



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1218708
OIL & GAS CONSERVATION DIVISION

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 # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD 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 #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____-_____-_____- Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1218708

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

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

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

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

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

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

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 <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ 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: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Hineman Unit 1-28
Doc ID	1218708

Tops

Name	Top	Datum
Anhydrite	2095	+627
Base Anhydrite	2124	+598
Heebner	3916	-1194
Lansing	3954	-1232
Stark Sh	4230	-1508
Marmaton	4343	-1621
Ft Scott	4475	-1753
Cherokee Sh	4499	-1777
Mississippi	4557	-1835



CONSOLIDATED
ON Well Services, LLC

267634

TICKET NUMBER 44429
LOCATION Oakley ks
FOREMAN Fuzzy

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

FIELD TICKET & TREATMENT REPORT
CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
4-23-14	4802	Hineman Unit 1-28	28	185	28w	Lane	
CUSTOMER Lorson Engineering			Dighton				
MAILING ADDRESS			26-25 eastin				
CITY		STATE	ZIP CODE	TRUCK #	DRIVER	TRUCK #	DRIVER
				399	Jordan		
				530	Cody		

JOB TYPE surface HOLE SIZE 12 1/4 HOLE DEPTH _____ CASING SIZE & WEIGHT 8 5/8
CASING DEPTH _____ DRILL PIPE _____ TUBING _____ OTHER _____
SLURRY WEIGHT 14.7 SLURRY VOL 1.34 WATER gal/sk _____ CEMENT LEFT in CASING _____
DISPLACEMENT _____ DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Safety meeting on HOB +3 Run up and circulate. Mix 175 sacks
CLASS 'A' 390cc 1290gal. Displace 15 1/2 BBLs and shut in.
cement did circulate approx 5 BBLs to pit

Thanks Fuzzy & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
54015	1	PUMP CHARGE	1150.00	1150.00
5406	30 miles	MILEAGE	5.25	157.50
5407A	8.2 don	Tow mileage Delivery	1.75	143.00
11045	175 SACS	CLASS 'A'	18.52	3246.25
1102	494 #	Calcium chloride	.94	464.36
1118B	329 #	Bentonite	.27	88.83
		subtotal		5537.44
		less 1090		553.74
		subtotal		4983.70
		<input checked="" type="checkbox"/> completed		
		SALES TAX		244.49
		ESTIMATED TOTAL		5228.19

Ravin 3737

AUTHORIZATION Rudolph Jones TITLE Pusher DATE 4-23-14

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



CHARGE TO: Lalson Engineering
 ADDRESS: _____
 CITY, STATE, ZIP CODE: _____

TICKET 26209

PAGE 1 OF 1

SERVICE LOCATIONS: 1. Neosho KS
 WELL/PROJECT NO.: 1-28 LEASE: Hineman unit COUNTY/PARISH: LANE STATE: KS CITY: Dighton DATE: 9 MAY 14 OWNER: _____
 2. TICKET TYPE: SERVICE SALES CONTRACTOR: _____ RIG NAME/NO.: _____ SHIPPED: WCT DELIVERED TO: location ORDER NO.: _____
 3. WELL TYPE: oil WELL CATEGORY: WILD WEST Development JOB PURPOSE: cement pit collar WELL PERMIT NO.: _____ WELL LOCATION: _____
 4. REFERRAL LOCATION: _____ INVOICE INSTRUCTIONS: _____

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE	25	mi			6.00	150.00
576 D		1			Pump Charge	1	ea			1500.00	1500.00
330		1			SMD cement	145	sk			18.50	2682.50
276		1			Fibrecel	50	lb			2.50	125.00
279		1			Bentonite gel	2	sk			25.00	50.00
290		1			D-air	2	gal			42.00	84.00
581		1			services charge	235	sk	235	00	2.00	470.00
583		1			Drayage	23384	lb	29231	TM	1.00	29231

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: _____ TIME SIGNED: _____ A.M. P.M.
 7345

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

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				5353.81
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?	<input type="checkbox"/> YES	<input type="checkbox"/> NO		
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND				
Lanc TAX 7.15%				210.32
TOTAL				5564.13

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.
 SWIFT OPERATOR: [Signature] APPROVAL: _____
 Thank You!

JOB LOG

SWIFT Services, Inc.

DATE _____ PAGE NO. _____

CUSTOMER Larson Engineering WELL NO. 1-28 LEASE Hireman Unit JOB TYPE Cement port collar TICKET NO. 26209

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								235 sk SMD cement w/ 1/4" flange 2 3/8 x 5 1/2 port collar - 2077'
	1135							on loc YPK 114
	1150					1000	1000	test to 1000 psi - hold
	1200							open port collar
		3 1/2	2			300		inj rate 3 1/2 bpm @ 300 psi
	1205	3	8			300		mix 2 sk bentonite gel
		3				300		mix SMD cement @ 11.2 ppw
		3	4			300		fluid circ to surface
	1230	3	78			450		— cement to surface — (145 sk cement) 15 to pit
			7					pump 7 bbl H ₂ O
	1239					1000	1000	close port collar test to 1000 psi - hold run 5 joints
	1245		20					Reverse hole clean - 2 cement flags -
								Wash truck
								Rack up
	1345							job complete Tests Blaine, Phil & John



DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.04.28 @ 18:18:15

End Date: 2014.04.28 @ 21:26:45

Job Ticket #: 56440 DST #: 1

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

Printed: 2014.05.05 @ 10:25:23

Larson Engineering
28-18s-28w
Hineman Unit 1 28
DST # 1
H
2014.04.28



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56440

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.04.28 @ 18:18:15

GENERAL INFORMATION:

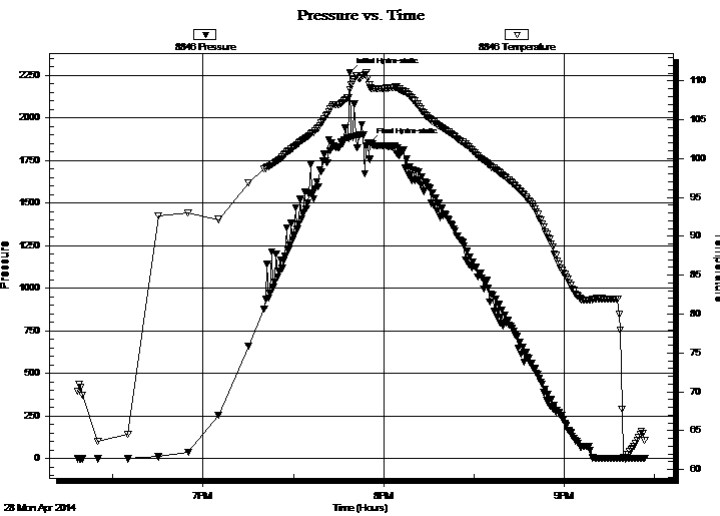
Formation: **H**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened:
 Time Test Ended: 21:26:45
 Interval: **4127.00 ft (KB) To 4150.00 ft (KB) (TVD)**
 Total Depth: 4150.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: psig @ 4145.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.04.28 End Date: 2014.04.28 Last Calib.: 2014.04.28
 Start Time: 18:18:15 End Time: 21:26:45 Time On Btm: 2014.04.28 @ 19:48:45
 Time Off Btm: 2014.04.28 @ 19:55:30

TEST COMMENT: IF:Hit Bridge 5 stds off bottom
 IS:
 FF:
 FS:



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2266.45	108.89	Initial Hydro-static
7	1855.75	109.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56440

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.04.28 @ 18:18:15

Tool Information

Drill Pipe:	Length: 3984.00 ft	Diameter: 3.80 inches	Volume: 55.89 bbl	Tool Weight:	1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	lb
			<u>Total Volume: 56.49 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	4127.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	23.00 ft				
Tool Length:	51.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4100.00	
Shut In Tool	5.00			4105.00	
Hydraulic tool	5.00			4110.00	
Jars	5.00			4115.00	
Safety Joint	3.00			4118.00	
Packer	5.00			4123.00	28.00 Bottom Of Top Packer
Packer	4.00			4127.00	
Stubb	1.00			4128.00	
Perforations	17.00			4145.00	
Recorder	0.00	8846	Inside	4145.00	
Recorder	0.00	8737	Outside	4145.00	
Bullnose	5.00			4150.00	23.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56440

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.04.28 @ 18:18:15

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.11 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

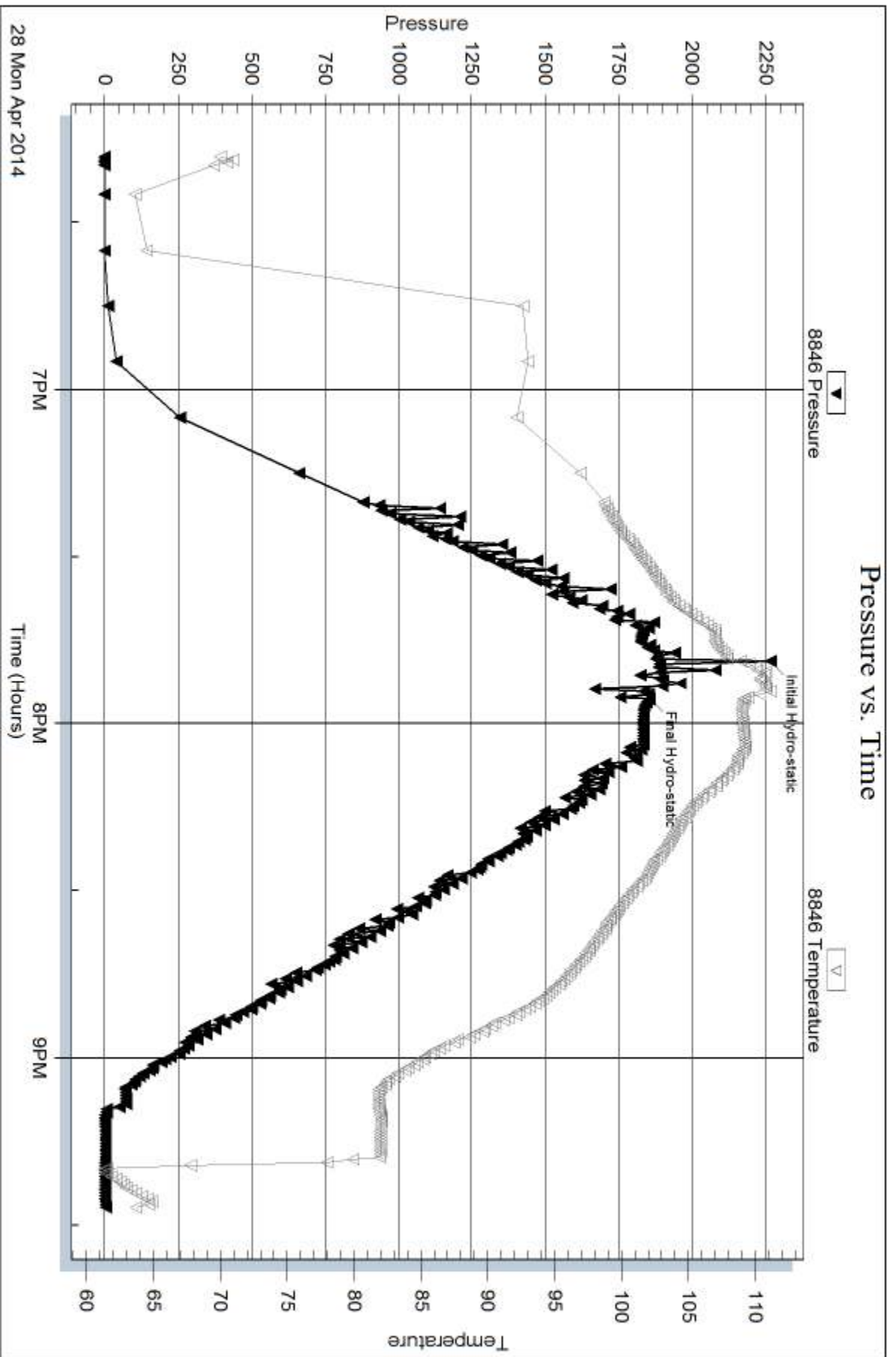
Length ft	Description	Volume bbl

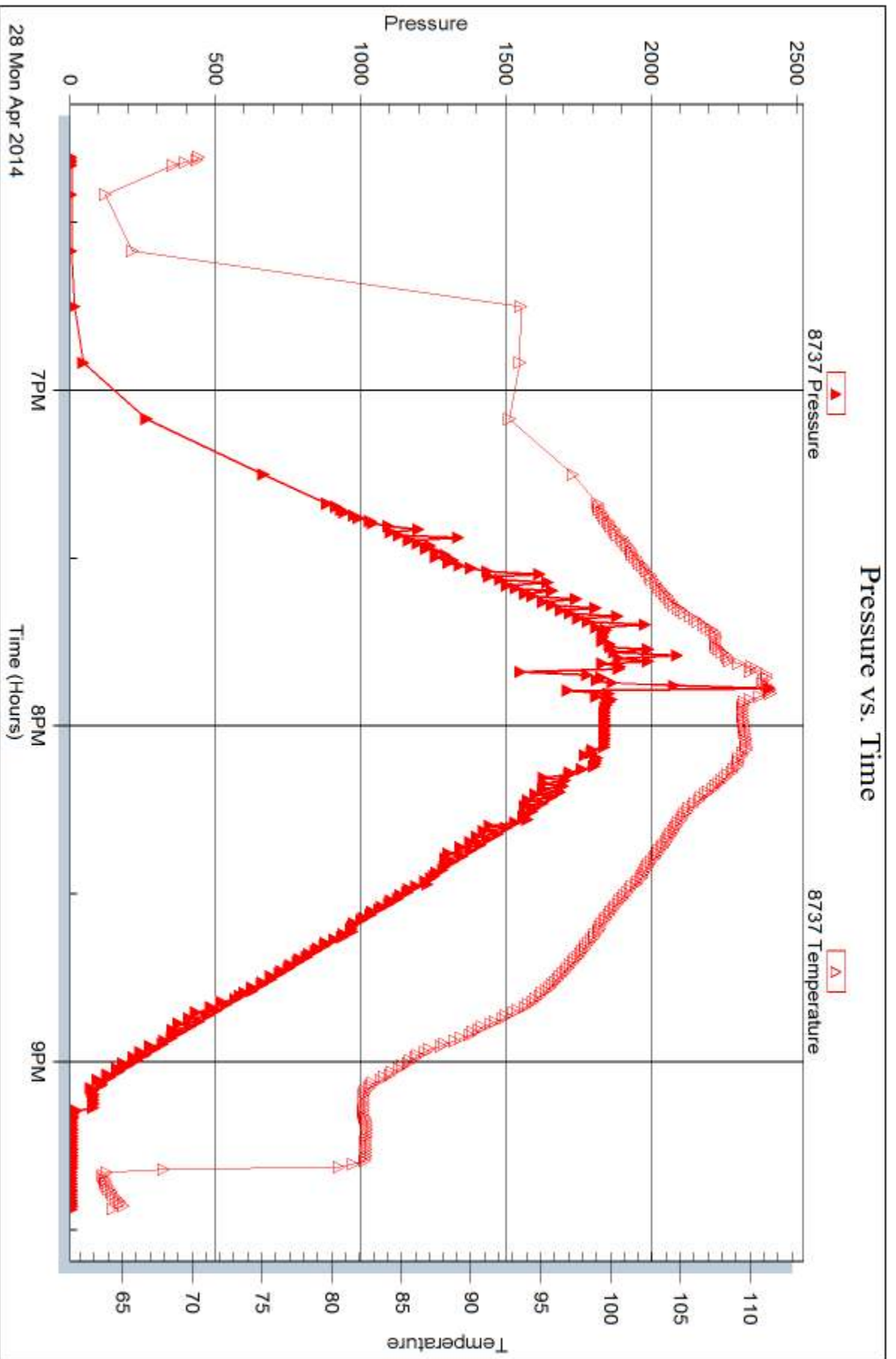
Total Length: ft Total Volume: bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.04.29 @ 03:38:15

