Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1136468

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 # 3842
Name: Larson Engineering, Inc. dba Larson Operating Company
Address 1: 562 W STATE RD 4
Address 2:
City: OLMITZ State: KS Zip: 67564 + 8561
Contact Person: Thomas Larson
Phone: (620) 653-7368
CONTRACTOR: License # 33935
Name: H. D. Drilling, LLC
Wellsite Geologist: Vernon Schrag
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 #:

1/21/2013	2/2/2013	3/13/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22420-00-00
Spot Description:
SE - NW - SW - NE Sec. 19 Twp. 18 S. R. 29 ☐ East ☑ West
1936 Feet from ☑ North / ☐ South Line of Section
2132 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: Lane
Lease Name: Bockelman Well #: 2-19
Field Name: Wildcat
Producing Formation: Lansing - KC
Elevation: Ground: 2834 Kelly Bushing: 2841
Total Vertical Depth: 4661 Plug Back Total Depth: 4615
Amount of Surface Pipe Set and Cemented at: 259 Feet
Multiple Stage Cementing Collar Used? ☑ Yes ☐ No
If yes, show depth set: 2140 Feet
If Alternate II completion, cement circulated from: 2140
feet depth to: 0 w/ 200 sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 13500 ppm Fluid volume: 1400 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: 05/21/2013
☑ **Confidential Release Date:** 05/21/2015
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 05/22/2013

1136468

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Bockelman Well #: 2-19

Sec. 19 Twp. 18 S. R. 29 ☐ East ☑ West County: Lane

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:

Dual Induction
Dual Comp Porosity
Microresistivity

☑ 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	20	259	Class A	175	2% gel, 3% CC
Production	7.875	5.5	15.5	4660	EA-2	125	7#/sk gilsonite, 1/4#/sk flocele

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	0-2140	SMD	200	1/4#/sk flocele
	-			

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	4232-36	250 gal 15% RWR-1	4232-36
		Sqz:50 sx Class A	4232-36
4	4221-26	250 gal 15% Fe/MCA	4221-26
4	4199-4203	250 gal 15% RWR-1	4199-4203

TUBING RECORD: Size: 2.375 Set At: 4606 Packer At: Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 3/13/2013

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

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

DISPOSITION OF GAS: ☐ 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)*

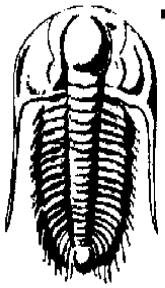
PRODUCTION INTERVAL: 4199 - 4226

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Bockelman 2-19
Doc ID	1136468

Tops

Name	Top	Datum
Anhydrite	2161	+680
Base Anhydrite	2231	+610
Heebner	3926	-1085
Lansing	3968	-1127
Stark	4252	-1411
Marmaton	4369	-1528
Pawnee	4442	-1601
Ft Scott	4496	-1655
Cherokee	4521	-1680
Mississippi	4594	-1753



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.27 @ 01:51:41

End Date: 2013.01.27 @ 06:46:41

Job Ticket #: 51414 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.02.05 @ 13:58:10

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51414 **DST#: 1**

Test Start: 2013.01.27 @ 01:51:41

GENERAL INFORMATION:

Formation: **Lansing "H"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 03:57:11
Time Test Ended: 06:46:41

Test Type: Conventional Bottom Hole (Initial)
Tester: 46
Unit No: Tate Lang

Interval: 4142.00 ft (KB) To 4166.00 ft (KB) (TVD)
Total Depth: 4166.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

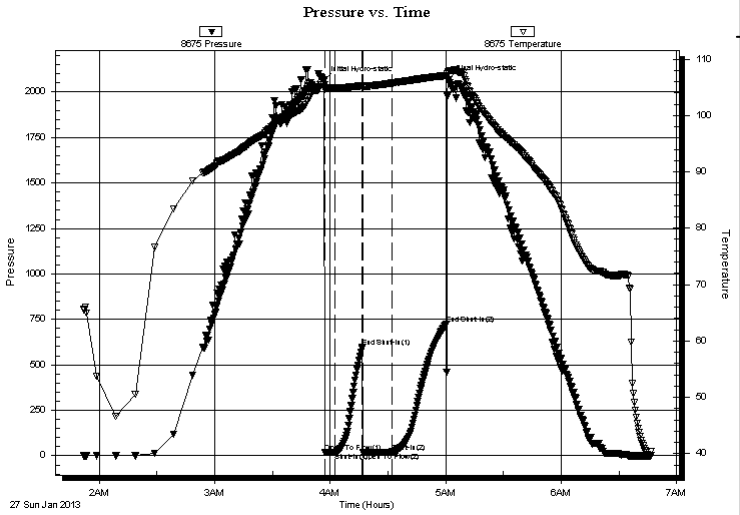
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 20.02 psig @ 4143.00 ft (KB)
Start Date: 2013.01.27 End Date: 2013.01.27
Start Time: 01:51:56 End Time: 06:46:41

Capacity: 8000.00 psig
Last Calib.: 2013.01.27
Time On Btm: 2013.01.27 @ 03:56:56
Time Off Btm: 2013.01.27 @ 05:01:26

TEST COMMENT: IF-Weak surface blow built to 1/4"
ISI-Dead no return blow .
FF-Dead no blow
FSI-Dead no return blow .



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2065.36	105.44	Initial Hydro-static
1	18.14	104.53	Open To Flow (1)
6	19.46	104.85	Shut-In(1)
20	598.57	105.28	End Shut-In(1)
21	19.21	105.04	Open To Flow (2)
35	20.02	105.73	Shut-In(2)
64	722.02	107.07	End Shut-In(2)
65	2069.46	107.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M w ith oil spots	0.02

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51414 **DST#: 1**

Test Start: 2013.01.27 @ 01:51:41

GENERAL INFORMATION:

Formation: **Lansing "H"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 03:57:11
Time Test Ended: 06:46:41

Test Type: Conventional Bottom Hole (Initial)
Tester: 46
Unit No: Tate Lang

Interval: 4142.00 ft (KB) To 4166.00 ft (KB) (TVD)
Total Depth: 4166.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

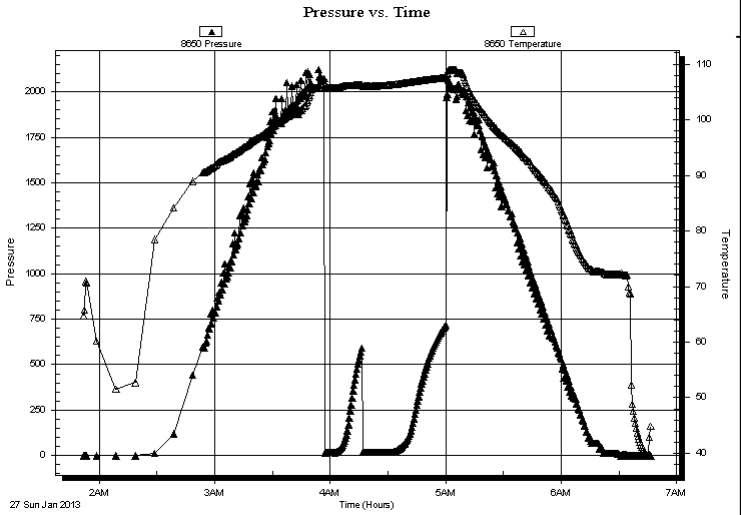
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4143.00 ft (KB)
Start Date: 2013.01.27 End Date: 2013.01.27
Start Time: 01:51:56 End Time: 06:46:41

Capacity: 8000.00 psig
Last Calib.: 2013.01.27
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Weak surface blow built to 1/4"
ISI-Dead no return blow .
FF-Dead no blow
FSI-Dead no return blow .



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%M w ith oil spots	0.02

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51414 **DST#: 1**

Test Start: 2013.01.27 @ 01:51:41

Tool Information

Drill Pipe:	Length:	3980.00 ft	Diameter:	3.80	inches	Volume:	55.83	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25	inches	Volume:	0.72	bbl	
						Total Volume:	56.55	bbl	

Drill Pipe Above KB:	12.50 ft
Depth to Top Packer:	4142.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	24.00 ft
Tool Length:	51.50 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2200.00 lb
Weight set on Packer:	20000.00 lb
Weight to Pull Loose:	66000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	62000.00 lb
Final	62000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4115.50		
Shut In Tool	5.00			4120.50		
Hydraulic tool	5.00			4125.50		
Jars	5.00			4130.50		
Safety Joint	2.50			4133.00		
Packer	5.00			4138.00	27.50	Bottom Of Top Packer
Packer	4.00			4142.00		
Stubb	1.00			4143.00		
Recorder	0.00	8675	Inside	4143.00		
Recorder	0.00	8650	Outside	4143.00		
Perforations	20.00			4163.00		
Bullnose	3.00			4166.00	24.00	Bottom Packers & Anchor
Total Tool Length:	**51.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51414 **DST#: 1**

Test Start: 2013.01.27 @ 01:51:41

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:	62.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.38 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3200.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100%M w ith oil spots	0.025

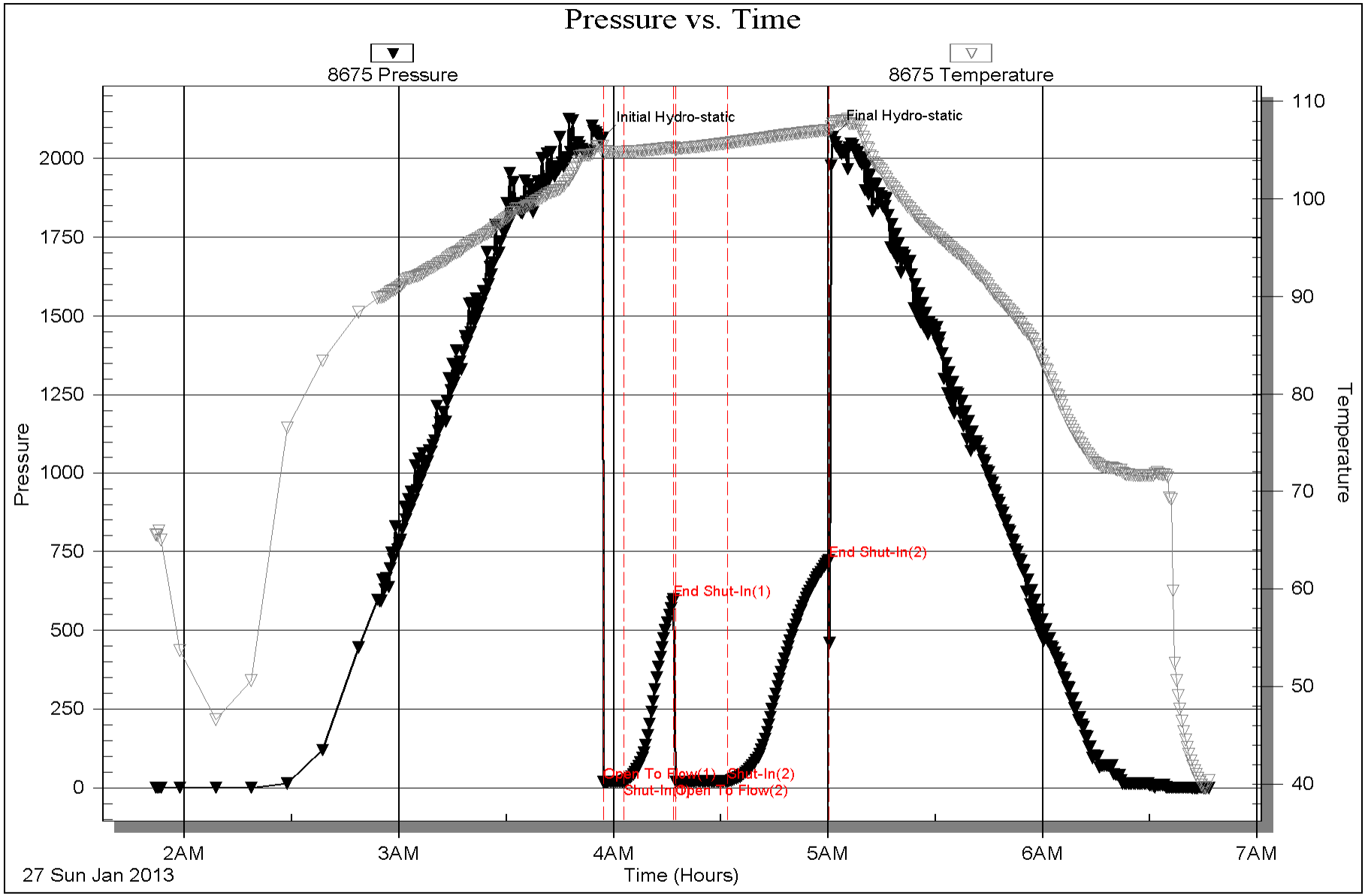
Total Length: 5.00 ft Total Volume: 0.025 bbl

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

Laboratory Name: Laboratory Location:

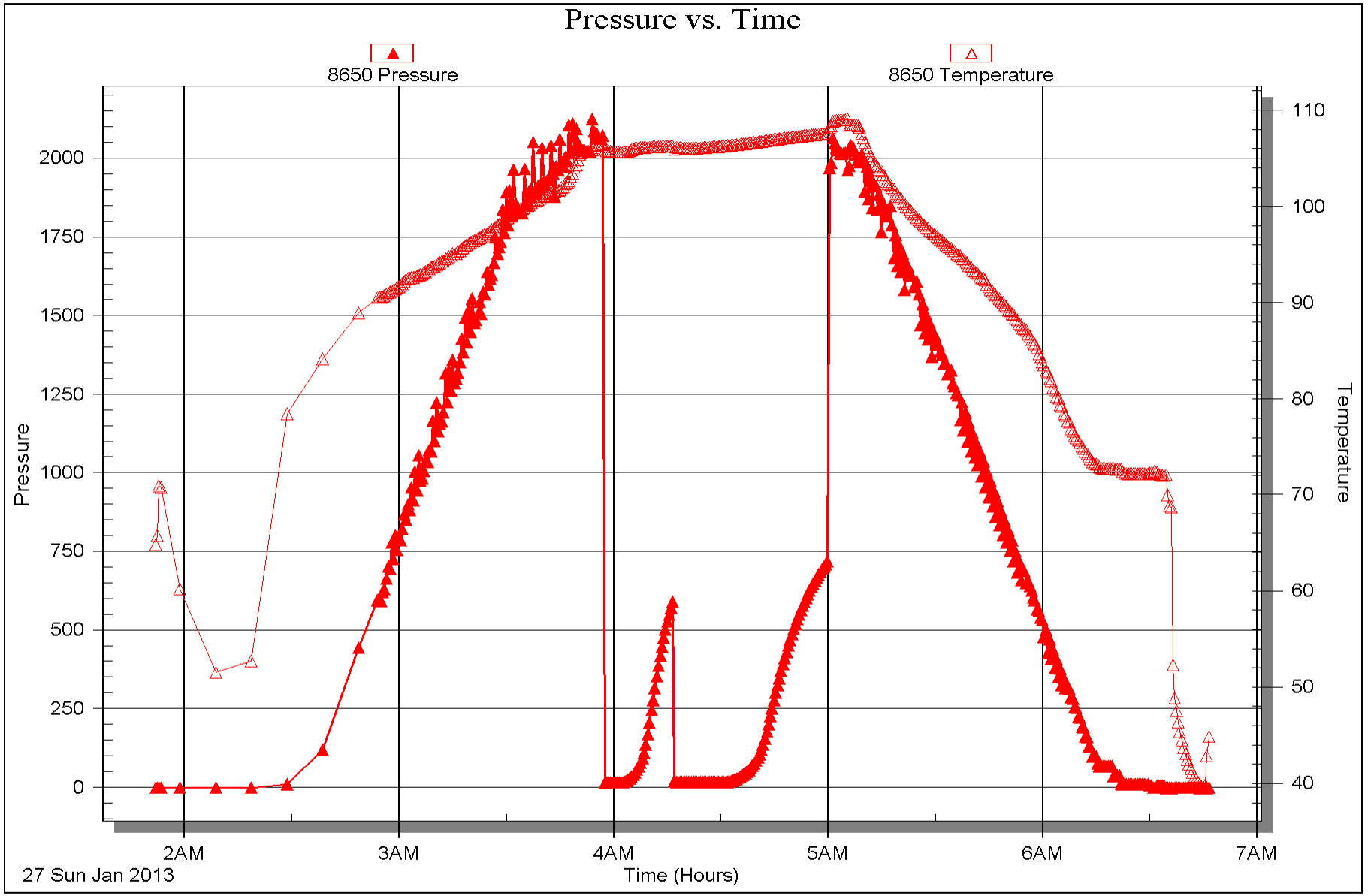
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 51414 Printed: 2013.02.05 @ 13:58:13

