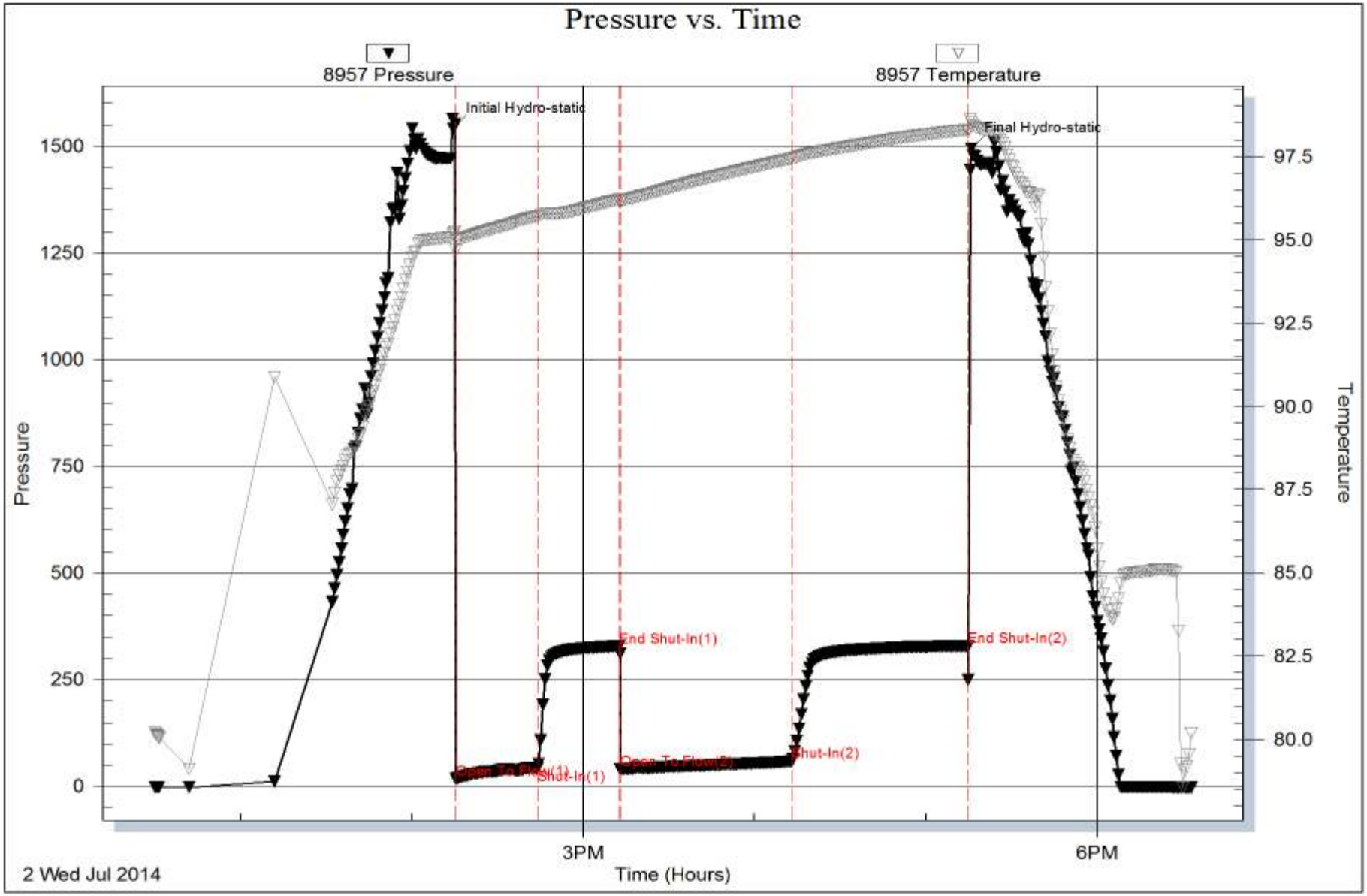
Recovery Table

Length ft	Description	Volume bbl
85.00	OS VSWCM 5%W 95%M	0.919

Total Length: 85.00 ft Total Volume: 0.919 bbl

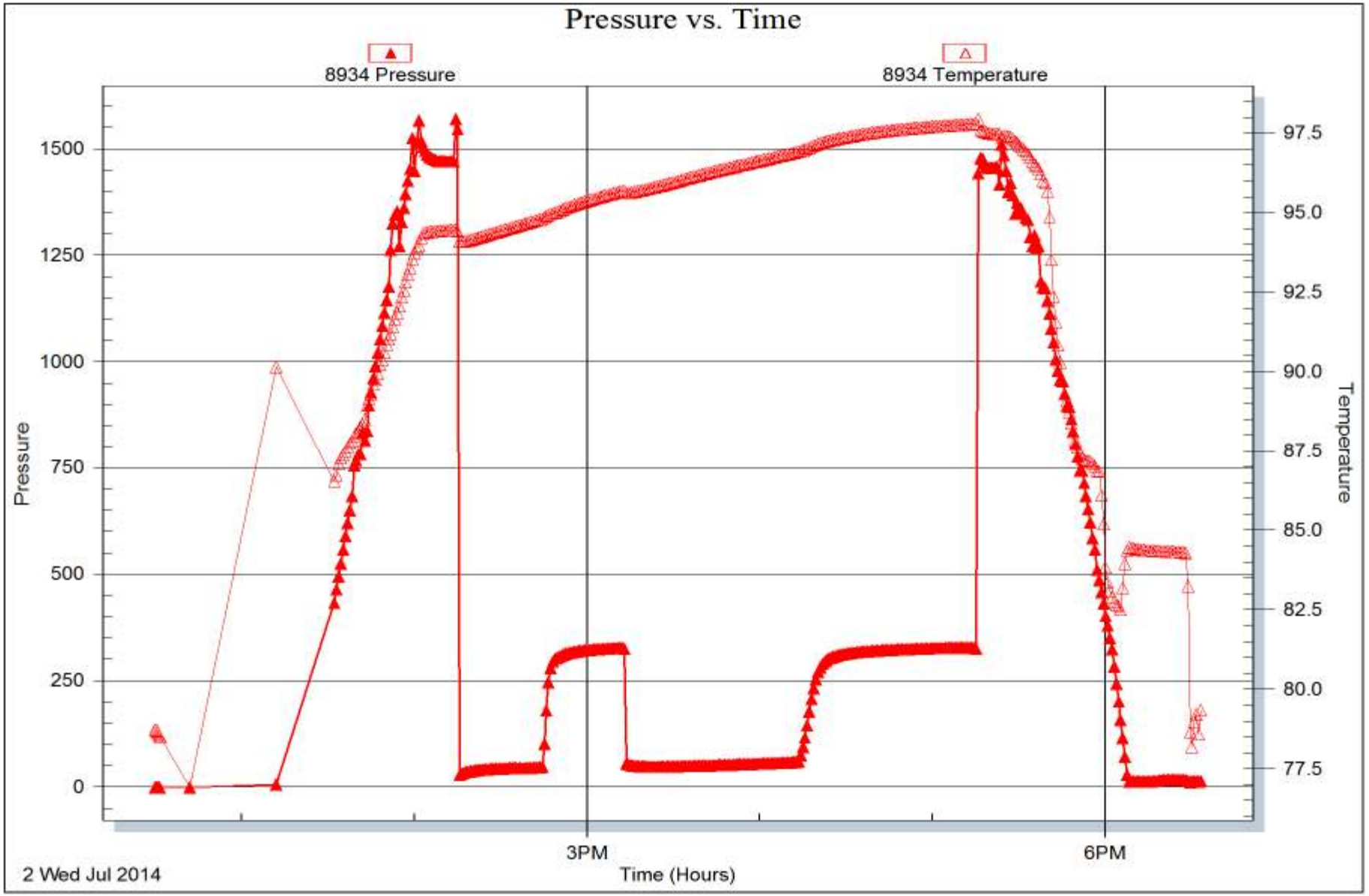
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8957 **Inside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 59411 Printed: 2014.07.08 @ 10:18:22

Serial #: 8934 **Outside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 59411 Printed: 2014.07.08 @ 10:18:23

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

PO Box 352
Russell KS 67665

ATTN: Austin Klause

Patterson C# 1

35-13s-15w Russell,KS

Start Date: 2014.07.03 @ 07:45:00
End Date: 2014.07.03 @ 13:04:45
Job Ticket #: 59412 DST #: 4

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

Printed: 2014.07.08 @ 10:17:57

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59412 **DST#: 4**

Test Start: 2014.07.03 @ 07:45:00

GENERAL INFORMATION:

Formation: **LKC "I-J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:36:30
Time Test Ended: 13:04:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

