

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1247109  
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: \_\_\_\_\_

1247109

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

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <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> _____ <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Marlin Unit 1-23
Doc ID	1247109

Tops

Name	Top	Datum
Anhydrite	2156	+640
B Anhydrite	2184	+612
Heebner	3942	-1146
Lansing	3981	-1185
Stark	4252	-1456
Marmaton	4380	-1584
Paw Mkr	4450	-1654
Ft. Scott	4501	-1730
Cher Sh	4526	-1730
Mississippi	4596	-1800



# QUALITY WELL SERVICE, INC.

6277

Federal Tax I.D. # 481187368

Home Office 324 Simpson St., Pratt, KS 67124

Office 620-727-3410  
Fax 620-672-3663

Rich's Cell 620-727-3409  
Brady's Cell 620-727-6964

Date	12-05-14	Sec.	23	Twp.	18s	Range	29w	County	Lane	State	KS	On Location	11 00Am	Finish	12:45PM
Lease	Martin Unit	Well No.	1-23		Location Dighton KS 1 1/2 w. state										
Contractor	H D				Owner Larson										
Type Job	Surface				For Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.										
Hole Size	12 1/4		T.D.		256										
Csg.	8 5/8		20*		Depth		256'								
Tbg. Size					Depth		Charge To Larson								
Tool					Depth		Street								
Cement Left in Csg.	20'				Shoe Joint		M/A								
Meas Line					Displace		15 Bbls Fresh H <sub>2</sub> O								
EQUIPMENT													Cement Amount Ordered 16.5 cy A 2 #3		
Pumptrk	8	No.	Mike B		Common 165										
Bulktrk	10	No.	David B		Poz. Mix										
Bulktrk		No.			Gel. 2										
Pickup		No.	David F		Calcium 60										
JOB SERVICES & REMARKS													Hulls		
Rat Hole													Salt		
Mouse Hole													Flowseal		
Centralizers													KOR Seal		
Baskets													Mud CLR 48		
D/V or Port Collar													CFL-117 or CD110 CAF 38		
Pipe on Bottom, Back Calc, Pump Spacers, Mix 16.5 cy A 3 #2 cement, Start Disp w/ Fresh H <sub>2</sub> O, wash up truck, see steady increase in PSI, slow rate, stop pump at 15 Bbls total Disp, shut in, Cement Did Calc													Sand		
													Handling 174		
													Mileage 35		
													FLOAT EQUIPMENT		
													Guide Shoe		
													Centralizer		
													Baskets		
													AFU Inserts		
													Float Shoe		
													Latch Down		
													LMU 35		
													Service Supervisor		
													Pumptrk Charge Surface		
													Mileage 35 x 2		
													Tax		
													Discount		
													Total Charge		

Signature: *Debrae Larson*



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

1557  
1512  
**INVOICE # 82737**  
**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

TICKET NUMBER 46579  
LOCATION Oakley KS  
FOREMAN Kelly Gabel

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
12-15-14	4802	Martin Unit 1-23	23	185	29W	Iane	
CUSTOMER		Mailing Address		TRUCK #	DRIVER	TRUCK #	DRIVER
Larson Engineering		Dighton 1 1/2 W S.5		772 T118	Jordan	397	Rob
CITY		STATE	ZIP CODE				

JOB TYPE Well HOLE SIZE 7 7/8 HOLE DEPTH 4650 CASING SIZE & WEIGHT 4 1/2 10.5#  
CASING DEPTH 4650 DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER PC @ 2115  
SLURRY WEIGHT 142 SLURRY VOL \_\_\_\_\_ WATER gal/sk \_\_\_\_\_ CEMENT LEFT in CASING \_\_\_\_\_  
DISPLACEMENT 73 1/4 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting, rigged up on HD #3, broke circulation & circulated for 1hr, mixed 30 sks RH, mixed 145 sks owc 7# Koseal 3/4% CDT 26, 14# CAF 38 1/4# flo seal down center, washed out pumps, released Plug & displaced with 74 bbl water with a list of 700# Plug landed @ 1300#, released Pressure, float held

*Thank You Kelly + Crew*

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401C	1	PUMP CHARGE	3175.00	3175.00
5406	35 mi	MILEAGE	5.25	183.75
5407A	8.22	Ton mileage delivery	125	503.78
1126	175 SKS	owc	23.70	4147.50
1101A	1225 #	Kol-seal	.92	1127.00
1107	43.75 #	Flo-seal	2.97	129.99
1146	123.37 #	CAF-38	10.20	1258.37
1137	24.5 #	CDT-26	10.20	249.90
11446	500 gal	gal mud flush	1.00	500.00
			Subd	11,275.24
			Total	11,275.24
			Total	10,147.72
			SALES TAX	477.00
			ESTIMATED TOTAL	10,624.72

Rev'n 3737

AUTHORIZATION [Signature] TITLE Partner DATE 12-15-14

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: **LARSON ENGINEERING**  
 ADDRESS:  
 CITY, STATE, ZIP CODE:

TICKET 28182

PAGE 1 OF

SERVICE LOCATIONS  
 1. **NESS CITY, KS**  
 2.  
 3.  
 4. REFERRAL LOCATION

WELL/PROJECT NO.  
**MARLIN UNIT 1-2**

LEASE  
**LANE**

COUNTY/PARISH  
**KS**

CITY  
**DIGHTON, KS**

DATE  
**5 JAN 14**

OWNER

TICKET TYPE  
 SERVICE  
 SALES

CONTRACTOR  
**WILDCREST WELL SERV**

RIG NAME/NO.

SHIPPED VIA

DELIVERED TO

ORDER NO.

WELL TYPE  
**OIL**

WELL CATEGORY  
**DEVELOPMENT**

JOB PURPOSE  
**CEMENT PORT COLLAR**

WELL PERMIT NO.

WELL LOCATION  
**2W S1W20**

INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #115	35	HR			6 <sup>00</sup>	210 <sup>00</sup>
576D					Pump CHARGE					1500 <sup>00</sup>	1500 <sup>00</sup>
276					FLOCELE	60	lbs			2 <sup>50</sup>	150 <sup>00</sup>
290					D-AIR	22	gal			4 <sup>75</sup>	105 <sup>00</sup>
330					SMD CEMENT	235	Sbx			18 <sup>50</sup>	4347 <sup>50</sup>
581					CEMENT SERVICE CHARGE	300	Sx			2 <sup>00</sup>	600 <sup>00</sup>
583					DRAYAGE	29875	lbs	522.81	Tm	1 <sup>00</sup>	522 <sup>81</sup>

**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 **5 JAN 15** TIME SIGNED **1400**  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	PAGE TOTAL	AMOUNT
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				7435	31
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				TOTAL	7764 <sup>39</sup>

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

SWIFT OPERATOR *[Signature]*

APPROVAL *[Signature]* Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 5/31/15 PAGE NO.

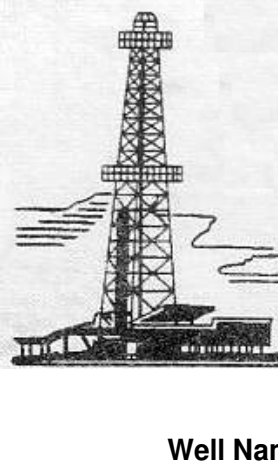
CUSTOMER LARSON ENGINEERING WELL NO. F-2 LEASE MARLIN UNIT JOB TYPE CEMENT PORT COLLAR TICKET NO. 28182

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1100							ON LOCATION
								PORT COLLAR @ 2115
	1202				✓		1000	TEST - HELD
	1205							OPEN PORT COLLAR
	1210	3	75	✓		900		MIX 135sx - LOST CIRCULATION
	1229							WAIT 30min.
	1300	3	55	✓		700-1000		MIX 100sx SMD.
		3	7	✓				DISPLACE CEMENT
				✓				CIRCULATE 20sx TO PIT
	1317			✓		1000		CLOSE PORT COLLAR - TEST - HELD
								RUN 10 JTS.
	1331	4	24	✓		300		REVERSE CLEAN.
	1339							WASH TRUCK
								235 sx SMD USED
	1400							JOB COMPLETE
								THANKS @ 115
								JASON DAVE ROIS



# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



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

Well Name: **MARLIN UNIT #1-23**  
 Location: **SE NE NE NW OF SEC. 23-18S-29W**  
 Licence Number: **API: 15-101-22552** Region: **Lane Co., KS**  
 Spud Date: **December 05, 2014** Drilling Completed: **December 14, 2014**  
 Surface Coordinates: **385' FNL & 2479' FWL**

Bottom Hole Coordinates:  
 Ground Elevation (ft): **2787'** K.B. Elevation (ft): **2796'**  
 Logged Interval (ft): **3800'** To: **RTD** Total Depth (ft): **4650'**  
 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 (Co. Tools)**

**DP 4.5" XH (16.6#); DC 6-1/4" x 2-3/8" x 556', Kelly 40.30', Tool Joint 5.5" ; Bit: JZ-HA20Q, 7-7/8", standard jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 9' above ground level; LeWayne "Lew" Tresner (tool pusher).**

### CASING:

**Set 8-5/8" casing at 254'**  
**Set 4-1/2" production casing.**

### CIRCULATION SYSTEM:

**Continental EMSCO D-300, duplex, 6 x 14, 60-62 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, Dan Schmidt, Log total depth (4646') was four feet short to rotary total depth (4650').**

### DRILL STEM TEST #1:

**LKC (I-zone) Interval: 4192-4221 (29'); Blow: weak incr 2" IFP, no RB, weak incr 2-3/4" FFP, no RB; Times: 5-15-30-60; Recovery: 70' TF; Grindouts: 40' HOCM (trc G, 40%O, 60%M), 30' MCO (trc G, 60%O, 40%M); Pressures: HP: 2126-2107, SIP: 678-503, FP: 19-36, 54-60; BHT: 115 F; Trilobite Testing, Inc., Scott City, KS, Shane McBride.**