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 1



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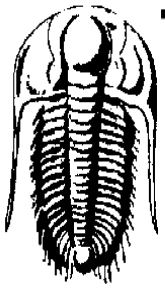


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.27 @ 17:40:50

End Date: 2013.01.28 @ 00:11:20

Job Ticket #: 51415 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.02.05 @ 13:57:25

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51415 **DST#: 2**

Test Start: 2013.01.27 @ 17:40:50

GENERAL INFORMATION:

Formation: **Lansing " I "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:52:20
Time Test Ended: 00:11:20

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4183.00 ft (KB) To 4205.00 ft (KB) (TVD)
Total Depth: 4205.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

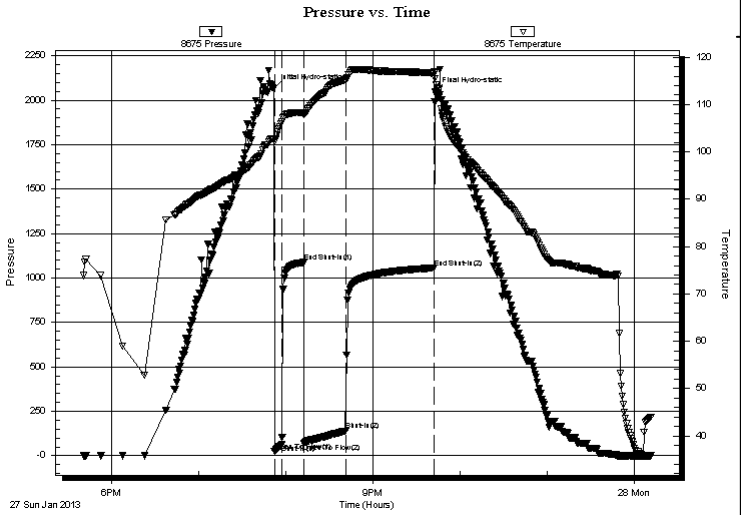
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 140.86 psig @ 4184.00 ft (KB)
Start Date: 2013.01.27 End Date: 2013.01.28
Start Time: 17:41:05 End Time: 00:11:20

Capacity: 8000.00 psig
Last Calib.: 2013.01.28
Time On Btm: 2013.01.27 @ 19:51:50
Time Off Btm: 2013.01.27 @ 21:42:50

TEST COMMENT: IF-Fair blow built to 6"
ISI-Dead no return blow
FF-B.O.B. in 10 mins.
FSI-Weak surface blow back died in 40 mins.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2065.90	102.70	Initial Hydro-static
1	25.44	102.10	Open To Flow (1)
6	62.87	106.23	Shut-In(1)
21	1088.06	108.32	End Shut-In(1)
21	69.61	107.88	Open To Flow (2)
50	140.86	115.23	Shut-In(2)
110	1056.85	116.64	End Shut-In(2)
111	2047.92	115.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	10%M 30%G 60%O	0.61
124.00	5%G 30%M 65 %O	1.53
62.00	10%G 10%M 80%O	0.87
15.00	100% O	0.21
0.00	171' G.I.P.	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51415 **DST#: 2**

Test Start: 2013.01.27 @ 17:40:50

GENERAL INFORMATION:

Formation: **Lansing "I"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:52:20
Time Test Ended: 00:11:20

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4183.00 ft (KB) To 4205.00 ft (KB) (TVD)
Total Depth: 4205.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

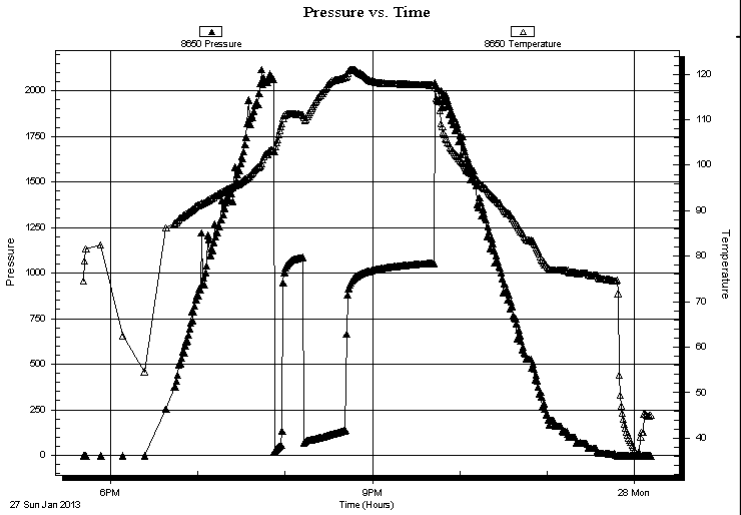
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4184.00 ft (KB)
Start Date: 2013.01.27 End Date: 2013.01.28
Start Time: 17:41:14 End Time: 00:11:29

Capacity: 8000.00 psig
Last Calib.: 2013.01.28
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Fair blow built to 6"
ISI-Dead no return blow
FF-B.O.B. in 10 mins.
FSI-Weak surface blow back died in 40 mins.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
124.00	10%M 30%G 60%O	0.61
124.00	5%G 30%M 65 %O	1.53
62.00	10%G 10%M 80%O	0.87
15.00	100% O	0.21
0.00	171' G.I.P.	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51415 **DST#: 2**

Test Start: 2013.01.27 @ 17:40:50

Tool Information

Drill Pipe:	Length:	4013.00 ft	Diameter:	3.80 inches	Volume:	56.29 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	57.01 bbl	

Drill Pipe Above KB:	4.50 ft
Depth to Top Packer:	4183.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	22.00 ft
Tool Length:	49.50 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2200.00 lb
Weight set on Packer:	20000.00 lb
Weight to Pull Loose:	66000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	62000.00 lb
Final	64000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4156.50		
Shut In Tool	5.00			4161.50		
Hydraulic tool	5.00			4166.50		
Jars	5.00			4171.50		
Safety Joint	2.50			4174.00		
Packer	5.00			4179.00	27.50	Bottom Of Top Packer
Packer	4.00			4183.00		
Stubb	1.00			4184.00		
Recorder	0.00	8675	Inside	4184.00		
Recorder	0.00	8650	Outside	4184.00		
Perforations	18.00			4202.00		
Bullnose	3.00			4205.00	22.00	Bottom Packers & Anchor
Total Tool Length:	**49.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51415 **DST#: 2**

Test Start: 2013.01.27 @ 17:40:50

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	41 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.78 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2300.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	10%M 30%G 60%O	0.610
124.00	5%G 30%M 65 %O	1.530
62.00	10%G 10%M 80%O	0.870
15.00	100% O	0.210
0.00	171' G.I.P.	0.000

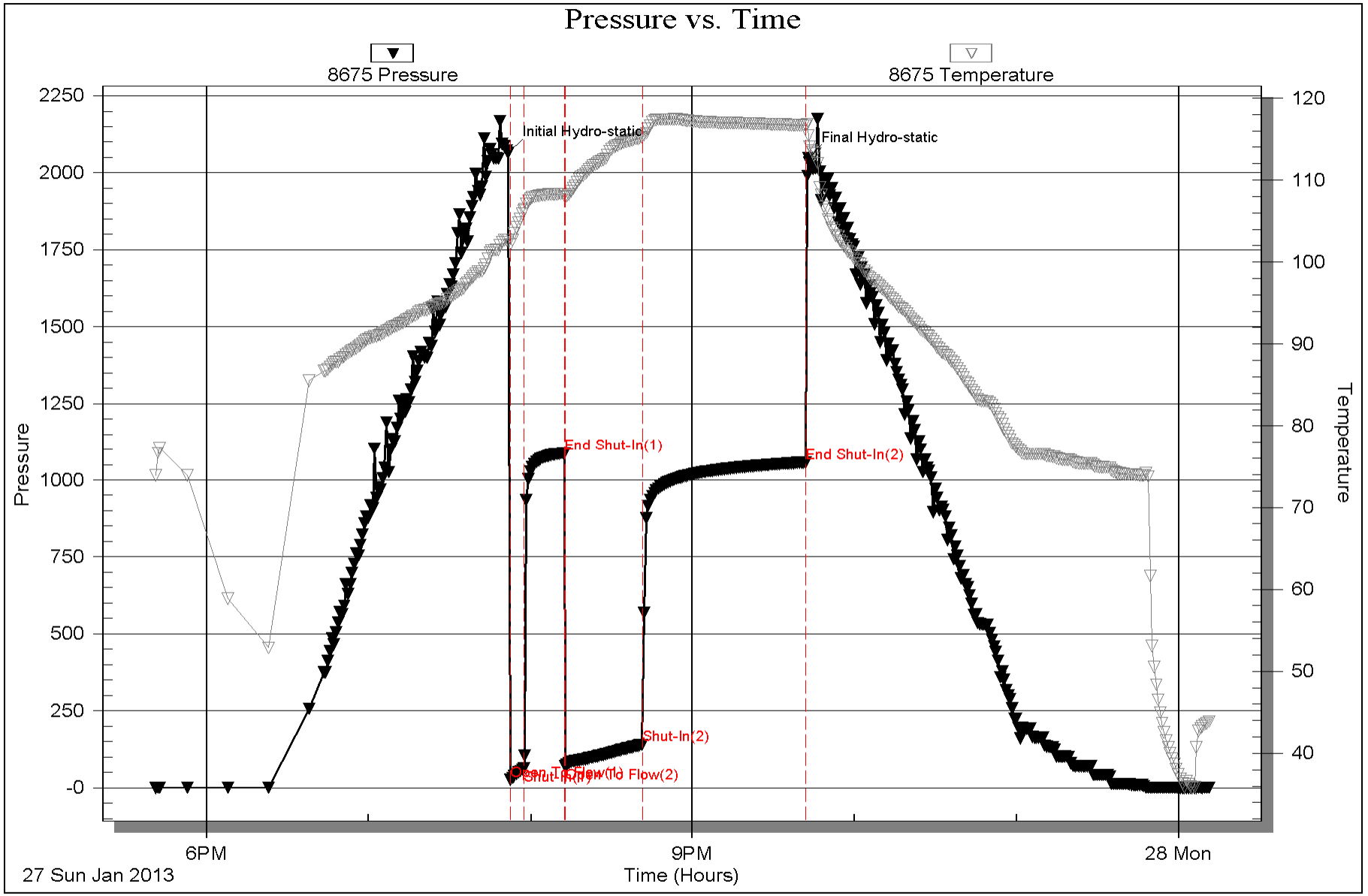
Total Length: 325.00 ft Total Volume: 3.220 bbl

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

Laboratory Name: Laboratory Location:

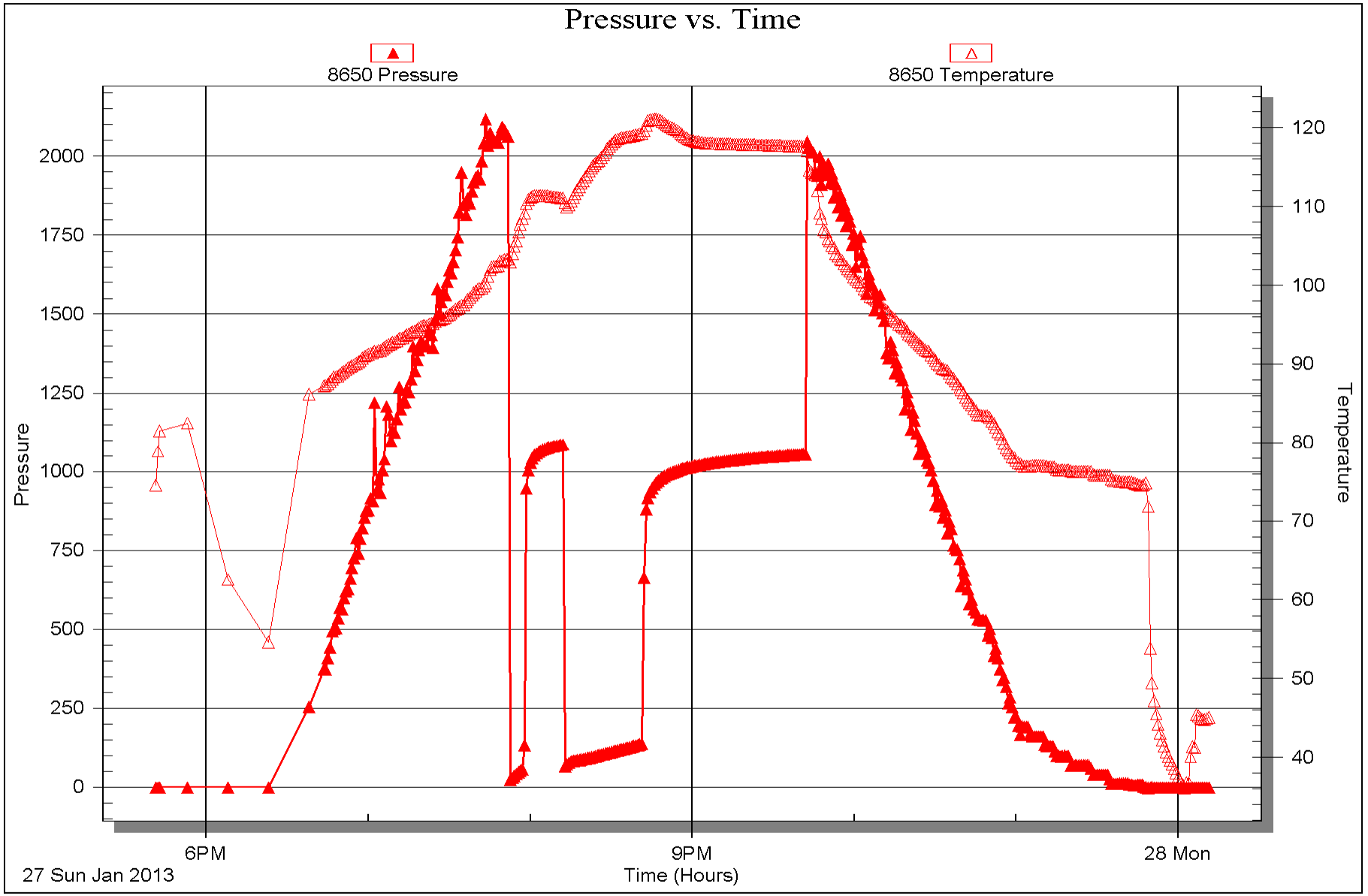
Recovery Comments: 39 @ 40 F = 41

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 51415 Printed: 2013.02.05 @ 13:57:28

