



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1168872  
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: \_\_\_\_\_



1168872

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	Eugene 1-27
Doc ID	1168872

Tops

Name	Top	Datum
Anhydrite	2081	+650
B Anhydrite	2111	+620
Heebner	3917	-1186
Lansing	3954	-1223
Stark Sh	4228	-1497
Marmaton	4348	-1617
Pawnee	4423	-1692
Ft Scott	4476	-1745
Cherokee	4501	-1770
Mississippi	4571	-1840

# ALLIED OIL & GAS SERVICES, LLC 060563

Federal Tax I.D. # 20-8651475

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

SERVICE POINT: Great Bend, KS

DATE <u>6-12-13</u>	SEC. <u>27</u>	TWP. <u>14S</u>	RANGE <u>28W</u>	CALLED OUT	ON LOCATION	JOB START <u>7:00 am</u>	JOB FINISH <u>8:00 pm</u>
LEASE <u>Eugene</u>		WELL # <u>1-27</u>		LOCATION <u>Highway 2E2S 1/4E</u>		COUNTY <u>Lane</u>	STATE <u>KS</u>
OLD OR <u>NEW</u> (Circle one)				<u>NINTO</u>			

CONTRACTOR HD Drilling #3  
 TYPE OF JOB cut face  
 HOLE SIZE 12 1/4 T.D.  
 CASING SIZE 4 1/2 DEPTH 274.48  
 TUBING SIZE DEPTH  
 DRILL PIPE 1 1/2 DEPTH  
 TOOL DEPTH  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT  
 CEMENT LEFT IN CSG. 15 ft  
 PERFS.  
 DISPLACEMENT 16.91 bbls Freshwater

OWNER \_\_\_\_\_

CEMENT AMOUNT ORDERED 175 sks class A  
34 cc 271 gal

COMMON	<u>175</u>	@ <u>17.90</u>	<u>3,132.50</u>
POZMIX		@	
GEL	<u>3</u>	@ <u>23.40</u>	<u>70.20</u>
CHLORIDE	<u>6</u>	@ <u>64.00</u>	<u>384.00</u>
ASC		@	
		@	
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	<u>188.74 yd</u>	@ <u>2.18</u>	<u>408.97</u>
MILEAGE	<u>8.62 x 15 x</u>	@ <u>2.60</u>	<u>336.18</u>
			<b>TOTAL</b> <u>4,390.95</u>

**EQUIPMENT**

PUMP TRUCK # 798 CEMENTER Dustin Chambers  
 HELPER Mike scot horn  
 BULK TRUCK # 610-182 DRIVER Kendra Walshaw  
 BULK TRUCK # \_\_\_\_\_ DRIVER \_\_\_\_\_

**REMARKS:**

Break cir. cuttings with rig moved  
pump 5 bbls Freshwater ahead  
inst 2 175 sks class A 34 cc 271 gal  
prep base 16.91 bbls Freshwater + 271 gal  
center did circulation  
plug down 7:30 pm  
rig down

**SERVICE**

DEPTH OF JOB	<u>274</u>		
PUMP TRUCK CHARGE		@ <u>1512.25</u>	
EXTRA FOOTAGE		@	
MILEAGE	<u>HUM 15</u>	@ <u>7.70</u>	<u>115.50</u>
MANIFOLD		@	
	<u>HUM 15</u>	@ <u>4.40</u>	<u>66.00</u>
		@	

**TOTAL** 1,693.75

CHARGE TO: Larson Engineering  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**PLUG & FLOAT EQUIPMENT**

_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____

**TOTAL** \_\_\_\_\_

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

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES 6,984.70  
1,321.17  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS  
4,563.52

PRINTED NAME X LEWIS TREWNER  
 SIGNATURE [Signature]  
Thank You!!