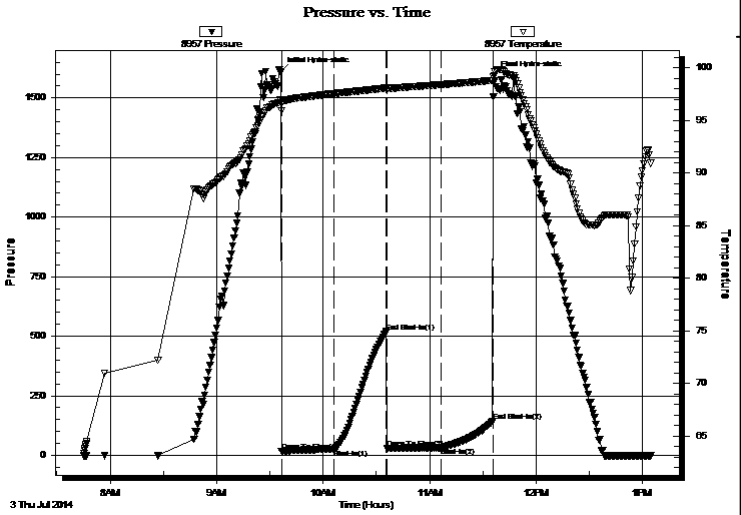
Interval: 3197.00 ft (KB) To 3300.00 ft (KB) (TVD)
Total Depth: 3300.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8957 **Inside**
Press@RunDepth: 32.27 psig @ 3198.00 ft (KB)
Start Date: 2014.07.03 End Date: 2014.07.03
Start Time: 07:45:05 End Time: 13:04:44

Capacity: 8000.00 psig
Last Calib.: 2014.07.03
Time On Btm: 2014.07.03 @ 09:36:00
Time Off Btm: 2014.07.03 @ 11:36:15

TEST COMMENT: IF-1" blow
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1609.20	96.94	Initial Hydro-static
1	16.51	95.89	Open To Flow (1)
30	26.30	97.51	Shut-In(1)
60	519.18	98.06	End Shut-In(1)
60	28.95	97.84	Open To Flow (2)
91	32.27	98.38	Shut-In(2)
120	144.09	98.78	End Shut-In(2)
121	1593.74	99.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
35.00	OS Mud	0.22

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59412 **DST#: 4**

Test Start: 2014.07.03 @ 07:45:00

GENERAL INFORMATION:

Formation: **LKC "I-J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:36:30
Time Test Ended: 13:04:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3197.00 ft (KB) To 3300.00 ft (KB) (TVD)
Total Depth: 3300.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

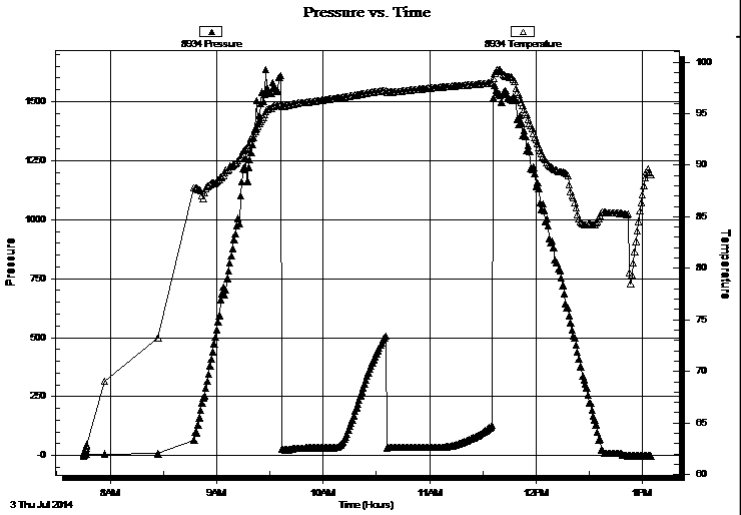
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Outside**

Press@RunDepth: psig @ 3198.00 ft (KB)
Start Date: 2014.07.03 End Date: 2014.07.03
Start Time: 07:45:05 End Time: 13:04:44

Capacity: 8000.00 psig
Last Calib.: 2014.07.03
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-1" blow
ISI-No blow
FF-Very w eak surface blow
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
35.00	OS Mud	0.22

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59412 **DST#: 4**

Test Start: 2014.07.03 @ 07:45:00

Tool Information

Drill Pipe:	Length:	3163.00 ft	Diameter:	3.80 inches	Volume:	44.37 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70 inches	Volume:	- bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:		50000.00 lb
					Total Volume:	- bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		16.00 ft					String Weight:	Initial	46000.00 lb
Depth to Top Packer:		3197.00 ft						Final	46000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		104.00 ft							
Tool Length:		124.00 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3182.00		
Hydraulic tool	5.00			3187.00		
Packer	5.00			3192.00	20.00	Bottom Of Top Packer
Packer	5.00			3197.00		
Stubb	1.00			3198.00		
Recorder	0.00	8957	Inside	3198.00		
Recorder	0.00	8934	Outside	3198.00		
Perforations	3.00			3201.00		
Change Over Sub	1.00			3202.00		
Drill Pipe	95.00			3297.00		
Change Over Sub	1.00			3298.00		
Bullnose	3.00			3301.00	104.00	Bottom Packers & Anchor
Total Tool Length:	**124.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59412 **DST#: 4**

Test Start: 2014.07.03 @ 07:45:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	inches				