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 51415 Printed: 2013.02.05 @ 13:57:29

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.28 @ 07:34:20
End Date: 2013.01.28 @ 12:42:50
Job Ticket #: 51416 DST #: 3

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

Printed: 2013.02.05 @ 13:56:45

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51416 **DST#: 3**

Test Start: 2013.01.28 @ 07:34:20

GENERAL INFORMATION:

Formation: **Lansing "J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:14:50
Time Test Ended: 12:42:50

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4212.00 ft (KB) To 4230.00 ft (KB) (TVD)
Total Depth: 4230.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

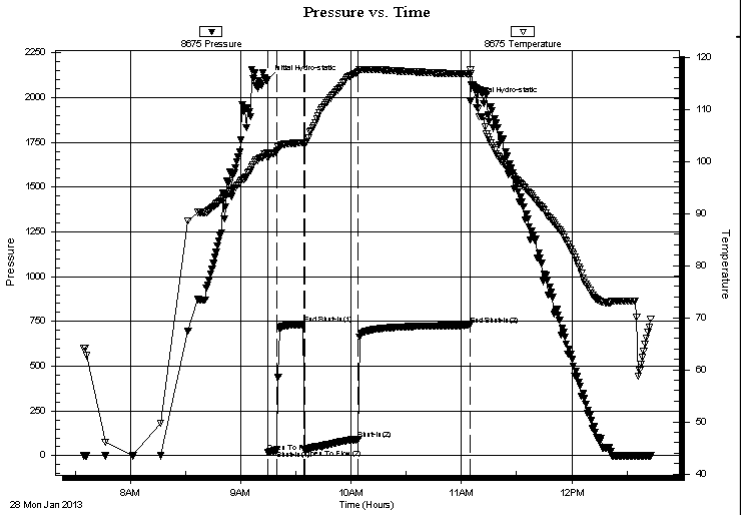
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 91.28 psig @ 4213.00 ft (KB)
Start Date: 2013.01.28 End Date: 2013.01.28
Start Time: 07:34:35 End Time: 12:42:50

Capacity: 8000.00 psig
Last Calib.: 2013.01.28
Time On Btm: 2013.01.28 @ 09:14:35
Time Off Btm: 2013.01.28 @ 11:04:50

TEST COMMENT: IF-Weak surface blow built to 2"
ISI-Dead no return blow
FF-Weak surface blow built to 4"
FSI-Dead no return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2102.18	101.56	Initial Hydro-static
1	19.16	100.62	Open To Flow (1)
6	32.12	102.04	Shut-In(1)
20	733.60	103.62	End Shut-In(1)
20	33.87	103.41	Open To Flow (2)
50	91.28	117.23	Shut-In(2)
110	728.20	116.79	End Shut-In(2)
111	1979.61	117.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
164.00	100%M w ith oil spots	0.96

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51416 **DST#: 3**

Test Start: 2013.01.28 @ 07:34:20

GENERAL INFORMATION:

Formation: **Lansing "J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:14:50
Time Test Ended: 12:42:50

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4212.00 ft (KB) To 4230.00 ft (KB) (TVD)
Total Depth: 4230.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

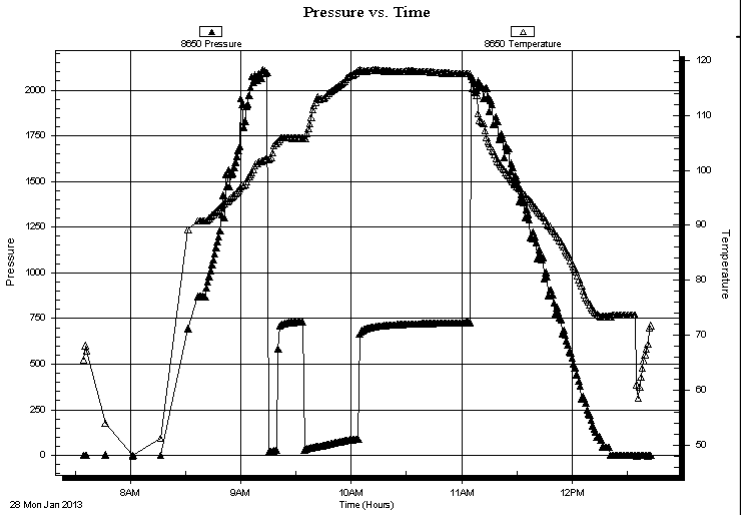
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4213.00 ft (KB)
Start Date: 2013.01.28 End Date: 2013.01.28
Start Time: 07:34:28 End Time: 12:42:43

Capacity: 8000.00 psig
Last Calib.: 2013.01.28
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Weak surface blow built to 2"
ISI-Dead no return blow
FF-Weak surface blow built to 4"
FSI-Dead no return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
164.00	100%M w ith oil spots	0.96

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51416 **DST#: 3**

Test Start: 2013.01.28 @ 07:34:20

Tool Information

Drill Pipe:	Length:	4045.00 ft	Diameter:	3.80 inches	Volume:	56.74 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	57.46 bbl	

Drill Pipe Above KB:	7.50 ft
Depth to Top Packer:	4212.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	18.00 ft
Tool Length:	45.50 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:		2200.00 lb
Weight set on Packer:		20000.00 lb
Weight to Pull Loose:		65000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	62000.00 lb
	Final	62000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4185.50		
Shut In Tool	5.00			4190.50		
Hydraulic tool	5.00			4195.50		
Jars	5.00			4200.50		
Safety Joint	2.50			4203.00		
Packer	5.00			4208.00	27.50	Bottom Of Top Packer
Packer	4.00			4212.00		
Stubb	1.00			4213.00		
Recorder	0.00	8675	Inside	4213.00		
Recorder	0.00	8650	Outside	4213.00		
Perforations	14.00			4227.00		
Bullnose	3.00			4230.00	18.00	Bottom Packers & Anchor
Total Tool Length:	**45.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51416 **DST#: 3**

Test Start: 2013.01.28 @ 07:34:20

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:	59.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.78 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2300.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
164.00	100%M w ith oil spots	0.961

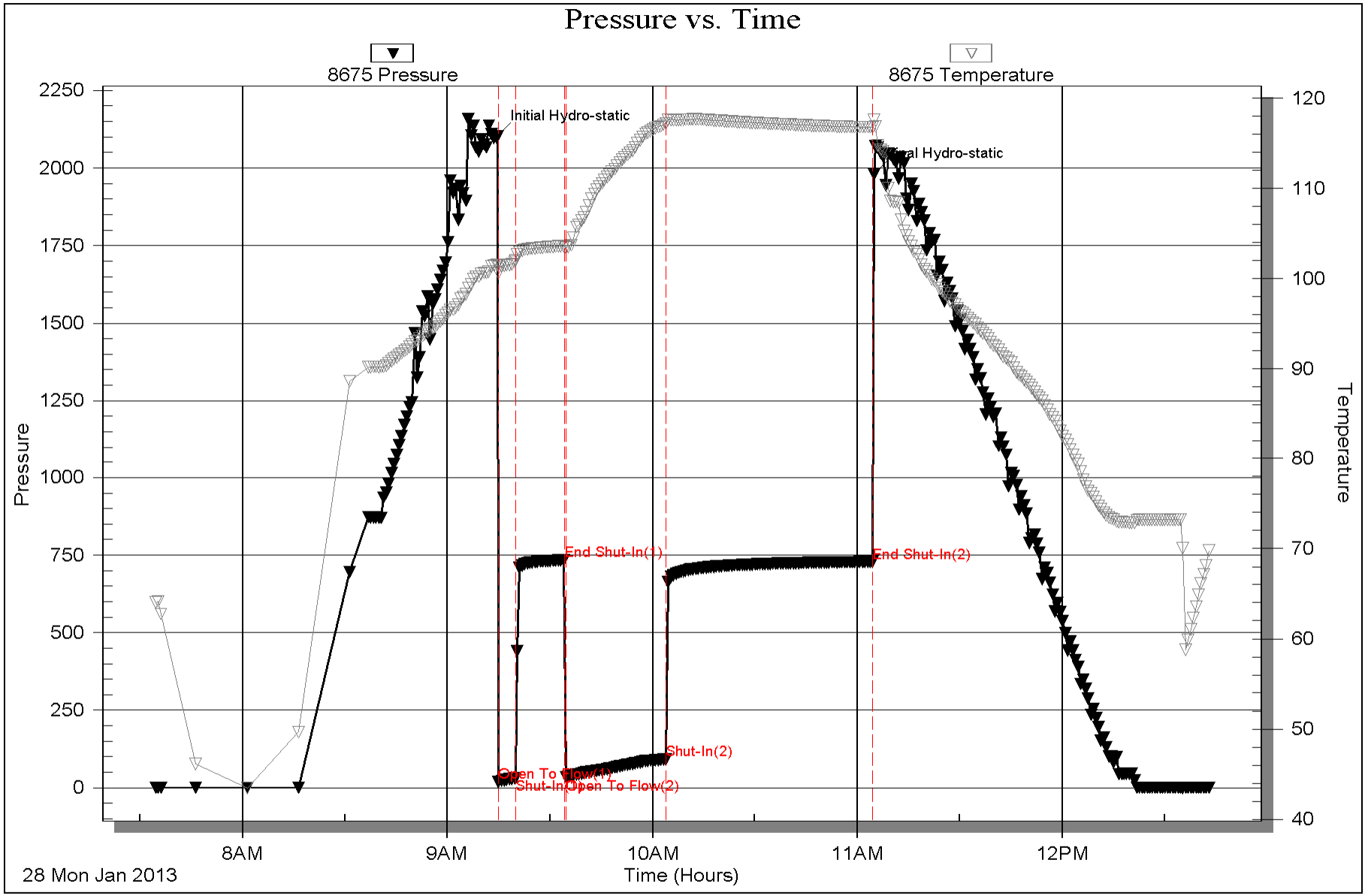
Total Length: 164.00 ft Total Volume: 0.961 bbl

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

Laboratory Name: Laboratory Location:

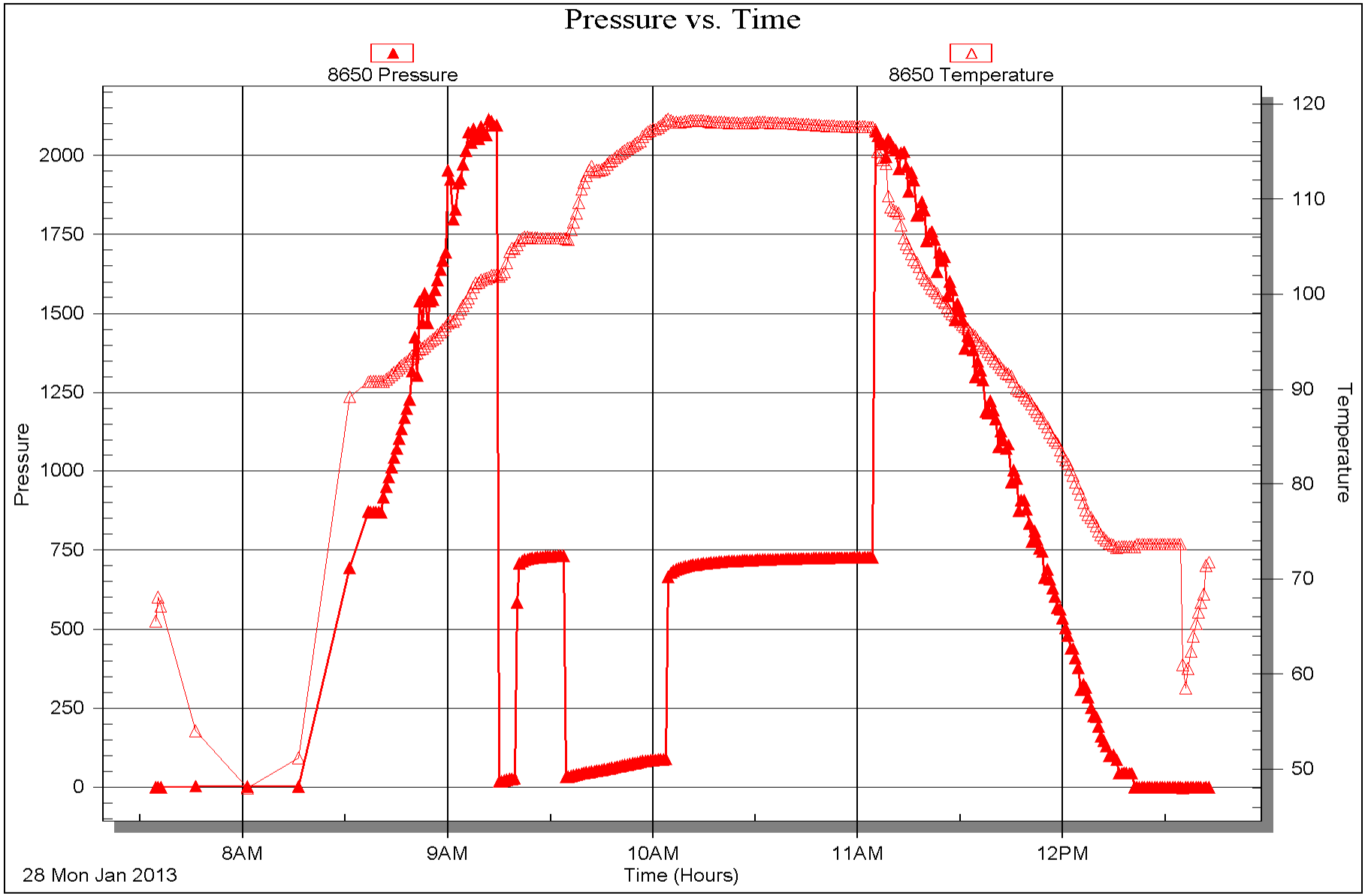
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 51416 Printed: 2013.02.05 @ 13:56:47

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 3



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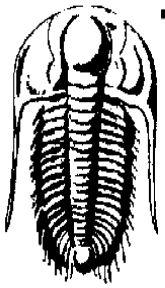


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.29 @ 05:25:56

End Date: 2013.01.29 @ 10:10:41

Job Ticket #: 51418 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.02.05 @ 13:56:00

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51418 **DST#: 4**

Test Start: 2013.01.29 @ 05:25:56

GENERAL INFORMATION:

Formation: **Lansing "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:26:41
Time Test Ended: 10:10:41

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4281.00 ft (KB) To 4298.00 ft (KB) (TVD)
Total Depth: 4298.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

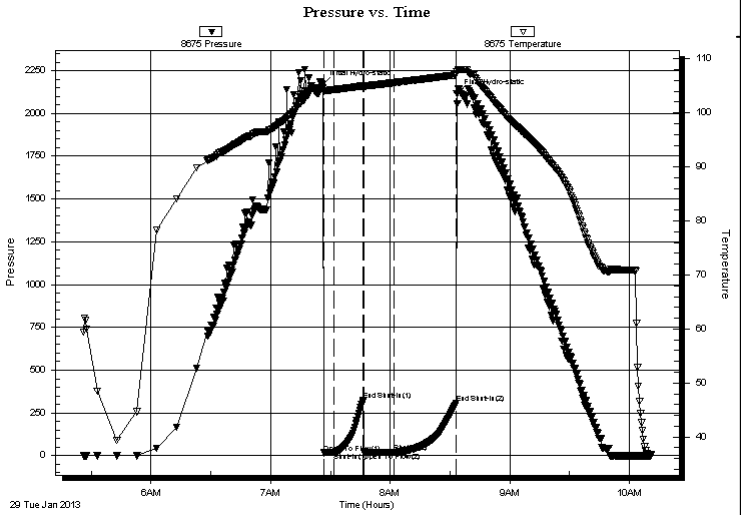
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 20.13 psig @ 4282.00 ft (KB)
Start Date: 2013.01.29 End Date: 2013.01.29
Start Time: 05:26:11 End Time: 10:10:41