End Date: 2014.04.29 @ 09:09:00

Job Ticket #: 56441 DST #: 2

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

Printed: 2014.05.05 @ 10:25:01

Larson Engineering
28-18s-28w
Hineman Unit 1 28
DST # 2
H
2014.04.29



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56441

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.04.29 @ 03:38:15

GENERAL INFORMATION:

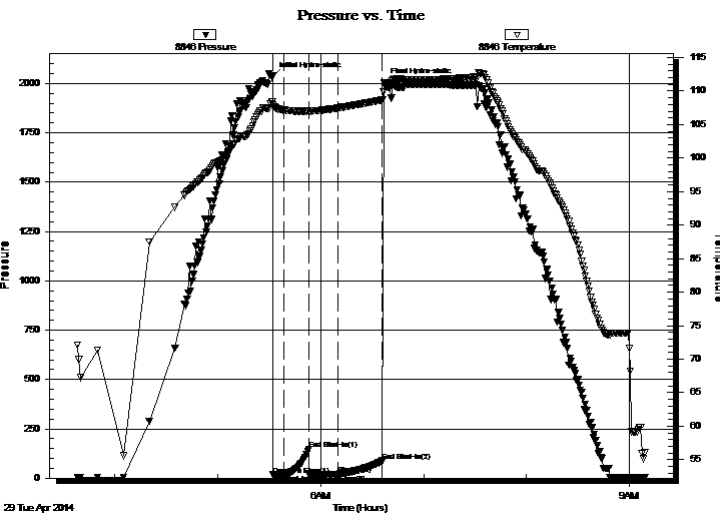
Formation: **H**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:32:15
 Time Test Ended: 09:09:00
 Interval: **4127.00 ft (KB) To 4150.00 ft (KB) (TVD)**
 Total Depth: 4150.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: 20.35 psig @ 4145.00 ft (KB)
 Start Date: 2014.04.29 End Date: 2014.04.29
 Start Time: 03:38:15 End Time: 09:09:00
 Capacity: 8000.00 psig
 Last Calib.: 2014.04.29
 Time On Btm: 2014.04.29 @ 05:32:00
 Time Off Btm: 2014.04.29 @ 06:36:45

TEST COMMENT: IF: Built to weak surface blow
 IS: No return blow
 FF: Weak surface blow that died in 8 min
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2037.51	108.43	Initial Hydro-static
1	16.84	107.91	Open To Flow (1)
7	17.65	107.16	Shut-In(1)
21	146.19	107.03	End Shut-In(1)
22	17.46	106.98	Open To Flow (2)
38	20.35	107.48	Shut-In(2)
64	87.36	108.68	End Shut-In(2)
65	2005.93	109.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 W. State Rd.
Olmitz KS 67564
ATTN: Vern Schrag

28-18s-28w

Hineman Unit 1 28

Job Ticket: 56441 **DST#: 2**
Test Start: 2014.04.29 @ 03:38:15

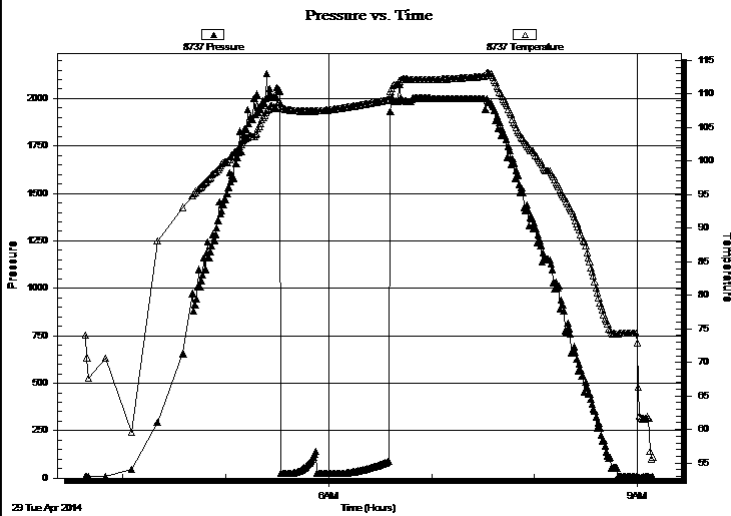
GENERAL INFORMATION:

Formation: **H**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:32:15
Time Test Ended: 09:09:00
Interval: **4127.00 ft (KB) To 4150.00 ft (KB) (TVD)**
Total Depth: 4150.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65
Reference Elevations: 2722.00 ft (KB)
2715.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4145.00 ft (KB)
Start Date: 2014.04.29 End Date: 2014.04.29
Start Time: 03:38:15 End Time: 09:09:00
Capacity: 8000.00 psig
Last Calib.: 2014.04.29
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Built to weak surface blow
IS: No return blow
FF: Weak surface blow that died in 8 min
FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100%m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56441

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.04.29 @ 03:38:15

Tool Information

Drill Pipe:	Length: 3984.00 ft	Diameter: 3.80 inches	Volume: 55.89 bbl	Tool Weight: 1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 56.49 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4127.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4100.00	
Shut In Tool	5.00			4105.00	
Hydraulic tool	5.00			4110.00	
Jars	5.00			4115.00	
Safety Joint	3.00			4118.00	
Packer	5.00			4123.00	28.00 Bottom Of Top Packer
Packer	4.00			4127.00	
Stubb	1.00			4128.00	
Perforations	17.00			4145.00	
Recorder	0.00	8846	Inside	4145.00	
Recorder	0.00	8737	Outside	4145.00	
Bullnose	5.00			4150.00	23.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56441

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.04.29 @ 03:38:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.12 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

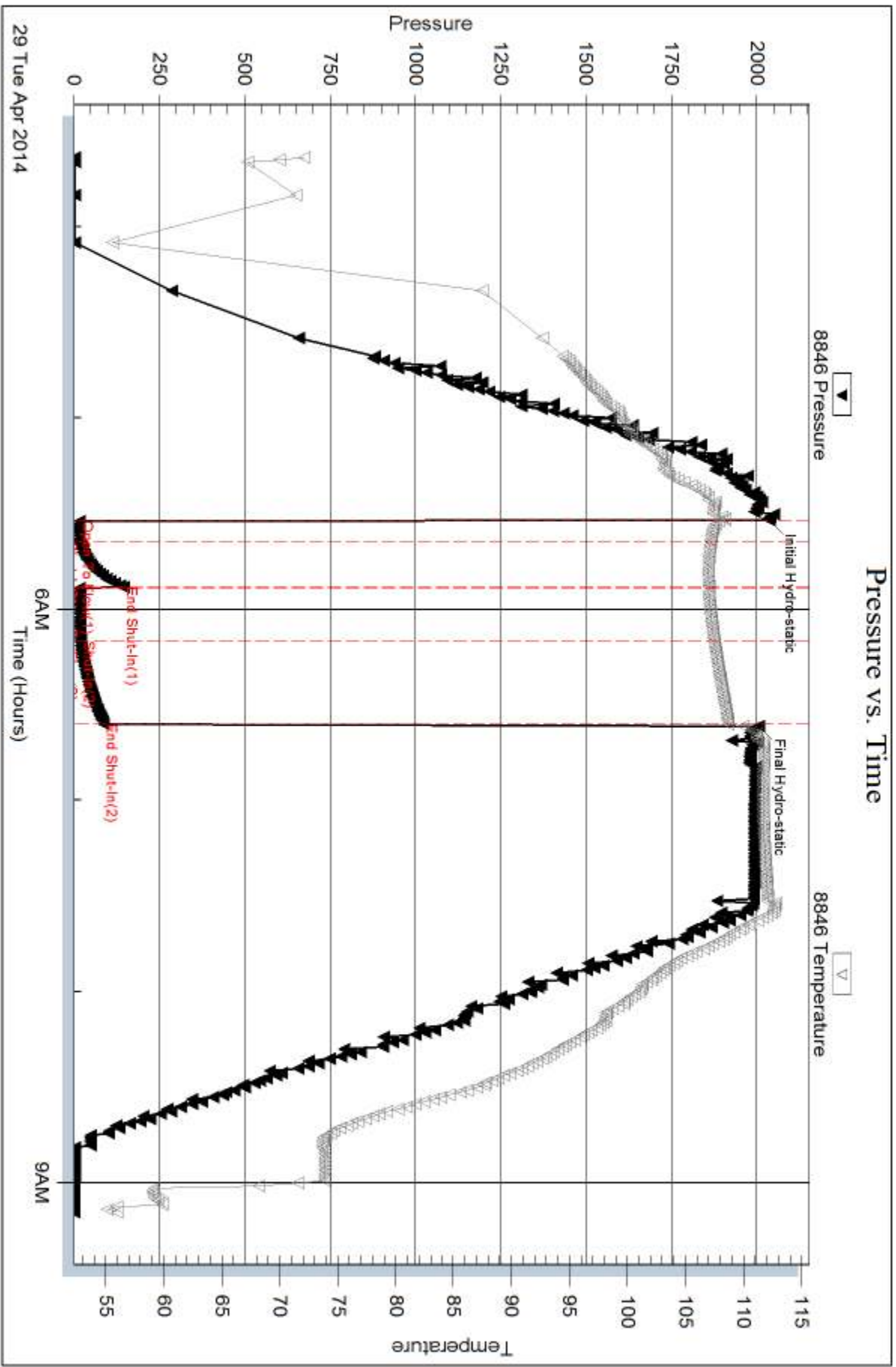
Num Gas Bombs: 0

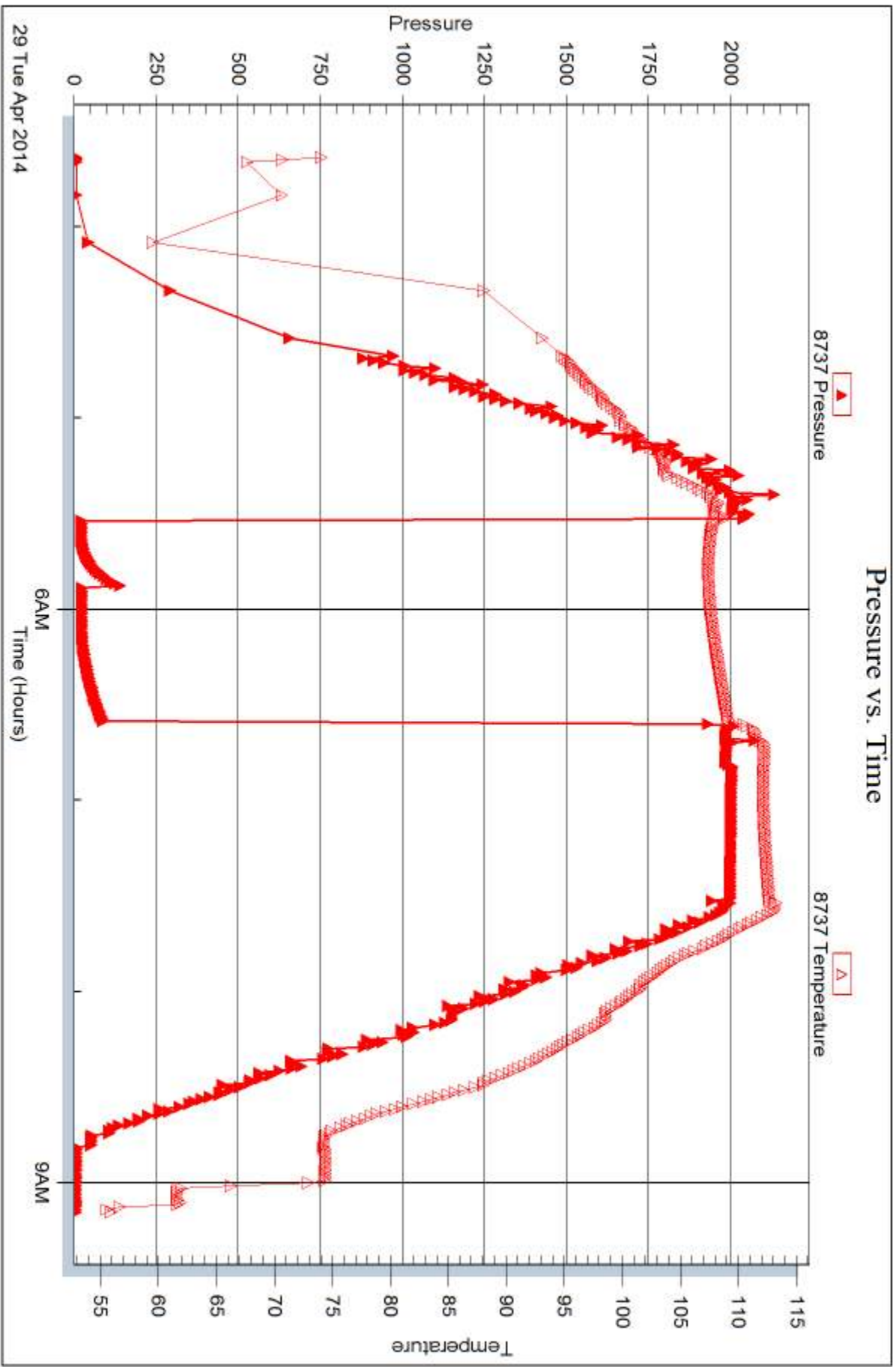
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.04.30 @ 00:41:15

End Date: 2014.04.30 @ 05:07:30

Job Ticket #: 56442 DST #: 3

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

Printed: 2014.05.05 @ 10:24:38



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56442

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 00:41:15

GENERAL INFORMATION:

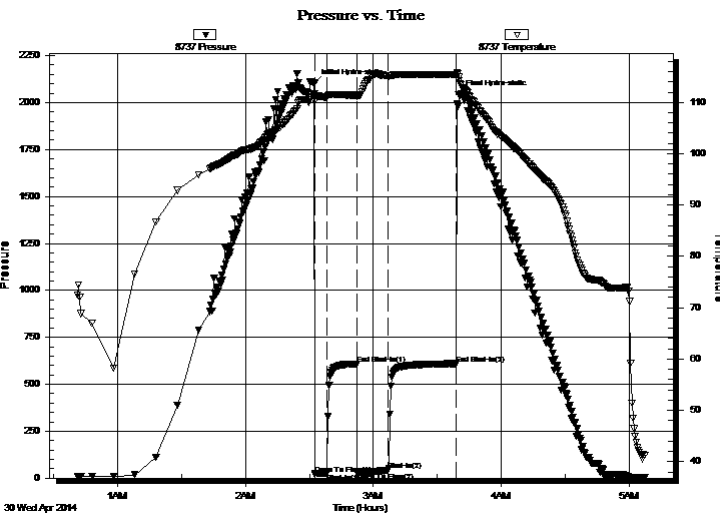
Formation: **K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:32:30
 Time Test Ended: 05:07:30
 Interval: **4229.00 ft (KB) To 4243.00 ft (KB) (TVD)**
 Total Depth: 4243.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8737

Outside

Press@RunDepth: 41.41 psig @ 4238.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.04.30 End Date: 2014.04.30 Last Calib.: 2014.04.30
 Start Time: 00:41:15 End Time: 05:07:30 Time On Btm: 2014.04.30 @ 02:32:15
 Time Off Btm: 2014.04.30 @ 03:40:00

TEST COMMENT: IF: Built to 1/8" blow
 IS: No return blow
 FF: Built to weak surface blow
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2099.56	111.69	Initial Hydro-static
1	21.42	110.18	Open To Flow (1)
6	27.60	111.01	Shut-In(1)
20	608.80	111.40	End Shut-In(1)
21	29.06	111.17	Open To Flow (2)
35	41.41	115.15	Shut-In(2)
67	609.51	115.38	End Shut-In(2)
68	2041.26	114.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mud with a slight show of oil	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56442