Recovery Information

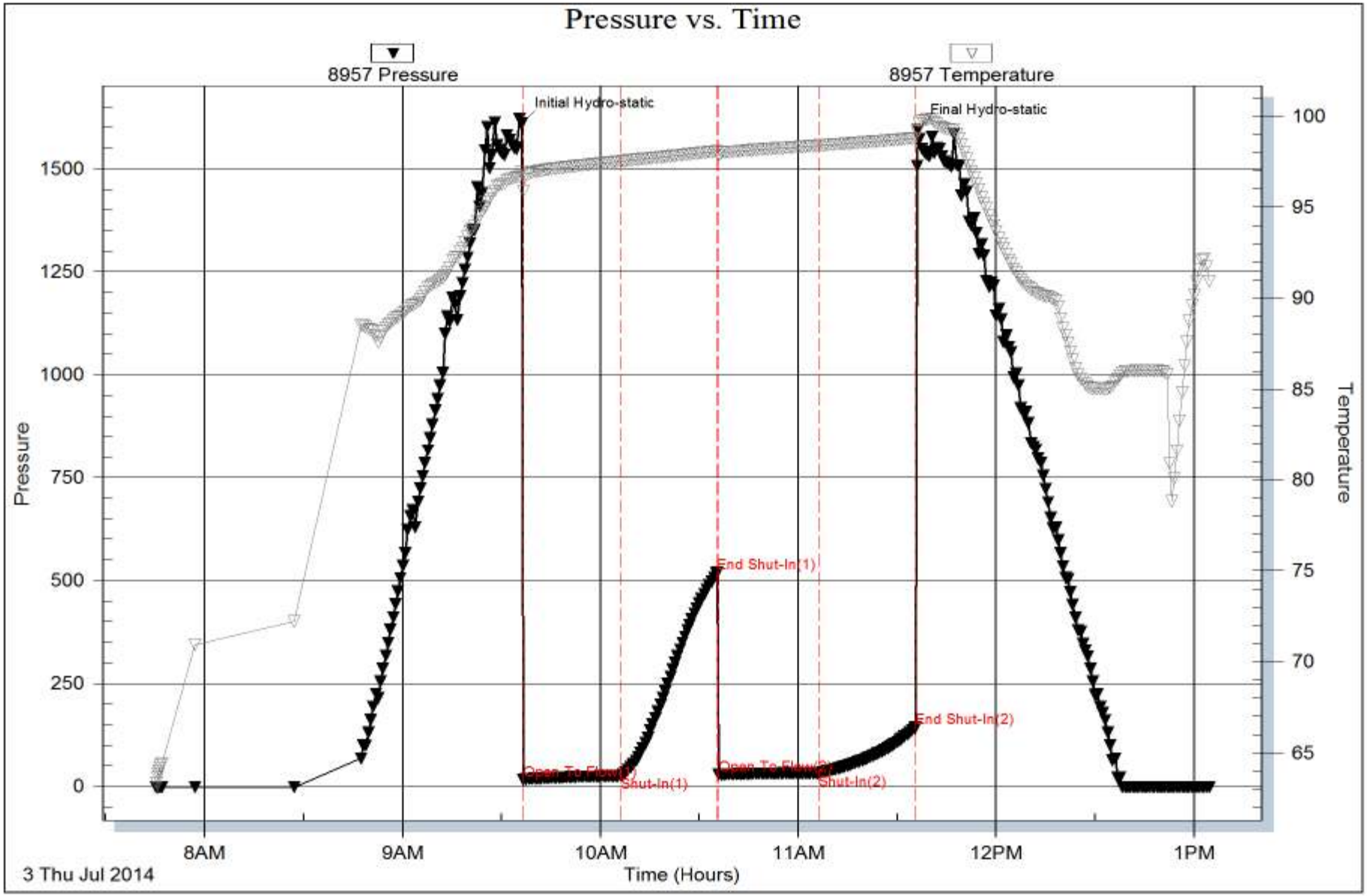
Recovery Table

Length ft	Description	Volume bbl
35.00	OS Mud	0.218

Total Length: 35.00 ft Total Volume: 0.218 bbl

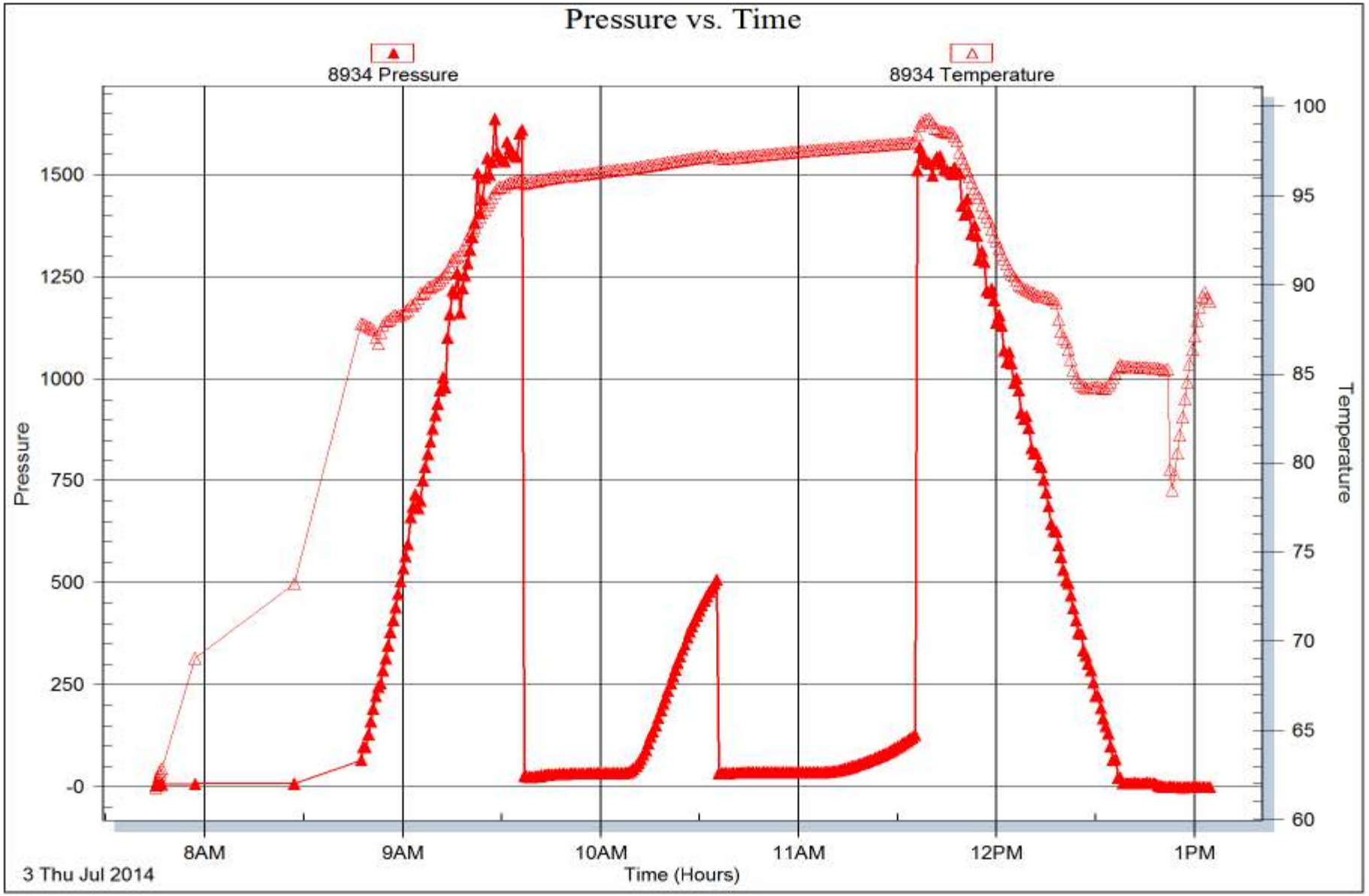
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8957 **Inside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 59412 Printed: 2014.07.08 @ 10:17:58

Serial #: 8934 **Outside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 59412 Printed: 2014.07.08 @ 10:17:58

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

PO Box 352
Russell KS 67665

ATTN: Austin Klause

Patterson C# 1

35-13s-15w Russell,KS

Start Date: 2014.07.04 @ 00:10:00
End Date: 2014.07.04 @ 07:13:30
Job Ticket #: 59413 DST #: 5

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

Printed: 2014.07.08 @ 10:17:26

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59413 **DST#: 5**

Test Start: 2014.07.04 @ 00:10:00

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:17:00
Time Test Ended: 07:13:30

Test Type: Conventional Straddle (Reset)
Tester: Brett Dickinson
Unit No: 59

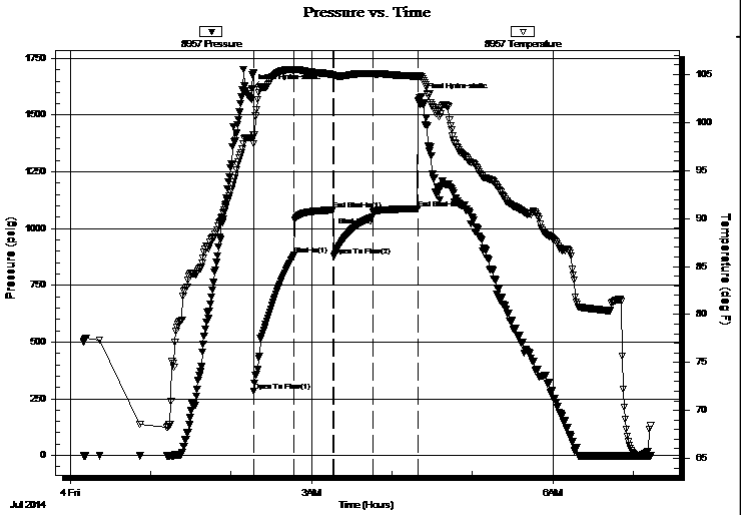
Interval: 3268.00 ft (KB) To 3320.00 ft (KB) (TVD)
Total Depth: 3380.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8957 **Inside**
Press@RunDepth: 1050.21 psig @ 3269.00 ft (KB)
Start Date: 2014.07.04 End Date: 2014.07.04
Start Time: 00:10:05 End Time: 07:13:29

Capacity: 8000.00 psig
Last Calib.: 2014.07.04
Time On Btm: 2014.07.04 @ 02:15:45
Time Off Btm: 2014.07.04 @ 04:20:45

TEST COMMENT: IF-BOB in 45 sec
ISI-No blow
FF-BOB in 45 sec
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1617.19	98.46	Initial Hydro-static
2	281.72	97.81	Open To Flow (1)
31	882.26	105.48	Shut-In(1)
61	1082.28	105.01	End Shut-In(1)
61	879.90	104.90	Open To Flow (2)
90	1050.21	105.08	Shut-In(2)
124	1086.65	104.75	End Shut-In(2)
125	1576.16	104.85	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
430.00	VSOCW 5%O 95%W	5.76
490.00	SGOCW 10%G 10%O 80%W	6.87
1520.00	SGOCW 10%G 40%O 50%W	21.32

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59413 **DST#: 5**

Test Start: 2014.07.04 @ 00:10:00

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:17:00
Time Test Ended: 07:13:30

Test Type: Conventional Straddle (Reset)
Tester: Brett Dickinson
Unit No: 59

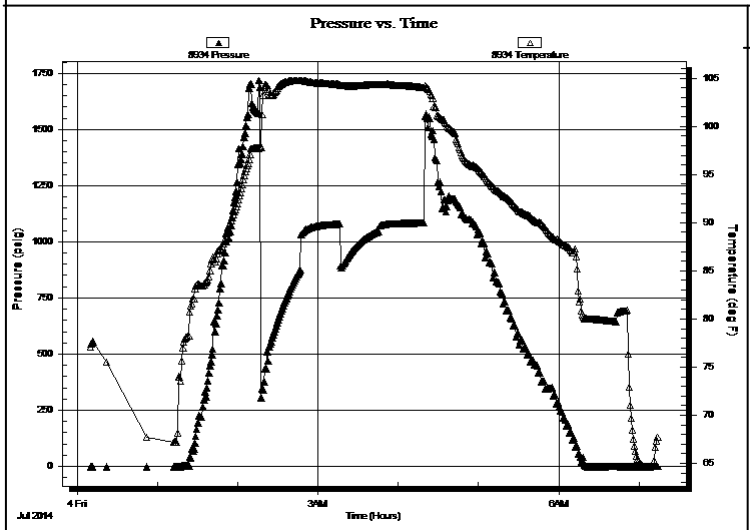
Interval: 3268.00 ft (KB) To 3320.00 ft (KB) (TVD)
Total Depth: 3380.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Outside**
Press@RunDepth: psig @ 3269.00 ft (KB)
Start Date: 2014.07.04 End Date: 2014.07.04
Start Time: 00:10:05 End Time: 07:13:44

Capacity: 8000.00 psig
Last Calib.: 2014.07.04
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-BOB in 45 sec
ISI-No blow
FF-BOB in 45 sec
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
430.00	VSOCW 5%O 95%W	5.76
490.00	SGOCW 10%G 10%O 80%W	6.87
1520.00	SGOCW 10%G 40%O 50%W	21.32

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59413 **DST#: 5**

Test Start: 2014.07.04 @ 00:10:00

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:17:00
Time Test Ended: 07:13:30

Test Type: Conventional Straddle (Reset)
Tester: Brett Dickinson
Unit No: 59

Interval: 3268.00 ft (KB) To 3320.00 ft (KB) (TVD)
Total Depth: 3380.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