Capacity: 8000.00 psig
Last Calib.: 2013.01.29
Time On Btm: 2013.01.29 @ 07:26:11
Time Off Btm: 2013.01.29 @ 08:33:26

TEST COMMENT: IF-Weak surface blow
ISI-Dead no return
FF-Dead no blow
FSI-Dead no return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2169.88	104.55	Initial Hydro-static
1	17.33	103.92	Open To Flow (1)
6	19.01	104.29	Shut-In(1)
21	322.44	104.99	End Shut-In(1)
21	19.36	104.90	Open To Flow (2)
36	20.13	105.56	Shut-In(2)
67	307.00	107.03	End Shut-In(2)
68	2115.61	107.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100%M	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51418 **DST#: 4**

Test Start: 2013.01.29 @ 05:25:56

GENERAL INFORMATION:

Formation: **Lansing "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:26:41
Time Test Ended: 10:10:41

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Tate Lang

Interval: 4281.00 ft (KB) To 4298.00 ft (KB) (TVD)
Total Depth: 4298.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

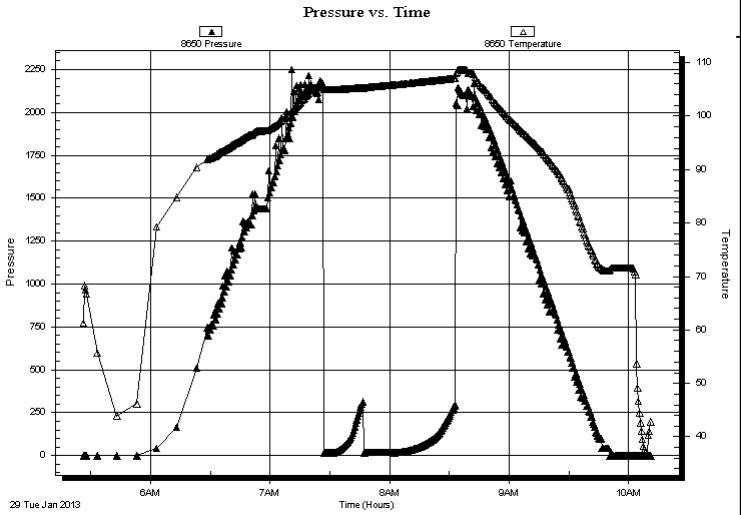
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4282.00 ft (KB)
Start Date: 2013.01.29 End Date: 2013.01.29
Start Time: 05:26:27 End Time: 10:10:57

Capacity: 8000.00 psig
Last Calib.: 2013.01.29
Time On Btm:
Time Off Btm:

TEST COMMENT: IF-Weak surface blow
ISI-Dead no return
FF-Dead no blow
FSI-Dead no return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	100%M	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51418 **DST#: 4**

Test Start: 2013.01.29 @ 05:25:56

Tool Information

Drill Pipe:	Length:	4111.00 ft	Diameter:	3.80 inches	Volume:	57.67 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	58.39 bbl	

Drill Pipe Above KB:	4.50 ft
Depth to Top Packer:	4281.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	17.00 ft
Tool Length:	44.50 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2200.00 lb
Weight set on Packer:	20000.00 lb
Weight to Pull Loose:	68000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	62000.00 lb
Final	62000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4254.50		
Shut In Tool	5.00			4259.50		
Hydraulic tool	5.00			4264.50		
Jars	5.00			4269.50		
Safety Joint	2.50			4272.00		
Packer	5.00			4277.00	27.50	Bottom Of Top Packer
Packer	4.00			4281.00		
Stubb	1.00			4282.00		
Recorder	0.00	8675	Inside	4282.00		
Recorder	0.00	8650	Outside	4282.00		
Perforations	13.00			4295.00		
Bullnose	3.00			4298.00	17.00	Bottom Packers & Anchor
Total Tool Length:	**44.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 51418 **DST#: 4**

Test Start: 2013.01.29 @ 05:25:56

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:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.78 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3000.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

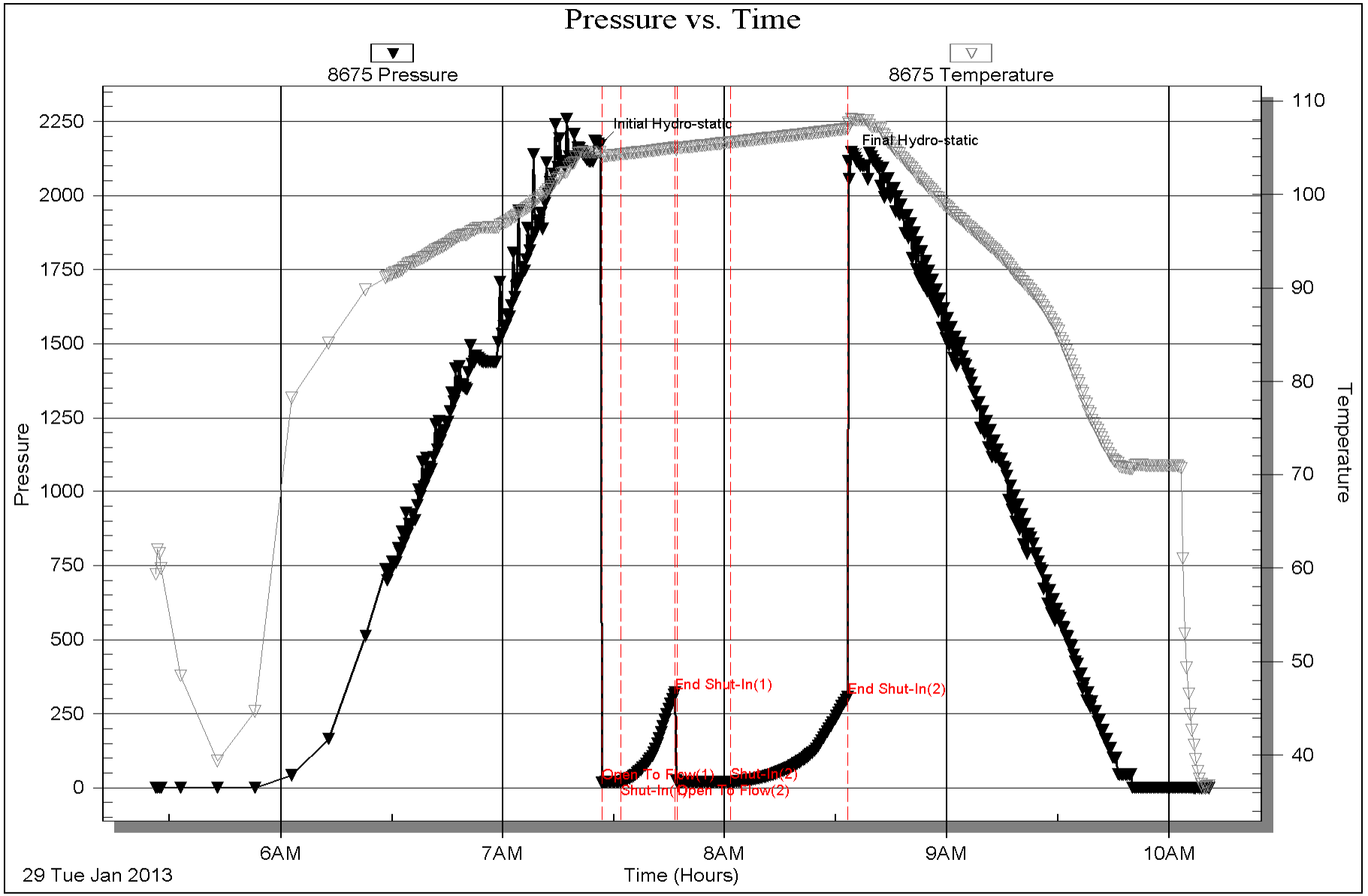
Recovery Table

Length ft	Description	Volume bbl
1.00	100%M	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

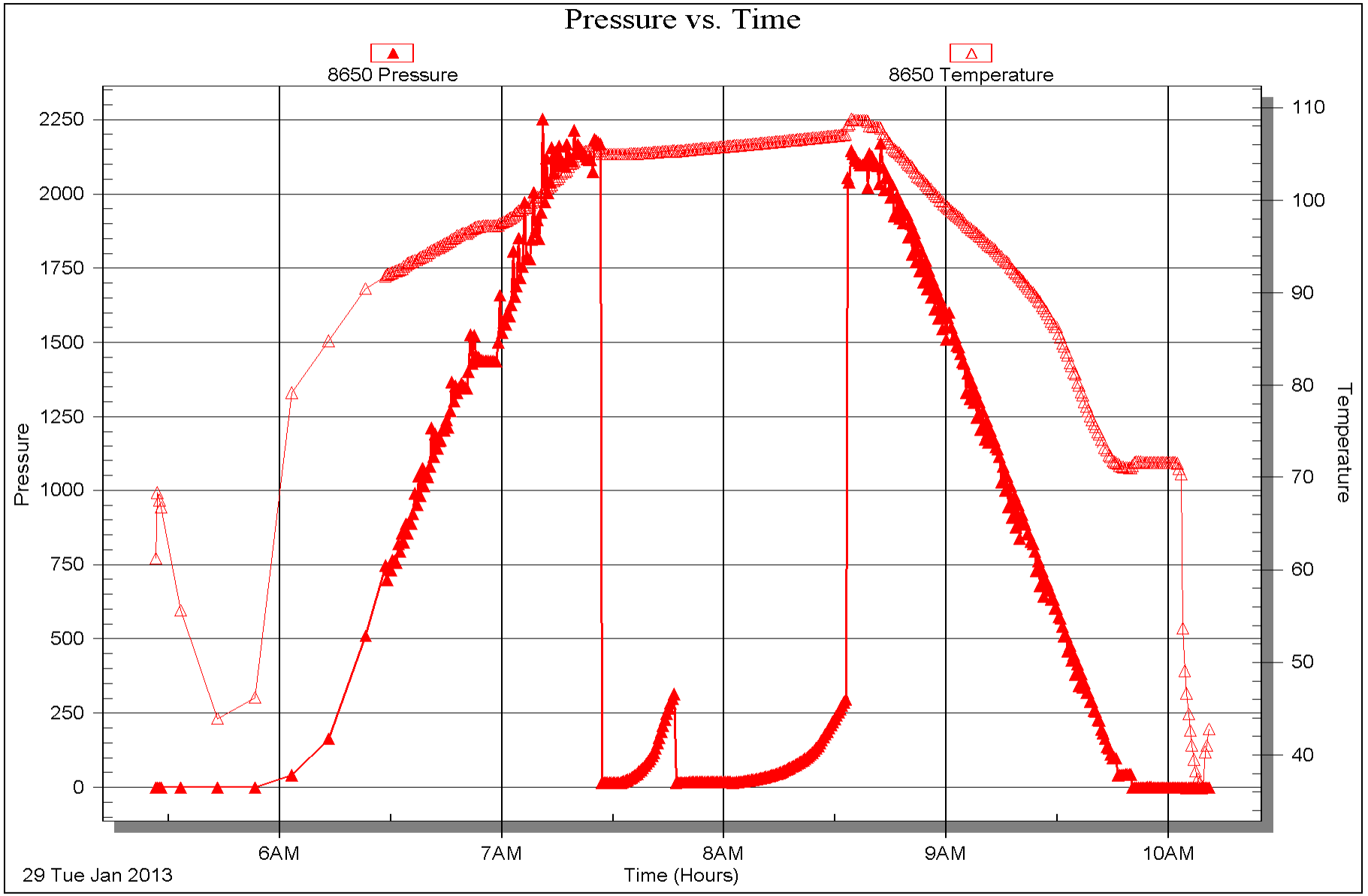
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 51418 Printed: 2013.02.05 @ 13:56:03

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 4



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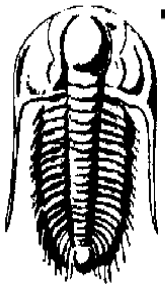


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.30 @ 12:25:00

End Date: 2013.01.30 @ 18:16:00

Job Ticket #: 49948 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.02.05 @ 13:53:18

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49948 **DST#: 5**

Test Start: 2013.01.30 @ 12:25:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:18:15
Time Test Ended: 18:16:00

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Jace McKinney

Interval: 4350.00 ft (KB) To 4440.00 ft (KB) (TVD)
Total Depth: 4440.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

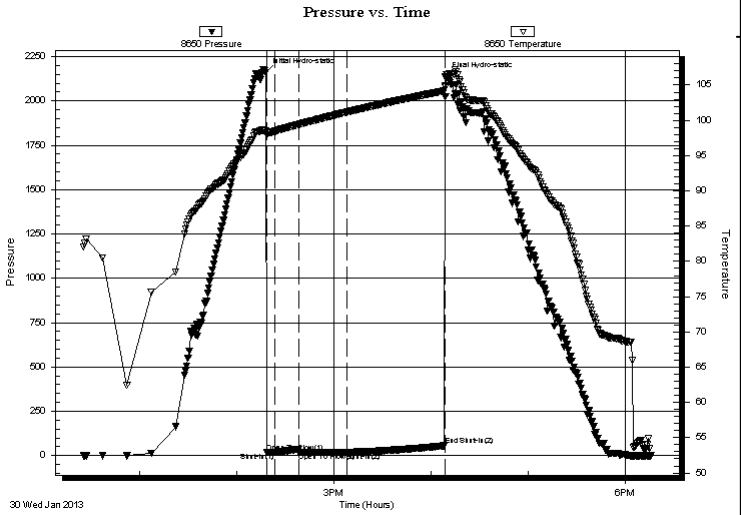
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: 20.62 psig @ 4351.00 ft (KB)
Start Date: 2013.01.30 End Date: 2013.01.30
Start Time: 12:25:15 End Time: 18:16:00

Capacity: 8000.00 psig
Last Calib.: 2013.01.30
Time On Btm: 2013.01.30 @ 14:17:45
Time Off Btm: 2013.01.30 @ 16:08:30

TEST COMMENT: Built to 3/4" blow
No return blow
Built to 1/2" blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.60	98.53	Initial Hydro-static
1	18.68	97.96	Open To Flow (1)
6	18.34	98.45	Shut-In(1)
21	37.35	99.42	End Shut-In(1)
21	18.87	99.43	Open To Flow (2)
51	20.62	101.17	Shut-In(2)
111	55.87	104.19	End Shut-In(2)
111	2137.95	104.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% Mud	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49948 **DST#: 5**

Test Start: 2013.01.30 @ 12:25:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:18:15
Time Test Ended: 18:16:00

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Jace McKinney

Interval: 4350.00 ft (KB) To 4440.00 ft (KB) (TVD)
Total Depth: 4440.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