DST#: 3

ATTN: Vern Schrag

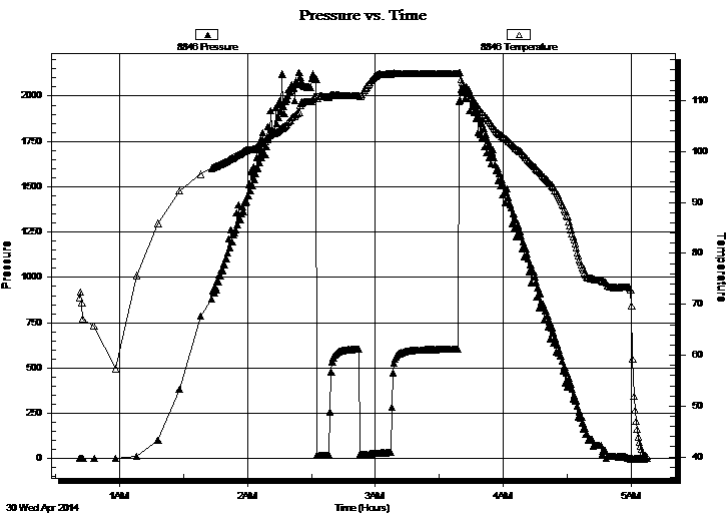
Test Start: 2014.04.30 @ 00:41:15

GENERAL INFORMATION:

Formation: K			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Reset)	
Time Tool Opened: 02:32:30		Tester: Mike Roberts	
Time Test Ended: 05:07:30		Unit No: 65	
Interval: 4229.00 ft (KB) To 4243.00 ft (KB) (TVD)		Reference Elevations: 2722.00 ft (KB)	
Total Depth: 4243.00 ft (KB) (TVD)		2715.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 7.00 ft	

Serial #: 8846	Inside				
Press@RunDepth: psig @	4238.00 ft (KB)	Capacity:	8000.00 psig		
Start Date: 2014.04.30	End Date: 2014.04.30	Last Calib.:	2014.04.30		
Start Time: 00:41:15	End Time: 05:07:30	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: IF: Built to 1/8" blow
IS: No return blow
FF: Built to weak surface blow
FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mud with a slight show of oil	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56442

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 00:41:15

Tool Information

Drill Pipe:	Length: 4108.00 ft	Diameter: 3.80 inches	Volume: 57.62 bbl	Tool Weight: 1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.22 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	4229.00 ft			Final 48000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4202.00	
Shut In Tool	5.00			4207.00	
Hydraulic tool	5.00			4212.00	
Jars	5.00			4217.00	
Safety Joint	3.00			4220.00	
Packer	5.00			4225.00	28.00 Bottom Of Top Packer
Packer	4.00			4229.00	
Stubb	1.00			4230.00	
Perforations	8.00			4238.00	
Recorder	0.00	8846	Inside	4238.00	
Recorder	0.00	8737	Outside	4238.00	
Bullnose	5.00			4243.00	14.00 Bottom Packers & Anchor

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56442

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 00:41:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 86.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.94 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	mud w ith a slight show of oil	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

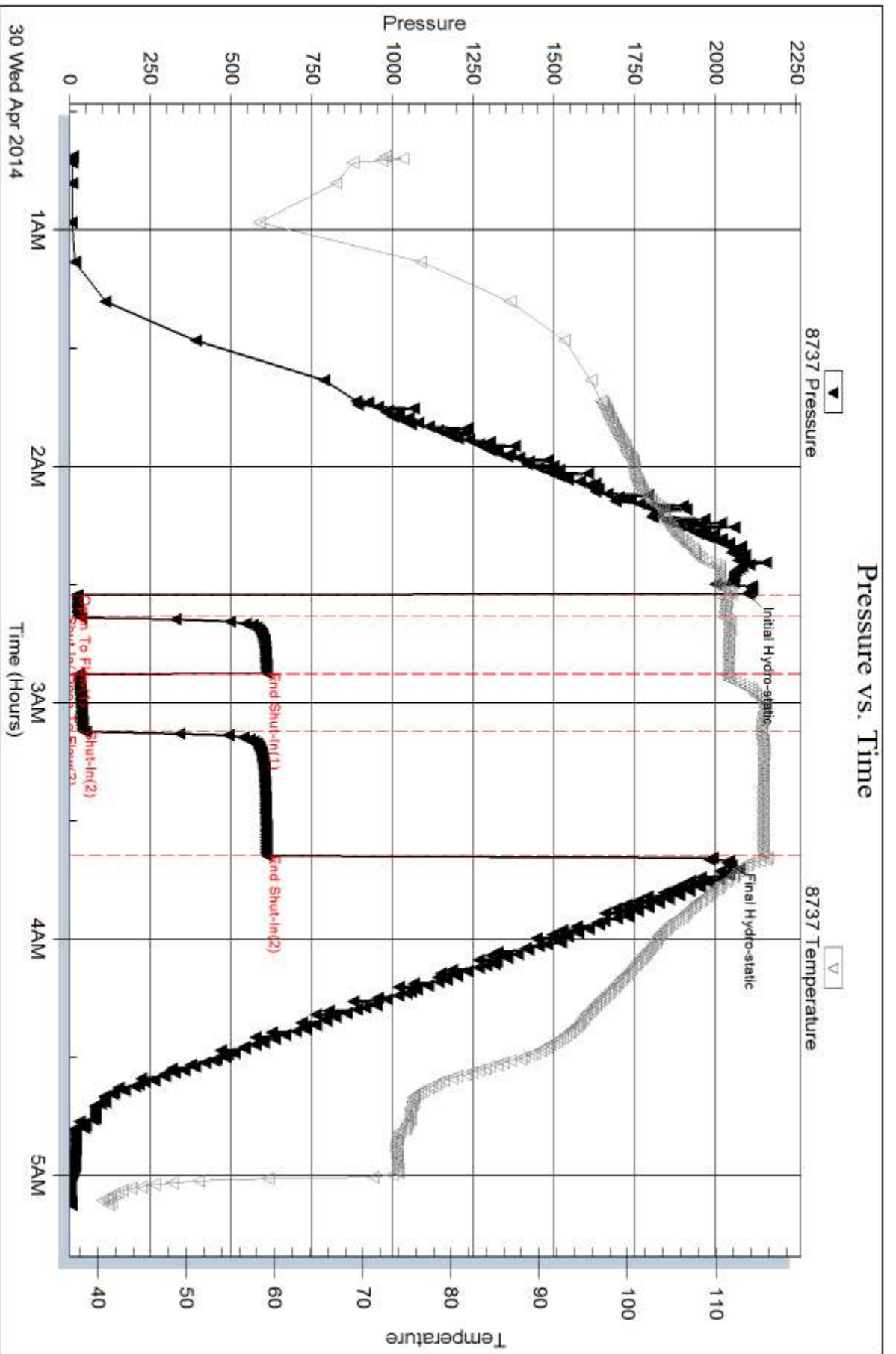
Num Gas Bombs: 0

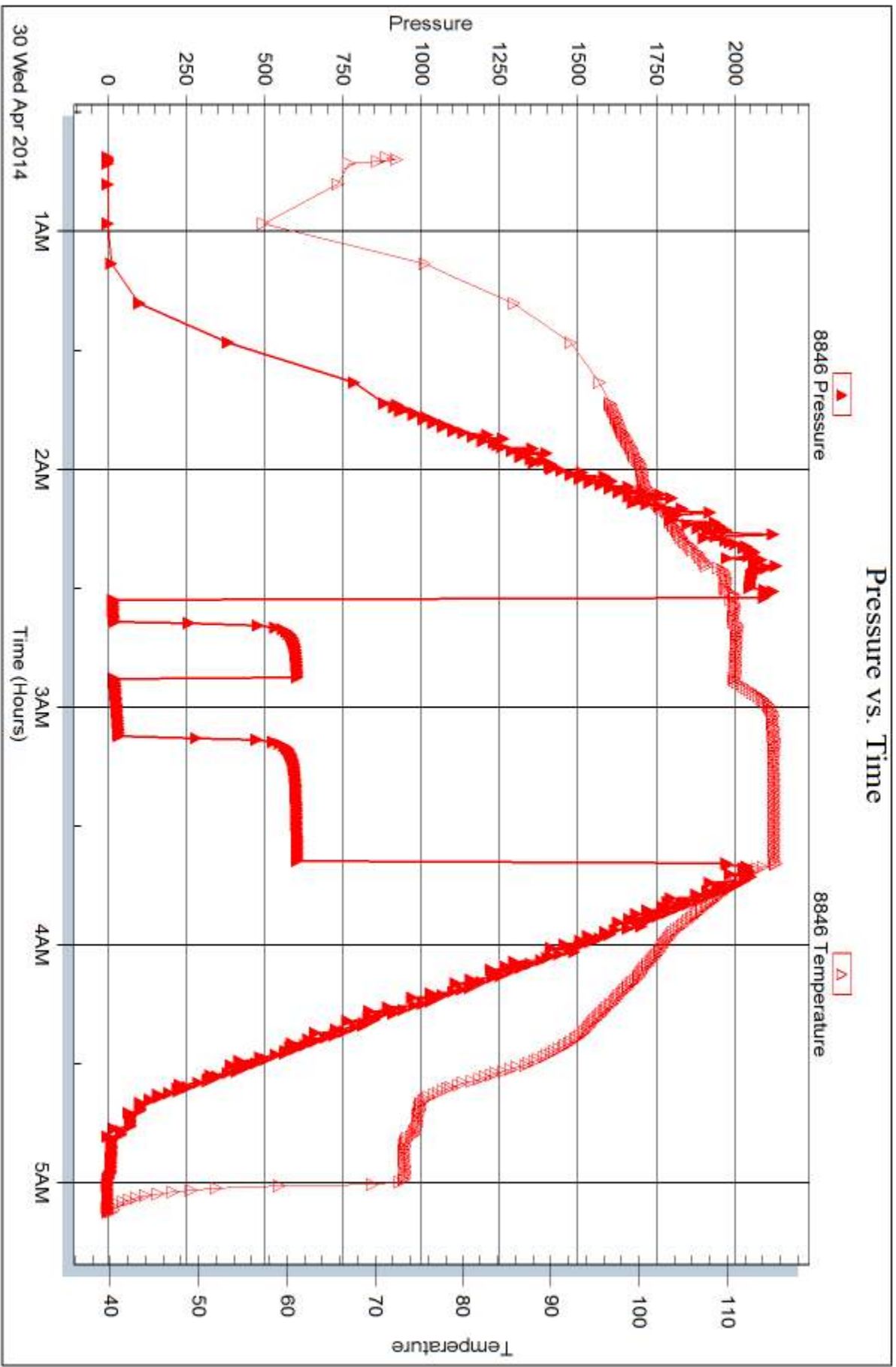
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.04.30 @ 15:30:15

End Date: 2014.04.30 @ 20:13:15

Job Ticket #: 56443 DST #: 4

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

Printed: 2014.05.05 @ 10:24:16

Larson Engineering
28-18s-28w
Hineman Unit 1 28
DST # 4
L
2014.04.30



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56443

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 15:30:15

GENERAL INFORMATION:

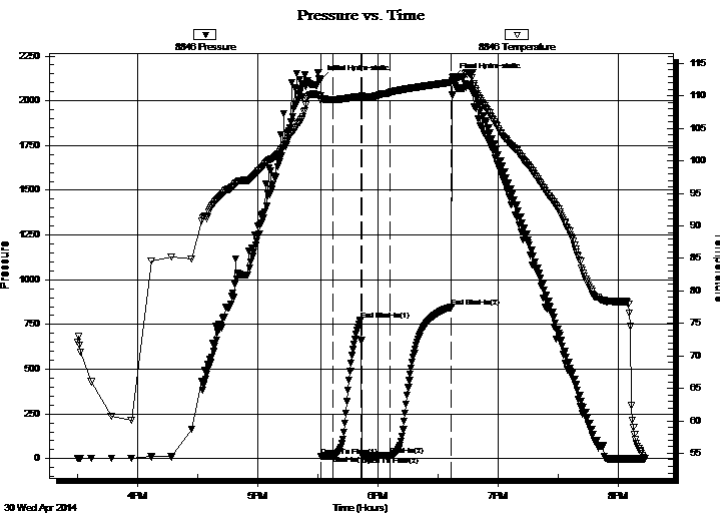
Formation: **L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 17:31:45
 Time Test Ended: 20:13:15
 Interval: **4263.00 ft (KB) To 4280.00 ft (KB) (TVD)**
 Total Depth: 4263.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: 16.41 psig @ 4275.00 ft (KB)
 Start Date: 2014.04.30 End Date: 2014.04.30
 Start Time: 15:30:15 End Time: 20:13:15
 Capacity: 8000.00 psig
 Last Calib.: 2014.04.30
 Time On Btm: 2014.04.30 @ 17:31:30
 Time Off Btm: 2014.04.30 @ 18:37:30

TEST COMMENT: IF:No blow
 IS:No return blow
 FF:Weak surface blow that died in 4 min.
 FS:No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2118.93	109.99	Initial Hydro-static
1	14.15	109.25	Open To Flow (1)
6	16.47	109.44	Shut-In(1)
20	775.57	109.92	End Shut-In(1)
21	16.11	109.81	Open To Flow (2)
35	16.41	110.50	Shut-In(2)
66	847.42	112.09	End Shut-In(2)
66	2128.89	112.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100%m	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56443

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 15:30:15

GENERAL INFORMATION:

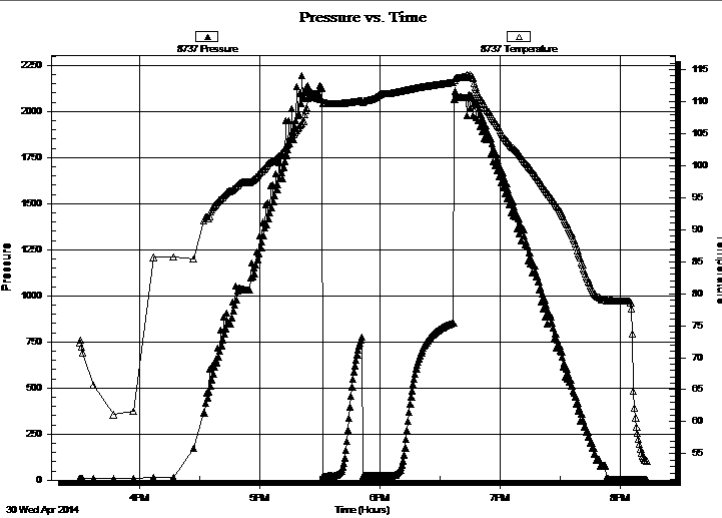
Formation: **L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 17:31:45
 Time Test Ended: 20:13:15
Interval: 4263.00 ft (KB) To 4280.00 ft (KB) (TVD)
 Total Depth: 4263.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8737

Outside

Press@RunDepth: psig @ 4275.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.04.30 End Date: 2014.04.30 Last Calib.: 2014.04.30
 Start Time: 15:30:15 End Time: 20:13:15 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:No blow
 IS:No return blow
 FF:Weak surface blow that died in 4 min.
 FS:No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100%m	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56443

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 15:30:15

Tool Information

Drill Pipe:	Length: 4140.00 ft	Diameter: 3.80 inches	Volume: 58.07 bbl	Tool Weight:	1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 58.67 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	58000.00 lb
Depth to Top Packer:	4263.00 ft			Final	58000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	17.00 ft				
Tool Length:	45.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4236.00	
Shut In Tool	5.00			4241.00	
Hydraulic tool	5.00			4246.00	
Jars	5.00			4251.00	
Safety Joint	3.00			4254.00	
Packer	5.00			4259.00	28.00 Bottom Of Top Packer
Packer	4.00			4263.00	
Stubb	1.00			4264.00	
Perforations	11.00			4275.00	
Recorder	0.00	8846	Inside	4275.00	
Recorder	0.00	8737	Outside	4275.00	
Bullnose	5.00			4280.00	17.00 Bottom Packers & Anchor