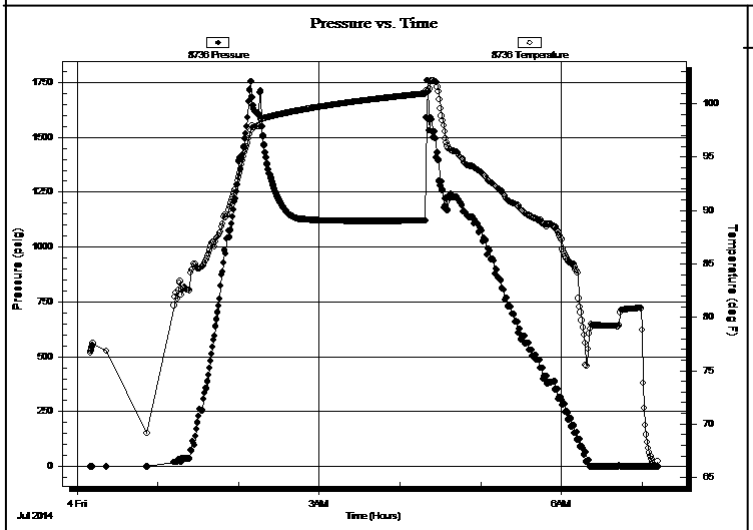
Reference Elevations: 1892.00 ft (KB)
1884.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8736 **Below (Straddle)**

Press@RunDepth: psig @ 3350.00 ft (KB)
Start Date: 2014.07.04 End Date: 2014.07.04
Start Time: 00:10:05 End Time: 07:11:59

Capacity: 8000.00 psig
Last Calib.: 2014.07.04
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-BOB in 45 sec
ISI-No blow
FF-BOB in 45 sec
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
430.00	VSOCW 5%O 95%W	5.76
490.00	SGOCW 10%G 10%O 80%W	6.87
1520.00	SGOCW 10%G 40%O 50%W	21.32

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59413 **DST#: 5**

Test Start: 2014.07.04 @ 00:10:00

Tool Information

Drill Pipe:	Length:	3226.00 ft	Diameter:	3.80 inches	Volume:	45.25 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	ft	Diameter:	2.70 inches	Volume:	- bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	30.00 ft	Diameter:	2.25 inches	Volume:	0.15 bbl	Weight to Pull Loose:		65000.00 lb
					Total Volume:	- bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		8.00 ft					String Weight:	Initial	47000.00 lb
Depth to Top Packer:		3268.00 ft						Final	57000.00 lb
Depth to Bottom Packer:		3320.00 ft							
Interval betw een Packers:		52.00 ft							
Tool Length:		138.00 ft							
Number of Packers:		3	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Shut In Tool	5.00			3253.00		
Hydraulic tool	5.00			3258.00		
Packer	5.00			3263.00	20.00	Bottom Of Top Packer
Packer	5.00			3268.00		
Stubb	1.00			3269.00		
Recorder	0.00	8957	Inside	3269.00		
Recorder	0.00	8934	Outside	3269.00		
Perforations	8.00			3277.00		
Change Over Sub	1.00			3278.00		
Drill Pipe	32.00			3310.00		
Change Over Sub	1.00			3311.00		
Perforations	5.00			3316.00		
Blank Off Sub	4.00			3320.00	52.00	Tool Interval
Packer	5.00			3325.00		
Perforations	25.00			3350.00		
Recorder	0.00	8736	Below	3350.00		
Change Over Sub	1.00			3351.00		
Drill Pipe	31.00			3382.00		
Change Over Sub	1.00			3383.00		
Bullnose	3.00			3386.00	66.00	Bottom Packers & Anchor
Total Tool Length:	**138.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

John O.Farmer,Inc.

PO Box 352
Russell KS 67665

ATTN: Austin Klause

35-13s-15w Russell,KS

Patterson C# 1

Job Ticket: 59413 **DST#: 5**

Test Start: 2014.07.04 @ 00:10:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	5000.00 ppm				
Filter Cake:	inches				

Recovery Information

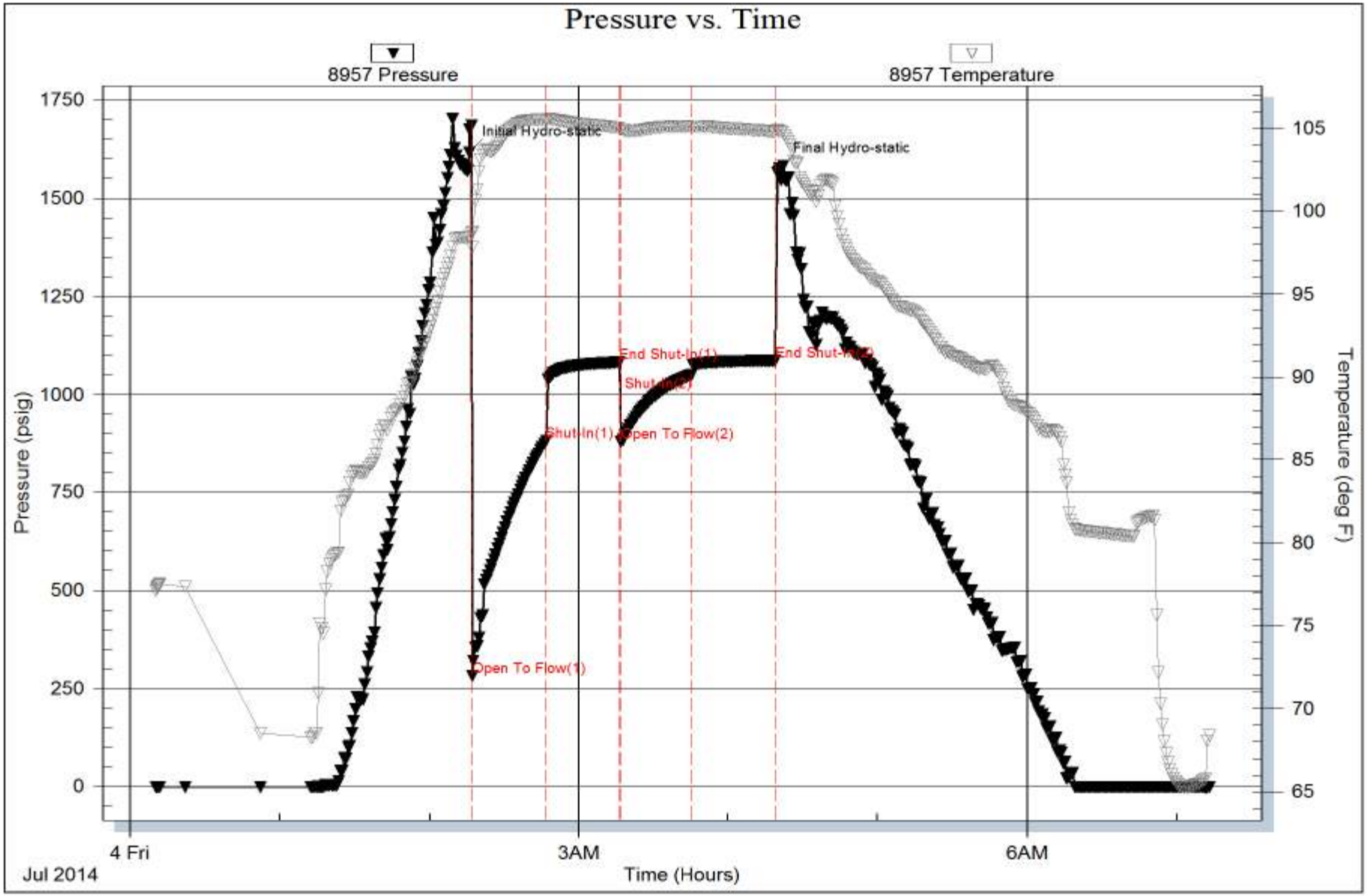
Recovery Table

Length ft	Description	Volume bbl
430.00	VSOCW 5%O 95%W	5.758
490.00	SGOCW 10%G 10%O 80%W	6.873
1520.00	SGOCW 10%G 40%O 50%W	21.322