### DRILL STEM TEST #2:

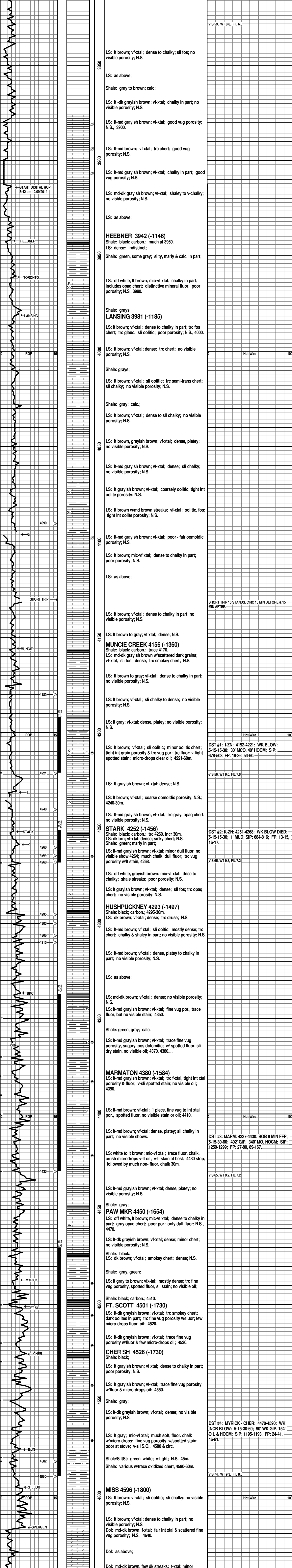
**LKC (K-zone) Interval: 4251-4268 (17'); Blow: 1/4" declined to surf blow IFP, no RB, surf blow died 3 min FFP; Times: 5-15-30-60; Recovery: 1' mud w/oil spots (100%M); Pressures: HP: 2179-2107, SIP: 684-816, FP: 13-15, 16-17; BHT: 109 F; Trilobite Testing, Inc., Scott City, KS, Shane McBride.**

### DRILL STEM TEST #3:

**Marmaton: Interval: 4337-4430 (93'); Blow: incr 6" IFP, no RB, BOB 9 min FFP, 3-1/2" RB died back; Times: 5-15-30-60; Recovery: 402' GIP, 340' TF; Grindouts: 92' GOCM (20%G, 15%O, 65%M), 124' GMO (20%G, 55%O, 25%M), 124' GMO (25%G, 60%O, 15%M); Pressures: HP: 2223-2185, SIP: 1259-1299, FP: 27-80, 89-167; BHT: 117 F; Trilobite Testing, Inc., Scott City, KS, Shane McBride.**

### DRILL STEM TEST #4:

**Myrick Station thru Cherokee: Interval: 4470-4590 (120'); Blow: weak incr 1-3/4" IFP, no RB, weak incr 11" FFP, no RB; Times: 5-15-30-60; Recovery: 90' weak GIP, 154' TF; Grindouts: 20' CO (100%O, grav 31), 72' MO (3%G, 55%O, 42%M), 62' HOCM (3%G, 32%O, 65%M); Pressures: HP: 2339-2285, SIP: 1195-1193, FP: 24-41, 46-81; BHT: 116 F; Trilobite Testing, Inc., Scott City, KS, Shane McBride.**



RTD 4:14 am  
12/14/2014



## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W State Rd 4  
Olmitz, KS 67564-8561

ATTN: Vern Schrag

**Marlin #1-23**

**23-18s-29w Lane,KS**

Start Date: 2014.12.10 @ 16:16:05

End Date: 2014.12.10 @ 21:35:05

Job Ticket #: 59722                      DST #: 1

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

Printed: 2014.12.17 @ 13:04:09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

**23-18s-29w Lane, KS**

**Marlin #1-23**

Job Ticket: 59722

**DST#: 1**

Test Start: 2014.12.10 @ 16:16:05

## GENERAL INFORMATION:

Formation: **LKC I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:20:20

Time Test Ended: 21:35:05

Test Type: Conventional Bottom Hole (Initial)

Tester: Shane McBride

Unit No: 55

**Interval: 4192.00 ft (KB) To 4221.00 ft (KB) (TVD)**

Reference Elevations: 2796.00 ft (KB)

Total Depth: 4221.00 ft (KB) (TVD)

2787.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

**Serial #: 6771**

**Inside**

Press@RunDepth: 60.31 psig @ 4193.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.12.10

End Date:

2014.12.10

Last Calib.:

2014.12.10

Start Time: 16:16:05

End Time:

21:23:05

Time On Btm:

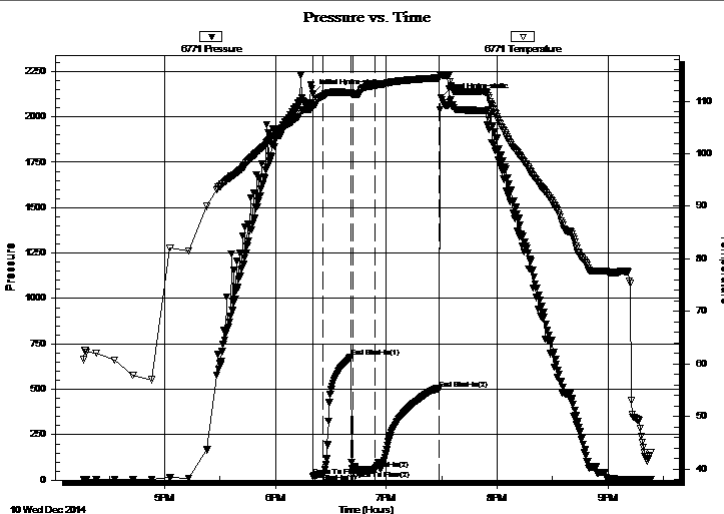
2014.12.10 @ 18:20:05

Time Off Btm:

2014.12.10 @ 19:29:35

TEST COMMENT: 2" blow  
No return  
2 3/4" blow  
No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2126.15	109.62	Initial Hydro-static
1	19.86	108.84	Open To Flow (1)
6	36.20	111.01	Shut-In(1)
21	678.87	111.68	End Shut-In(1)
22	54.62	111.37	Open To Flow (2)
34	60.31	113.04	Shut-In(2)
69	502.63	114.40	End Shut-In(2)
70	2107.50	115.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	h o c m tr gas 40%o 60%m	0.20
30.00	m c o tr gas 40%m 60%o	0.15

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

23-18s-29w Lane, KS

**Marlin #1-23**

Job Ticket: 59722

**DST#: 1**

Test Start: 2014.12.10 @ 16:16:05

## GENERAL INFORMATION:

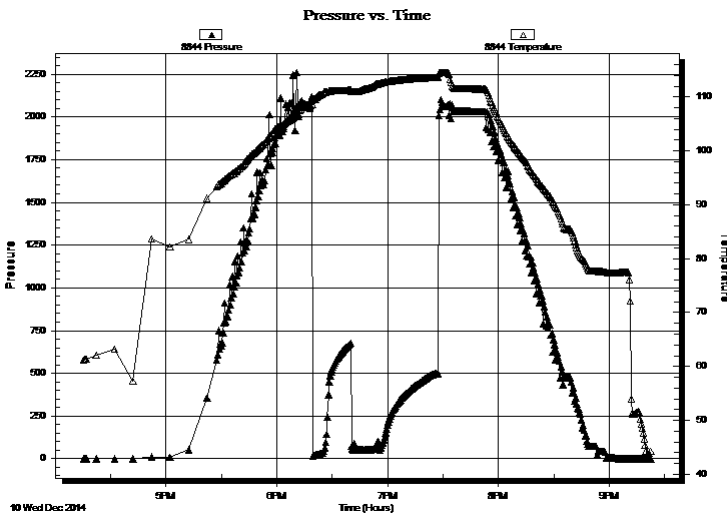
Formation: **LKC I**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 18:20:20  
 Time Test Ended: 21:35:05  
 Interval: **4192.00 ft (KB) To 4221.00 ft (KB) (TVD)**  
 Total Depth: 4221.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 2796.00 ft (KB)  
 2787.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 8844 Outside**

Press@RunDepth: psig @ 4193.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.10 End Date: 2014.12.10 Last Calib.: 1899.12.30  
 Start Time: 16:15:25 End Time: 21:22:25 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 2" blow  
 No return  
 2 3/4" blow  
 No return

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	h o c m tr gas 40%o 60%m	0.20
30.00	m c o tr gas 40%m 60%o	0.15

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering

**23-18s-29w Lane,KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59722

**DST#: 1**

ATTN: Vern Schrag

Test Start: 2014.12.10 @ 16:16:05

## Tool Information

Drill Pipe:	Length: 4046.00 ft	Diameter: 3.80 inches	Volume: 56.75 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 57.36 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	4192.00 ft			Final	51000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	29.00 ft				
Tool Length:	57.00 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			4165.00	
Shut In Tool	5.00			4170.00	
Hydraulic tool	5.00			4175.00	
Jars	5.00			4180.00	
Safety Joint	3.00			4183.00	
Packer	5.00			4188.00	28.00 Bottom Of Top Packer
Packer	4.00			4192.00	
Stubb	1.00			4193.00	
Recorder	0.00	6771	Inside	4193.00	
Recorder	0.00	8844	Outside	4193.00	
Perforations	23.00			4216.00	
Bullnose	5.00			4221.00	29.00 Bottom Packers & Anchor

**Total Tool Length: 57.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**23-18s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59722

**DST#: 1**

ATTN: Vern Schrag

Test Start: 2014.12.10 @ 16:16:05

## 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: 7.56 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
40.00	h o c m tr gas 40%o 60%m	0.197
30.00	m c o tr gas 40%m 60%o	0.148