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56443

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.04.30 @ 15:30:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.14 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	mud 100%m	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

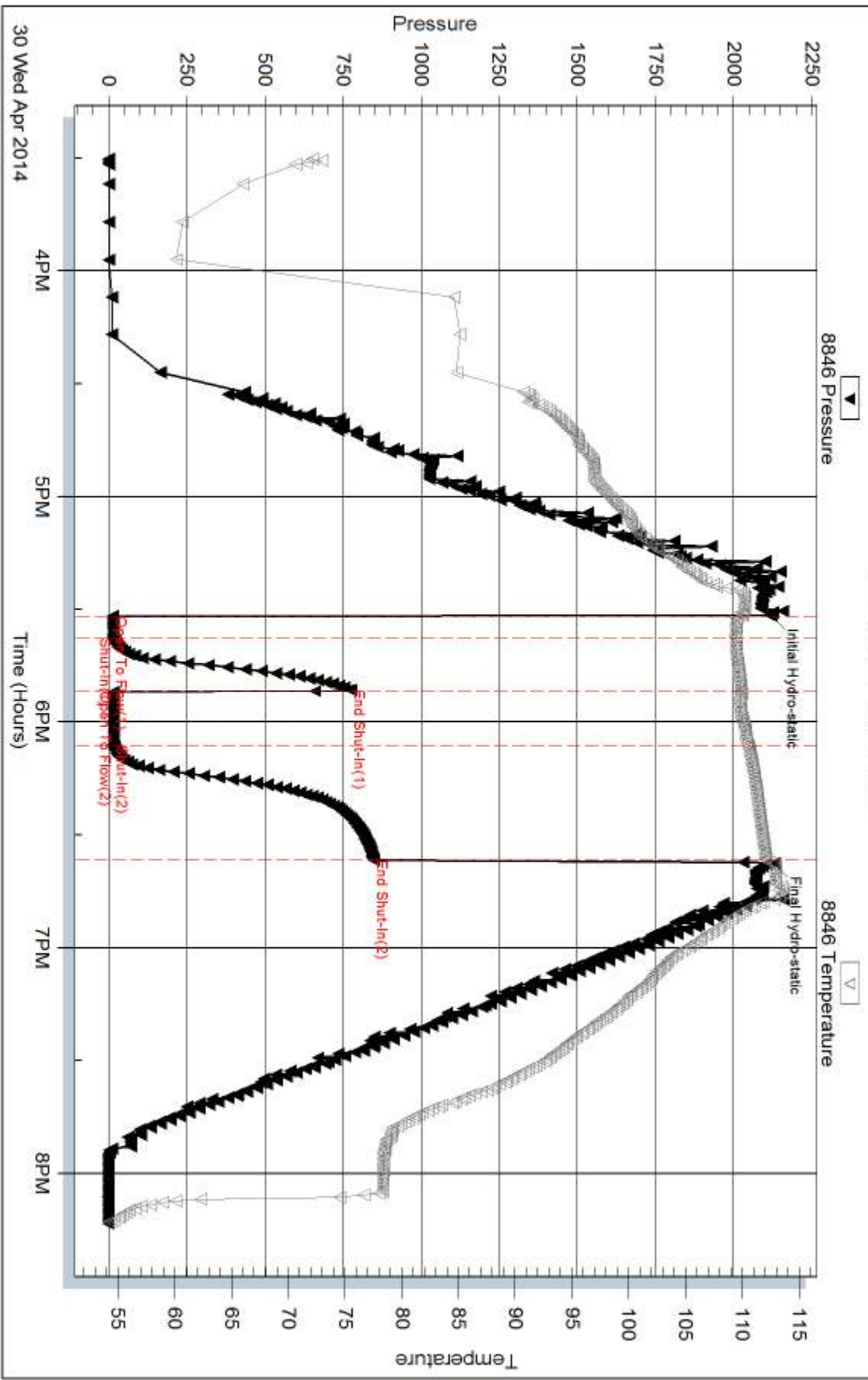
Serial #:

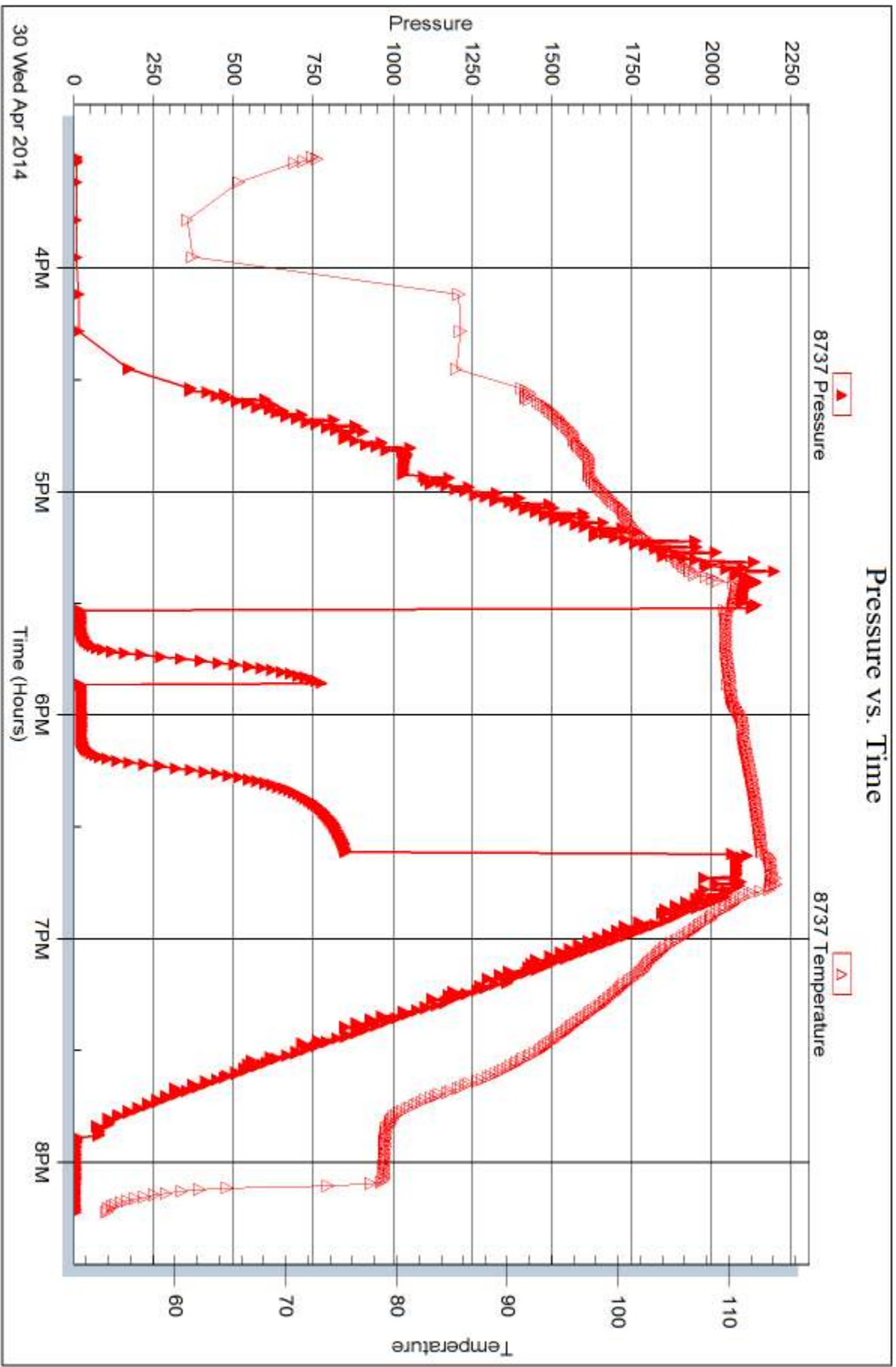
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.05.01 @ 03:05:15

End Date: 2014.05.01 @ 08:34:45

Job Ticket #: 56444 DST #: 5

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

Printed: 2014.05.05 @ 10:23:53



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56444

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.05.01 @ 03:05:15

GENERAL INFORMATION:

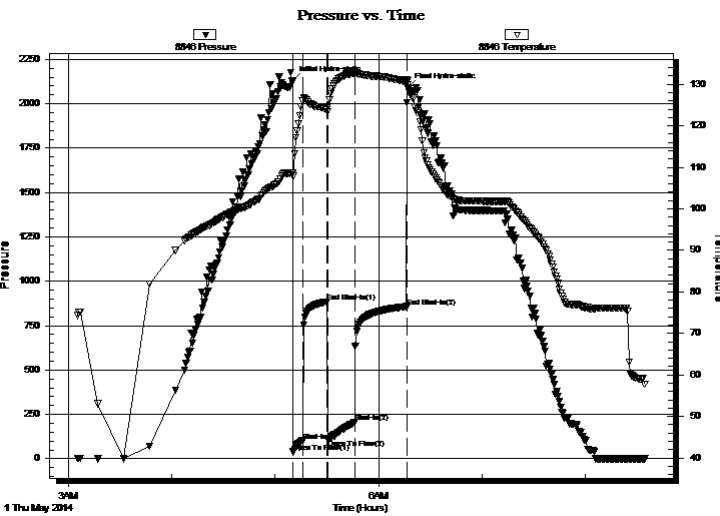
Formation: **L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:10:30
 Time Test Ended: 08:34:45
 Interval: **4271.00 ft (KB) To 4285.00 ft (KB) (TVD)**
 Total Depth: 4285.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: 206.10 psig @ 4280.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.05.01 End Date: 2014.05.01 Last Calib.: 2014.05.01
 Start Time: 03:05:15 End Time: 08:34:45 Time On Btm: 2014.05.01 @ 05:10:15
 Time Off Btm: 2014.05.01 @ 06:17:00

TEST COMMENT: IF:BOB in 5 min.
 IS:Return blow built to weak surface blow
 FF:BOB in 5 min.
 FS:Return blow built to 1/8" blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2128.03	108.59	Initial Hydro-static
1	38.27	107.86	Open To Flow (1)
6	100.75	125.95	Shut-In(1)
20	884.30	123.85	End Shut-In(1)
20	109.63	123.44	Open To Flow (2)
36	206.10	132.70	Shut-In(2)
66	857.04	130.53	End Shut-In(2)
67	2090.89	130.84	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
247.00	gcomw 2%g 3%o 20%m 75%w (123 FT)(2.34 s)	
124.00	gcw om 5%g 10%o 10%w 75%m	1.74
32.00	gcw om 5%g 15%w 30%o 50%m	0.45
30.00	Free oil 100% o	0.42
0.00	GIP= 62 ft	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

ATTN: Vern Schrag

Job Ticket: 56444

DST#: 5

Test Start: 2014.05.01 @ 03:05:15

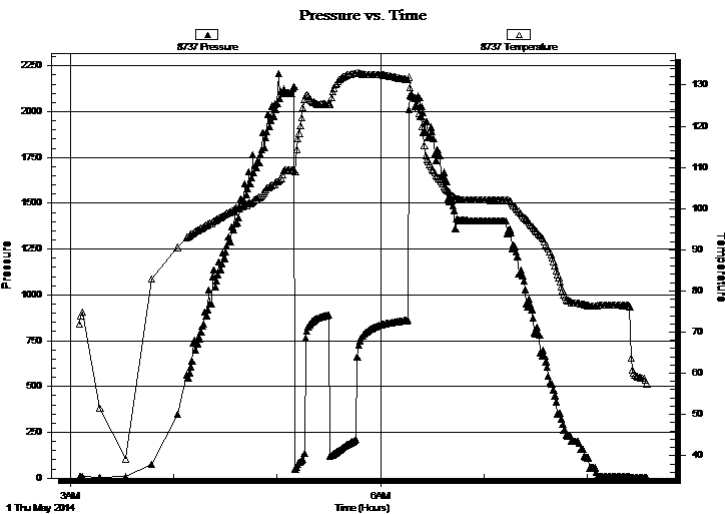
GENERAL INFORMATION:

Formation: **L**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:10:30
 Time Test Ended: 08:34:45
Interval: 4271.00 ft (KB) To 4285.00 ft (KB) (TVD)
 Total Depth: 4285.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2722.00 ft (KB)
 2715.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4280.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.05.01 End Date: 2014.05.01 Last Calib.: 2014.05.01
 Start Time: 03:05:15 End Time: 08:34:45 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:BOB in 5 min.
 IS:Return blow built to weak surface blow
 FF:BOB in 5 min.
 FS:Return blow built to 1/8" blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
247.00	gcomw 2%g 3%o 20%m 75%w (123 FT(2.34 s)	
124.00	gcw om 5%g 10%o 10%w 75%m	1.74
32.00	gcw om 5%g 15%w 30%o 50%m	0.45
30.00	Free oil 100% o	0.42
0.00	GIP= 62 ft	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56444

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.05.01 @ 03:05:15

Tool Information

Drill Pipe:	Length: 4140.00 ft	Diameter: 3.80 inches	Volume: 58.07 bbl	Tool Weight:	1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 58.67 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	4271.00 ft			Final	54000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	14.00 ft				
Tool Length:	42.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4244.00	
Shut In Tool	5.00			4249.00	
Hydraulic tool	5.00			4254.00	
Jars	5.00			4259.00	
Safety Joint	3.00			4262.00	
Packer	5.00			4267.00	28.00 Bottom Of Top Packer
Packer	4.00			4271.00	
Stubb	1.00			4272.00	
Perforations	8.00			4280.00	
Recorder	0.00	8846	Inside	4280.00	
Recorder	0.00	8737	Outside	4280.00	
Bullnose	5.00			4285.00	14.00 Bottom Packers & Anchor

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56444

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.05.01 @ 03:05:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

30 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

31000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.15 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
247.00	gcomw 2%g 3%o 20%m 75%w (123 FTColla	2.344
124.00	gcw om 5%g 10%o 10%w 75%m	1.739
32.00	gcw om 5%g 15%w 30%o 50%m	0.449
30.00	Free oil 100% o	0.421
0.00	GIP= 62 ft	0.000

Total Length: 433.00 ft Total Volume: 4.953 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