Total Length: 2440.00 ft Total Volume: 33.953 bbl

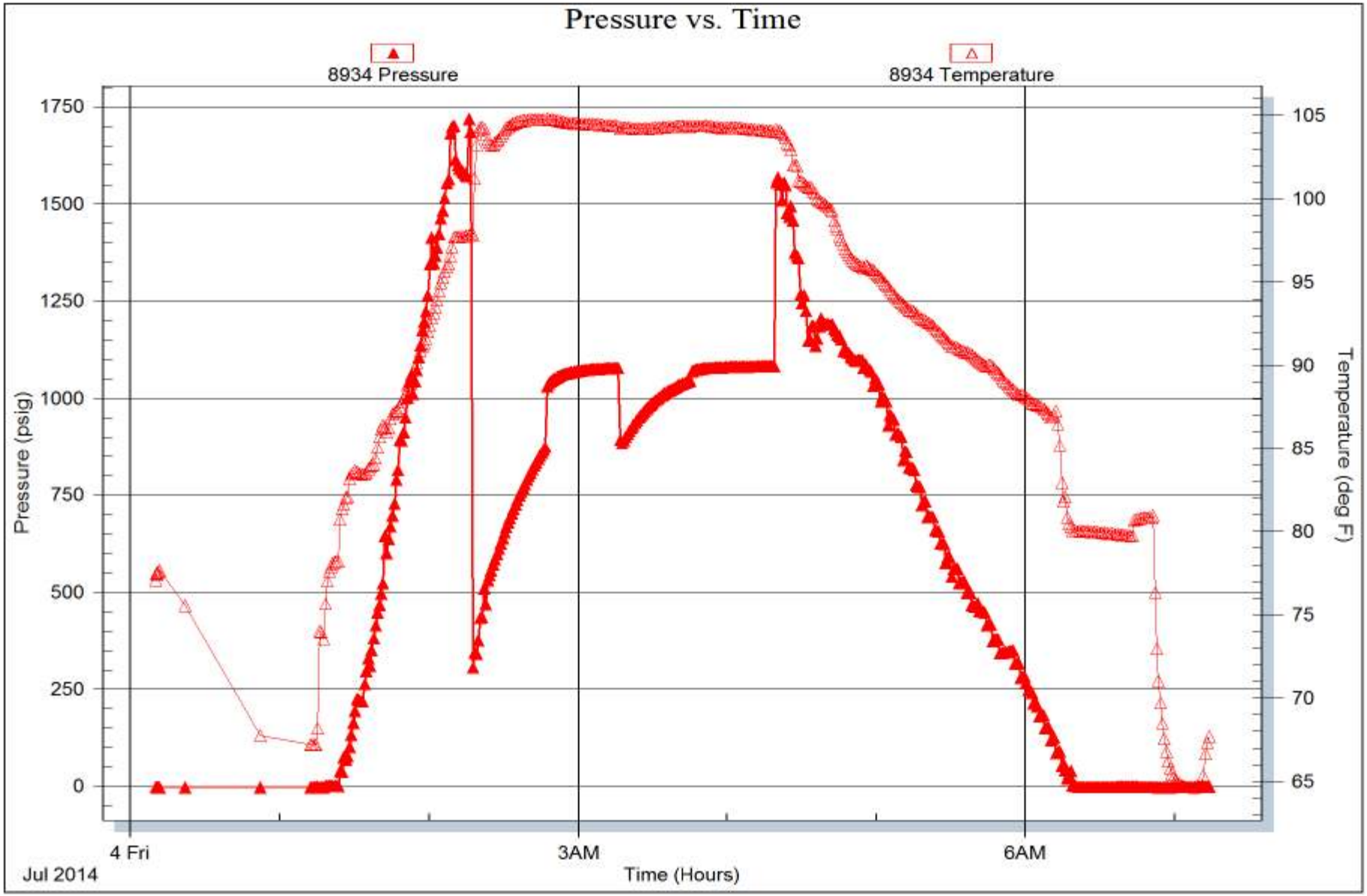
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8957 **Inside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 5



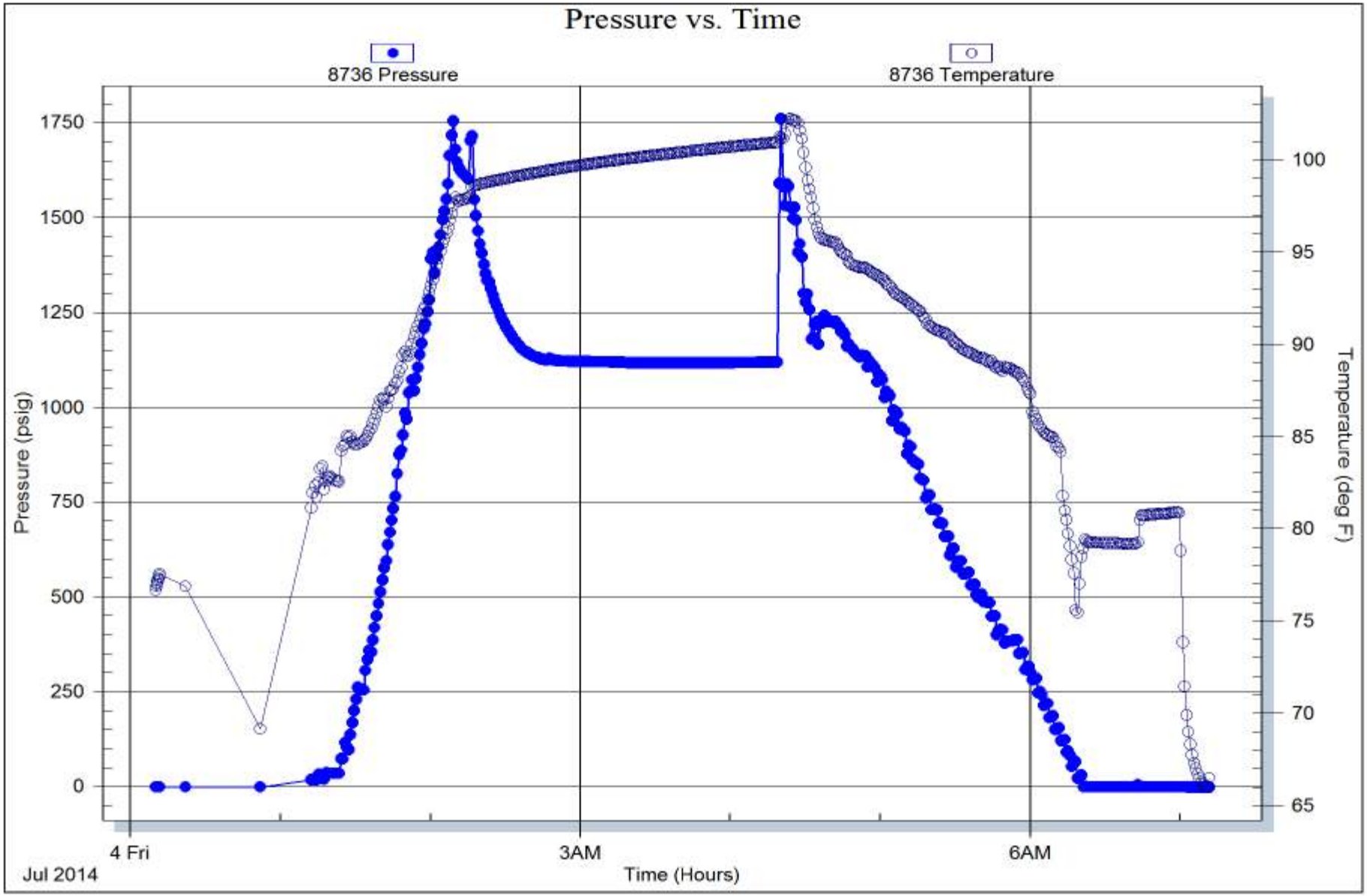
Trilobite Testing, Inc Ref. No: 59413 Printed: 2014.07.08 @ 10:17:27

Serial #: 8934 **Outside** John O.Farmer,Inc. Patterson C# 1 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 59413 Printed: 2014.07.08 @ 10:17:27

Serial #: 8736 Below (Straddle) D.Farmer,Inc. Patterson C# 1 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 59413 Printed: 2014.07.08 @ 10:17:27

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 59409

Well Name & No. Patterson C #1 Test No. 1 Date 7/01/14

Company John O. Farmer, Inc. Elevation 1892 KB 1884 GL

Address PO Box 352 Russell KS 67665

Co. Rep / Geo. Austin Klaus Rig Discovery #2

Location: Sec. 35 Twp. 13 Rge. 15w Co. Russell State KS

Interval Tested 2993 - 3086 Zone Tested Toronto - KC "B"

Anchor Length 93 Drill Pipe Run Mud Wt. 8.9

Top Packer Depth 2988 Drill Collars Run 30 Vis 57

Bottom Packer Depth 2993 Wt. Pipe Run — WL 8.0

Total Depth 3086 Chlorides 3,000 ppm System LCM 1½#

Blow Description IF - 1in blow

ISI - No blow

FF - Very weak surface blow

FSI - No blow

Rec 35	Feet of OS Mud	%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	Feet of	%gas	%oil	%water	%mud

Rec Total 35 BHT 98 Gravity ____ API RW ____ @ ____ °F Chlorides ____ ppm

(A) Initial Hydrostatic	1475	☒ Test	1150
(B) First Initial Flow	17	☐ Jars	
(C) First Final Flow	30	☐ Safety Joint	
(D) Initial Shut-In	233	☐ Circ Sub	
(E) Second Initial Flow	31	☐ Hourly Standby	
(F) Second Final Flow	33	☒ Mileage 46 r T	71.30
(G) Final Shut-In	95	☐ Sampler	
(H) Final Hydrostatic	1,433	☐ Straddle	
		☐ Shale Packer	
Initial Open	30	☐ Extra Packer	
Initial Shut-In	30	☐ Extra Recorder	
Final Flow	30	☐ Day Standby	
Final Shut-In	30	☐ Accessibility	
		Sub Total	1221.30

T-On Location 8:30

T-Started 10:10

T-Open 12:20

T-Pulled 14:20

T-Out 15:45

Comments

☐ Ruined Shale Packer

☐ Ruined Packer

☐ Extra Copies

Sub Total 0

Total 1221.30

MP/DST Disc't

Approved By ____ Our Representative Austin Klaus

TRILOBITE TESTING INC.
1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 59410

Well Name & No. Patterson C #1 Test No. 2 Date 7/01/14
Company John O Farmer Inc. Elevation 1892 KB 1884 GL
Address PO Box 352 Russell KS 67665
Co. Rep / Geo. Austin Klaus Rig Discovery #2
Location: Sec. 35 Twp. 13 Rge. 15 Co. Russell State KS

Interval Tested 3079 - 3120 Zone Tested KC "C-D"
Anchor Length 41 Drill Pipe Run Mud Wt.
Top Packer Depth 3074 Drill Collars Run 30 Vis
Bottom Packer Depth 3079 Wt. Pipe Run WL
Total Depth 3120 Chlorides ppm System LCM

Blow Description IF - BOB in 7½ min
ISI - No blow
FF - BOB in 11 min
FSI - Very weak surface blow