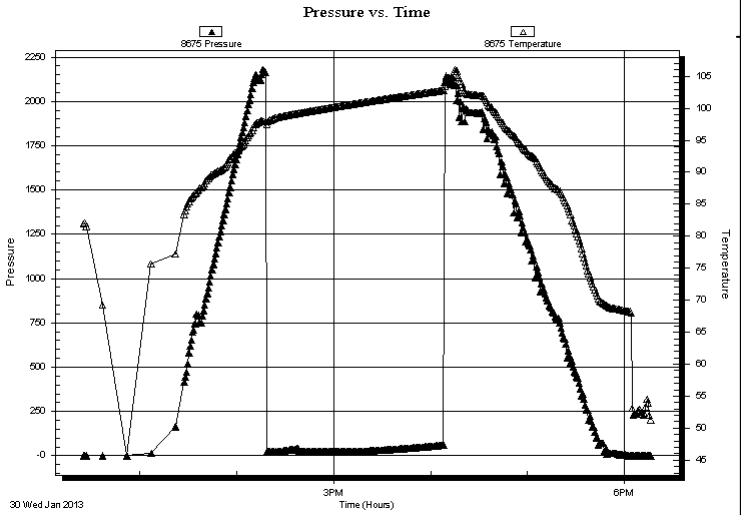
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: psig @ 4351.00 ft (KB)
Start Date: 2013.01.30 End Date: 2013.01.30
Start Time: 12:25:15 End Time: 18:16:15

Capacity: 8000.00 psig
Last Calib.: 2013.01.30
Time On Btm:
Time Off Btm:

TEST COMMENT: Built to 3/4" blow
No return blow
Built to 1/2" blow
No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% Mud	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49948 **DST#: 5**

Test Start: 2013.01.30 @ 12:25:00

Tool Information

Drill Pipe:	Length:	4202.24 ft	Diameter:	3.80 inches	Volume:	58.95 bbl	Tool Weight:		2200.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		74000.00 lb
					Total Volume:	59.67 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		26.74 ft					String Weight:	Initial	64000.00 lb
Depth to Top Packer:		4350.00 ft						Final	64000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		90.00 ft							
Tool Length:		117.50 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4323.50		
Shut In Tool	5.00			4328.50		
Hydraulic tool	5.00			4333.50		
Jars	5.00			4338.50		
Safety Joint	2.50			4341.00		
Packer	5.00			4346.00	27.50	Bottom Of Top Packer
Packer	4.00			4350.00		
Stubb	1.00			4351.00		
Recorder	0.00	8675	Inside	4351.00		
Recorder	0.00	8650	Outside	4351.00		
Perforations	21.00			4372.00		
Change Over Sub	1.00			4373.00		
Drill Pipe	63.00			4436.00		
Change Over Sub	1.00			4437.00		
Bullnose	3.00			4440.00	90.00	Bottom Packers & Anchor
Total Tool Length:	**117.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49948 **DST#: 5**

Test Start: 2013.01.30 @ 12:25:00

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:	75.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.39 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3100.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

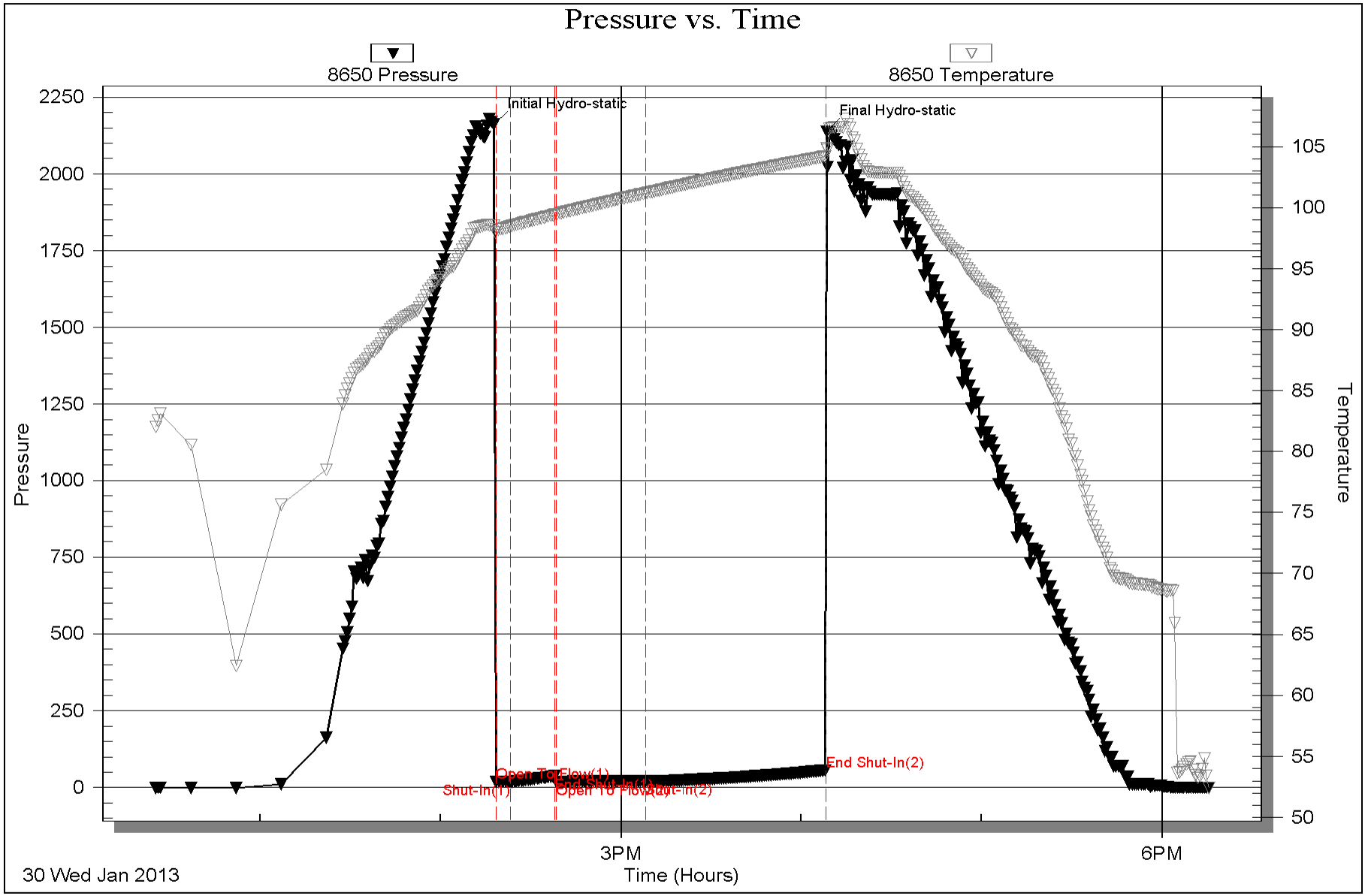
Recovery Table

Length ft	Description	Volume bbl
30.00	100% Mud	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

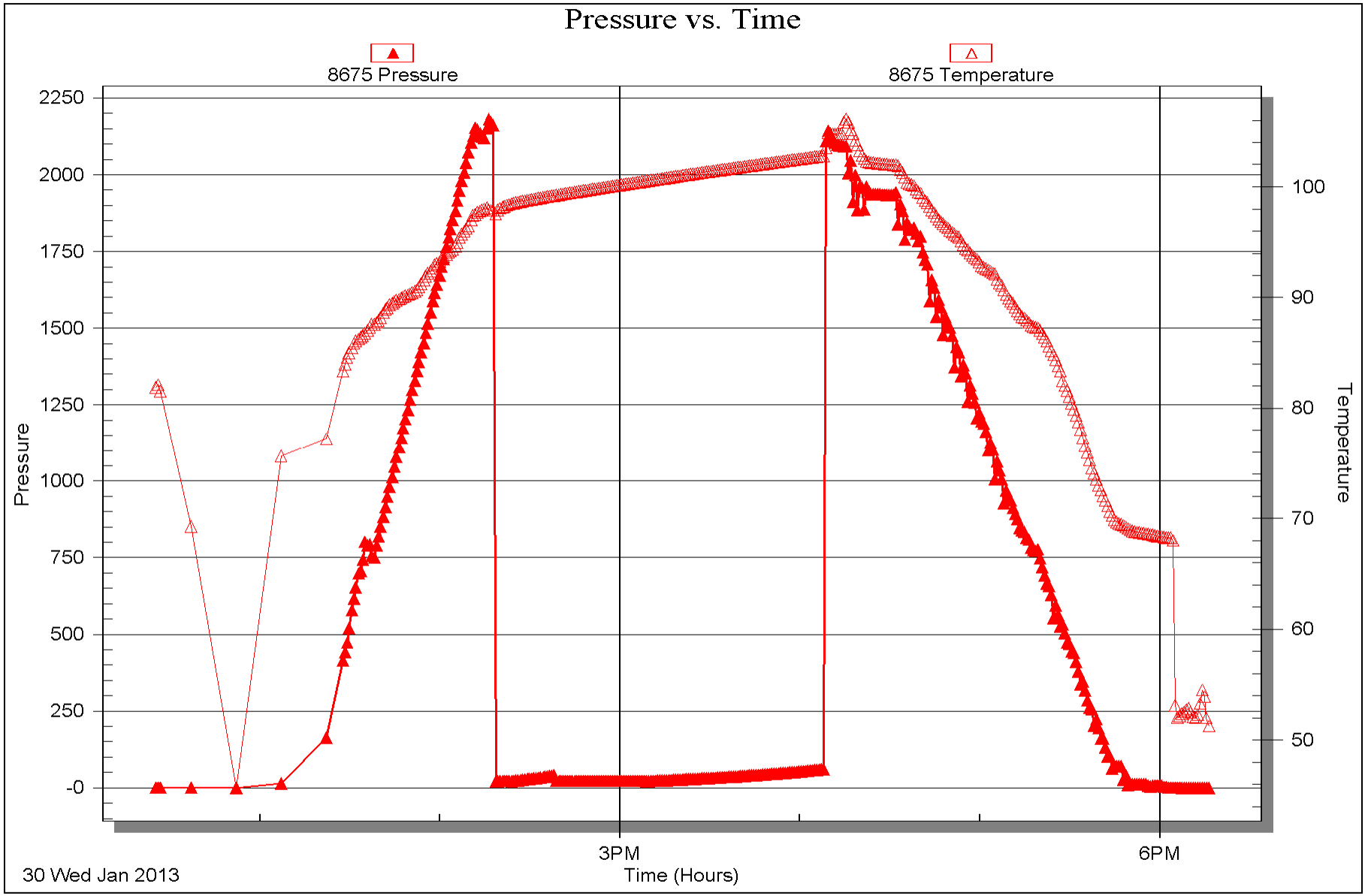
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 49948 Printed: 2013.02.05 @ 13:53:21

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 5



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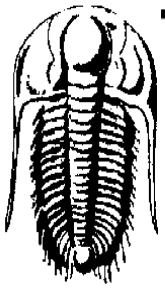


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Bockelman #2-19

19-18s-29w Lane KS

Start Date: 2013.01.31 @ 18:15:00

End Date: 2013.02.01 @ 00:29:15

Job Ticket #: 49949 DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.02.05 @ 13:52:24

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49949 **DST#: 6**

Test Start: 2013.01.31 @ 18:15:00

GENERAL INFORMATION:

Formation: **Fort Scott - Cheroke**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:35:15
Time Test Ended: 00:29:15

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Jace McKinney

Interval: 4439.00 ft (KB) To 4590.00 ft (KB) (TVD)
Total Depth: 4590.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

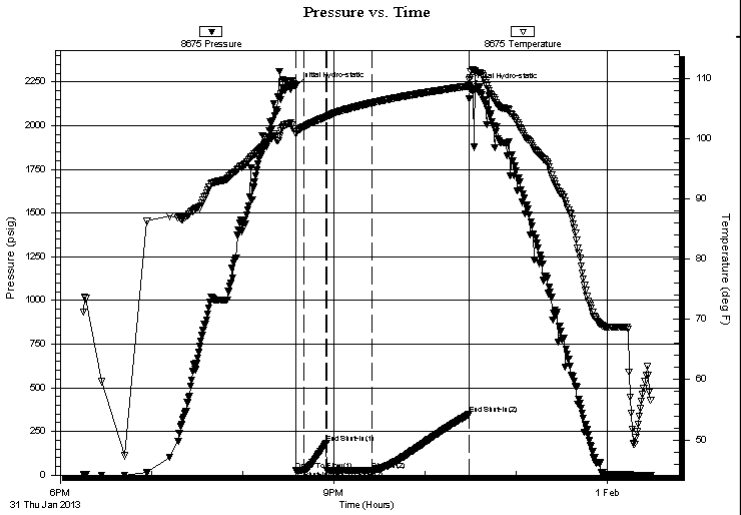
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 27.99 psig @ 4440.00 ft (KB)
Start Date: 2013.01.31 End Date: 2013.02.01
Start Time: 18:15:15 End Time: 00:29:15

Capacity: 8000.00 psig
Last Calib.: 2013.02.01
Time On Btm: 2013.01.31 @ 20:35:00
Time Off Btm: 2013.01.31 @ 22:29:45

TEST COMMENT: Built to 1" blow
No return blow
Weak surface blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2224.72	101.64	Initial Hydro-static
1	24.91	100.89	Open To Flow (1)
6	25.09	101.99	Shut-In(1)
20	182.67	103.62	End Shut-In(1)
21	26.41	103.64	Open To Flow (2)
50	27.99	105.95	Shut-In(2)
115	348.44	108.76	End Shut-In(2)
115	2216.61	110.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100%Mud	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49949 **DST#: 6**

Test Start: 2013.01.31 @ 18:15:00

GENERAL INFORMATION:

Formation: **Fort Scott - Cheroke**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:35:15
Time Test Ended: 00:29:15

Test Type: Conventional Bottom Hole (Reset)
Tester: 46
Unit No: Jace McKinney

Interval: 4439.00 ft (KB) To 4590.00 ft (KB) (TVD)
Total Depth: 4590.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

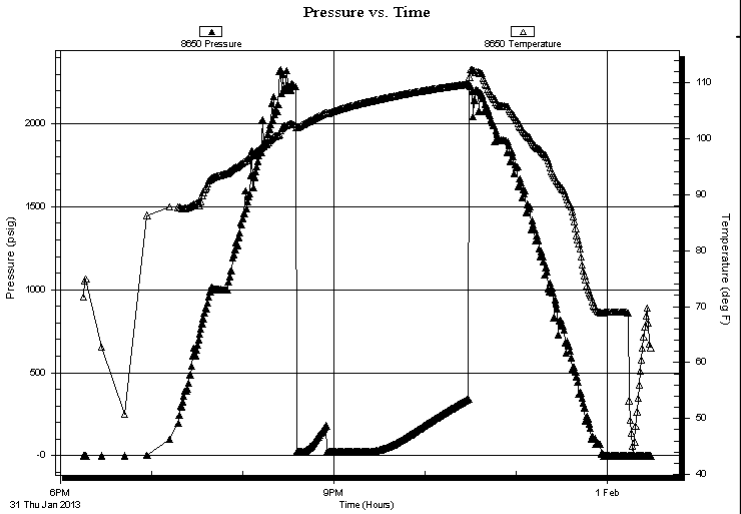
Reference Elevations: 2841.00 ft (KB)
2834.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4440.00 ft (KB)
Start Date: 2013.01.31 End Date: 2013.02.01
Start Time: 18:15:15 End Time: 00:29:00

Capacity: 8000.00 psig
Last Calib.: 2013.02.01
Time On Btm:
Time Off Btm:

TEST COMMENT: Built to 1" blow
No return blow
Weak surface blow
No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100%Mud	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49949 **DST#: 6**

Test Start: 2013.01.31 @ 18:15:00

Tool Information

Drill Pipe:	Length:	4296.22 ft	Diameter:	3.80 inches	Volume:	60.26 bbl	Tool Weight:		2200.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		88000.00 lb
					Total Volume:	60.98 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		31.72 ft					String Weight:	Initial	68000.00 lb
Depth to Top Packer:		4439.00 ft						Final	68000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		151.00 ft							
Tool Length:		178.50 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4412.50		
Shut In Tool	5.00			4417.50		
Hydraulic tool	5.00			4422.50		
Jars	5.00			4427.50		
Safety Joint	2.50			4430.00		
Packer	5.00			4435.00	27.50	Bottom Of Top Packer
Packer	4.00			4439.00		
Stubb	1.00			4440.00		
Recorder	0.00	8675	Inside	4440.00		
Recorder	0.00	8650	Outside	4440.00		
Perforations	20.00			4460.00		
Change Over Sub	1.00			4461.00		
Drill Pipe	125.00			4586.00		
Change Over Sub	1.00			4587.00		
Bullnose	3.00			4590.00	151.00	Bottom Packers & Anchor
Total Tool Length:	**178.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc.