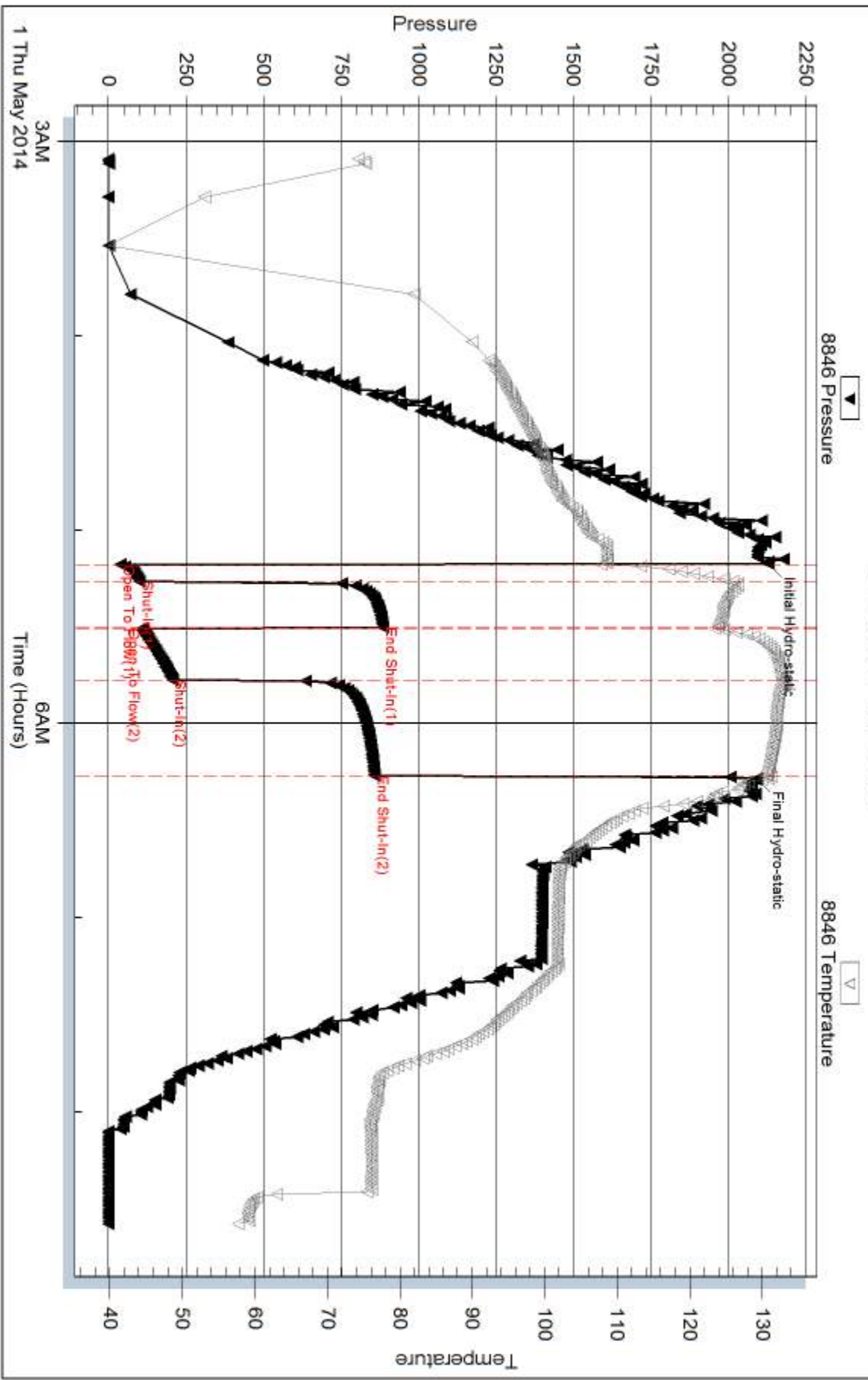
Laboratory Name:

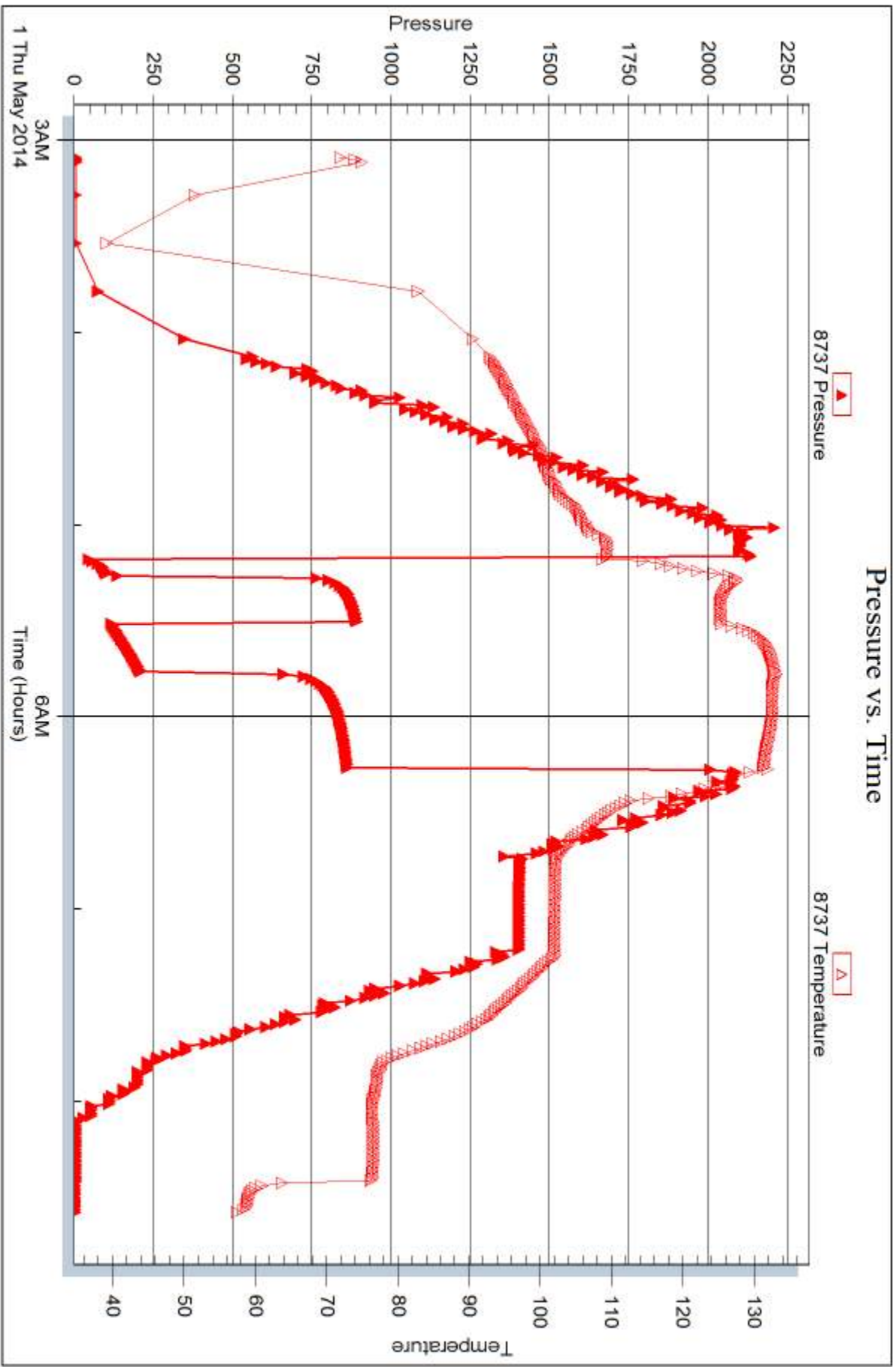
Laboratory Location:

Recovery Comments: API 31 @ 70 corrected to 30@ 60

RW= .334@ 50.2* = 31,000 ppm

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.05.02 @ 02:03:00

End Date: 2014.05.02 @ 07:47:30

Job Ticket #: 56445 DST #: 6

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

Printed: 2014.05.05 @ 10:18:35



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56445

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 02:03:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:56:00

Time Test Ended: 07:47:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4322.00 ft (KB) To 4413.00 ft (KB) (TVD)

Reference Elevations: 2722.00 ft (KB)

Total Depth: 4413.00 ft (KB) (TVD)

2715.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: 67.21 psig @ 4325.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.02

End Date:

2014.05.02

Last Calib.: 2014.05.05

Start Time: 02:03:15

End Time:

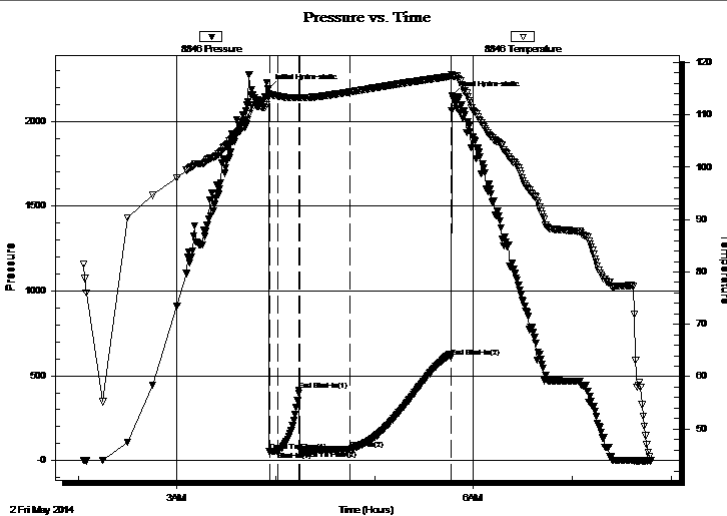
07:47:30

Time On Btm: 2014.05.02 @ 03:55:45

Time Off Btm: 2014.05.02 @ 05:47:00

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: Built to 3" blow
FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2193.13	113.99	Initial Hydro-static
1	52.33	113.61	Open To Flow (1)
6	56.14	113.60	Shut-In(1)
19	413.82	113.33	End Shut-In(1)
19	63.07	113.24	Open To Flow (2)
50	67.21	114.38	Shut-In(2)
111	608.28	117.36	End Shut-In(2)
112	2148.95	117.51	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mco 20% m 80% o	0.15

Gas Rates

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

* Recovery from multiple tests



DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56445 DST#: 6

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 02:03:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:56:00

Time Test Ended: 07:47:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: **4322.00 ft (KB) To 4413.00 ft (KB) (TVD)**

Reference Elevations: 2722.00 ft (KB)

Total Depth: 4413.00 ft (KB) (TVD)

2715.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: **8737** Outside

Press@RunDepth: psig @ 4325.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.02 End Date: 2014.05.02

Last Calib.: 2014.05.02

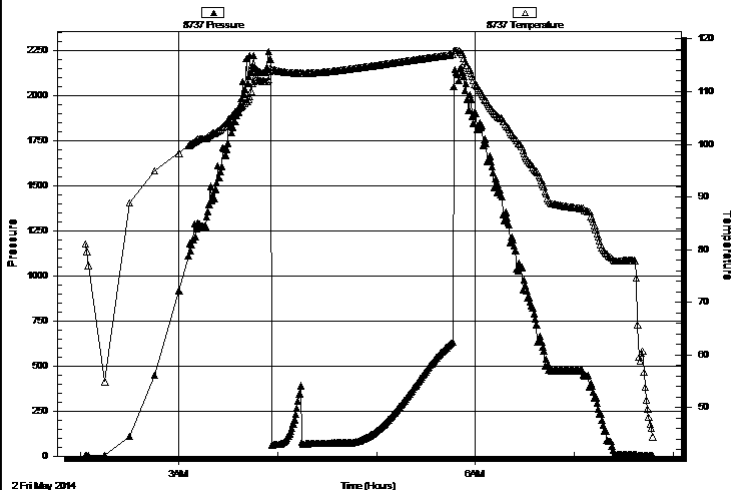
Start Time: 02:03:15 End Time: 07:47:30

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: Built to 3" blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mco 20% m 80% o	0.15

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56445

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 02:03:00

Tool Information

Drill Pipe:	Length: 4202.00 ft	Diameter: 3.80 inches	Volume: 58.94 bbl	Tool Weight: 1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	4322.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	91.00 ft			
Tool Length:	119.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4295.00	
Shut In Tool	5.00			4300.00	
Hydraulic tool	5.00			4305.00	
Jars	5.00			4310.00	
Safety Joint	3.00			4313.00	
Packer	5.00			4318.00	28.00 Bottom Of Top Packer
Packer	4.00			4322.00	
Stubb	1.00			4323.00	
Perforations	2.00			4325.00	
Recorder	0.00	8846	Inside	4325.00	
Recorder	0.00	8737	Outside	4325.00	
Change Over Sub	1.00			4326.00	
Blank Spacing	63.00			4389.00	
Change Over Sub	1.00			4390.00	
Perforations	18.00			4408.00	
Bullnose	5.00			4413.00	91.00 Bottom Packers & Anchor
Total Tool Length:	119.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56445

DST#: 6

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 02:03:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	mco 20%m 80%o	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