Rec 20	Feet of SGO	5 %gas	95 %oil	%water	%mud
Rec 30	Feet of OCM	%gas	30 %oil	%water	70 %mud
Rec 65	Feet of OS MCW	%gas	%oil	80 %water	20 %mud
Rec	Feet of 30087 GIP	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 115 BHT Gravity API RW .1 @ 65 °F Chlorides 88,000 ppm

(A) Initial Hydrostatic	1,495	☒ Test	1150
(B) First Initial Flow	21	☐ Jars	
(C) First Final Flow	39	☐ Safety Joint	
(D) Initial Shut-In	366	☐ Circ Sub	
(E) Second Initial Flow	42	☐ Hourly Standby	
(F) Second Final Flow	65	☒ Mileage 46rT	71.30
(G) Final Shut-In	372	☐ Sampler	
(H) Final Hydrostatic	1,465	☐ Straddle	
		☐ Shale Packer	
Initial Open	30	☐ Extra Packer	
Initial Shut-In	30	☐ Extra Recorder	
Final Flow	60	☐ Day Standby	
Final Shut-In	60	☐ Accessibility	
		Sub Total	1221.30

T-On Location 22:00
T-Started 22:15
T-Open 23:32
T-Pulled 2:32
T-Out 4:00
Comments

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
Sub Total 0
Total 1221.30
MP/DST Disc't

Approved By Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 59411

Well Name & No. Patterson C #1 Test No. 3 Date 7/02/14

Company John O Farmer Inc. Elevation 1892 KB 1884 GL

Address PO Box 352 Russell KS 67665

Co. Rep / Geo. Austin Klaus Rig Discovery #2

Location: Sec. 35 Twp. 13 Rge. 15 Co. Russell State KS

Interval Tested 3112 - 3160 Zone Tested KC "E-6"

Anchor Length 48 Drill Pipe Run Mud Wt.

Top Packer Depth 3107 Drill Collars Run 30 Vis

Bottom Packer Depth 3112 Wt. Pipe Run — WL

Total Depth 3160 Chlorides ppm System LCM

Blow Description IF- 1½ in blow
ISI - No blow
FF - 1¼ in blow
FSI - No blow

Rec 85	Feet of ~~85~~ VSWCM	%gas	%oil 5	%water 95	%mud	
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 85 BHT 98 Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1,540	☒ Test 1150	T-On Location 12:30
(B) First Initial Flow 19	☐ Jars	T-Started 12:30
(C) First Final Flow 44	☐ Safety Joint	T-Open 14:12
(D) Initial Shut-In 328	☐ Circ Sub	T-Pulled 17:12
(E) Second Initial Flow 41	☐ Hourly Standby	T-Out 18:30
(F) Second Final Flow 60	☒ Mileage 46 mi 71.30	Comments
(G) Final Shut-In 329	☐ Sampler	
(H) Final Hydrostatic 1,494	☐ Straddle	☐ Ruined Shale Packer
	☐ Shale Packer	☐ Ruined Packer
Initial Open 30	☐ Extra Packer	☐ Extra Copies
Initial Shut-In 30	☐ Extra Recorder	Sub Total 0
Final Flow 60	☐ Day Standby	Total 1221.30
Final Shut-In 60	☐ Accessibility	MP/DST Disc't
	Sub Total 1221.30	

Approved By Our Representative Bill Dawson

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 59412

Well Name & No. Patterson C #1 Test No. 4 Date 7/03/14

Company John O Farmer Inc. Elevation 1892 KB 1884 GL

Address PO Box 352 Russell KS 67665

Co. Rep / Geo. Austin Klaus Rig Discovery #2

Location: Sec. 35 Twp. 13 Rge. 15 Co. Russell State KS

Interval Tested 3197 -3300 Zone Tested KC "I-L"

Anchor Length 103 Drill Pipe Run Mud Wt.

Top Packer Depth 3192 Drill Collars Run 30 Vis

Bottom Packer Depth 3197 Wt. Pipe Run — WL

Total Depth 3300 Chlorides ppm System LCM

Blow Description IF - 1in blow

ISI - No blow

FF - very weak surface blow

FSI - No blow

Rec 35	Feet of OS Mud	%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	Feet of	%gas	%oil	%water	%mud

Rec Total 35 BHT 99 Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1609	☒ Test 1150	T-On Location 7:45
(B) First Initial Flow 17	☐ Jars	T-Started 7:45
(C) First Final Flow 26	☐ Safety Joint	T-Open 9:37
(D) Initial Shut-In 519	☐ Circ Sub	T-Pulled 11:37
(E) Second Initial Flow 29	☐ Hourly Standby	T-Out 13:05
(F) Second Final Flow 32	☒ Mileage 46rt 71.30	Comments
(G) Final Shut-In 144	☐ Sampler	
(H) Final Hydrostatic 1594	☐ Straddle	☐ Ruined Shale Packer
	☐ Shale Packer	☐ Ruined Packer
Initial Open 30	☐ Extra Packer	☐ Extra Copies
Initial Shut-In 30	☐ Extra Recorder	Sub Total 0
Final Flow 30	☐ Day Standby	Total 1221.30
Final Shut-In 30	☐ Accessibility	MP/DST Disc't
	Sub Total 1221.30	

Approved By Our Representative Brett Duke

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 59413

Well Name & No. Patterson C #1 Test No. 5 Date 7/03/14

Company John O Farmer Inc. Elevation 1892 KB 1884 GL

Address

Co. Rep / Geo. Austin Klaus Rig Discovery #2

Location: Sec. 35 Twp. 13 Rge. 15 Co. Russell State KS

Interval Tested 3268 - 3320 Zone Tested Arb.

Anchor Length 52 Drill Pipe Run Mud Wt.

Top Packer Depth 3263, 3268 Drill Collars Run 30 Vis

Bottom Packer Depth 3320 Wt. Pipe Run — WL

Total Depth 3380 Chlorides ppm System LCM

Blow Description IF - BOB in 45 sec

ISI - No blow

FF - BOB in 45 sec

FSI - No blow

Rec 1520	Feet of SGOCW	10 %gas	40 %oil	50 %water	%mud	
Rec 490	Feet of SGOCW	10 %gas	10 %oil	80 %water	%mud	
Rec 430	Feet of VSOCW	%gas	5 %oil	95 %water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 2440 BHT Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1,617	☒ Test 1150	T-On Location 23:40	
(B) First Initial Flow 282	☐ Jars	T-Started 00:10	
(C) First Final Flow 882	☐ Safety Joint	T-Open 2:15	
(D) Initial Shut-In 1,082	☐ Circ Sub	T-Pulled 4:15	
(E) Second Initial Flow 880	☐ Hourly Standby	T-Out 7:10	
(F) Second Final Flow 1,050	☒ Mileage 46 mi 71.30	Comments	
(G) Final Shut-In 1,087	☐ Sampler		
(H) Final Hydrostatic 1,576	☒ Straddle 600	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 30	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 30	☐ Extra Recorder	Sub Total 0	
Final Flow 30	☐ Day Standby	Total 1821.30	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 1821.30		

Approved By Our Representative Brett Dunn

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.

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:	**Patterson C #1**		
Location:	**Russell County**		
License Number:	**API #15-167-23978-00-00**	**Region:**	**Kansas**
Spud Date:	**6/27/14**	**Drilling Completed:**	**7/3/14**
Surface Coordinates:	**Section 35 - Township 13 South - Range 15 West** **330' FNL & 1,160' FEL**		
Bottom Hole Coordinates:	**Vertical well with minimal deviation, same as above**		
Ground Elevation (ft):	**1,884'**	**K.B. Elevation (ft):**	**1,892'**
Logged Interval (ft):	**2,550'** **To: RTD**	**Total Depth (ft):**	**3,380'**
Formation:	**LKC, Arbuckle**		
Type of Drilling Fluid:	**Chemical (Andy's)**		

OPERATOR

Company: John O. Farmer, Inc.
Address: P.O. Box 352
Russell, KS 67665-0352

Comments

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

The location for the Patterson C #1 well was found via 3-D seismic survey. Geologic samples were collected and evaluated from 2,550'-3,380'. Structurally, the Patterson C #1 ran 13' high to our correlation well at the Lansing. Four bottom-hole tests were conducted in the Lansing, with the C-D test yielding the only positive results. The Arbuckle horizon was 8' high to the nearest Arbuckle well. Upon completion of the logging operation, a straddle tested was conducted, covering the top 12' of the Arbuckle. After all sample, log, and drill stem test data was gathered and evaluated, the decision was made to run 5 1/2" production casing on 7/4/14 to further evaluate the Patterson C #1 well.