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

TICKET 25559

PAGE 1 OF

SERVICE LOCATIONS: 1. **NESS CITY, KS**  
 WELL/PROJECT NO.:  
 LEASE: **EUGENE 1-27**  
 COUNTY/PARISH: **LANE**  
 STATE: **KS**  
 CITY: **DIGHTON, KS**  
 DATE: **29 AUG 13**  
 OWNER:  
 TICKET TYPE:  SERVICE  SALES  
 CONTRACTOR: **WILD WEST WELL SERV.**  
 RIG NAME/NO.:  
 SHIPPED VIA:  
 DELIVERED TO:  
 ORDER NO.:  
 WELL TYPE: **DIL**  
 WELL CATEGORY: **DEVELOPMENT**  
 JOB PURPOSE: **CEMENT PORT COLLAR**  
 WELL PERMIT NO.:  
 WELL LOCATION: **2E, 2S, 1/4E, N1/2O**  
 REFERRAL LOCATION:  
 INVOICE INSTRUCTIONS:

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		UM		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE # 115	30		MIL		6.00	180.00
576D					Pump CHARGE					1500.00	1500.00
276					FLOCELE	45		lbs		2.00	90.00
290					D-AIR	2		gal		42.00	84.00
330					SMD CEMENT	180		bx		17.00	3060.00
581					CEMENT SERVICE CHARGE	250		bx		2.00	500.00
583					DRAINAGE	2491.5		lb	373.22	1.00	373.72

**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: **29 AUG 13** TIME SIGNED: **1030**  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?				5,787	72
WE UNDERSTOOD AND MET YOUR NEEDS?					
OUR SERVICE WAS PERFORMED WITHOUT DELAY?					
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				Lane TAX @ 7.15%	231.23
ARE YOU SATISFIED WITH OUR SERVICE? <input type="checkbox"/> YES <input type="checkbox"/> NO				TOTAL	6018.95
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND					

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 29 AUG 63 PAGE NO.

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
LARSON ENGINEERING				EUGENE 1-27		CEMENT PORT COLLAR		25559	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	0900							ON LOCATION	
								PORT COLLAR @ 2D43	
	0913				✓		1000	TEST - HELD	
	0916							OPEN PORT COLLAR	
	0918	4	100	✓		400		MIX 180sx SMD	
		3	7	✓		300		DISPLACE CEMENT	
								CIRCULATE 2DSx TO PIT	
	0947				✓		1000	CLOSE PORT COLLAR - TEST - HELD	
								RUN 5' STS.	
	0955	20	4		✓		300	REVERSE CLEAN	
	1005							WASH TRUCK	
	1030							JOB COMPLETE	
								THANKS #115	
								JASON JEFF WAYNE	



CHARGE TO: Larson Operating  
 ADDRESS:  
 CITY, STATE, ZIP CODE:

TICKET  
 No 24996

PAGE 1 OF

1. <u>Haystack</u>	WELL/PROJECT NO. <u>1-27</u>	LEASE <u>Eugene</u>	COUNTY/PARISH <u>Lane</u>	STATE <u>Ks</u>	CITY	DATE <u>8-25-13</u>	OWNER
2. <u>Ness City, Ks</u>	TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>HD</u>	RIG NAME/NO. <u>#3</u>	SHIPPED <u>via CT</u>	DELIVERED TO <u>SE/Dighton, Ks</u>	ORDER NO.	
3.	WELL TYPE <u>oil</u>	WELL CATEGORY <u>wildcat</u>	JOB PURPOSE <u>Cement Lining</u>	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							
<u>575</u>		<u>1</u>			MILEAGE <u>#113</u>	<u>40</u>	<u>mi</u>			<u>6.00</u>	<u>240.00</u>
<u>578</u>		<u>1</u>			<u>Pump Charge</u>	<u>1</u>	<u>ea</u>	<u>4625</u>	<u>ft</u>	<u>1500.00</u>	<u>1500.00</u>
<u>221</u>		<u>1</u>			<u>Liquid RCL</u>	<u>2</u>	<u>gal</u>			<u>25.00</u>	<u>50.00</u>
<u>280</u>		<u>1</u>			<u>Flocheck-21</u>	<u>500</u>	<u>gal</u>			<u>3.00</u>	<u>1500.00</u>
<u>290</u>		<u>1</u>			<u>D-Air</u>	<u>2</u>	<u>gal</u>			<u>42.00</u>	<u>84.00</u>
<u>419</u>		<u>1</u>			<u>Rotating Hoop Rental</u>	<u>1</u>	<u>hr</u>			<u>200.00</u>	<u>200.00</u>

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

x [Signature]  
 DATE SIGNED 8-25-13 TIME SIGNED 0300  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	<u>P.1</u>	<u>3574.00</u>
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				<u>P.2</u>	<u>5285.13</u>
WE UNDERSTOOD AND MET YOUR NEEDS?				<u>subtotal</u>	<u>8859.13</u>
OUR SERVICE WAS PERFORMED WITHOUT DELAY?				<u>Lane TAX 7.15%</u>	<u>462.05</u>
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				<u>TOTAL</u>	<u>9321.18</u>
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND		

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!