562 West Side Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

19-18s-29w Lane KS

Bockelman #2-19

Job Ticket: 49949 **DST#: 6**

Test Start: 2013.01.31 @ 18:15:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	52.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.79 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3300.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

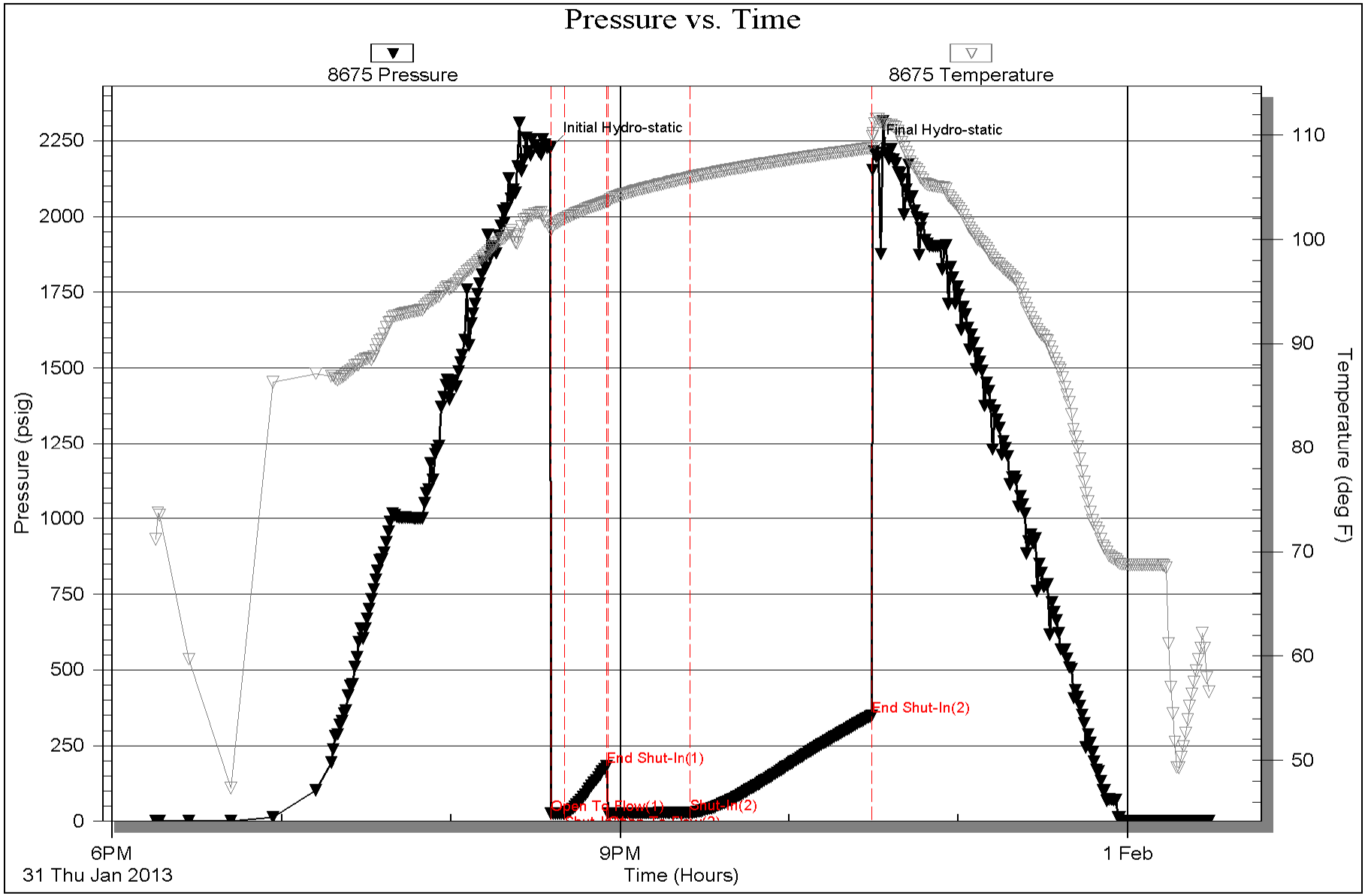
Recovery Table

Length ft	Description	Volume bbl
30.00	100%Mud	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

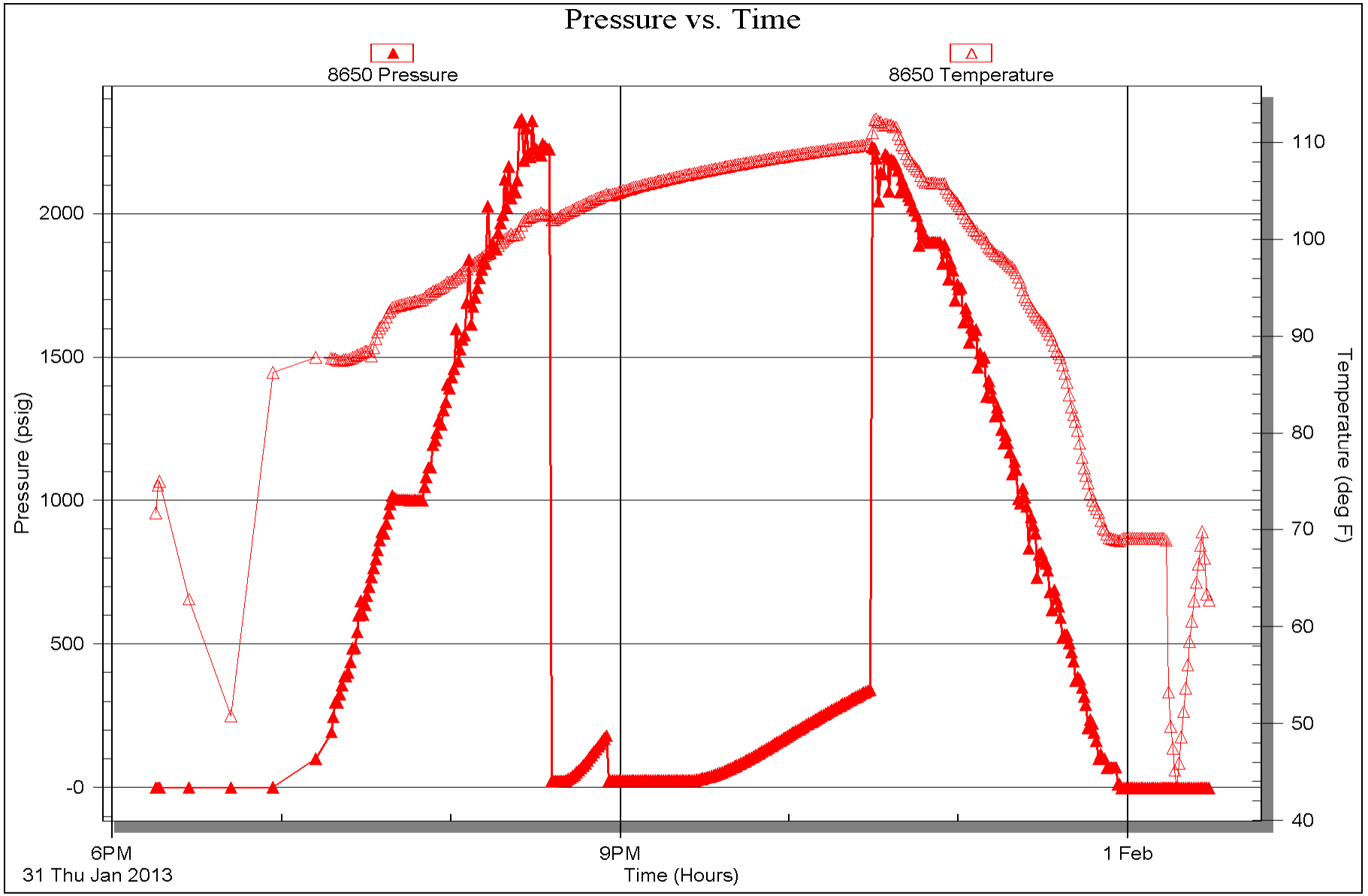
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 6



Trilobite Testing, Inc Ref. No: 49949 Printed: 2013.02.05 @ 13:52:27

Serial #: 8650 **Outside** Larson Engineering Inc. Bockelman #2-19 DST Test Number: 6



Trilobite Testing, Inc Ref. No: 49949 Printed: 2013.02.05 @ 13:52:27

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51414

Well Name & No. Brockelman #2-19 Test No. 1 Date 1-27-12

Company Larson Engineering Inc. Elevation 2841 KB 2834 GL

Address 562 West Side Rd Olmitz KS 67564

Co. Rep / Geo. Von Schrag Rig HD Rig #3

Location: Sec. 19 Twp. 18s Rge. 29w Co. Lane State KS

Interval Tested 4142 4166 Zone Tested Lasing "H"

Anchor Length 24 Drill Pipe Run 3980 Mud Wt. 9.0

Top Packer Depth 4138 Drill Collars Run 147 Vis 62

Bottom Packer Depth 4142 Wt. Pipe Run 0 WL 6.4

Total Depth 4166 Chlorides 3200 ppm System LCM 1

Blow Description IF - Weak surface blow built to 1/4in.
ISI - Dead no return blow
FF - Dead no blow
FSI - Dead no return blow

Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec 5	Feet of mud with oil spots	%gas	%oil	%water	100	%mud
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 5 BHT 107 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2065	☒ Test	1250	T-On Location	1:21
(B) First Initial Flow	18	☒ Jars	250	T-Started	1:51
(C) First Final Flow	19	☒ Safety Joint	75	T-Open	3:57
(D) Initial Shut-In	599	☒ Circ Sub	N/C	T-Pulled	5:02
(E) Second Initial Flow	19	☐ Hourly Standby		T-Out	6:47
(F) Second Final Flow	20	☒ Mileage	40 R/T 62	Comments	
(G) Final Shut-In	722	☐ Sampler			
(H) Final Hydrostatic	2069	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	5	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	15	☐ Extra Recorder		Sub Total	0
Final Flow	15	☐ Day Standby		Total	1637
Final Shut-In	30	☐ Accessibility		MP/DST Disc't	
		Sub Total	1637		

Approved By Vernon Schrag Our Representative

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

4/10

Test Ticket

NO. 51415

Well Name & No. Brockelman #2-19 Test No. 2 Date 1-27-13

Company Larson Engineering Inc. Elevation 2841 KB 2834 GL

Address

Co. Rep / Geo. Vern Schrag Rig H.D. Rig #3

Location: Sec. 19 Twp. 18S Rge. 29W Co. Lane State KS

Interval Tested 4183 4205 Zone Tested "I"

Anchor Length 22 Drill Pipe Run 4013 Mud Wt. 9.2

Top Packer Depth 4179 Drill Collars Run 147 Vis 59

Bottom Packer Depth 4183 Wt. Pipe Run 0 WL 6.8

Total Depth 4205 Chlorides 2300 ppm System LCM 1#

Blow Description IF - Fair blow built to 6in.
ISI - Dead no return blow.
FF - B.O.B. in 10 mins.
FSI - Weak surface blow died in 40 mins

Rec 124	Feet of MCGO	30 %gas	60 %oil	%water	10 %mud
Rec 124	Feet of GMCO	5 %gas	65 %oil	%water	30 %mud
Rec 171	Feet of GIP	100 %gas	%oil	%water	%mud
Rec 62	Feet of MCCO	10 %gas	10 %oil	%water	80 %mud
Rec 15	Feet of Oil	%gas	100 %oil	%water	%mud

Rec Total 325 BHT 115 Gravity 41 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2066	☒ Test	1250	T-On Location	16:55
(B) First Initial Flow	25	☒ Jars	250	T-Started	17:40
(C) First Final Flow	63	☒ Safety Joint	N/C 75	T-Open	19:50
(D) Initial Shut-In	1088	☒ Circ Sub		T-Pulled	21:40
(E) Second Initial Flow	70	☐ Hourly Standby		T-Out	0:10
(F) Second Final Flow	141	☒ Mileage	40 R/T 62	Comments	
(G) Final Shut-In	1057	☐ Sampler			
(H) Final Hydrostatic	2048	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	5	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	15	☐ Extra Recorder		Sub Total	0
Final Flow	30	☐ Day Standby		Total	1637
Final Shut-In	60	☐ Accessibility		MP/DST Disc't	
		Sub Total	1637		

Approved By Vern C Schrag Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51416

Well Name & No. Brockelman #2-19 Test No. 3 Date 1-28-11

Company Larson Engineering Inc. Elevation 2841 KB 2834 GL

Address

Co. Rep / Geo. Vern Schrag Rig HD Rig # 3

Location: Sec. 19 Twp. 18s Rge. 29w Co. Lane State KS

Interval Tested 4212 4230 Zone Tested "C"

Anchor Length 18 Drill Pipe Run 4045 Mud Wt. 9.2

Top Packer Depth 4208 Drill Collars Run 147 Vis 59

Bottom Packer Depth 4212 Wt. Pipe Run 0 WL 6.8

Total Depth 4230 Chlorides 2300 ppm System LCM 1

Blow Description IF- Weak surface blow built to 2 in.

ISI- No return blow

FF- Weak surface blow built to 4 in.

FSI- No return blow

Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec 164	Feet of Mud with oil spots	%gas	%oil	%water	100	%mud
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 164 BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2102	☒ Test 1250	T-On Location 7:13
(B) First Initial Flow	19	☒ Jars 250	T-Started 7:34
(C) First Final Flow	32	☒ Safety Joint 75	T-Open 9:15
(D) Initial Shut-In	734	☒ Circ Sub N/C	T-Pulled 11:05
(E) Second Initial Flow	34	☐ Hourly Standby	T-Out 12:44
(F) Second Final Flow	91	☒ Mileage 40 R/T 62	Comments
(G) Final Shut-In	728	☐ Sampler	
(H) Final Hydrostatic	1980	☐ Straddle	☐ Ruined Shale Packer
		☐ Shale Packer	☐ Ruined Packer
Initial Open 5		☐ Extra Packer	☐ Extra Copies
Initial Shut-In 15		☐ Extra Recorder	Sub Total 0
Final Flow 30		☐ Day Standby	Total 1637
Final Shut-In 60		☐ Accessibility	MP/DST Disc't
		Sub Total 1637	

Approved By Jason C. Schrag Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51418

Well Name & No. Brockelman #2-19 Test No. 4 Date 1-29-12

Company Larson Engineering Inc. Elevation 2841 KB 2834 GL

Address

Co. Rep / Geo. Vern Schrag Rig HD Rig # 3

Location: Sec. 4242 Twp. 18S Rge. 29W Co. Lane State KS

Interval Tested 4281 4298 Zone Tested "J" "

Anchor Length 17 Drill Pipe Run 4111 Mud Wt. 9.2

Top Packer Depth 4277 Drill Collars Run 147 Vis 58

Bottom Packer Depth 4281 Wt. Pipe Run 0 WL 6.8

Total Depth 4298 Chlorides 3000 ppm System LCM 1#

Blow Description IF - Weak surface blow.
ISI - Dead no return.
FF - Dead no blow.
FSI - Dead no return.

Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec 1	Feet of Mud	%gas	%oil	%water 100	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1 BHT 108 Gravity — API RW ~ @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2170	☒ Test	1250	T-On Location	5:16
(B) First Initial Flow	17	☒ Jars	250	T-Started	5:25
(C) First Final Flow	19	☒ Safety Joint	75	T-Open	7:26
(D) Initial Shut-In	322	☒ Circ Sub	N/C	T-Pulled	8:31
(E) Second Initial Flow	19	☐ Hourly Standby		T-Out	10:11
(F) Second Final Flow	20	☒ Mileage	40 R/T 62	Comments	
(G) Final Shut-In	307	☐ Sampler			
(H) Final Hydrostatic	2116	☐ Straddle		☐ Ruined Shale Packer	
		☐ Shale Packer		☐ Ruined Packer	
Initial Open	5	☐ Extra Packer		☐ Extra Copies	
Initial Shut-In	15	☐ Extra Recorder		Sub Total	0
Final Flow	15	☐ Day Standby		Total	1637
Final Shut-In	30	☐ Accessibility		MP/DST Disc't	
		Sub Total	1637		

Approved By [signature] Our Representative [signature]

Trilobite Testing Inc. shall not be liable for damages 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

4/10

Test Ticket

NO. 49948

Well Name & No. Brockelman # 2-19 Test No. 5 Date 1/30/12
Company Larson Engineering Inc. Elevation 2841 KB 2834 GL
Address 562 West Side Rd 4 Olmitz KS 67564
Co. Rep / Geo. Leon Schrag Rig HD Rig 3
Location: Sec. 19 Twp. 18S Rge. 29W Co. Lane State KS

Interval Tested 4350-4440 Zone Tested Marmaton
Anchor Length 90 Drill Pipe Run 4202.24 Mud Wt. 9.1
Top Packer Depth 4346 Drill Collars Run 147.75 Vis 75
Bottom Packer Depth 4350 Wt. Pipe Run — WL 6.4
Total Depth 4440 Chlorides 3,100 ppm System LCM 1.0

Blow Description Built to 3/4" blow
No return blow
Built to 1/2" blow
No return blow

Rec 30	Feet of Mud	%gas	%oil	%water 100	%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 30 BHT 104 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2,160	☑ Test 1250	T-On Location 11:35
(B) First Initial Flow	19	☑ Jars 250	T-Started 12:25
(C) First Final Flow	18	☑ Safety Joint 75	T-Open 14:18
(D) Initial Shut-In	37	☑ Circ Sub N/C	T-Pulled 16:08
(E) Second Initial Flow	19	☐ Hourly Standby	T-Out 18:16
(F) Second Final Flow	21	☑ Mileage 40 RT 62	Comments
(G) Final Shut-In	56	☐ Sampler	
(H) Final Hydrostatic	2,138	☐ Straddle	☐ Ruined Shale Packer
		☑ Shale Packer 250	☐ Ruined Packer
Initial Open 5		☐ Extra Packer	☐ Extra Copies
Initial Shut-In 15		☐ Extra Recorder	Sub Total 41.67
Final Flow 30		☑ Day Standby 1d 1.25h	Total 1928.67
Final Shut-In 60		☐ Accessibility	MP/DST Disc't
		Sub Total 1887	

Approved By Leon Schrag Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 49949

Well Name & No. Brockelman #2-19 Test No. 6 Date 1/31/12

Company Larson Engineering Inc. Elevation 2841 KB 2834 GL

Address 562 West Side Rd 4 Olmitz KS 67564

Co. Rep / Geo. Deon Schrag Rig HD Rig 3

Location: Sec. 19 Twp. 18S Rge. 29W Co. Lane State KS

Interval Tested 4439 - 4590 Zone Tested Fort Scott - Cherokee

Anchor Length 151 Drill Pipe Run 4296.22 Mud Wt. 9.2

Top Packer Depth 4435 Drill Collars Run 147.75 Vis 52

Bottom Packer Depth 4439 Wt. Pipe Run ——— WL 6.8

Total Depth 4590 Chlorides 3,300 ppm System LCM 1

Blow Description Built to 1" 6 low
No return 6 low
Weak surface 6 low
No return 6 low

Rec 30	Feet of Mud	%gas	%oil	%water 100	%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 30 BHT 109 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2,225	☑ Test	1250	T-On Location	17:05
(B) First Initial Flow	25	☑ Jars	250	T-Started	18:15
(C) First Final Flow	25	☑ Safety Joint	75	T-Open	20:36
(D) Initial Shut-In	193	☑ Circ Sub	N/C	T-Pulled	22:26
(E) Second Initial Flow	26	☐ Hourly Standby		T-Out	00:29
(F) Second Final Flow	28	☑ Mileage	HD RT 62	Comments	
(G) Final Shut-In	348	☐ Sampler			
(H) Final Hydrostatic	2,217	☐ Straddle			
		☑ Shale Packer	250	☑ Ruined Shale Packer	350
Initial Open	5	☐ Extra Packer		☐ Ruined Packer	
Initial Shut-In	15	☐ Extra Recorder		☐ Extra Copies	
Final Flow	30	☐ Day Standby		Sub Total	350
Final Shut-In	60	☐ Accessibility		Total	2237
		Sub Total	1887	MP/DST Disc't	

Approved By Deon Schrag Our Representative [signature]

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

SWIFT Services, Inc.

CHARGE TO: LARSON ENGINEERING
ADDRESS
CITY, STATE, ZIP CODE

TICKET Nº 24076

PAGE 1 OF 1

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS	2-19	BOCKELMAN	LANE	KS		2-8-13	SAME
2.	TICKET TYPE ☒ SERVICE ☐ SALES — CONTRACTOR: CHEYENNE WELL SERVICE		RIG NAME/NO.	SHIPPED VIA CT	DELIVERED TO: LOCATION	ORDER NO.	
3.	WELL TYPE: OIL	WELL CATEGORY: DEVELOPMENT	JOB PURPOSE: CEMENT PORT COLLAR		WELL PERMIT NO.	WELL LOCATION: DIGHTON, KS - 5W, 1/2S, W	
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575		1			MILEAGE # 115	45	MI			6 00	270 00
576D		1			PUMP CHARGE	1	JOB			1250 00	1250 00
330		1			SWIFT MULTI-DENSITY STANDARD	200	SKS			16 50	3300 00
276		1			FLOCELE	50	LBS			2 00	100 00
290		1			D-AIR	2	GAL			35 00	70 00
581		1			SERVICE CHARGE CEMENT	235	SKS			2 00	470 00
583		1			DRAYAGE	23310	LBS	524.48	TM	1 00	524 48

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X

DATE SIGNED: 2-8-13 | TIME SIGNED: 1300 ☐ A.M. ☒ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	5984 48
Lane TAX 7.3%	253 31
TOTAL	6237 79

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR: WAYNE WILSON | APPROVAL

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 2-8-13 | PAGE NO. 1

CUSTOMER	WELL NO.	LEASE	JOB TYPE	TICKET NO.
LARSON ENGINEERING	2-19	BOCKELMAN	CMT - PORT COLLAR	24076

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	1300							ON LOCATION
								2 3/8 x 5 1/2
								PORT COLLAR @ 2139'
	1315				✓		1000	PSI TEST - HELD
	1320	3	2	✓		300		OPEN PORT COLLAR - INJ RATE
	1325	4 1/2	111	✓		450		MIX CEMENT 200 SKS SMD @ 11.2 PPG
	1355	4	7 1/2	✓		550		DISPLACE CEMENT
	1405			✓		1000		CLOSE PORT COLLAR - PSI TEST - HELD
								CIRCULATED 15 SKS CEMENT TO PIT
	1415	4	25		✓		500	RUN 5 JTS - CIRCULATE CLEAN
								WASH TRUCK
	1500							JOB COMPLETE
								THANK YOU
								WAYNE, JEFF, ISAAC

SWIFT Services, Inc.

CHARGE TO: LARSON ENGINEERING
ADDRESS
CITY, STATE, ZIP CODE

TICKET Nº 23690

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS	2-19	BOCKELMAN	LANE	KS		2-2-13	SAME
2.	TICKET TYPE ☒ SERVICE ☐ SALES / CONTRACTOR: H-D DRILLING	RIG NAME/NO.	SHIPPED VIA CT	DELIVERED TO: LOCATION		ORDER NO.	
3.	WELL TYPE: OIL	WELL CATEGORY: DEVELOPMENT	JOB PURPOSE: 5½" LONGSTRING	WELL PERMIT NO.		WELL LOCATION: DIGHTON, KS - SW, ½S, W	
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575		1			MILEAGE #115	40	MI			6 00	240 00
578		1			PUMP CHARGE	1	JOB	4660	FT	1500 00	1500 00
221		1			LIQUID KCL	2	GAL			25 00	50 00
280		1			FLOCHECK-21	500	GAL			2 50	1250 00
419		1			ROTATING HEAD RENTAL	1	JOB			200 00	200 00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

x [signature]

DATE SIGNED: 2-2-13 TIME SIGNED: 0800 ☒ A.M. ☐ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL #1	3240 00
#2	5176 00
subtotal	8416 00
TAX Lane 7.3%	440 92
TOTAL	8856 92

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR: WAYNE WILSON

APPROVAL

Thank You!

SWIFT Services, Inc

PO Box 466
Ness City, KS 67560
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 23690

CUSTOMER: LARSON ENGINEERING | WELL: ROCKELMAN 2-19 | DATE: 2-2-13 | PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	TIME	DESCRIPTION	QTY	U/M	QTY	U/M	UNIT PRICE	AMOUNT
325		1				STANDARD CEMENT EA-2	150	SKS			13 50	2025 00
276		1				FLOCELE	50	LBS			2 00	100 00
277		1				GILSONITE	1050	LBS			75	787 50
283		1				SALT	750	LBS			20	150 00
284		1				CALSEAL	7	SKS	700	LBS	35 00	245 00
290		1				D-AIR	2	GAL			35 00	70 00
292		1				HALAD-322	150	LBS			7 75	1162 50
581		1				SERVICE CHARGE	CUBIC FEET		150		2 00	300 00
583		1				MILEAGE CHARGE TOTAL WEIGHT 16800 LOADED MILES 40	TON MILES		336		1 00	336 00
											CONTINUATION TOTAL	5176.00

JOB LOG

SWIFT Services, Inc.

DATE 2-2-13 | PAGE NO. 1

CUSTOMER LARSON ENGINEERING | WELL NO. 2-19 | LEASE BOCKELMAN | JOB TYPE 5½" LONGSTRING | TICKET NO. 23690

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	0730							ON LOCATION
								TD - 4661 SET @ 4660
								TP - 4663 5½ # 15.5
								ST - 42'
								PORT COLLAR @ 2139'
	0755							DROP BALL - CIRCULATE ROTATE
	0850	7	15		✓		450	PUMP 15 BBLS KCL WATER "
	0852	7	12		✓		450	PUMP 500 GAL FLOCHECK-21 "
	0855	7	5		✓		450	PUMP 5 BBLS KCL WATER "
	0857		7					PLUG RH - 30 SKS CMT
	0900	5	30		✓		250	MIX CEMENT - 120 SKS EA-2 @ 15.2 PPG "
	0907							WASH OUT PUMP - LINES
	0907							RELEASE LATCH DOWN PLUG
	0910	8	0		✓			DISPLACE PLUG "
		7	100				700	SHUT OFF ROTATING
	0925	6	110				1500	PLUG DOWN - PSI UP LATCH IN PLUG
	0927						OK	RELEASE PSI - HELD
								WASH TRUCK
	1000							JOB COMPLETE
								THANK YOU
								WAYNE, JEFF, JEREMY

ALLIED OIL & GAS SERVICES, LLC 059239

Federal Tax I.D.# 20-5975804

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

SERVICE POINT: Great Bend

DATE	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
1-21-13	19	18s	29w	1:00	3:30	4:30	5:00

LEASE Bookelman WELL # 2-19 LOCATION Sw Dighton, 1N, W/into ... COUNTY Lane STATE Ks

OLD OR (NEW) (Circle one)

1.01 6.3 7.3

CONTRACTOR HdD #3
TYPE OF JOB Surface
HOLE SIZE 12 1/4 T.D. 262
CASING SIZE 8 5/8 DEPTH
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 20'
PERFS.
DISPLACEMENT 15 1/2

OWNER Larson Engineering

CEMENT
AMOUNT ORDERED 175sx "A" +3% cc+2% gel

		@	
COMMON	175	@ 17.90	3.132.50
POZMIX	–	@	
GEL	3	@ 23.40	70.20
CHLORIDE	6	@ 64.00	384.00
ASC		@	
HANDLING	189.25	@ 2.48	469.22
MILEAGE	8.63 x 32 x	2.60	718.51
		TOTAL	4.774.50

276.35

EQUIPMENT

PUMP TRUCK CEMENTER Ron Gilley
724 HELPER Dustin Glaaburg
BULK TRUCK
341 DRIVER Dan Casper 2
BULK TRUCK
DRIVER

REMARKS:

See Cement Log

SERVICE

		@	
DEPTH OF JOB 262			
PUMP TRUCK CHARGE			1512.35
EXTRA FOOTAGE		@	
MILEAGE Hvm	32	@ 7.70	246.40
MANIFOLD		@	
Light Veh	32	@ 4.40	140.80
		@	
		TOTAL	1.899.45

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

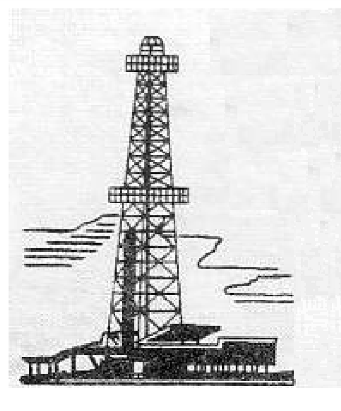
None

TOTAL

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

SALES TAX (If Any) ~~235.46~~ 26.82
TOTAL CHARGES 6.673.95
DISCOUNT 2.002.19 IF PAID IN 30 DAYS
4.671.76

PRINTED NAME X LEWAYNE TRESNER
SIGNATURE X [signature]



WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST

Scale 1:240 (5"=100') Imperial

Well Name: Bockelman #2-19
Location: SE NW SW NE SEC. 19-18s-29w
Licence Number: API: 15-101-22420 **Region:** Lane Co., KS
Spud Date: January 21, 2013 **Drilling Completed:** February 1, 2013
Surface Coordinates: 1936' FNL & 2132' FEL

Bottom Hole Coordinates:
Ground Elevation (ft): 2834' **K.B. Elevation (ft):** 2841'
Logged Interval (ft): 3800' **To:** RTD **Total Depth (ft):** 4660'
Formation: Mississippi
Type of Drilling Fluid: Chemical Premix (Displaced)

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

OPERATOR:

Company: Larson Engineering Inc.
Address: 562 West State Road 4
Olmitz, KS 67564-8561

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3 (#33935)

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 560', Kelly 40.30', Tool Joint 5.5" ; Bit: JZ-QX21 down to 4036', JZ-QX20 to RTD, 7-7/8", jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

CASING:

8-5/8" (20#) casing at 259'
5-1/2" (15.5#) casing at 4660'

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3360-3376'; earth pits, Morgan Mud, Inc., David Lines, Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to suface casing; LogTech-Pioneer Wireline, Hays, KS, D. Martin, Log total depth (4661') was one foot long to rotary total depth (4660').