ROCK TYPES

Anhy, Bent, Brec, Cht, Clyst, Coal, Congl, Dol, Gyp, Igne, Lmst, Meta, Mrlst, Salt, Shale, Shcol, Shgy, Sltst, Ss, Till

OTHER SYMBOLS

POROSITY: Earthy, Fenest, Fracture, Inter, Moldic, Organic, Pinpoint, Vuggy

SORTING: Well, Moderate, Poor

ROUNDING: Rounded, Subrnd, Subang, Angular

OIL SHOW: Even

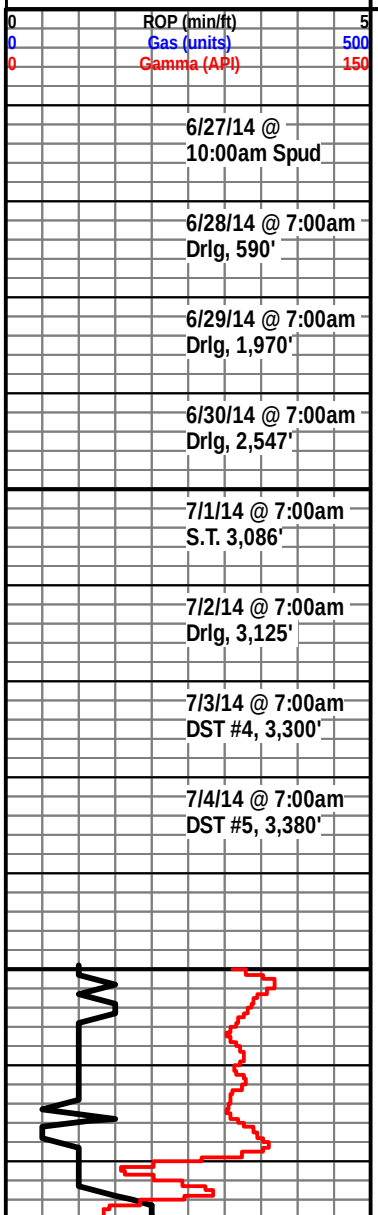
Spotted, Ques, Dead

INTERVAL: Core, Dst

EVENT: Rft, Sidewall

Curve Track 1
ROP (min/ft)
Gas (units)
Gamma (API)

Depth | Lithology | Oil Shows | Geological Descriptions | Drill Stem Tests



24

2500

2550

The open-hole logging was performed by Mr. Gus Pfannenstiel 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	934	958
Tarkio	2570	-678
Topeka	2766	-874
Heebner	2994	-1102
Lansing	3050	-1158
B/KC	3291	-1399
Arbuckle	3308	-1416
LTD	3380	-1488

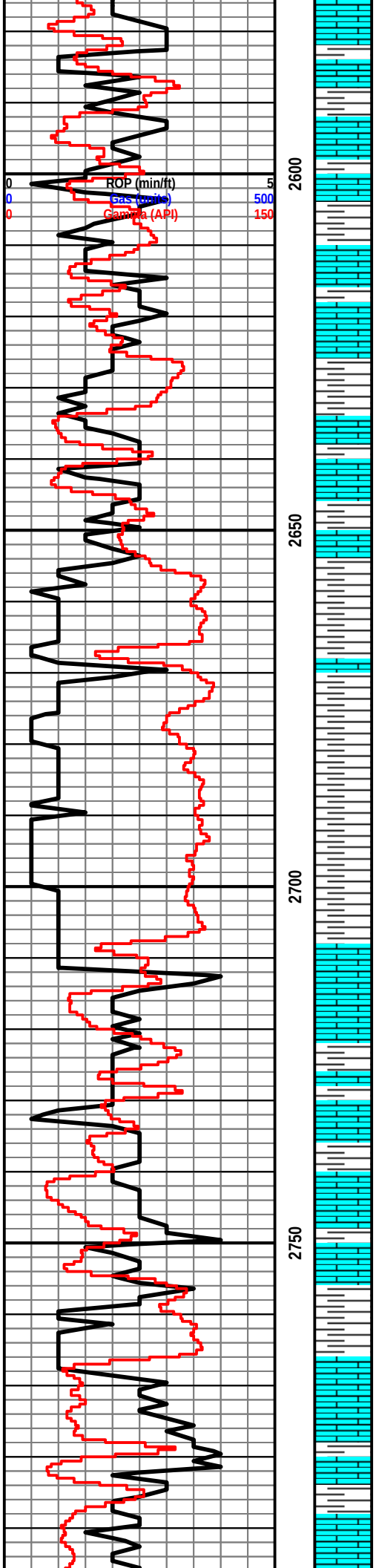
Sh: drk gry-lt gry-brn

Sh: ala

Tarkio 2570' (-678)

Ls: off wh-tan, fn xln, mostly DNS, scat sh: drk gry-brn

Tester: Brett Dickinson
Mud Engineer: Brandon Mendez



gry-brn

Ss: lt gry-tan, fn grn, mostly rnd, well sorted, poorly cemented, scat oil st, NSFO

Sh: drk gry

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

Sh: drk gry-lt gry

Ls: tan-buff, fn xln, mostly DNS, scat chalky

Ls: ala

Ls: gry, fn xln, scat int xln porosity, scat fossil, NSFO

Sh: drk gry-brn

Ls: tan-buff, fn-sub xln, no visible porosity

Ls: ala

Sh: lt gry-drk gry

Ls: tan-lt gry, fn-sub xln, no visible porosity, scat fossil, chert-off wh

Ls: buff, fn xln, scat int xln porosity, NSFO, scat fossil

Sh: lt gry-brn

Sh: ala

Ls: tan-brn, fn-sub xln, no visible porosity, NSFO, chalky

Sh: drk gry-brn

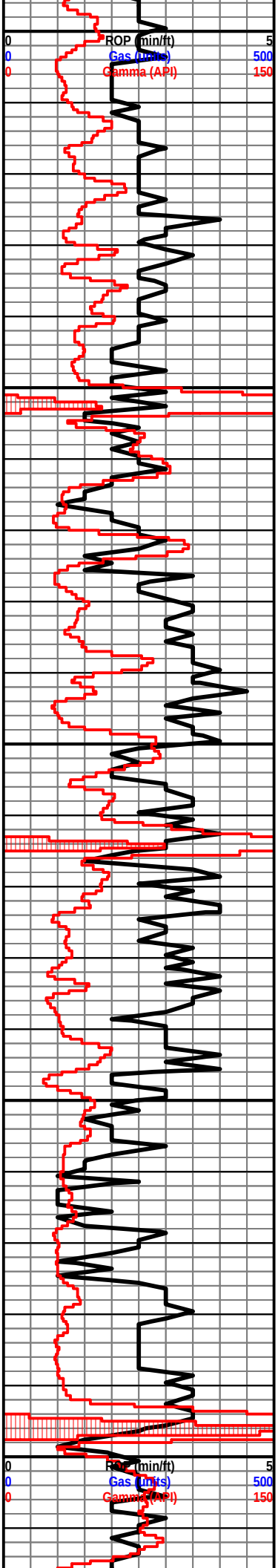
Topeka 2768' (-876)

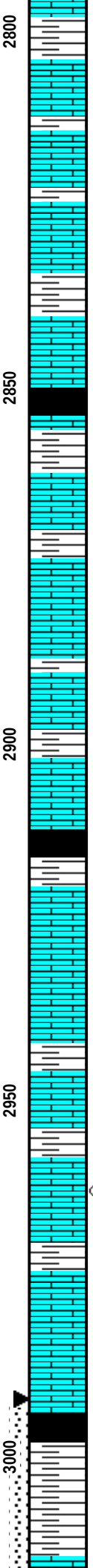
Ls: buff-tan, fn xln, scat fossil, no visible porosity

Sh: drk gry

Sh: ala

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





st, VSSFO, sl odor, scat fossil

Sh: lt gry-drk gry

Ls: tan-lt gry, fn xln, scat fossil, poor int part porosity, NSFO

Ls: ala

Sh: drk gry-blk

Sh: lt gry-drk gry

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

Sh: drk gry

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

Ls: buff-lt brn, fn xln, scat int xln porosity, scat oil st, NSFO, chert-off wh

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

Sh: lt gry

Sh: drk gry-blk

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

Ls: tan-lt gry, fn xln, fossil, scat int part porosity, scat oil st, SSFO, sl odor, scat chalky

Ls: buff-lt gry, fn xln, mostly DNS, no visible porosity, NSFO, scat chert-off wh

Sh: drk gry

Ls: off wh-tan, fn xln, poor-fair int xln porosity, fair-good oil sat, SSFO, fair odor, scat chalky

Sh: drk gry-brn

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

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

Heebner 2996' (-1104)

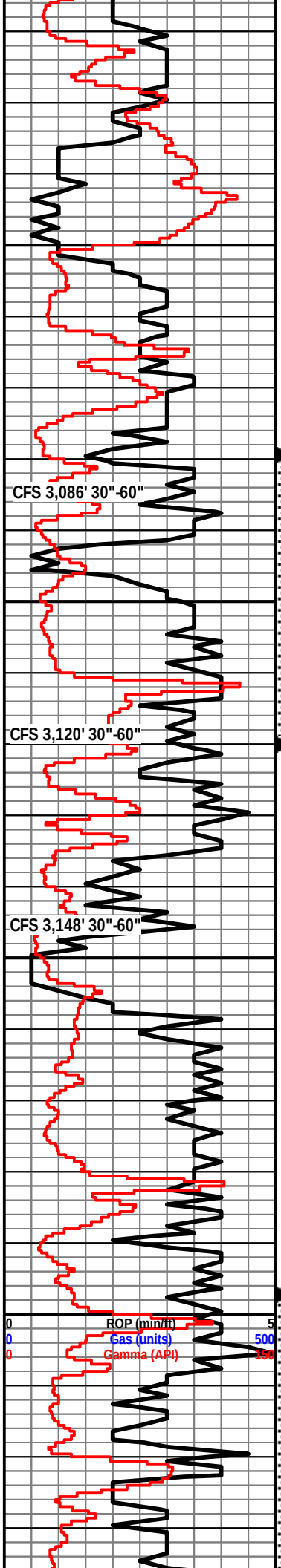
Sh: blk, carb, fissile

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

Sh: lt gry-drk gry

Toronto 3016' (-1124)