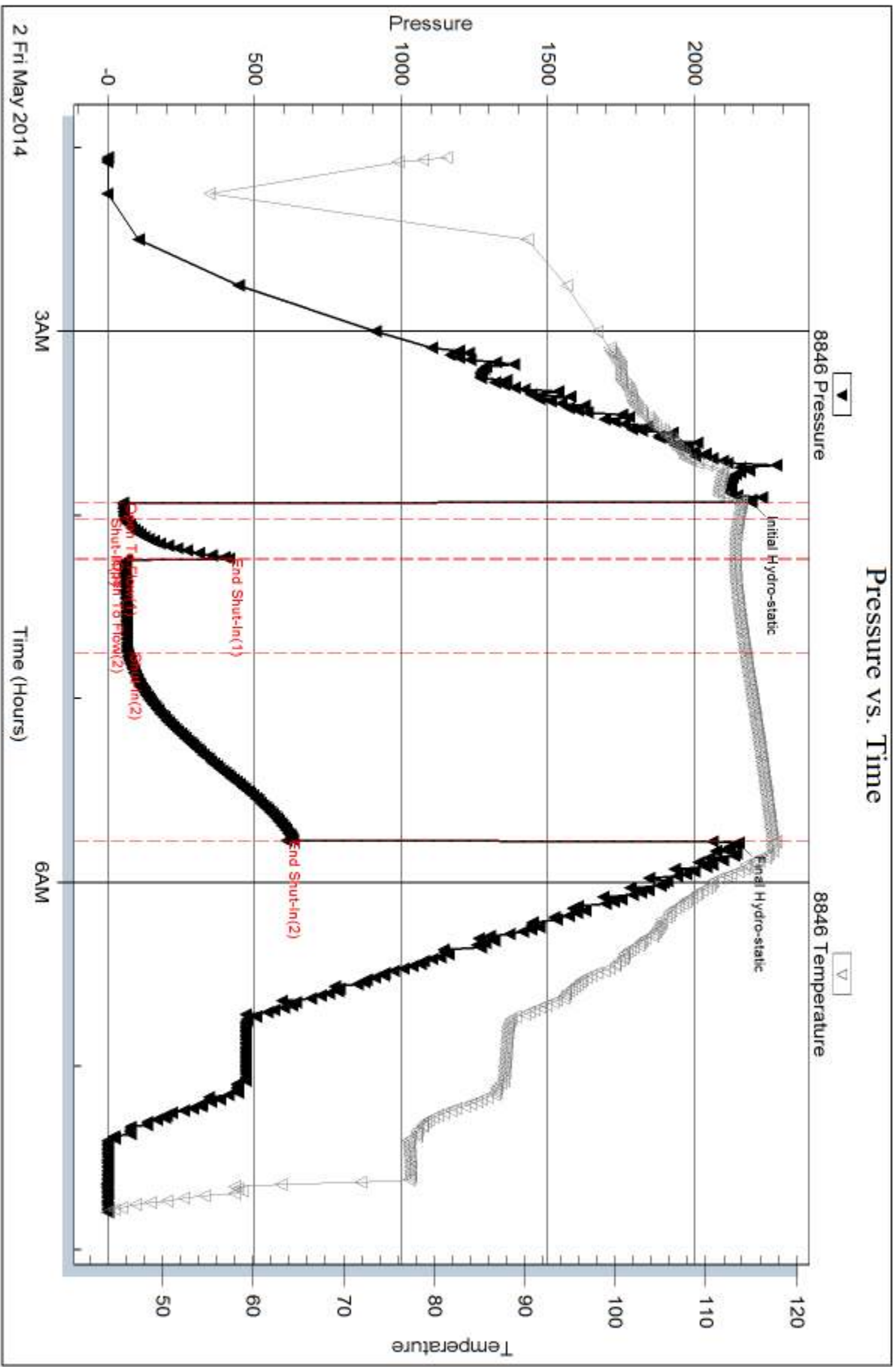
Num Gas Bombs: 0

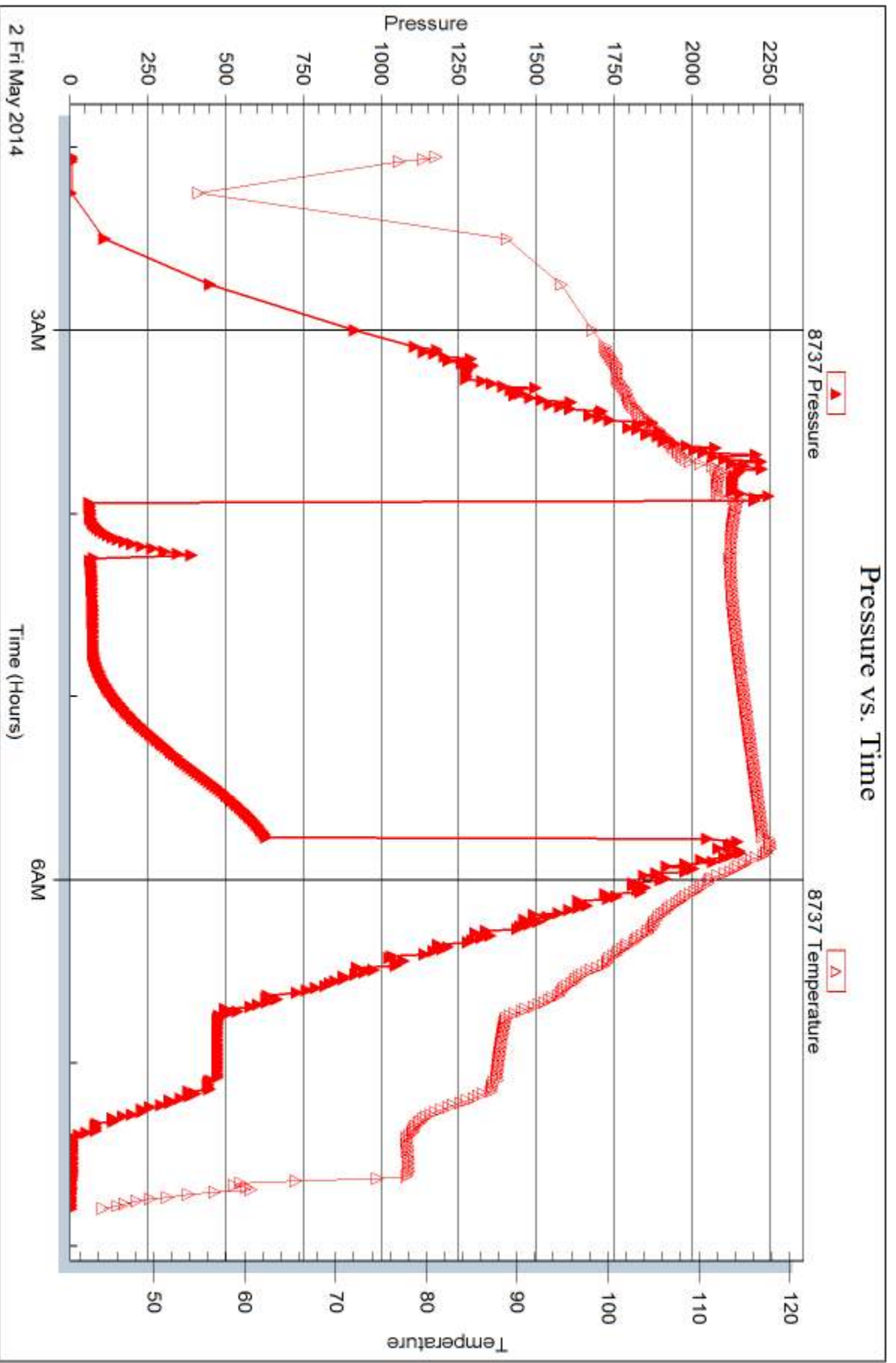
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.05.02 @ 19:54:15

End Date: 2014.05.03 @ 00:02:15

Job Ticket #: 56446 DST #: 7

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

Printed: 2014.05.05 @ 10:18:06



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56446

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 19:54:15

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 00:02:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4419.00 ft (KB) To 4500.00 ft (KB) (TVD)

Reference Elevations: 2722.00 ft (KB)

Total Depth: 4500.00 ft (KB) (TVD)

2715.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8846

Inside

Press@RunDepth: psig @ 4422.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.02

End Date:

2014.05.03

Last Calib.:

2014.05.03

Start Time: 19:54:15

End Time:

00:02:15

Time On Btm:

2014.05.02 @ 21:44:45

Time Off Btm:

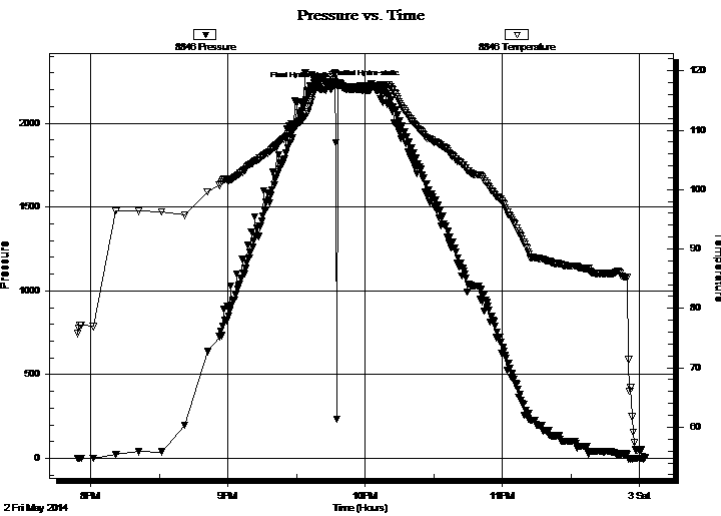
2014.05.02 @ 21:48:15

TEST COMMENT: IF:PACKER FAILURE

IS:

FF:

FS:



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2230.49	117.87	Initial Hydro-static
4	2218.43	117.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
450.00	mud 100%m	5.19

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmits KS 67564

Hineman Unit 1 28

Job Ticket: 56446

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 19:54:15

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened:

Time Test Ended: 00:02:15

Interval: 4419.00 ft (KB) To 4500.00 ft (KB) (TVD)

Total Depth: 4500.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Reference Elevations: 2722.00 ft (KB)

2715.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4422.00 ft (KB)

Start Date: 2014.05.02

End Date:

2014.05.03

Start Time: 19:54:15

End Time:

00:02:00

Capacity: 8000.00 psig

Last Calib.: 2014.05.03

Time On Btm:

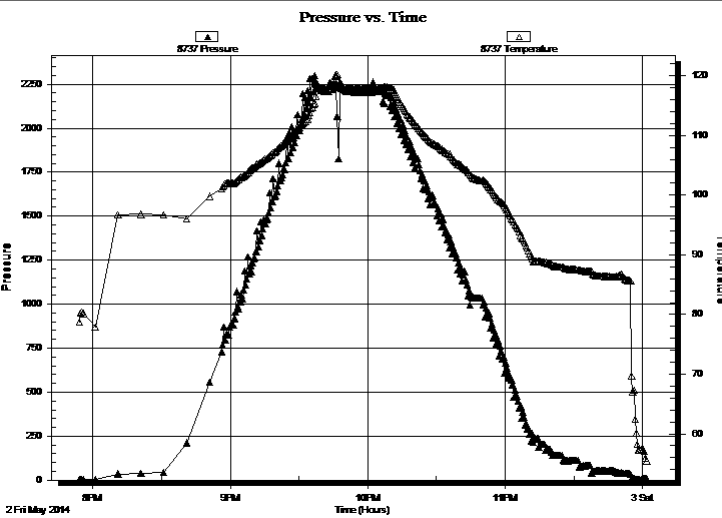
Time Off Btm:

TEST COMMENT: IF:PACKER FAILURE

IS:

FF:

FS:



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
450.00	mud 100%m	5.19

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56446

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 19:54:15

Tool Information

Drill Pipe:	Length: 4300.00 ft	Diameter: 3.80 inches	Volume: 60.32 bbl	Tool Weight: 1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.92 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4419.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	81.00 ft			
Tool Length:	109.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4392.00	
Shut In Tool	5.00			4397.00	
Hydraulic tool	5.00			4402.00	
Jars	5.00			4407.00	
Safety Joint	3.00			4410.00	
Packer	5.00			4415.00	28.00 Bottom Of Top Packer
Packer	4.00			4419.00	
Stubb	1.00			4420.00	
Perforations	2.00			4422.00	
Recorder	0.00	8846	Inside	4422.00	
Recorder	0.00	8737	Outside	4422.00	
Change Over Sub	1.00			4423.00	
Blank Spacing	63.00			4486.00	
Change Over Sub	1.00			4487.00	
Perforations	8.00			4495.00	
Bullnose	5.00			4500.00	81.00 Bottom Packers & Anchor
Total Tool Length:	109.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56446

DST#: 7

ATTN: Vern Schrag

Test Start: 2014.05.02 @ 19:54:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.11 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
450.00	mud 100%m	5.192

Total Length: 450.00 ft Total Volume: 5.192 bbl

Num Fluid Samples: 0

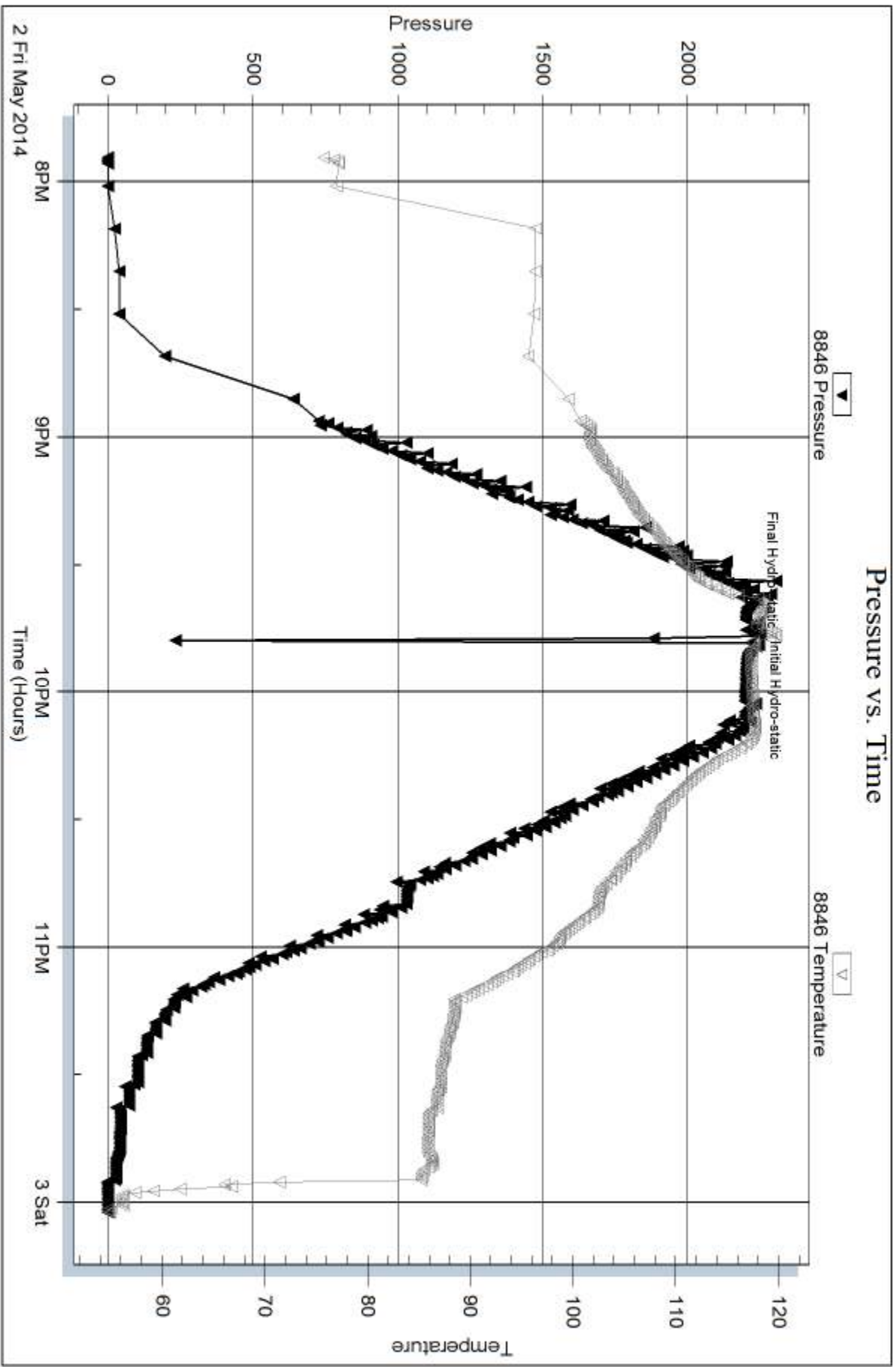
Num Gas Bombs: 0

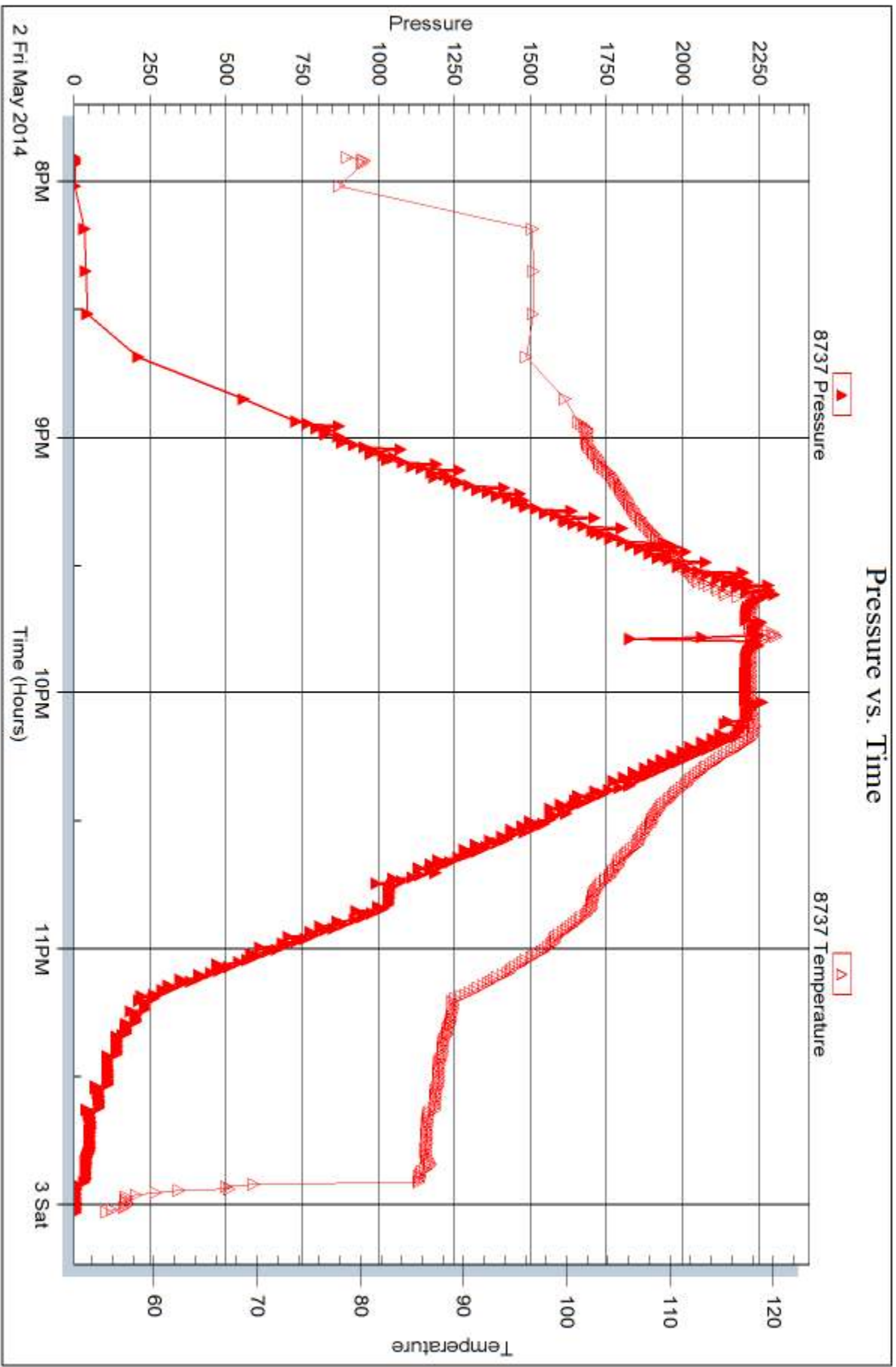
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W. State Rd.
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Unit 1 28