Log tools pulled tight on several occasions during Run-2. This was particularly disturbing near bottom and so it was judged that the ML repeat run should be canceled.

DRILL STEM TEST #1:

LKC "H": Interval: 4142-4166 (24'): Blow: weak 1/4" IFP, no RB, no blow 2nd open; Times: 5-15-15-30; Recovery: 5' mud w/oil spots; Pressures: HP: 2065-2069, SIP: 599-722, FP: 18-19, 19-20; BHT: 107 F; Trilobite Testing Co., Scott City, KS, Tate Lang.

DRILL STEM TEST #2:

LKC "I": Interval: 4183-4205 (22'): Blow: weak incr 6" IFP, no RB, weak incr BOB/10 min FFP, very weak surf RB died 40 min FSIP; Times: 5-15-30-60; Recovrey: 171' GIP, 325' TF: 15' Oil (100%O, 41 Grav), 124' GMCO (30%G, 60%O, 10%M), 124' GMCO (5%G, 65%O, 30%M), 62' SGOCM (10%G, 10%O, 80%M); Pressures: HP: 2066-2048; SIP: 1088-1057; FP: 25-63, 70-141; BHT: 115 F; Trilobite Testing Co., Scott City, KS, Tate Lang.

DRILL STEM TEST #3:

LKC "J": Interval: 4212-4230 (18'): Blow: weak incr 2" IFP, no RB, weak incr 4" FFP, no RB; Times: 5-15-30-60; Recovery: 164' mud w/oil spots (100%M); Pressures: HP: 2102-1980, SIP: 734-728, FP: 19-32, 34-91; BHT: 117 F; Trilobite Testing Co., Scott City, KS, Tate Lang.

DRILL STEM TEST #4:

LKC "L": Interval: 4281-4298 (17'): Blow: weak surf IFP, no RB, no blow 2nd Open; Times: 5-15-15-30; Recovery: 1' mud (100%M); Pressures: HP: 2170-2116, SIP: 322-307, FP: 17-19, 19-20; BHT: 108 F; Trilobite Testing Co., Scott City, KS, Tate Lang.

DRILL STEM TEST #5:

Marmaton: Interval: 4350-4440 (90'): Blow: weak incr 3/4" IFP, no RB, weak incr 1/2" FFP, no RB; Times: 5-15-30-60; Recovery: 30' mud (100%M); Pressures: HP: 2160-2138; SIP: 37-56, FP: 19-18, 19-21; BHT: 104 F; Trilobite Testing Co., Scott City, KS, Jace McKinney.

DRILL STEM TEST #6:

Pawnee thru Cherokee: Interval: 4439-4590 (151'); Blow: weak incr 1" IFP, no RB, weak surf FFP, no RB; Times: 5-15-30-60; Recovery: 30' Mud (100%M); Pressures: HP: 2225-2217; SIP: 183-348; FP: 25-25, 26-28; BHT: 109 F; Trilobite Testing Co., Scott City, KS, Jace McKinney.

Geological Descriptions

Shale: w/flood of coarse pyrites; 3810 !

LS: gray to brown, mottled in part; vf-xtal; dense; scattered med-coarse spar; dense to chalky in part; sli fos; N.S., 3820.

Shale: black; few chips 3820, 3830.

Shale/SiltSt: green to gray; coarse pyrites; 3830.

LS: even lt grayish-brown; dull; mic-vf xtal; dense to sli chalky; no grains; pin point vug porosity; N.S. 3840.

LS: lt brown; vf-xtal; finely granular; dense to chalky in part; minor opaq chert; poor por; N.S.

LS: grayish-brown; vf-xtal; finely granular; sli fos-frag; trc fos-moldic; mostly dense, poor porosity; N.S., 3860.

Shale: greenish; calcareous;

LS: md-dk grayish-brown w/scattered dk-gray pellets; ; vf-xtal; sli shaley; N.S., 3870, incr 3880.

Shale: dk brown; carbon; limey; trc 3880.

LS: md-dk grayish brown; vf-xtal; fine to med granular; shaley & chalky in part; trc opaq chert; poor vug porosity; N.S. 3890.

LS: lt-md grayish brown w/few tiny dk brn specks; vf-xtal; fine-md granular; oolitic in part; poor apparent porosity; N.S.

LS: lt-md grayish-brown; vf-xtal; finely fos-frag; alternates w/soft chalk; poor porosity; N.S.

LS: lt grayish-brown; vf-xtal; md granular; rough textured; prob fair int granular porosity; N.S., 3930.

HEEBNER 3926 (-1085)

Shale: black; carbon; 3940, (33 min).

LS: dk gray-brown; vf-xtal; dense; N.S.

Shale: green; silty; trc tiny lime nodules; 3960.

LS: even tan to brown; mic-vf xtal; dense; minor chalk; trc green sh contact; only dull fluor; no visible porosity; N.S.

LS: as above.

LANSING 3968 (-1127)

LS: even lt brown to tan, alternating w/white chalk; mic-vf xtal; scattered med spar; opaq chert; poor porosity; N.S.

LS: even lt brown to tan; mic-vf xtal; minor opaq chert; no visible porosity; N.S.

Shale: gray, green; calcareous;

LS: mostly lt brown; mic-vf xtal; dense to chalky in part; sli oolitic; trc shells; much semi-trans chert; dull fluor; poor porosity; N.S.

LS: as above, decr chert;

LS: lt brown; mic-vf xtal; dense; trc chert; sli chalky; no visible porosity; N.S.

LS: lt-brown; mic-vf xtal; dense to sli chalky; no visible porosity; N.S.

Shale: black; carbon; fissile; 4060.

LS: white to lt brown; mic-vf xtal; sli granular; trc oolite; v-chalky in part; poor porosity; N.S.

LS: lt gray to lt brown; vf-xtal; fine granular; sli chalky; poor porosity; N.S.

LS: white to lt grayish-brown; mic-vf xtal; fine to med granular; chalky; poor porosity; N.S.

LS: as above;

LS: mostly lt brown, some gray; mic-vf xtal; finely granular in part; sli chalky; no visible porosity; N.S.

LS: lt brown to lt gray; mic-vf xtal; granular in part; chalky; no visible porosity; N.S.

MUNCIE CREEK 4143 (-1302)

Shale: black; carbon; few chips 4160.

LS: md-dk brn, mottled lt brown; vf-xtal; dense; minor mottled, opaq chert; trc smokey chert; v-sli ool; black sh contacts; N.S.

LS: grayish-brown; vf-xtal; rough textured fine granular; scattered f-med vug porosity; sptd stain; crush sli show oil; no odor; 5-10% bright yel-white fluor; trc 4166, incr 30m.

LS: mostly lt-brown, mic-vf xtal; dense to chalky in part; dull yel fluor; no apparent por; N.S.

Shale: indistinct;

LS: dk brown; vf-xtal; dense, blocky; no visible porosity; N.S., 4200.

LS: white to grayish brown; mic-vf xtal; dense to chalky in part; no apparent porosity; N.S.

LS: lt brown; mic-vf xtal; trace poor vug porosity; crush sli show lt brn oil; no odor; only dull fluor; 4205-60 min.

LS: mostly lt-md brown, some grayish-brown; vf-xtal; trc opaq chert; no apparent porosity; N.S.

LS: lt brown to lt gray; mic-vf xtal; chalky in part; scattered oomoldic & fine vug porosity; speckled fluor is inconspicuous; crush sli show v-dk brn oil; trc black stain; possible v-sli odor; 4230-30 & 60 min.

LS: as above: poor oomoldic w/occasional vug porosity w/dk brn to black stain; no oil show; 4240-30, 60 min.

LS: grayish brown; mic-vf xtal; dense to sli chalky; no visible porosity; N.S.

STARK 4252 (-1411)

Shale: black: fissile: few chips 4260.

LS: md-dk grayish-brown w/few dk gray grains; vf-xtal; dense; N.S. 4270.

LS: even lt gray, trc fine dk-gray pellets; mic- vf xtal; chalky but firm; even dull yel-white mineral fluor; no visible porosity; N.S., 4270- 30 min., minor oolitic chert 60 min.

LS: lt gray to lt brown; mic-vf xtal; dense to sli chalky, platey; cherty; no visible porosity; N.S.

Shale: black; carbon; 4288.

LS: dk brn to dk gray-brn; vf-xtal; dense; no visible porosity; N.S. 4288-30 min.

LS: lt brown, dk gray mixed; mic-vf xtal; dense to shaley; chalky in part; no apparent porosity; no fluor; N.S.

LS: mostly lt brown, some lt gray; vf-xtal; granular textured; tight int granular porosity at best; N.S.

LS: lt-md grayish brown; vf-xtal; dense; no apparent porosity; N.S.

LS: lt-md grayish brown; vf-xtal; dense; no visible porosity; N.S.

LS: white to lt gray; mic-vf xtal; soft chalk, marly; no apparent porosity; N.S.

LS: white to lt gray; mic-vf xtal; chalky in part; no apparent porosity; N.S.

LS: md-dk gray, dk brown; vf-xtal; v-shaley in part; no visible porosity; N.S.

Shale/Siltst: greenish;

MARMATON 4369 (-1528)

LS: dk brown; vf-xtal; dense; no visible porosity; N.S.

LS: lt to med gray; vf-xtal; trc orange chert; no visible porosity; N.S., 4390.

LS: lt to med gray, some dk brown; vf-xtal; orange inclusions, scattered dk grains; trc glauc; no visible porosity; N.S.

LS: grayish brown; vf-xtal; sli fos; mostly dense; no visible porosity; N.S.

LS: lt brown; mic-vf xtal; dense to chalky in part; trc fine orange inclusions; no visible porosity; N.S.

LS: lt brown; mic-vf xtal; mostly dense; trace shallow vug porosity w/spotted stain; crush v-sli show oil; 4430.

LS: lt brown; mic-vf xtal; further traces shallow vug w/ dk brn to black stain; no show oil; 4440, 4440-30 min.

PAWNEE 4442 (-1601)

LS: lt brown; mic-vf xtal; 1 chip shallow vug porosity w/speckled stain as above; no show oil; looks identical to that tested above and may well be float; 4460.

LS: lt-md brown; vf-xtal; dense; trc gray semi-opaq chert; no visible porosity; N.S., 4470.

Shale: black; carbon; 4480.

LS: dk gray; vf-xtal; smokey chert; dense; N.S.

Shale: mostly dk gray, green in part;

LS: lt to med brown & grayish brown; vf-xtal; dense; continued smokey chert and also gray chert; no visible porosity; N.S.

Shale: black; carbon; incr 4500.

FT. SCOTT 4496 (-1655)

LS: med-dk grayish brown; vf-xtal; dense; trace coarse pyrite, smokey chert & gray fos chert; no visible porosity; N.S., 4510.

LS: med-dk brown; mic-vf xtal; dense; trc smokey chert; no visible porosity; N.S.

LS: lt brown; vf-xtal; dense to sli chalky; trc oolitic; no visible porosity; N.S.

CHEROKEE 4521 (-1680)

LS: lt-md brown; vf-xtal; oolitic in part; no visible porosity; N.S.

LS: lt-md brown, grayish brown; vf-xtal; dense; no visible porosity; N.S.

LS: as above w/shale interbeds;

LS: lt-md brown; vf-xtal; dense; trace pin- point porosity w/minute dk brown stain; no visible oil; no odor; 4570.

B/JOHNSON 4573 (-1732)

Shale: conglomeritic; vari-color; various chert; greenish siltst & brown calc siltst;

Shale: as above.

MISSISSIPPI 4594 (-1753)

LS: lt brown to lt gray; mic-vf xtal; v-finely oolitic; chalky in part; no apparent porosity; N.S. 4610.

Dol: lt brown to lt gray as above; vf-f xtaline; tight int xtal porosity; no fluor; N.S. 4620-30 min.

LS: dolomitic; lt gray; vf-xtal; poor int xtal porosity; N.S.

LS/Dol: as above;

LS: dolomitic; lt gray; vf-xtal; tight int xtal porosity; N.S.

ROTARY TOTAL DEPTH 4660 (-1819)

Total Gas

TG (units)
Fifty
One

Hot-Wire 0–100

CALL GEO 3400, 01/24/2013-6pm

REFERENCE LOG: LARSON ENGINEERING, INC., BOCKELMAN 1-19, NE SE SW NE SEC 19-18S-29W.

ANHYDRITE 2161 (+680)
B/ANHY 2231 (+610)

MORGAN MUD: 3761: 01/25-10am: VIS 52, WT 9.0, FIL 6.4, CHL 3200, LCM 1#

BIT TRIP AT 3990 TO EXCHANGE HA21 FOR HA22.

MORGAN MUD: 4106: 01/26-5pm: VIS 61, WT 9.0, FIL 6.4, CHL 3200, LCM 1#.

DST #1: H-ZONE: 4142-4166: WEAK BLOW DIED 2ND OPEN; 5-15-15-30; 5' MUD; SIP: 599-722; FP: 18-19, 19-20.

DST #2: I-ZONE: 4183-4205: BLOW 6" IFP; BOB/10 MIN FFP; SLI BB FSIP; 5-15- 30-60; 171 GIP; 263' GMCO, 62' SGOCM; SIP: 1088-1057; FP: 25-63, 70-141.

TRIP OUT 5 STANDS AT 4195 TO WORK ON PUMP, DOWN 153 MIN.

MORGAN MUD: 4205: 01/27-5pm: VIS 59, WT 9.2, FIL 6.8; CHL 2300, LCM 1#.

DST #3: J-ZONE: 4212-4230: WEAK BLOW 2" IFP, 4" FFP; 5-15-30-60; 164' MUD; SIP: 734-728; FP: 19-32, 34-91.

MORGAN MUD: 4236: 01/28-4pm: VIS 58, WT 9.1, FIL 6.8, CHL 3000, LCM 1#

DST #4: L-ZONE: 4081-4098: WEAK BLOW, DIED 2ND OP; 5-15-15-30; 1' MUD; SIP: 322-307; FP: 17-19, 19-20.

WORK ON PUMP AFTER DST #4.

MORGAN MUD: 4298: 01/29-12pm: VIS 75; WT 9.1, FIL 6.4, CHL 3100, LCM 1#

DST #5: MARMATON: 4350-4440: WEAK BLOW INCR 3/4"; 5-15-30-60; 30' MUD; SIP: 37-56; FP: 19-18, 19-21

MORGAN MUD: 4440: 01/30-1pm: VIS 59, WT 9.1, FIL 6.0, CHL 2900, LCM 1#

DST #6: PAWNEE THRU JOHNSON: 4439-4590: WEAK BLOW: 5-15-30-60; 30' MUD; SIP: 183-348; FP: 25-25, 26-28

MORGAN MUD: 4582: 01/31-2pm: VIS 52, WT 9.2, FIL 6.8, CHL 3300, LCM 1#

SAMPLES APPEAR TO BE IN POOR CONDITION, BEING >50% SHALES FROM B/JOHNSON TO RTD.

LOGS PULLED TIGHT ON RUN-2 ON SEVERAL OCCASIONS.

PIONEER ENERGY SERVICES LTD 4661

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/

May 21, 2013

Thomas Larson
Larson Engineering, Inc. dba Larson Operating Company
562 W STATE RD 4
OLMITZ, KS 67564-8561

Re: ACO1
API 15-101-22420-00-00
Bockelman 2-19
NE/4 Sec.19-18S-29W
Lane County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Thomas Larson