DST #1 2,993-3,086' (Toronto-LKC B)
30"-30"-30"-30"
IF: weak blow built to 1"
FF: weak surface blow
Rec: 35' Mud
FP: 17-30, 31-33 #
SIP: 233-95#
HP: 1,475-1,433#
BHT: 98



Ls: off wh-tan, fn xln, scat int xln porosity, mostly tite, vry lt oil st, NSFO, no odor

Sh: drk gry-brn

Sh: drk gry, few pcs soft

Sh: gry

Lansing 3053' (-1161)

Ls: off wh-tan, fn xln, poor-scat int xln porosity, scat oil st, NSFO, scat chalk

Sh: lt gry-drk gry

Ls: off wh-tan, fn xln, poor-fair int xln and vuggy porosity, fair oil sat, SSFO, fair odor, scat chalky

Sh: drk gry

Ls: off wh-tan, fn xln, ool, fair ool porosity, fair-good oil sat, FSFO, good odor, dull yel fluor

Ls: off wh-tan, fn xln, scat fossil, no visible porosity, mostly tite, NSFO, no odor

Sh: lt gry-drk gry

Ls: off wh-lt gry, fn xln, fossil, scat int fossil porosity, no oil st, NSFO

Sh: drk gry

Ls: off wh-tan, fn xln, fossil, poor int part porosity, lt oil st, NSFO, no odor, sl chalky

Ls: off wh, fn xln, ool, poor-fair ool porosity, scat oil st, VSSFO, fair odor, chalky, scat chert-off wh

Sh: drk gry

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

Sh: drk gry-drk brn

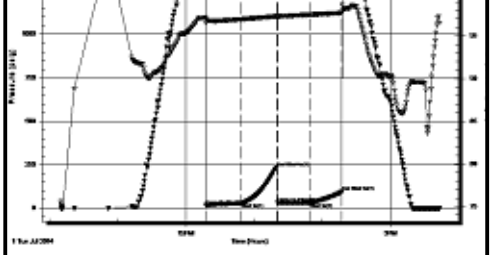
Ls: off wh-lt gry, fn xln, scat int xln porosity, mostly tite, NSFO, no odor, scat chert-off wh

Sh: drk gry

Ls: off wh, fn xln, fossil, poor-fair int fossil porosity, scat-fair oil sat, SSFO, sl-fair odor, chalky

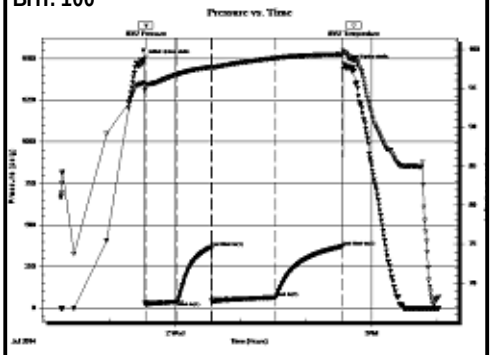
Sh: drk gry

Ls: off wh-tan, fn-md xln, scat fossil, poor int xln porosity, fair oil st, SSFO, sl odor, scat chalk



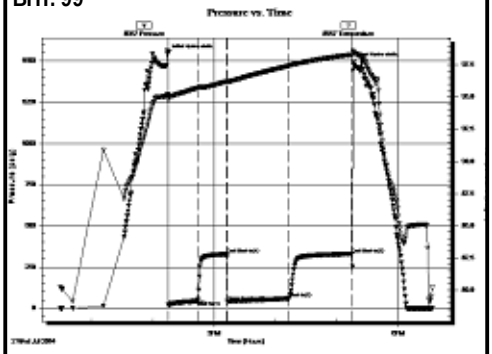
Vis: 57
Wt: 8.9

DST #2 3,079-3,120' (LKC C-D)
30"-30"-60"-60"
IF: BOB in 7.5 minutes, no blow back
FF: BOB in 11 minutes, surface blow back
Rec: 300' Gas in pipe
20' GO (5% G, 95% O), 30' HOCM (30% O, 70% M), 65' MW (20% M, 80% W)
FP: 21-39, 42-65#
SIP: 366-372#
HP: 1,495-1,469#
BHT: 100

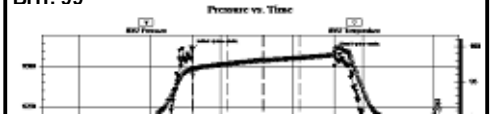


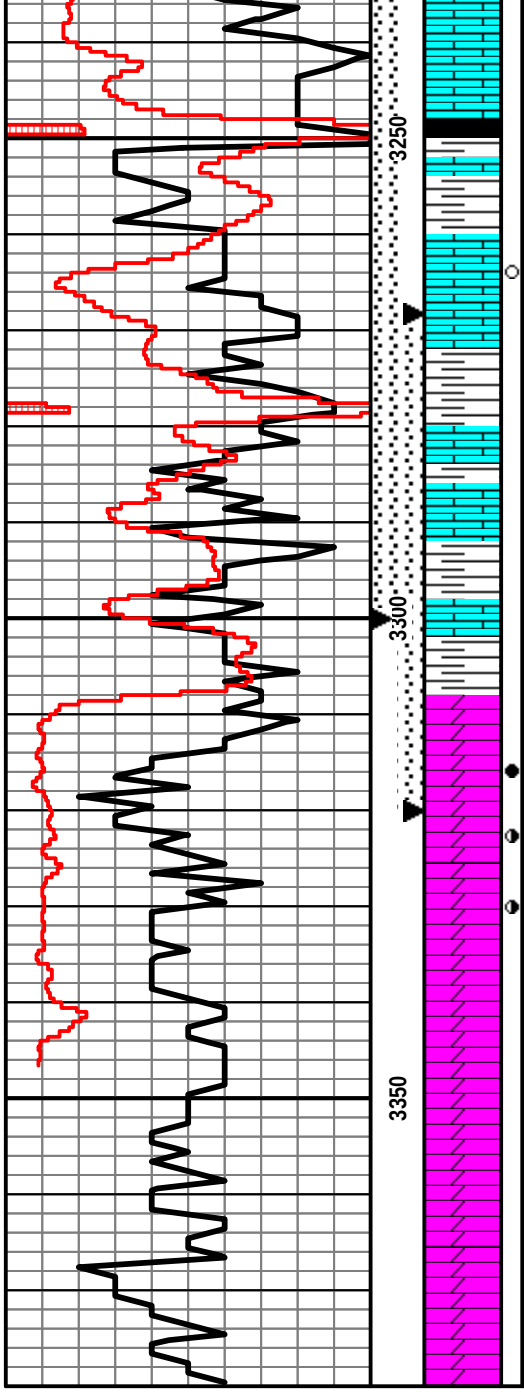
Vis: 51
Wt: 9.1

DST #3 3,112-3,160' (LKC E-G)
30"-30"-30"-30"
IF: weak blow, built to 1.5"
FF: weak blow built to 1.25"
Rec: 85' SWCM (5% W, 95% M)
FP: 19-44, 41-60#
SIP: 328-329#
HP: 1,540-1,494#
BHT: 99



DST #4 3,197-3,300' (LKC I-L)
30"-30"-30"-30"
IF: weak blow, built to 1"
FF: weak surface blow
Rec: 35' Mud
FP: 17-26, 29-32#
SIP: 519-144#
HP: 1,609-1,594#
BHT: 99





Ls: off wh-lt gry, fn xln, scat int xln porosity, scat oil st, NSFO

Sh: drk gry-blk, carb

Ls: off wh-tan, fn xln, ool, scat ool porosity, poor-fair oil st in porosity, SSFO, sl odor, chalky

Sh: drk gry

Ls: tan-lt gry, fn-sub xln, mostly DNS, tite, NSFO, scat fossil

B/KC 3294' (-1402)

Sh: drk gry-drk brn-grn

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

Sh: drk gry-grn

Arbuckle 3311' (-1419)

Dolo: off wh-tan-lt gry, fn xln, poor int xln porosity, poor oil sat, VSSFO, sl-fair odor, scat sh: drk gry

Dolo: off wh-tan, fn-md xln, fair int xln porosity, fair-good oil sat, SFO, good odor, scat chert-off wh

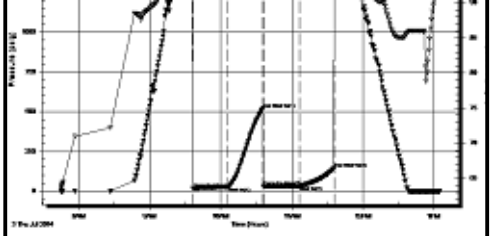
Dolo: off wh, fn-md xln, fair int xln porosity, SFO, good odor, scat chert-off wh

Dolo: off wh-tan, fn-md xln, poor int xln porosity, sl oil sat, SSFO, sl odor, scat chalk

Dolo: ala

Sh: drk gry-grn

Dolo: off wh-tan, fn xln, poor-fair int xln porosity, mostly barren, NSFO, no odor, chalky



DST #5 3,268-3,320' (Top 12' of Arbuckle)
30"-30"-30"-30"
IF: BOB in 45 seconds, no blow back
FF: BOB in 45 seconds, no blow back
Rec: 1,520' HOCGW (10% G, 40% O, 50% W), 490' G&OCW (10% G, 10% O, 80% W), 430' SOCW (5% O, 95% W)
FP: 282-882, 880-1,050#
SIP: 1,082-1,087#
HP: 1,617-1,576#
BHT: 105