Total Length: 70.00 ft      Total Volume: 0.345 bbl

Num Fluid Samples: 0

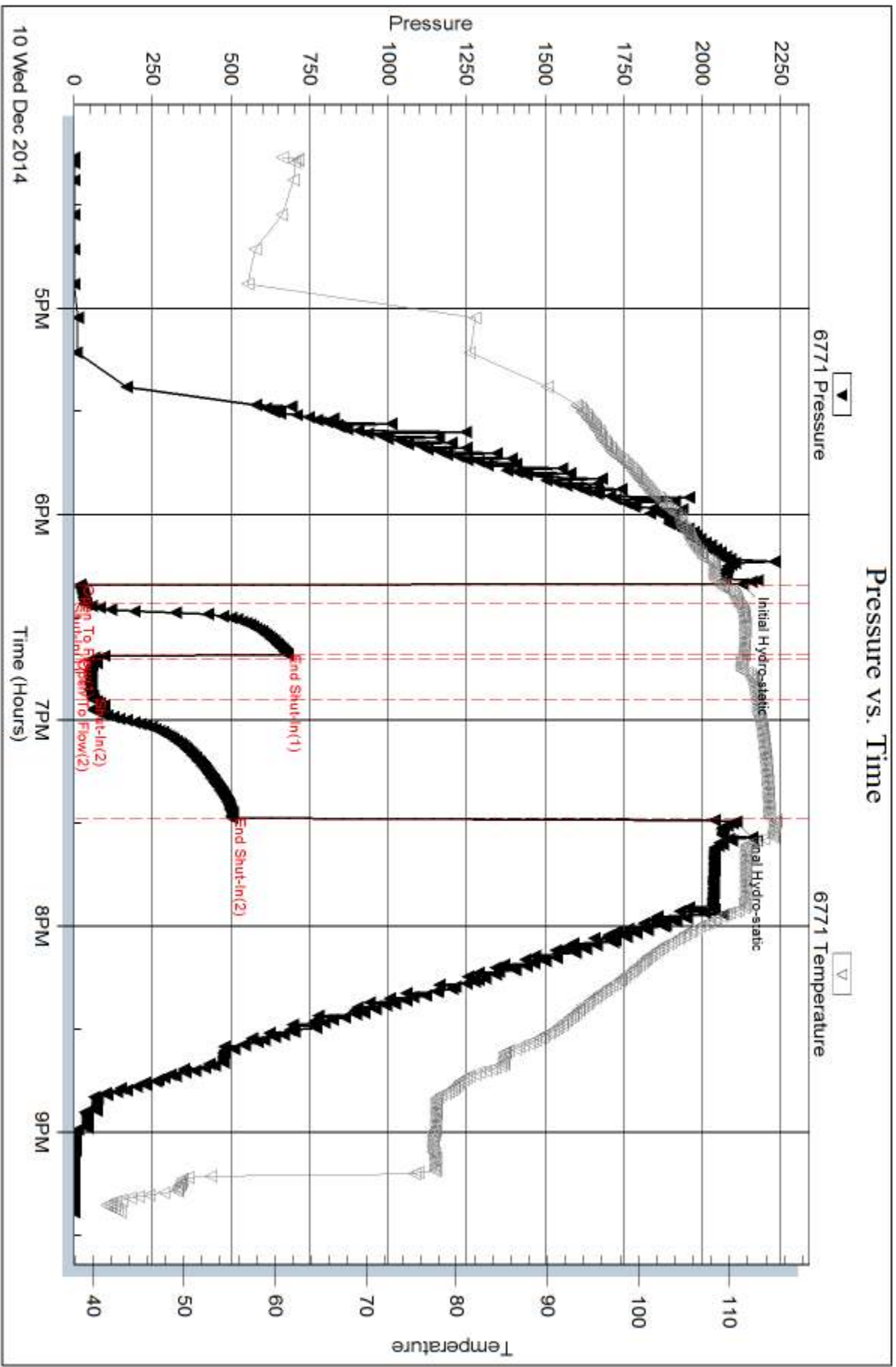
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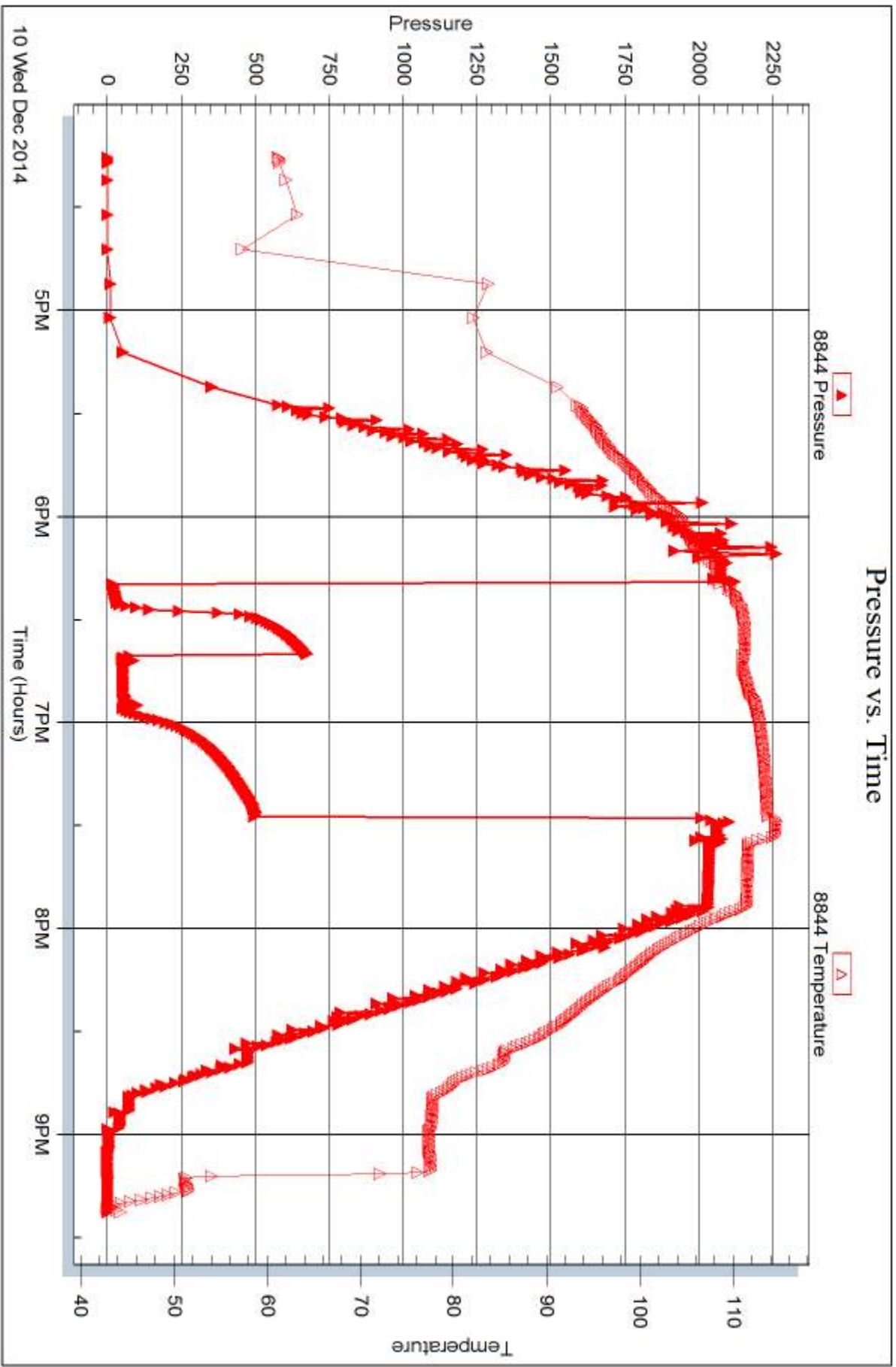
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W State Rd 4  
Olmitz, KS 67564-8561

ATTN: Vern Schrag

### **Marlin #1-23**

#### **23-18s-29w Lane,KS**

Start Date: 2014.12.11 @ 10:25:49

End Date: 2014.12.11 @ 15:35:49

Job Ticket #: 59723                      DST #: 2

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

Printed: 2014.12.17 @ 13:02:56



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

**23-18s-29w Lane, KS**

**Marlin #1-23**

Job Ticket: 59723

**DST#: 2**

Test Start: 2014.12.11 @ 10:25:49

## GENERAL INFORMATION:

Formation: **LKC K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:35:34  
 Time Test Ended: 15:35:49  
 Interval: **4251.00 ft (KB) To 4268.00 ft (KB) (TVD)**  
 Total Depth: 4268.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 2796.00 ft (KB)  
 2787.00 ft (CF)  
 KB to GR/CF: 9.00 ft

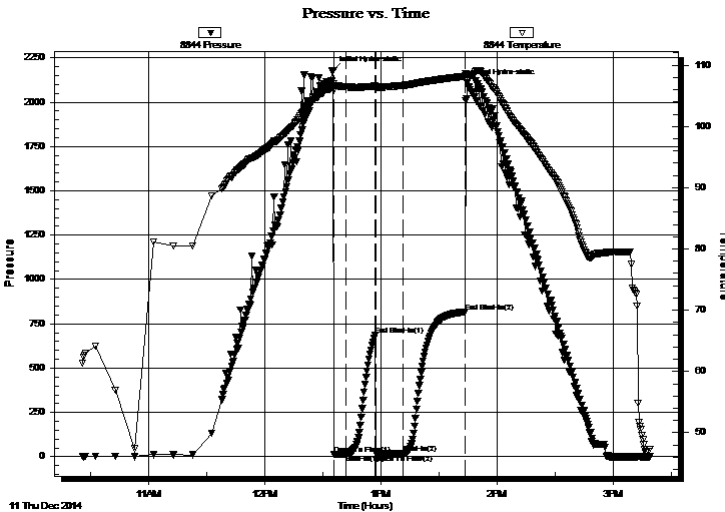
## Serial #: 8844

Outside

Press@RunDepth: 17.02 psig @ 4252.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.11 End Date: 2014.12.11 Last Calib.: 2014.12.11  
 Start Time: 10:25:49 End Time: 15:18:49 Time On Btm: 2014.12.11 @ 12:35:19  
 Time Off Btm: 2014.12.11 @ 13:44:34

TEST COMMENT: 1/4" blow died back to a surface blow  
 No return  
 Weak surface blow died in 3 min.  
 No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2179.46	106.95	Initial Hydro-static
1	13.17	105.80	Open To Flow (1)
7	15.61	106.45	Shut-In(1)
22	684.22	106.58	End Shut-In(1)
22	16.08	106.38	Open To Flow (2)
36	17.02	106.70	Shut-In(2)
68	816.31	108.20	End Shut-In(2)
70	2107.97	108.39	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud oil spots on top 100%m	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