28-18s-28w

Start Date: 2014.05.03 @ 10:02:15

End Date: 2014.05.03 @ 14:25:00

Job Ticket #: 56447 DST #: 8

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

Printed: 2014.05.05 @ 09:55:47



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56447

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.05.03 @ 10:02:15

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:45:45

Time Test Ended: 14:25:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4469.00 ft (KB) To 4555.00 ft (KB) (TVD)

Reference Elevations: 2722.00 ft (KB)

Total Depth: 4555.00 ft (KB) (TVD)

2715.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 8846 Inside

Press@RunDepth: 55.24 psig @ 4475.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.03

End Date:

2014.05.03

Last Calib.: 2014.05.03

Start Time: 10:02:15

End Time:

14:25:00

Time On Btm: 2014.05.03 @ 11:45:30

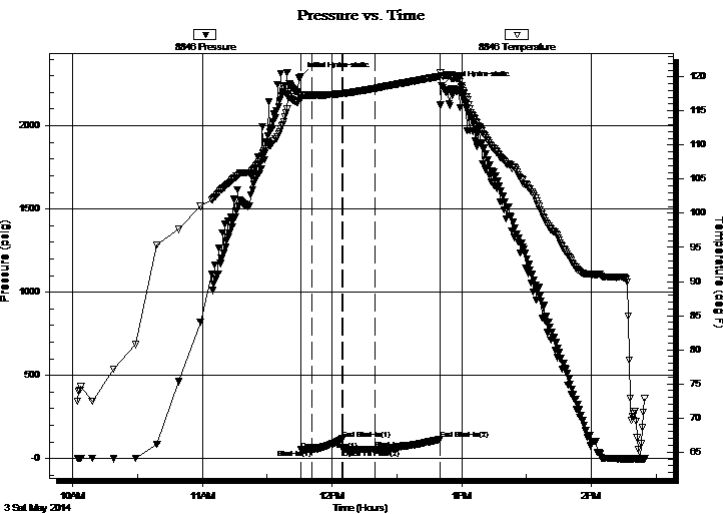
Time Off Btm: 2014.05.03 @ 12:50:45

TEST COMMENT: IF: Built to weak surface blow

IS: No return blow

FF: No blow

FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2293.60	117.37	Initial Hydro-static
1	53.26	116.86	Open To Flow (1)
5	53.59	117.31	Shut-In(1)
20	119.23	117.57	End Shut-In(1)
20	54.55	117.57	Open To Flow (2)
35	55.24	118.32	Shut-In(2)
65	115.94	120.08	End Shut-In(2)
66	2239.60	120.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering
562 W. State Rd.
Olmitz KS 67564
ATTN: Vern Schrag

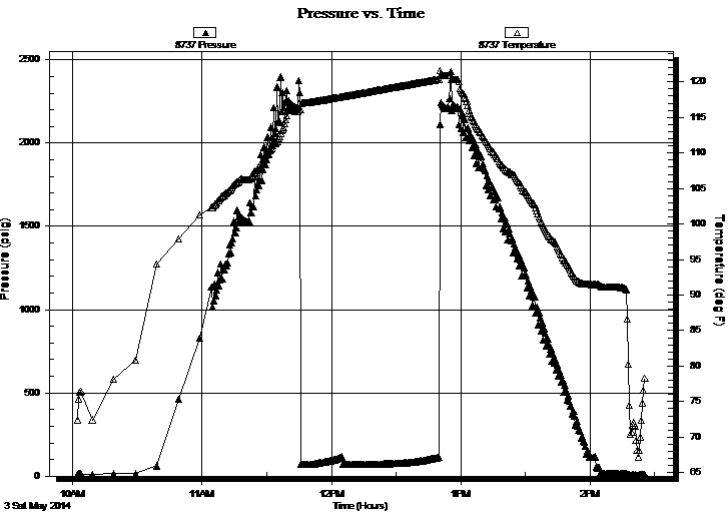
28-18s-28w
Hineman Unit 1 28
Job Ticket: 56447 **DST#: 8**
Test Start: 2014.05.03 @ 10:02:15

GENERAL INFORMATION:

Formation: **Cherokee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 11:45:45
Time Test Ended: 14:25:00
Interval: 4469.00 ft (KB) To 4555.00 ft (KB) (TVD)
Total Depth: 4555.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65
Reference Elevations: 2722.00 ft (KB)
2715.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8737 Outside
Press@RunDepth: psig @ 4475.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.05.03 End Date: 2014.05.03 Last Calib.: 2014.05.03
Start Time: 10:02:15 End Time: 14:25:15 Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Built to weak surface blow
IS: No return blow
FF: No blow
FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56447

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.05.03 @ 10:02:15

Tool Information

Drill Pipe:	Length: 4331.00 ft	Diameter: 3.80 inches	Volume: 60.75 bbl	Tool Weight: 1500.00 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: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 61.35 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4469.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	86.00 ft			
Tool Length:	110.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4446.00	
Shut In Tool	5.00			4451.00	
Hydraulic tool	5.00			4456.00	
Jars	5.00			4461.00	
Safety Joint	3.00			4464.00	
Packer	5.00			4469.00	24.00 Bottom Of Top Packer
Packer - Shale	0.00			4469.00	
Stubb	1.00			4470.00	
Perforations	5.00			4475.00	
Recorder	0.00	8846	Inside	4475.00	
Recorder	0.00	8737	Outside	4475.00	
Change Over Sub	1.00			4476.00	
Blank Spacing	63.00			4539.00	
Change Over Sub	1.00			4540.00	
Perforations	10.00			4550.00	
Bullnose	5.00			4555.00	86.00 Anchor Tool
Total Tool Length:	110.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

28-18s-28w

562 W. State Rd.
Olmitz KS 67564

Hineman Unit 1 28

Job Ticket: 56447

DST#: 8

ATTN: Vern Schrag

Test Start: 2014.05.03 @ 10:02:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.38 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100% m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

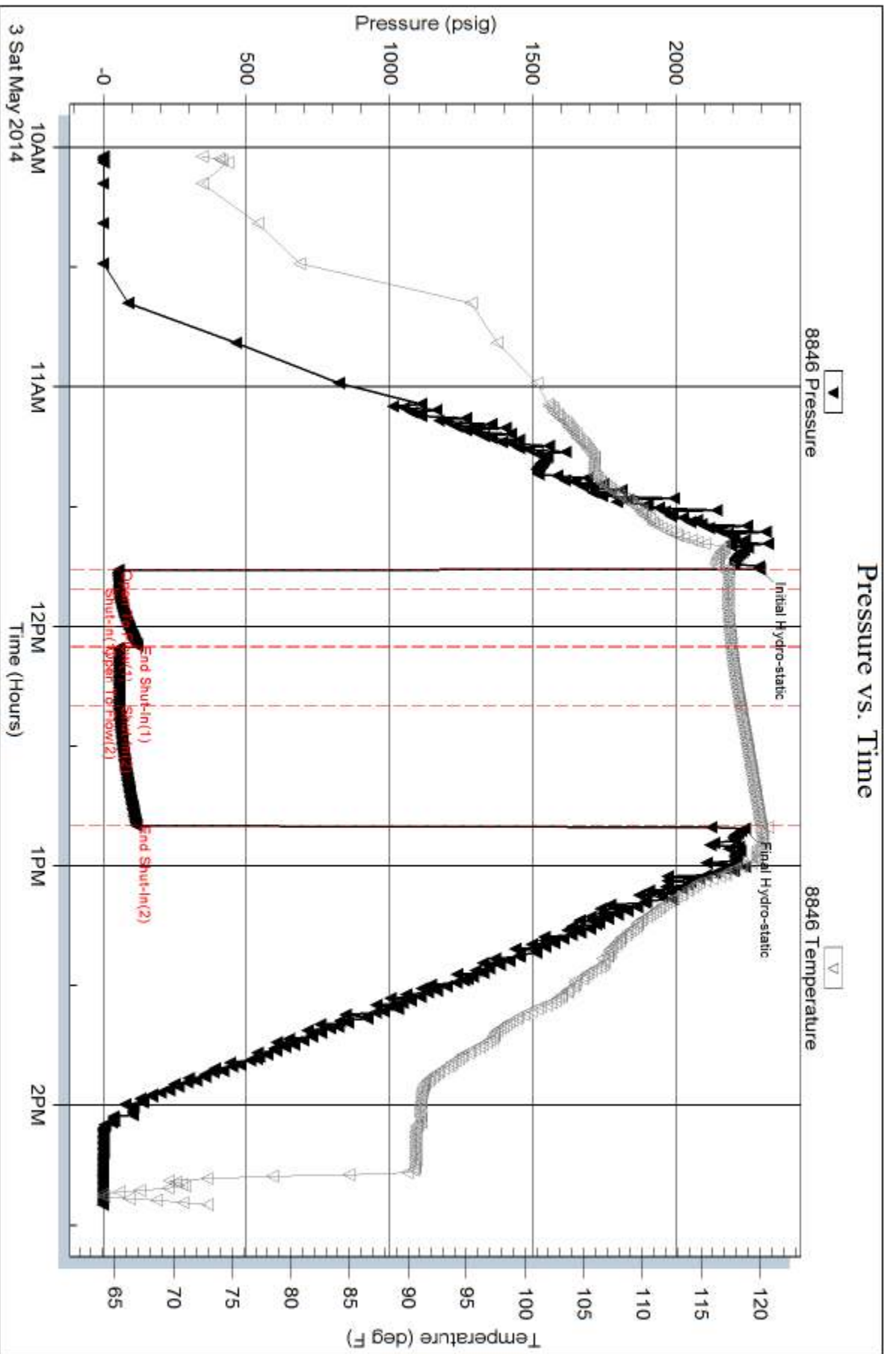
Num Gas Bombs: 0

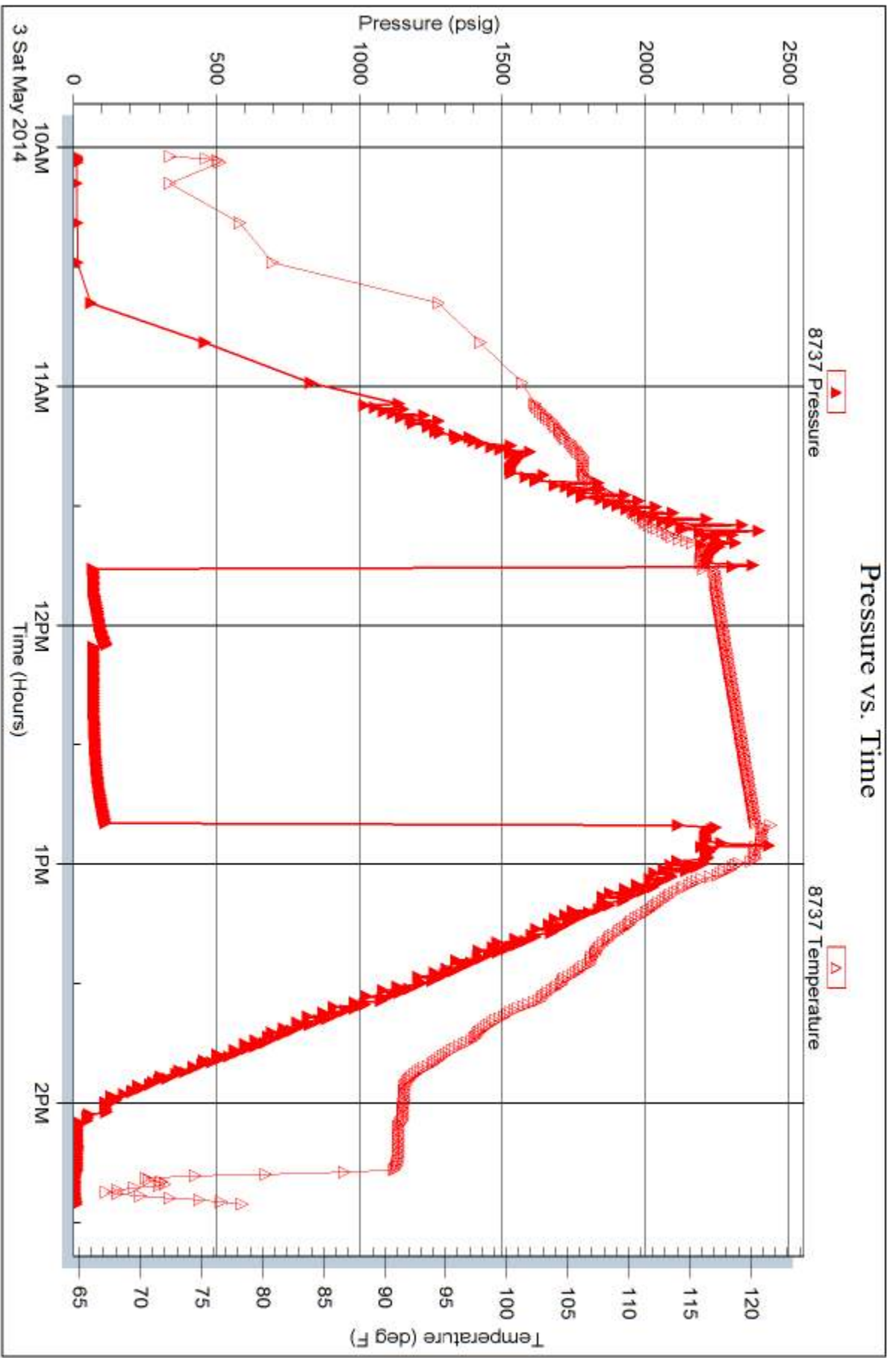
Serial #:

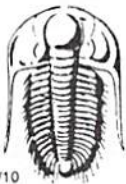
Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56440

4/10

Well Name & No. Hiveman Unit 1-28 Test No. 1 Date 4-28-14
 Company Larson Engineering, Inc. Elevation 2722 KB 2715 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern ~~Schrag~~ Schrag Rig HD#3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. LANE State KS

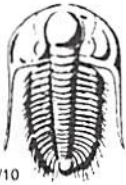
Interval Tested 4127-4150 Zone Tested H
 Anchor Length 23 Drill Pipe Run 3984 Mud Wt. 9.0
 Top Packer Depth 4122 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 4127 Wt. Pipe Run Ø WL 7.2
 Total Depth 4150 Chlorides 2300 ppm System LCM 1
 Blow Description IF: Hit Bridge 5 STDS off Bottom
IS:
FF:
FS:

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	Feet of	%gas	%oil	%water	%mud

Rec Total 2266 BHT 1855 Gravity 1050 API RW 250 @ 75 °F Chlorides 2300 ppm
 (A) Initial Hydrostatic 2266 Test 1050 T-On Location 17:30
 (B) First Initial Flow 1855 Jars 250 T-Started 18:18
 (C) First Final Flow Bridge Safety Joint 75 T-Open Bridge
 (D) Initial Shut-In NC Circ Sub NC T-Pulled 24:26
 (E) Second Initial Flow 86.80 Hourly Standby 86.80 T-Out 24:26
 (F) Second Final Flow 86.80 Mileage 56 RT 86.80
 (G) Final Shut-In 86.80 Sampler
 (H) Final Hydrostatic 1855 Straddle
 Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility
 Sub Total 1461.80
 Initial Open Bridge
 Initial Shut-In Bridge
 Final Flow Bridge
 Final Shut-In Bridge
 Sub Total 1461.80
 T-Started 18:18
 T-Open Bridge
 T-Pulled 24:26
 T-Out 24:26
 Comments Bridge
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1461.80
 MP/DST Disc't