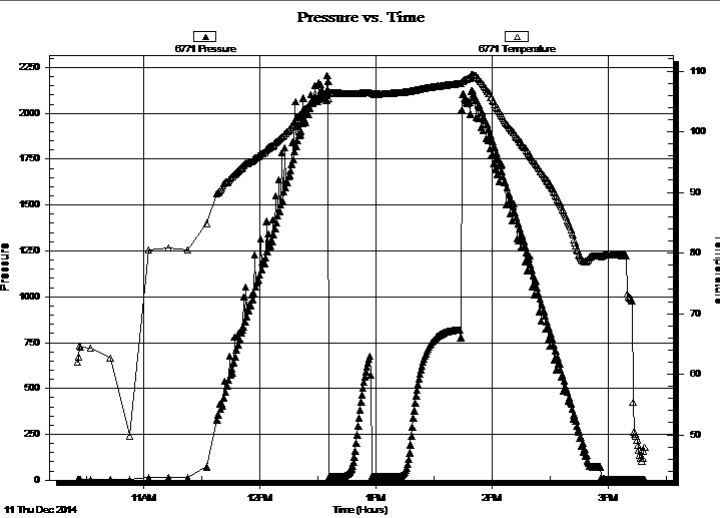
**23-18s-29w Lane, KS**  
**Marlin #1-23**  
Job Ticket: 59723 **DST#: 2**  
Test Start: 2014.12.11 @ 10:25:49

## GENERAL INFORMATION:

Formation: **LKC K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:35:34  
 Time Test Ended: 15:35:49  
 Interval: **4251.00 ft (KB) To 4268.00 ft (KB) (TVD)**  
 Total Depth: 4268.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 2796.00 ft (KB)  
 2787.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 6771 Inside**  
 Press@RunDepth: psig @ 4252.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.11 End Date: 2014.12.11 Last Calib.: 2014.12.11  
 Start Time: 10:25:39 End Time: 15:18:54 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 1/4" blow died back to a surface blow  
 No return  
 Weak surface blow died in 3 min.  
 No return



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

Recovery		
Length (ft)	Description	Volume (bbl)
1.00	mud oil spots on top 100%m	0.00

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering

**23-18s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59723

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2014.12.11 @ 10:25:49

## 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 51000.00 lb
Depth to Top Packer:	4251.00 ft			Final 51000.00 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	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			4224.00	
Shut In Tool	5.00			4229.00	
Hydraulic tool	5.00			4234.00	
Jars	5.00			4239.00	
Safety Joint	3.00			4242.00	
Packer	5.00			4247.00	28.00 Bottom Of Top Packer
Packer	4.00			4251.00	
Stubb	1.00			4252.00	
Recorder	0.00	6771	Inside	4252.00	
Recorder	0.00	8844	Outside	4252.00	
Perforations	11.00			4263.00	
Bullnose	5.00			4268.00	17.00 Bottom Packers & Anchor

**Total Tool Length: 45.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Larson Engineering

23-18s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564-8561

Marlin #1-23

Job Ticket: 59723

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.12.11 @ 10:25:49

### 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: 7.56 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3900.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

#### Recovery Table

Length ft	Description	Volume bbl
1.00	mud oil spots on top 100%m	0.005

Total Length: 1.00 ft      Total Volume: 0.005 bbl

Num Fluid Samples: 0

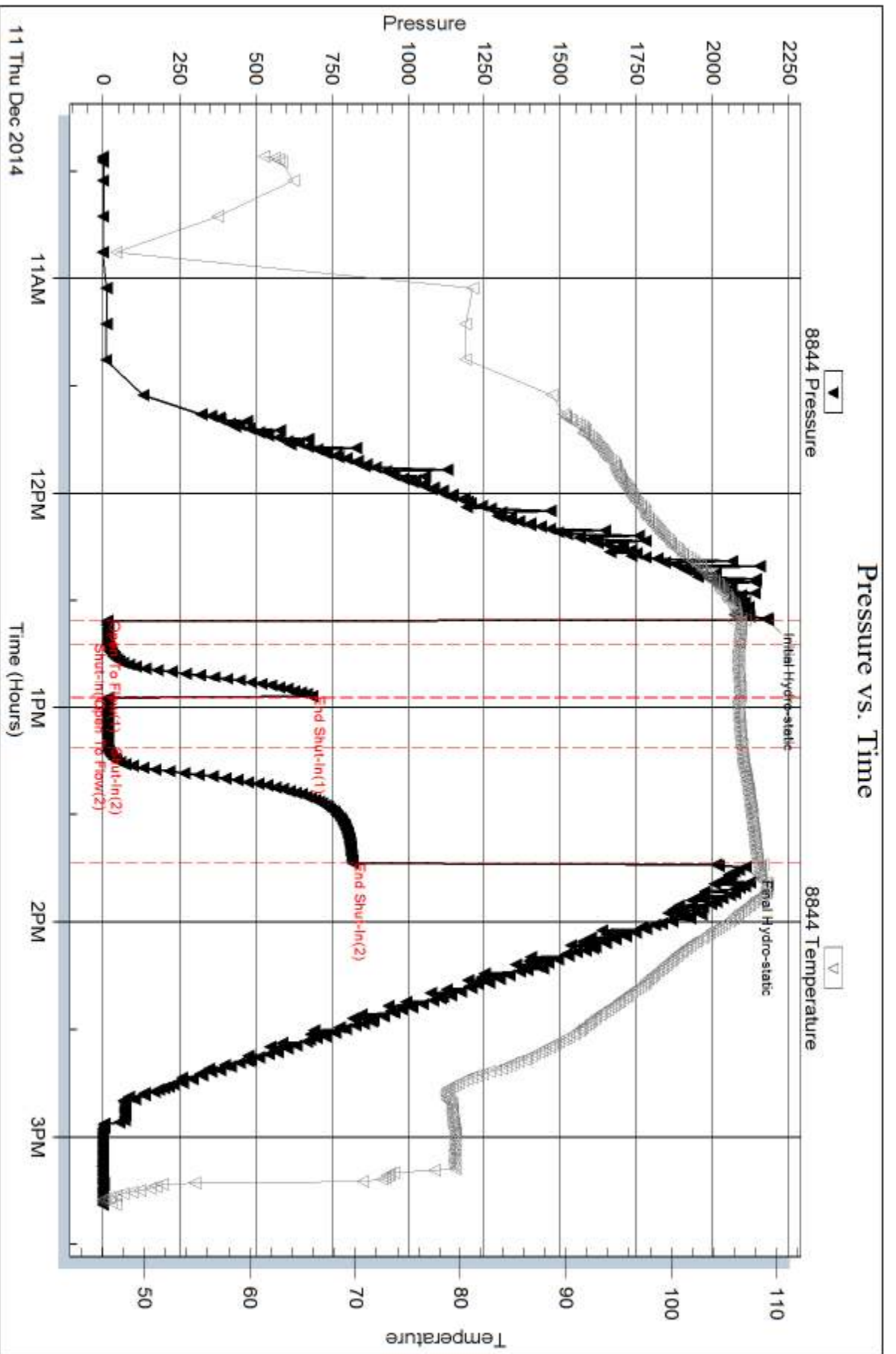
Num Gas Bombs: 0

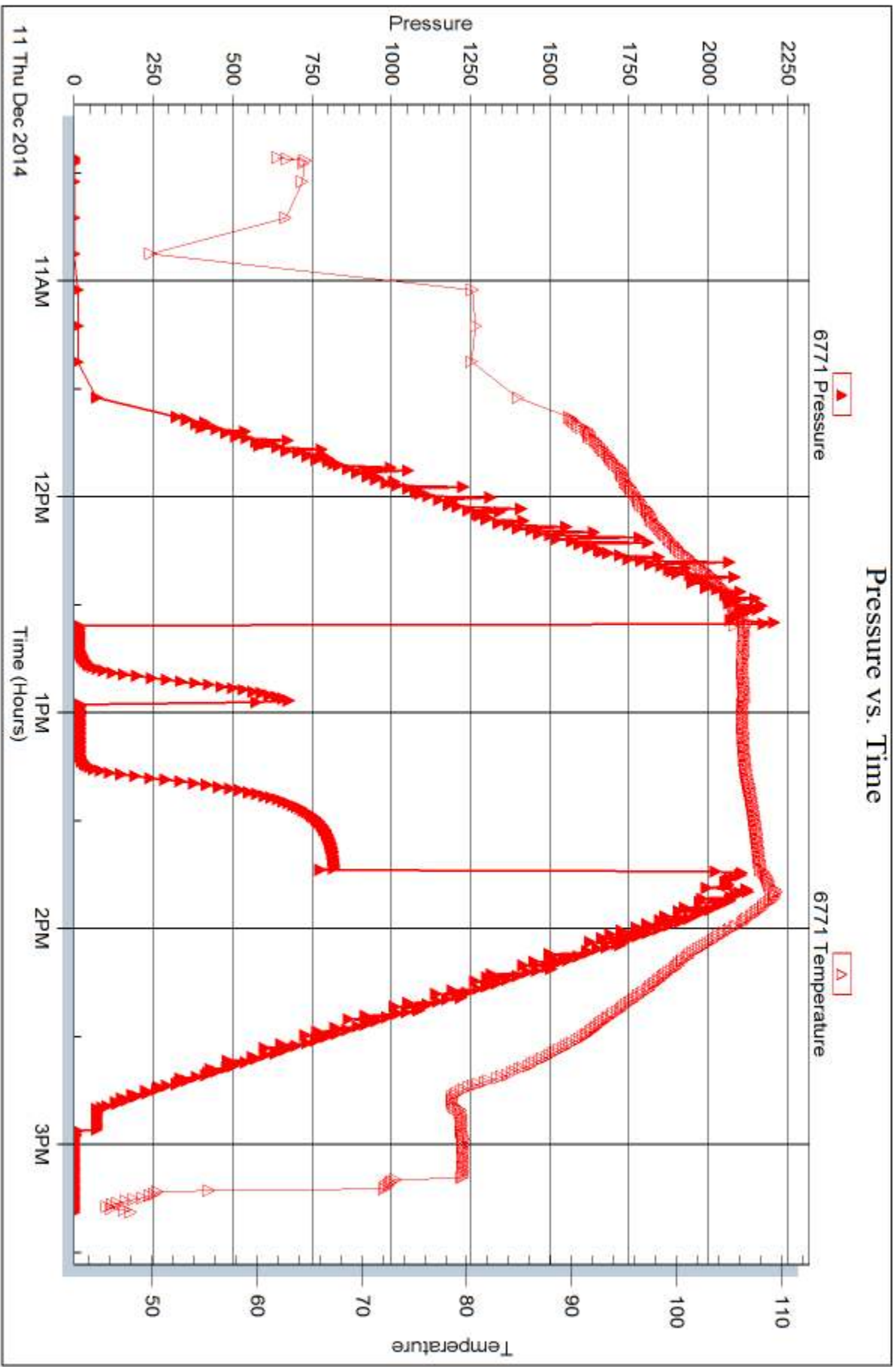
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W State Rd 4  
Olmitz, KS 67564-8561

ATTN: Vern Schrag

### **Marlin #1-23**

#### **23-18s-29w Lane,KS**

Start Date: 2014.12.12 @ 14:01:00

End Date: 2014.12.12 @ 20:12:30

Job Ticket #: 59724                      DST #: 3

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

Printed: 2014.12.17 @ 12:01:41





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

**23-18s-29w Lane, KS**

**Marlin #1-23**

Job Ticket: 59724

**DST#: 3**

Test Start: 2014.12.12 @ 14:01:00

## GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:01:00

Time Test Ended: 20:12:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Shane McBride

Unit No: 55

**Interval: 4337.00 ft (KB) To 4430.00 ft (KB) (TVD)**

Total Depth: 4430.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2796.00 ft (KB)

2787.00 ft (CF)

KB to GR/CF: 9.00 ft

**Serial #: 6771**

**Inside**

Press@RunDepth: 167.71 psig @ 4338.00 ft (KB)

Start Date: 2014.12.12

End Date: 2014.12.12

Start Time: 14:01:00

End Time: 19:55:30

Capacity: 8000.00 psig

Last Calib.: 2014.12.12

Time On Btm: 2014.12.12 @ 16:00:45

Time Off Btm: 2014.12.12 @ 17:55:15

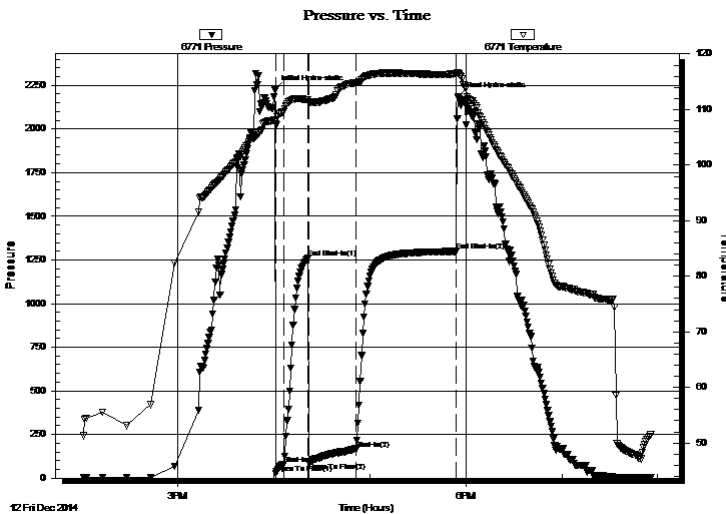
TEST COMMENT: 6" blow

No return

B.O.B. in 9 min.

Return blow built to 3 1/2" in 14 min. died back to 1 1/4"

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2223.88	108.11	Initial Hydro-static
1	27.61	107.36	Open To Flow (1)
6	80.54	109.70	Shut-In(1)
21	1259.18	111.77	End Shut-In(1)
21	89.21	111.15	Open To Flow (2)
51	167.71	114.84	Shut-In(2)
114	1299.67	116.46	End Shut-In(2)
115	2185.85	116.44	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	g m c o 25g 15m 60o	0.61
124.00	g m c o 20g 25m 55o	1.74
92.00	g o c m 20g 15o 65m	1.29
0.00	402' gas in pipe	0.00

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE TESTING, INC**

## DRILL STEM TEST REPORT

Larson Engineering  
 562 W State Rd 4  
 Olmitz, KS 67564-8561  
 ATTN: Vern Schrag

**23-18s-29w Lane, KS**

**Marlin #1-23**

Job Ticket: 59724

**DST#: 3**

Test Start: 2014.12.12 @ 14:01:00

### GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:01:00

Time Test Ended: 20:12:30

**Interval: 4337.00 ft (KB) To 4430.00 ft (KB) (TVD)**

Total Depth: 4430.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Shane McBride

Unit No: 55

Reference Elevations: 2796.00 ft (KB)

2787.00 ft (CF)

KB to GR/CF: 9.00 ft

**Serial #: 8844 Outside**

Press@RunDepth: psig @ 4338.00 ft (KB)

Start Date: 2014.12.12

End Date:

2014.12.12

Start Time: 14:00:40

End Time:

19:54:55

Capacity: 8000.00 psig

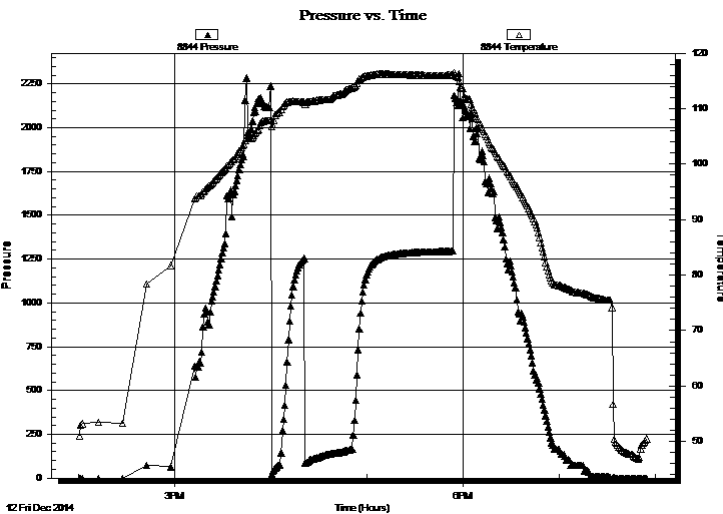
Last Calib.:

2014.12.12

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 6" blow  
 No return  
 B.O.B. in 9 min.  
 Return blow built to 3 1/2" in 14 min. died back to 1 1/4"



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
124.00	g m c o 25g 15m 60o	0.61
124.00	g m c o 20g 25m 55o	1.74
92.00	g o c m 20g 15o 65m	1.29
0.00	402' gas in pipe	0.00

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering

**23-18s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59724

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2014.12.12 @ 14:01:00

## Tool Information

Drill Pipe:	Length: 4203.00 ft	Diameter: 3.80 inches	Volume: 58.96 bbl	Tool Weight: 2500.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 59.57 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	4337.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	93.00 ft			
Tool Length:	121.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4310.00	
Shut In Tool	5.00			4315.00	
Hydraulic tool	5.00			4320.00	
Jars	5.00			4325.00	
Safety Joint	3.00			4328.00	
Packer	5.00			4333.00	28.00 Bottom Of Top Packer
Packer	4.00			4337.00	
Stubb	1.00			4338.00	
Recorder	0.00	6771	Inside	4338.00	
Recorder	0.00	8844	Outside	4338.00	
Perforations	22.00			4360.00	
Change Over Sub	1.00			4361.00	
Drill Pipe	63.00			4424.00	
Change Over Sub	1.00			4425.00	
Bullnose	5.00			4430.00	93.00 Bottom Packers & Anchor

**Total Tool Length: 121.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**23-18s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59724

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2014.12.12 @ 14:01:00

## 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: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
124.00	g m c o 25g 15m 60o	0.610
124.00	g m c o 20g 25m 55o	1.739
92.00	g o c m 20g 15o 65m	1.291
0.00	402' gas in pipe	0.000