Approved By Vern Schrag Our Representative Mike Rohlf

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56441

4/10

Well Name & No. Hiveman Unit #1-28 Test No. 2 Date 4-29-14
 Company Larson Engineering Inc. Elevation 2722 KB 2715 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. LANE State KS

Interval Tested 4127-4150 Zone Tested H
 Anchor Length 23 Drill Pipe Run 3984 Mud Wt. 9.0
 Top Packer Depth 4122 Drill Collars Run 123 Vis 60
 Bottom Packer Depth 4127 Wt. Pipe Run φ WL 7.2
 Total Depth 4150 Chlorides 2300 ppm System LCM 1

Blow Description IF: Built to Weak Surface Blow
IS: No Return Blow
FF: Weak Surface Blow & Died in 8 Min.
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>MUD</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

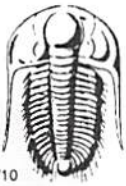
Rec Total 5 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2037</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>03:38</u>
(B) First Initial Flow <u>14</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>03:40</u>
(C) First Final Flow <u>17</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>05:35</u>
(D) Initial Shut-In <u>144</u>	<input checked="" type="checkbox"/> Circ Sub <u>NO</u>	T-Pulled <u>06:40</u>
(E) Second Initial Flow <u>17</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>09:09</u>
(F) Second Final Flow <u>20</u>	<input checked="" type="checkbox"/> Mileage <u>56RT</u> 86.80	Comments _____
(G) Final Shut-In <u>87</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2005</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1661.80</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1661.80</u>	

Approved By Vern Schrag Our Representative Mike Rohlf

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56442

Well Name & No. Hineman Unit #1-28 Test No. 3 Date 4-30-14
 Company Larson Engineering Inc. Elevation 2722 KB 2715 GL
 Address 562 W. State Rd 40 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. Lane State KS

Interval Tested 4229-4243 Zone Tested K
 Anchor Length ~~4224~~ 14 Drill Pipe Run 4108 Mud Wt. 9.0
 Top Packer Depth ~~4229~~ 4224 Drill Collars Run 123 Vis 86
 Bottom Packer Depth ~~4243~~ 4229 Wt. Pipe Run 0 WL 6.0
 Total Depth 4243 Chlorides 2300 ppm System LCM 2
 Blow Description IF: Built to 1/8" Blow
FS: No Return Blow
FF: Built to leak surface Blow
FS: No Return Blow

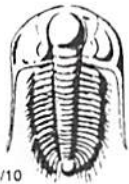
Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MUD with Slight show of oil</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total _____ BHT 115 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2099</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>12:25</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:41</u>
(C) First Final Flow <u>27</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:33</u>
(D) Initial Shut-In <u>608</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>03:38</u>
(E) Second Initial Flow <u>29</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>05:07</u>
(F) Second Final Flow <u>41</u>	<input checked="" type="checkbox"/> Mileage <u>56 RT</u> 86.80	Comments _____
(G) Final Shut-In <u>609</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2091</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1661.80</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1661.80</u>	

Approved By Vern Schrag Our Representative MT Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56443

Well Name & No. Hinemann Unit #1-28 Test No. 4 Date 4-30-14
 Company Larson Engineering Inc Elevation 2722 KB 2715 GL
 Address 562 W. State Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 28 Twp. 985 Rge. 28W Co. LANE State KS

Interval Tested 4263-4280 Zone Tested L
 Anchor Length 17' Drill Pipe Run 4140 Mud Wt. 9.1
 Top Packer Depth 4258 Drill Collars Run 123 Vis 58
 Bottom Packer Depth 4263 Wt. Pipe Run Ø WL 7.2
 Total Depth 4280 Chlorides 2600 ppm System LCM 1
 Blow Description IF: No Blow
FS: No Return Blow
FF: weak surface Blow that died in 4 Min.
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>MUD</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1 BHT 112 Gravity - API RW - @ - °F Chlorides ✓ ppm
 (A) Initial Hydrostatic 2118 Test 1250 T-On Location 15:00
 (B) First Initial Flow 14 Jars 250 T-Started 15:30
 (C) First Final Flow 16 Safety Joint 75 T-Open 17:31
 (D) Initial Shut-In 775 Circ Sub NU T-Pulled 18:35
 (E) Second Initial Flow 16 Hourly Standby _____ T-Out 20:13
 (F) Second Final Flow 16 Mileage 56 RT 86.80 Comments _____
 (G) Final Shut-In 847 Sampler _____
 (H) Final Hydrostatic 2128 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 5 Extra Recorder _____ Sub Total 0
 Initial Shut-In 15 Day Standby _____ Total 1661.80
 Final Flow 15 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 30 Sub Total 1661.80

Approved By Vern Schrag Our Representative Mike Roberts
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56444

Well Name & No. Hive man Unit #1-28 Test No. 5 Date 5-1-14
 Company Larson Engineering Inc Elevation 2722 KB 2715 GL
 Address 562 W St. Rd 40 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. LANE State KS

Interval Tested 4271-4285 Zone Tested L
 Anchor Length ~~4266~~ 14 Drill Pipe Run 4140 Mud Wt. 9.1
 Top Packer Depth 4266 Drill Collars Run 123 Vis 58
 Bottom Packer Depth 4271 Wt. Pipe Run Ø WL 7.2
 Total Depth 4285 Chlorides 2600 ppm System LCM 1

Blow Description IF: BOB in 5 Min.
IS: Return Blow Built to weak surface Blow
FF: BOB in 5 Min.
FS: Return Blow Built to 1/8" Blow

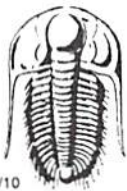
Rec	Feet of	%gas	%oil	%water	%mud
<u>0</u>	<u>62' GIP</u>				
<u>30</u>	<u>Free oil</u>		<u>100</u>		
<u>32</u>	<u>gc com</u>	<u>5</u>	<u>30</u>	<u>15</u>	<u>50</u>
<u>124</u>	<u>gc com</u>	<u>5</u>	<u>10</u>	<u>10</u>	<u>75</u>
<u>247</u>	<u>gc com w (123 collars)</u>	<u>2</u>	<u>3</u>	<u>75</u>	<u>20</u>
<u>433</u>	<u>BHT 130</u>	<u>Gravity 30</u>	<u>API RW 334 @ 50.2° F</u>	<u>Chlorides 31000</u>	<u>ppm</u>

(A) Initial Hydrostatic 2128 Test 1250 T-On Location 02:35
 (B) First Initial Flow 38 Jars 250 T-Started 03:05
 (C) First Final Flow 100 Safety Joint 75 T-Open 05:10
 (D) Initial Shut-In 884 Circ Sub NC T-Pulled 06:15
 (E) Second Initial Flow 109 Hourly Standby _____ T-Out 08:34
 (F) Second Final Flow 206 Mileage 56 RT 86.80 Comments _____
 (G) Final Shut-In 857 Sampler _____
 (H) Final Hydrostatic 2090 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1661.80
 Accessibility _____ MP/DST Disc't _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Sub Total 1661.80

Approved By James C. Selby Our Representative Mark Rohrbach

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56445

Well Name & No. Hixeman Unit #1-28 Test No. 6 Date 5-2-14
 Company Larson Engineering Inc Elevation 2722 KB 2715 GL
 Address 562 W. St. Rd 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. Lane State KS

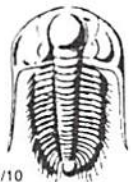
Interval Tested 4322-4413 Zone Tested Marmaton
 Anchor Length 91 Drill Pipe Run 4202 Mud Wt. 9.1
 Top Packer Depth 4317 Drill Collars Run 123 Vis FE 56
 Bottom Packer Depth 4322 Wt. Pipe Run 0 WL 7.2
 Total Depth 4413 Chlorides 2800 ppm System LCM 1
 Blow Description IF: Built to 1" Blow
IS: NO Return Blow
FF: Built to 3" Blow
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MC0</u>	<u>80</u>		<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30 BHT 118 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2193</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>01:45</u>
(B) First Initial Flow <u>52</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>02:03</u>
(C) First Final Flow <u>56</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>03:56</u>
(D) Initial Shut-In <u>413</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>05:46</u>
(E) Second Initial Flow <u>56</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>07:47</u>
(F) Second Final Flow <u>67</u>	<input checked="" type="checkbox"/> Mileage <u>56</u> <u>86.80</u>	Comments
(G) Final Shut-In <u>629</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2148</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>LED</u>	<input type="checkbox"/> Day Standby	Total <u>1661.80</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1661.80</u>	

Approved By Vern Schrag Our Representative Mike Rohrb
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56446

Well Name & No. Hineman Unit #1-28 Test No. 7 Date 5-2-14
 Company Larson Engineering Inc. Elevation 2722 KB 2715 GL
 Address 562 W. St. Rd 4 Omitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD #3
 Location: Sec. 28 Twp. 18s Rge. 28W Co. LANE State KS

Interval Tested 4419-4500 Zone Tested Pawnee
 Anchor Length 81 Drill Pipe Run 4300 Mud Wt. 9.1
 Top Packer Depth 4414 Drill Collars Run 123 Vis 63
 Bottom Packer Depth 4419 Wt. Pipe Run Ø WL 6.4
 Total Depth 4500 Chlorides 2800 ppm System LCM 2500 1

Blow Description IF:
IS:
FF: Packer failure
FS:

Rec	Feet of	%gas	%oil	%water	%mud
<u>450</u>	<u>MUD</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

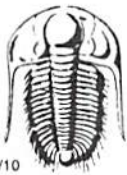
Rec Total 450 BHT 119 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2230 Test 1050 T-On Location 19:20
 (B) First Initial Flow / Jars 250 T-Started 19:54
 (C) First Final Flow / Safety Joint 75 T-Open 21:45
 (D) Initial Shut-In / Circ Sub NC T-Pulled _____
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 00:02
 (F) Second Final Flow _____ Mileage 56 RT 86.80 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic 2218 Straddle _____ Ruined Shale Packer _____

Initial Open _____ Shale Packer _____ Ruined Packer _____
 Initial Shut-In _____ Extra Packer _____ Extra Copies _____
 Final Flow _____ Extra Recorder _____ Sub Total 0
 Final Shut-In _____ Day Standby _____ Total 1461.80
 _____ Accessibility _____ MP/DST Disc't _____
 Sub Total 1461.80

Approved By _____ Our Representative M. Bobak

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56447

Well Name & No. Hiveman Unit #1-28 Test No. 8 Date 5-3-14
 Company Larson Engineering Inc Elevation 2722 KB 2715 GL
 Address 562 W. St. Rd. #4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 28 Twp. 18S Rge. 28W Co. LANE State KS

Interval Tested 4469-4555 Zone Tested Cherokee
 Anchor Length 86 Drill Pipe Run 4331 Mud Wt. 9.1
 Top Packer Depth 4464 Drill Collars Run 123 Vis 63
 Bottom Packer Depth 4469 Wt. Pipe Run Ø WL 6.4
 Total Depth 4555 Chlorides 2800 ppm System LCM 1
 Blow Description IF: Built to Weak Surface Blow
IS: No Return Blow
FF: No Blow
FS: No Return Blow

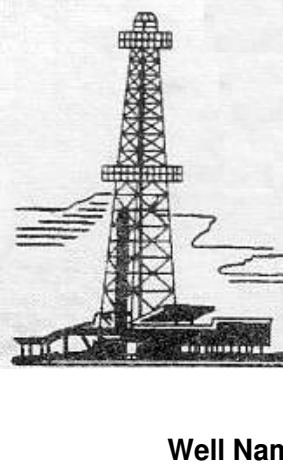
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>MUD</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 120 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>2293</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>09:10</u>
(B) First Initial Flow <u>53</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:02</u>
(C) First Final Flow <u>53</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:46</u>
(D) Initial Shut-In <u>119</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>12:51</u>
(E) Second Initial Flow <u>54</u>	<input type="checkbox"/> Hourly Standby	T-Out
(F) Second Final Flow <u>55</u>	<input checked="" type="checkbox"/> Mileage <u>56 RT</u> 86.80	Comments
(G) Final Shut-In <u>115</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2239</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer
Initial Open <u>5</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>15</u>	<input type="checkbox"/> Day Standby	Total <u>1911.80</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1911.80</u>	

Approved By Vern Schrag Our Representative Mike Roberts

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WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST



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

Well Name: HINEMAN UNIT #1-28
Location: SW NW SW NW 28-18S-28W
Licence Number: API: 15-101-22508
Spud Date: April 23, 2014
Surface Coordinates: 1975' FNL & 93' FWL

Region: Lane Co., KS
Drilling Completed: May 04, 2014

Bottom Hole Coordinates:
Ground Elevation (ft): 2715' K.B. Elevation (ft): 2722'
Logged Interval (ft): 3800' To: RTD Total Depth (ft): 4611'
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
Olmits, KS 67564-8561

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3 (Co. Tools)

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 545', Kelly 40.30', Tool Joint 5.5"; Bit: JZ-HA20-Q, 7-7/8", standard jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

CASING:

Set 8-5/8" casing at 264'
Set 4-1/2" production casing

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, earth pits, Morgan Mud, Inc., Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to surface casing; LogTech-Pioneer Wireline, Hays, KS, Chris Desaire, Log total depth (4608') was four feet short to rotary total depth (4611').

DRILL STEM TEST #1:

LKC (H-zone): Interval: 4127-4150 (23'): Missrun: hit bridge about 5 stands off bottom; T.O.H., lay down tool, packer was torn up; T.I.H. w/bit, ream to bottom, recondition. Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #2:

LKC (H-zone): Interval: 4227-4250 (23'): Blow: weak surf IFP, no RB, weak surf died 8 min FFP, no RB; Times: 5-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2037-2005, SIP: 146-87, FP: 16-17, 17-20; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #3:

LKC (K-zone): Interval: 4229-4243 (14'): Blow: weak surf IFP, no RB, weak surf FFP, no RB; Times: 5-15-30; Recovery: 30' muddy oil (80%O, 20%M); Pressures: HP: 2099-2041, SIP: 608-609; FP: 21-27, 29-41; BHT: 115 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #4:

LKC (L-zone): Interval: 4263-4280 (17'): Blow: none IFP, no RB, weak surf died 4 min FFP, no RB; Times: 5-15-30; Recovery: 1' mud (100%M); Pressures: HP: 2118-2128, SIP: 775-847; FP: 14-16, 16-16; BHT: 112 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #5:

LKC (L-zone): Interval: 4271-4285 (14'): Blow: BOB 5 min IFP, surf RB ISIP, BOB 5 min FFP, 1/8" RB FSIP; Times: 5-15-30; Recovery: 62' GIP, 433' TF: Grindouts: 30' oil (100%O, 30 grav.), 32' GOWCM (5%G, 30%O, 15%W, 50%M), 124' GOWCM (5%G, 10%O, 10%W, 75%M), 247' GOMCW (2%G, 3%O, 20%M, 75%W, Rv 0.334 at 50F, 31k Chlorides); Pressures: HP: 2128-2090, SIP: 884-857, FP: 38-100, 109-206; BHT: 130 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #6:

Marmaton: Interval: 4322-4413 (91'): Blow: weak incr 1" IFP, no RB, weak incr 3" FFP, no RB; Times: 5-15-30; Recovery: 30' muddy oil (80%O, 20%M); Pressures: HP: 2193-2148, SIP: 413-629, FP: 52-56, 56-67; BHT: 118 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #7:

Pawnee thru Ft. Scott: Interval: 4419-4500 (81'): Missrun: packer seat failure; Recovery: 450' mud; Pressures: HP: 2230-2218 psi; BHT: 119 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #8:

Ft. Scott thru Cherokee: Interval: 4469-4555 (86'): Blow: weak surf IFP, no RB, no blow FFP, no RB; Times: 5-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2293-2239, SIP: 119-115, FP: 3-53, 54-55; BHT: 120 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