Total Length: 340.00 ft

Total Volume: 3.640 bbl

Num Fluid Samples: 0

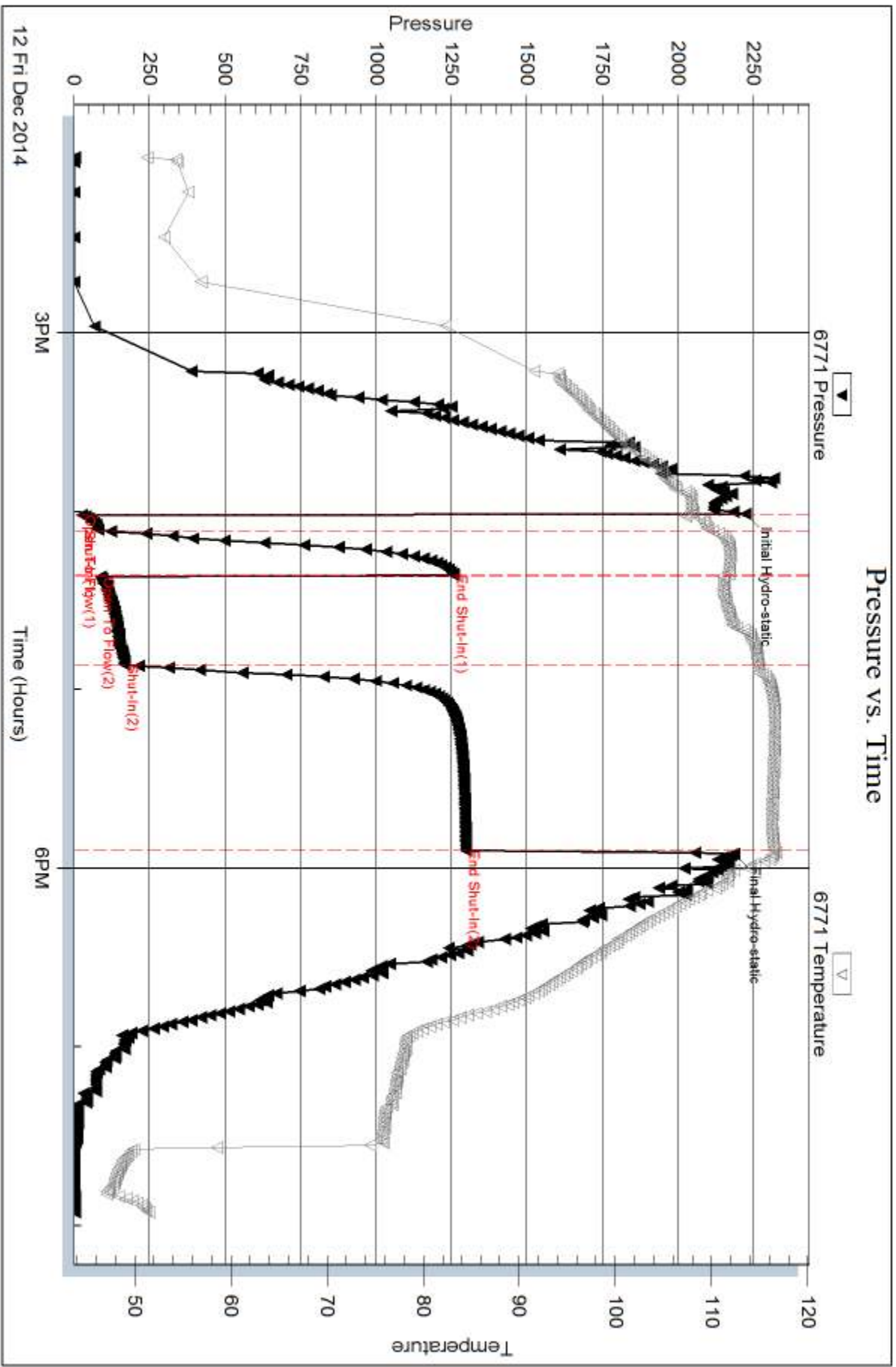
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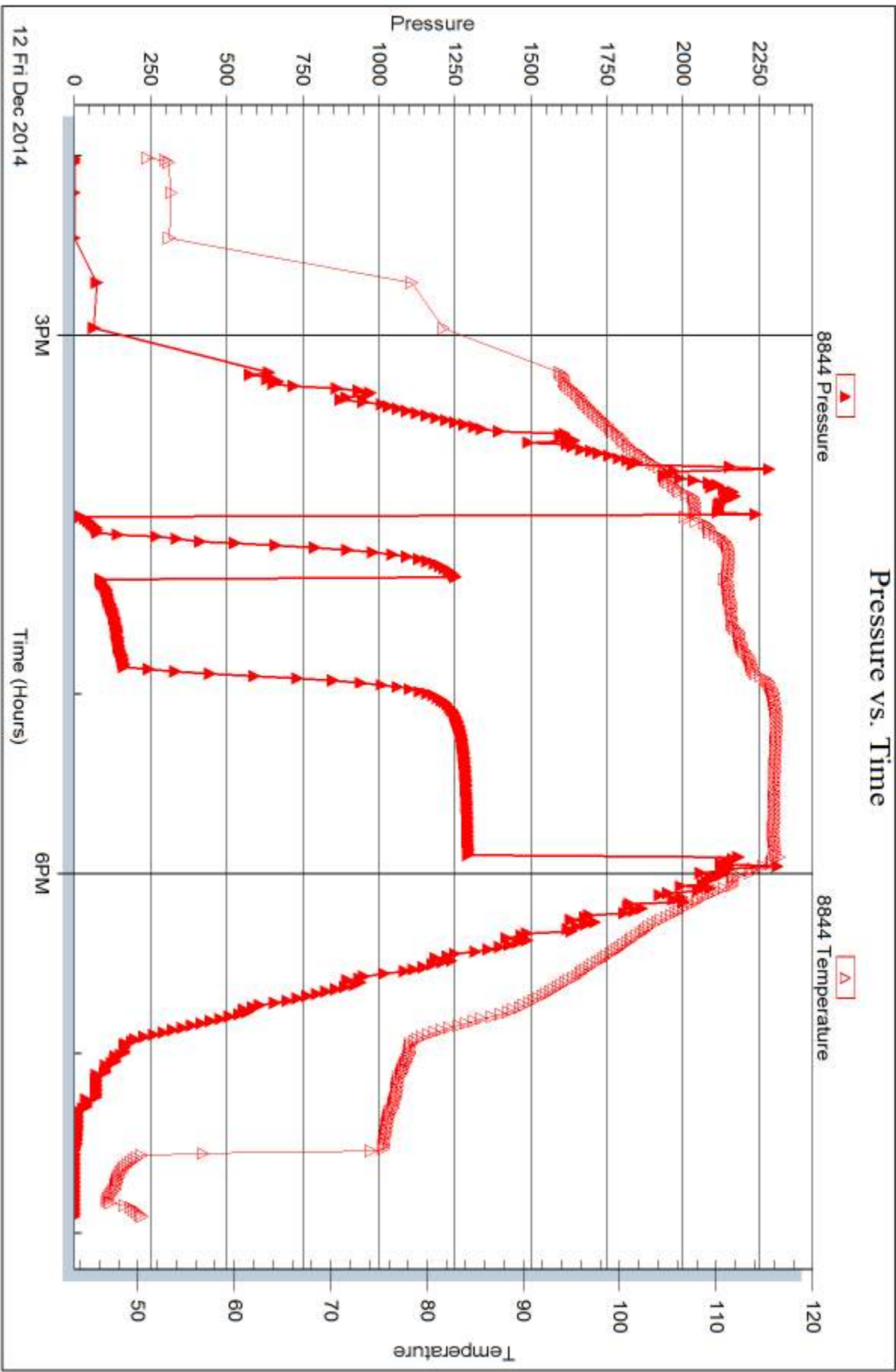
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 W State Rd 4  
Olmitz, KS 67564-8561

ATTN: Vern Schrag

### **Marlin #1-23**

#### **23-18s-29w Lane,KS**

Start Date: 2014.12.13 @ 14:50:37

End Date: 2014.12.13 @ 21:05:52

Job Ticket #: 59725                      DST #: 4

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

Printed: 2014.12.17 @ 12:00:39



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

**23-18s-29w Lane, KS**

**Marlin #1-23**

Job Ticket: 59725

**DST#: 4**

Test Start: 2014.12.13 @ 14:50:37

## GENERAL INFORMATION:

Formation: **Johnson**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 16:58:22  
 Time Test Ended: 21:05:52  
 Interval: **4470.00 ft (KB) To 4590.00 ft (KB) (TVD)**  
 Total Depth: 4590.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Shane McBride  
 Unit No: 55  
 Reference Elevations: 2796.00 ft (KB)  
 2787.00 ft (CF)  
 KB to GR/CF: 9.00 ft

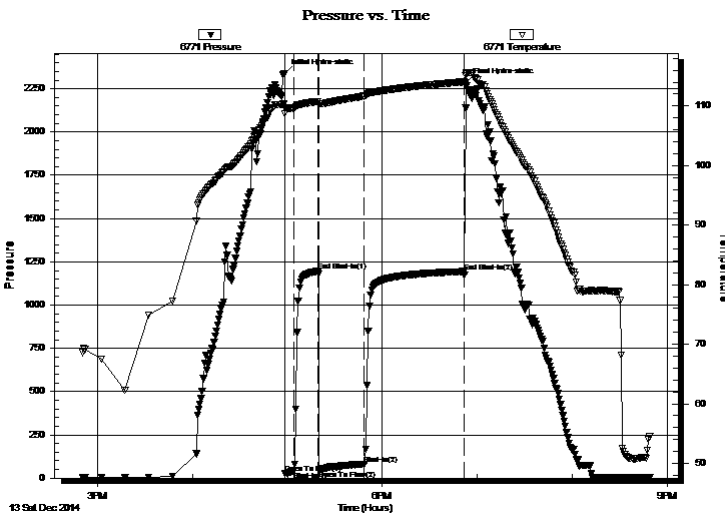
## Serial #: 6771

Inside

Press@RunDepth: 81.81 psig @ 4471.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.13 End Date: 2014.12.13 Last Calib.: 2014.12.13  
 Start Time: 14:50:37 End Time: 20:48:52 Time On Btm: 2014.12.13 @ 16:58:07  
 Time Off Btm: 2014.12.13 @ 18:52:52

TEST COMMENT: 1 3/4" blow  
 No return  
 11" blow  
 No return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2339.49	110.30	Initial Hydro-static
1	24.97	108.77	Open To Flow (1)
6	41.30	109.67	Shut-In(1)
22	1195.92	110.77	End Shut-In(1)
22	46.74	110.28	Open To Flow (2)
51	81.81	111.66	Shut-In(2)
114	1193.82	114.06	End Shut-In(2)
115	2285.64	115.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	s g o c m 3g 32o 65m	0.30
72.00	s g m c o 3g 42m 55o	0.45
20.00	c o tr of gas 100%	0.28
0.00	90' very weak gas in pipe	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Larson Engineering  
562 W State Rd 4  
Olmitz, KS 67564-8561  
ATTN: Vern Schrag

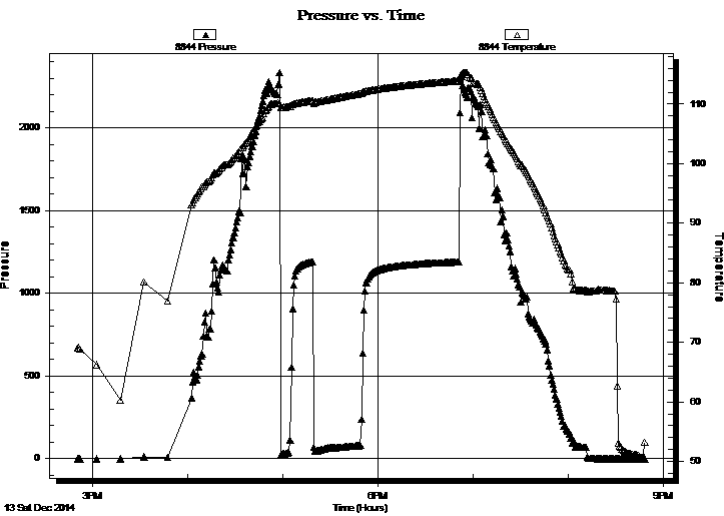
**23-18s-29w Lane, KS**  
**Marlin #1-23**  
Job Ticket: 59725 **DST#: 4**  
Test Start: 2014.12.13 @ 14:50:37

### GENERAL INFORMATION:

Formation: **Johnson**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 16:58:22  
Time Test Ended: 21:05:52  
Interval: **4470.00 ft (KB) To 4590.00 ft (KB) (TVD)**  
Total Depth: 4590.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 2796.00 ft (KB)  
2787.00 ft (CF)  
KB to GR/CF: 9.00 ft

**Serial #: 8844 Outside**  
Press@RunDepth: psig @ 4471.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2014.12.13 End Date: 2014.12.13 Last Calib.: 2014.12.13  
Start Time: 14:50:41 End Time: 20:48:41 Time On Btm:  
Time Off Btm:

TEST COMMENT: 1 3/4" blow  
No return  
11" blow  
No return



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
62.00	s g o c m 3g 32o 65m	0.30
72.00	s g m c o 3g 42m 55o	0.45
20.00	c o t r o f g a s 100%o	0.28
0.00	90' very weak gas in pipe	0.00

\* Recovery from multiple tests

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering

**23-18s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59725

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2014.12.13 @ 14:50:37

## Tool Information

Drill Pipe:	Length: 4328.00 ft	Diameter: 3.80 inches	Volume: 60.71 bbl	Tool Weight: 2500.00 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: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 61.32 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	4470.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	120.00 ft			
Tool Length:	148.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4443.00	
Shut In Tool	5.00			4448.00	
Hydraulic tool	5.00			4453.00	
Jars	5.00			4458.00	
Safety Joint	3.00			4461.00	
Packer	5.00			4466.00	28.00 Bottom Of Top Packer
Packer	4.00			4470.00	
Stubb	1.00			4471.00	
Recorder	0.00	6771	Inside	4471.00	
Recorder	0.00	8844	Outside	4471.00	
Perforations	19.00			4490.00	
Change Over Sub	1.00			4491.00	
Drill Pipe	93.00			4584.00	
Change Over Sub	1.00			4585.00	
Bullnose	5.00			4590.00	120.00 Bottom Packers & Anchor

**Total Tool Length: 148.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering

**23-18s-29w Lane,KS**

562 W State Rd 4  
Olmitz, KS 67564-8561

**Marlin #1-23**

Job Ticket: 59725

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2014.12.13 @ 14:50:37

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 74.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4600.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
62.00	s g o c m 3g 32o 65m	0.305
72.00	s g m c o 3g 42m 55o	0.445
20.00	c o tr of gas 100%o	0.281
0.00	90' very weak gas in pipe	0.000

Total Length: 154.00 ft

Total Volume: 1.031 bbl

Num Fluid Samples: 0

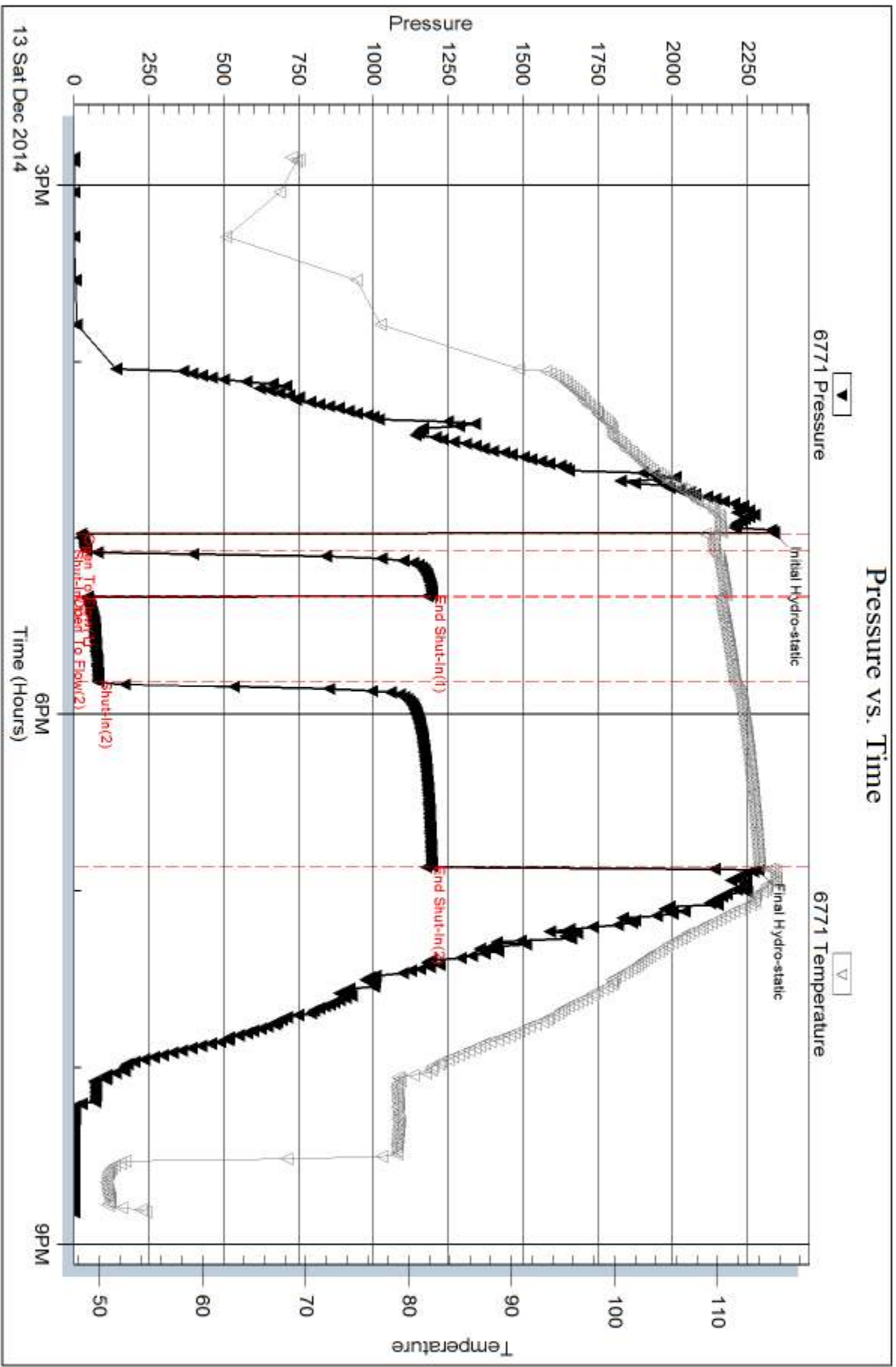
Num Gas Bombs: 0

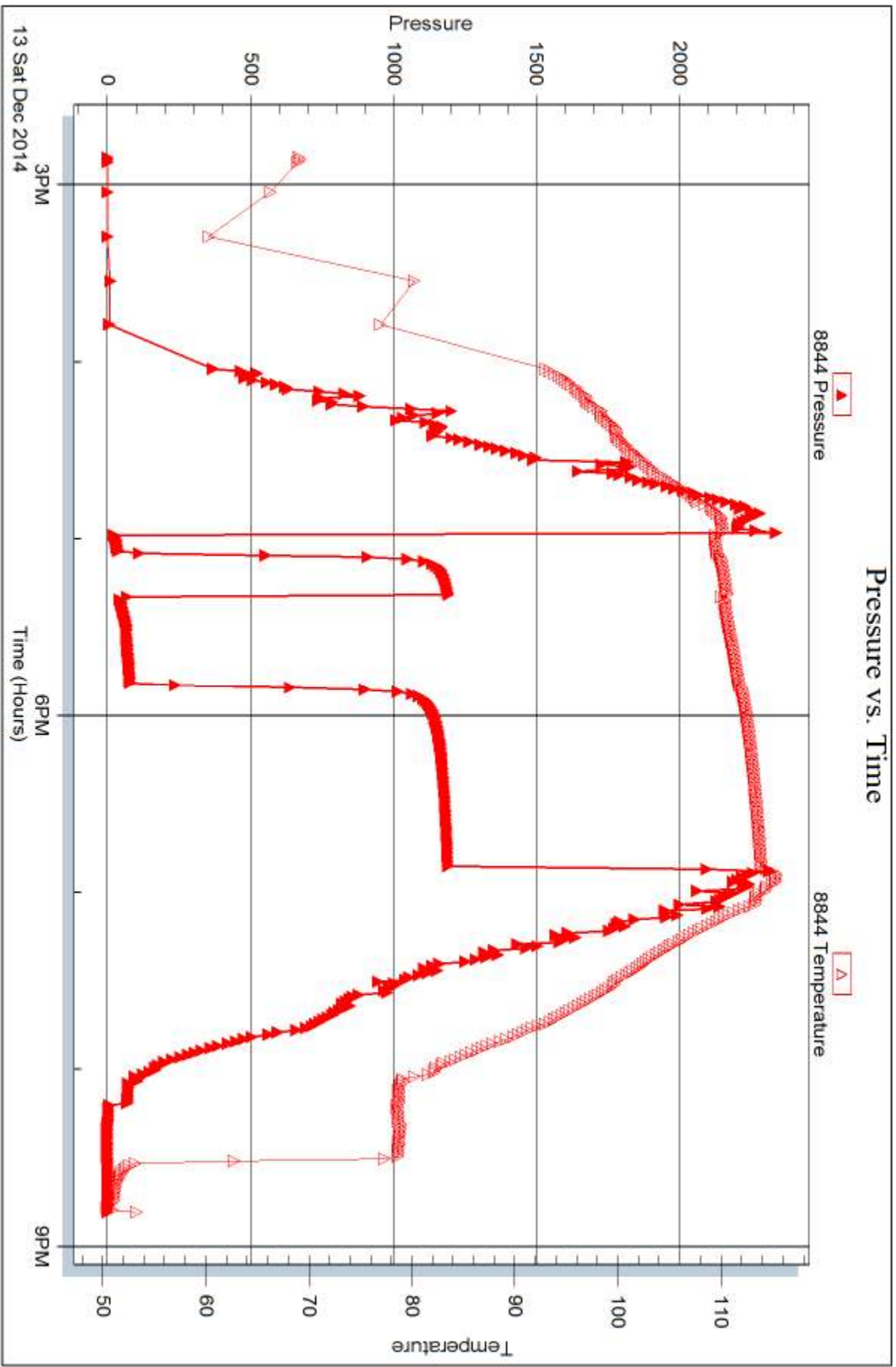
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59722

Well Name & No. Machin Unit #1-23 Test No. #1 Date 12/10/14  
 Company Larson Engineering Inc. Elevation 2796 KB 2787' GL  
 Address 562 W State Rd 4 Ohm. Ks, KS 67564-8561  
 Co. Rep / Geo. Vern Schrag Rig H.D.#3  
 Location: Sec. 23 Twp. 18.5 Rge. 29W Co. lane State Ks

Interval Tested 4192 4221 Zone Tested F  
 Anchor Length 29 Drill Pipe Run 4046 Mud Wt. 9.0  
 Top Packer Depth 4187 Drill Collars Run 124' Vis 56  
 Bottom Packer Depth 4192 Wt. Pipe Run --- WL 7.4  
 Total Depth 4221 Chlorides 3900 ppm System LCM #1

Blow Description 2" in blow  
No return  
2 3/4" in blow  
No return

Rec	Feet of	Tr %gas	%oil	%water	%mud
<u>40</u>	<u>HOCM</u>	<u>40</u>		<u>60</u>	
<u>30</u>	<u>MCO</u>	<u>60</u>		<u>40</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 70' BHT 115' Gravity --- API RW --- @ --- ° F Chlorides --- ppm

(A) Initial Hydrostatic 2126  Test 1250 T-On Location 15:20  
 (B) First Initial Flow 19  Jars 250 T-Started 16:15  
 (C) First Final Flow 36  Safety Joint 75 T-Open 18:19  
 (D) Initial Shut-In 678  Circ Sub N/C T-Pulled 19:24  
 (E) Second Initial Flow 54  Hourly Standby --- T-Out 21:35  
 (F) Second Final Flow 60  Mileage 46 RT 71.30 Comments ---  
 (G) Final Shut-In 503  Sampler ---  
 (H) Final Hydrostatic 2107  Straddle ---  Ruined Shale Packer ---  
 Shale Packer ---  Ruined Packer ---  
 Extra Packer ---  Extra Copies ---  
 Extra Recorder --- Sub Total 0  
 Day Standby --- Total 1646.30  
 Accessibility --- MP/DST Disc't ---

Initial Open 5  
 Initial Shut-In 15  
 Final Flow 13  
 Final Shut-In 30  
 Sub Total 1646.30

Approved By Vern Schrag Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59723

Well Name & No. Marlin Unit # 1-23 Test No. #2 Date 12/11/14  
 Company Jerson Engineering Inc. Elevation 2796 KB 2787 GL  
 Address 562 W State Rd 4, Olinitz, Ks 67564 - 8561  
 Co. Rep / Geo. Kevin Schrag Rig H.D.#3  
 Location: Sec. 23 Twp. 18S Rge. 29W Co. Lane State Ks

Interval Tested 4251 4268 Zone Tested K  
 Anchor Length 17 Drill Pipe Run 4108 Mud Wt. 9.1  
 Top Packer Depth 4246 Drill Collars Run 124' Vis 68  
 Bottom Packer Depth 4251 Wt. Pipe Run --- WL 7.4  
 Total Depth 4268 Chlorides 3900 ppm System LCM #1  
 Blow Description 1/4" in dreed back to a Surface blow  
No return  
Weat Surface blow dreed on 3min.  
No return

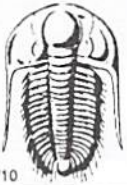
Rec	Feet of	%gas	%oil	%water	%mud
1'	Mud			100	

Rec Total 1' BHT 109° Gravity --- API RW --- @ --- ° F Chlorides --- ppm

(A) Initial Hydrostatic <u>2179</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>09:45</u>
(B) First Initial Flow <u>13</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:25</u>
(C) First Final Flow <u>15</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:36</u>
(D) Initial Shut-In <u>684</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>13:41</u>
(E) Second Initial Flow <u>16</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>15:35</u>
(F) Second Final Flow <u>17</u>	<input checked="" type="checkbox"/> Mileage <u>4615</u> 71.30	Comments
(G) Final Shut-In <u>816</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2107</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
	<input type="checkbox"/> Day Standby	Total <u>1656.30</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1646.30</u>	

Approved By Kevin Q Schrag Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59724

Well Name & No. March Unit # 1-23 Test No. #3 Date 12/12/14  
 Company Larson Engineering Inc Elevation 2796 KB 2787 GL  
 Address 562 W. State Rd 4, Okm. 72, Ks 67564-8561  
 Co. Rep / Geo. Veral Schwag Rig 17.D.#3  
 Location: Sec. 23 Twp. 18S Rge. 29W Co. Lane State Ks

Interval Tested 4337 4430 Zone Tested Marmaton  
 Anchor Length 9.3 Drill Pipe Run 4203 Mud Wt. 9.0  
 Top Packer Depth 4332 Drill Collars Run 124' Vis 62  
 Bottom Packer Depth 4337 Wt. Pipe Run --- WL 7.2  
 Total Depth 4430 Chlorides 3800 ppm System LCM #2

Blow Description 6" in blow  
No return  
B.O.B. in 9 min.  
Return blow built to 3 1/2" in died back to 1 1/4" in.

Rec	Feet of	%gas	%oil	%water	%mud
92	gocm	20	15	65	
124	gmco	20	55	25	
124	gmco	25	60	15	
	402' GAS IN PIPE				

Rec Total 340' BHT 117° Gravity --- API RW --- @ --- ° F Chlorides --- ppm

(A) Initial Hydrostatic	<u>2223</u>	<input checked="" type="checkbox"/> Test	<u>1250</u>	T-On Location	<u>13:50</u>
(B) First Initial Flow	<u>27</u>	<input checked="" type="checkbox"/> Jars	<u>250</u>	T-Started	<u>14:00</u>
(C) First Final Flow	<u>80</u>	<input checked="" type="checkbox"/> Safety Joint	<u>75</u>	T-Open	<u>16:03</u>
(D) Initial Shut-In	<u>1259</u>	<input checked="" type="checkbox"/> Circ Sub	<u>N/E</u>	T-Pulled	<u>17:53</u>
(E) Second Initial Flow	<u>89</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>20:12</u>
(F) Second Final Flow	<u>167</u>	<input checked="" type="checkbox"/> Mileage	<u>26.05</u> 71.30	Comments	
(G) Final Shut-In	<u>1299</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>2185</u>	<input type="checkbox"/> Straddle		<input type="checkbox"/> Ruined Shale Packer	

Initial Open 5  
 Initial Shut-In 15  
 Final Flow 30  
 Final Shut-In 60

Shale Packer  
 Extra Packer  
 Extra Recorder  
 Day Standby  
 Accessibility

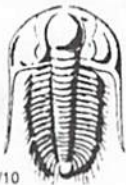
Sub Total 1646.30

Sub Total 1646.30

Approved By Veral Schwag Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 59725

Well Name & No. Marlin Unit #1-23 Test No. #4 Date 12/13/14  
 Company Hanson Engineering Inc Elevation 2796 KB 2787 GL  
 Address 562 W State Rd 4, Okmütz, KS 67564-8561  
 Co. Rep / Geo. Vern Schrag Rig H.D. #3  
 Location: Sec. 23 Twp. 18S Rge. 29W Co. Lane State Ks

Interval Tested 4470 4590 Zone Tested Johnson  
 Anchor Length 120 Drill Pipe Run 4328 Mud Wt. 9.3  
 Top Packer Depth 4465 Drill Collars Run 124 Vis 74  
 Bottom Packer Depth 4470 Wt. Pipe Run --- WL 8.0  
 Total Depth 4590 Chlorides 4600 ppm System LCM #1

Blow Description 1 3/4" in blow  
No return  
11" in blow  
No return

Rec	Feet of	Tr	%gas	%oil	%water	%mud
<u>20'</u>	<u>CO</u>			<u>100</u>		
<u>72</u>	<u>sgmco</u>	<u>3</u>		<u>55</u>		<u>42</u>
<u>42</u>	<u>sgocm</u>	<u>3</u>		<u>32</u>		<u>65</u>

Rec Total 154' BHT 116' Gravity 31 API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic	<u>2339</u>	<input checked="" type="checkbox"/> Test	<u>1250</u>	T-On Location	<u>14:30</u>
(B) First Initial Flow	<u>24</u>	<input checked="" type="checkbox"/> Jars	<u>250</u>	T-Started	<u>14:50</u>
(C) First Final Flow	<u>41</u>	<input checked="" type="checkbox"/> Safety Joint	<u>75</u>	T-Open	<u>16:57</u>
(D) Initial Shut-In	<u>119.5</u>	<input checked="" type="checkbox"/> Circ Sub	<u>N/C</u>	T-Pulled	<u>18:47</u>
(E) Second Initial Flow	<u>46</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>21:05</u>
(F) Second Final Flow	<u>81</u>	<input checked="" type="checkbox"/> Mileage	<u>26 RT</u> 142.60	Comments	<u>Loaded Tools</u> <u>Released 12/14/14 10:14 am</u>
(G) Final Shut-In	<u>119.3</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>228.5</u>	<input type="checkbox"/> Straddle		<input type="checkbox"/> Ruined Shale Packer	

Initial Open 5  Extra Packer  Extra Copies   
 Initial Shut-In 15  Extra Recorder  Sub Total 0  
 Final Flow 30  Day Standby  Total 1717.60  
 Final Shut-In 60  Accessibility  MP/DST Disc't ---  
 Sub Total 1717.60

Approved By Vern Schrag Our Representative [Signature]

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