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

TICKET CONTINUATION

TICKET No. 24996

CUSTOMER **LARSON OPERATING** WELL **1-27 Eugene** DATE **8-25-13** PAGE **2** OF **2**

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	QTY		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	CP			QTY	U/M	QTY	U/M		
325		2				Standard Curt E11-2	155	SKS	14570	lbs	14.00	2170.00
276		2				Fluore	39	lbs			2.00	78.00
283		2				Salt	775	lbs			.20	155.00
284		2				Calseal	729	lbs	8	SKS	35.00	280.00
277		2				Gilsonite	1085	lbs			.25	813.75
292		2				Helad 322	146	lbs	1	%	7.55	1131.50
581		2				SERVICE CHARGE <i>Concrete</i>					2.00	310.00
583		2				MILEAGE CHARGE	12344	TOTAL WEIGHT	40	LOADED MILES	346.88	346.88

CONTINUATION TOTAL 5285.13



JOB LOG

SWIFT Services, Inc.

DATE 8-25-13 PAGE NO.

CUSTOMER *Larson Operating* WELL NO. *1-27* LEASE *Eugene* JOB TYPE *Remant Longstring* TICKET NO. *24996*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0230					15.5 #/ft	5 1/2	On loc - PT & cont - 155 SKS EH-2 Rig running casing - 5 1/2 - 15.5 #/ft to 4625-KB TD 4626' Total Pipe 4628 SS - 43 1/2' = 4584 1/2' = (109 BBL)
	0320							Fin run casing
	0330							Cie casing - Desco
	0430							Fin CIR Plus RH-30 SKS cont
		6	15			300		Pump 15 BBL KCL flush
		5	12			250		Pump 500 gal Floctek 21
		5	5			250		Pump 5 BBL KCL Spacer
		4 1/2				300		Start 125 SKS EH-2 down hole
			30			Use		Fin out - Wash Pump & Lines Drop Plug
		9				300		Start Displ
		9	85			400		Caught cont lift press
		8	90			500		slow rate
		7 1/2	100			600		slow rate
		5	105			700		slow rate
	0515		(109)			800 / 1500		Plus Down-Hold-Release & Hold Job Complete
								<i>Worley</i> Worley, John & Russell
	0530							Worley & Russell



## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.19 @ 03:17:00

End Date: 2013.08.19 @ 08:27:15

Job Ticket #: 54978                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.26 @ 14:31:37



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

Eugene #1-27

Job Ticket: 54978

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 03:17:00

## GENERAL INFORMATION:

Formation: **LKC - H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:20:00

Time Test Ended: 08:27:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Bradley Walter

Unit No: 69

Interval: **4124.00 ft (KB) To 4152.00 ft (KB) (TVD)**

Reference Elevations: 2731.00 ft (KB)

Total Depth: 4152.00 ft (KB) (TVD)

2724.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: **8677**

Inside

Press @ Run Depth: 37.66 psig @ 4125.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.19

End Date:

2013.08.19

Last Calib.:

2013.08.19

Start Time: 03:17:05

End Time:

08:27:14

Time On Btm:

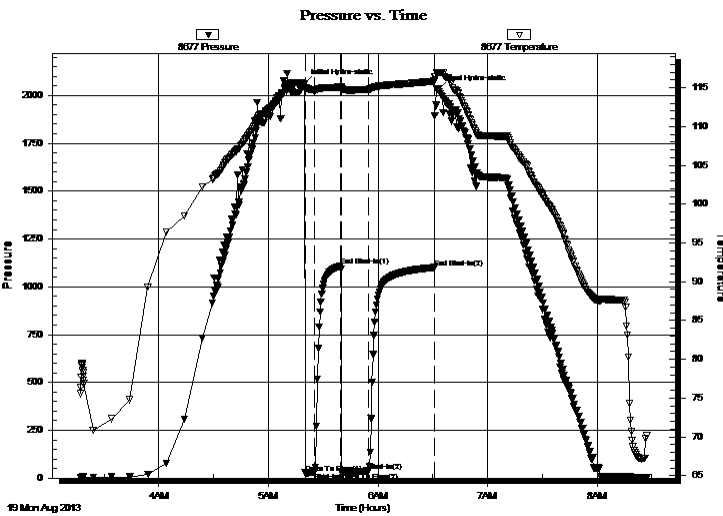
2013.08.19 @ 05:19:45

Time Off Btm:

2013.08.19 @ 06:33:15

TEST COMMENT: IF: 1/4" blow.  
IS: No return.  
FF: Surface blow.  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2060.09	115.54	Initial Hydro-static
1	26.97	114.75	Open To Flow (1)
6	29.25	114.69	Shut-In(1)
20	1108.37	115.08	End Shut-In(1)
21	31.50	114.71	Open To Flow (2)
35	37.66	114.79	Shut-In(2)
72	1101.35	115.85	End Shut-In(2)
74	2030.23	116.97	Final Hydro-static

## Recovery

## Gas Rates

Length (ft)	Description	Volume (bbl)
20.00	mud 100m (thick, heavy)	0.10

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

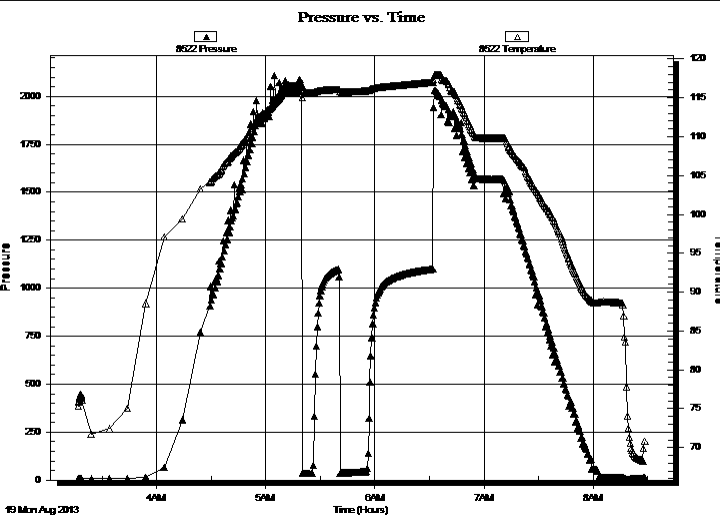
**27 18s 28w Lane, KS**  
**Eugene #1-27**  
 Job Ticket: 54978 **DST#: 1**  
 Test Start: 2013.08.19 @ 03:17:00

## GENERAL INFORMATION:

Formation: **LKC - H**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 05:20:00 Tester: Bradley Walter  
 Time Test Ended: 08:27:15 Unit No: 69  
**Interval: 4124.00 ft (KB) To 4152.00 ft (KB) (TVD)** Reference Elevations: 2731.00 ft (KB)  
 Total Depth: 4152.00 ft (KB) (TVD) 2724.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 7.00 ft

**Serial #: 8522 Outside**  
 Press @ RunDepth: psig @ 4125.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.19 End Date: 2013.08.19 Last Calib.: 2013.08.19  
 Start Time: 03:17:05 End Time: 08:28:14 Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF: 1/4" blow.  
 IS: No return.  
 FF: Surface blow.  
 FS: No return.



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

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	mud 100m (thick, heavy)	0.10

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54978

**DST#: 1**

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 03:17:00

## Tool Information

Drill Pipe:	Length: 3983.00 ft	Diameter: 3.80 inches	Volume: 55.87 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 56.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4124.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	55.00 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			4098.00	
Shut In Tool	5.00			4103.00	
Hydraulic tool	5.00			4108.00	
Jars	5.00			4113.00	
Safety Joint	2.00			4115.00	
Packer	5.00			4120.00	27.00 Bottom Of Top Packer
Packer	4.00			4124.00	
Stubb	1.00			4125.00	
Recorder	0.00	8677	Inside	4125.00	
Recorder	0.00	8522	Outside	4125.00	
Perforations	24.00			4149.00	
Bullnose	3.00			4152.00	28.00 Bottom Packers & Anchor

**Total Tool Length: 55.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54978

**DST#: 1**

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 03:17:00

**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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.75 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
20.00	mud 100m (thick, heavy)	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

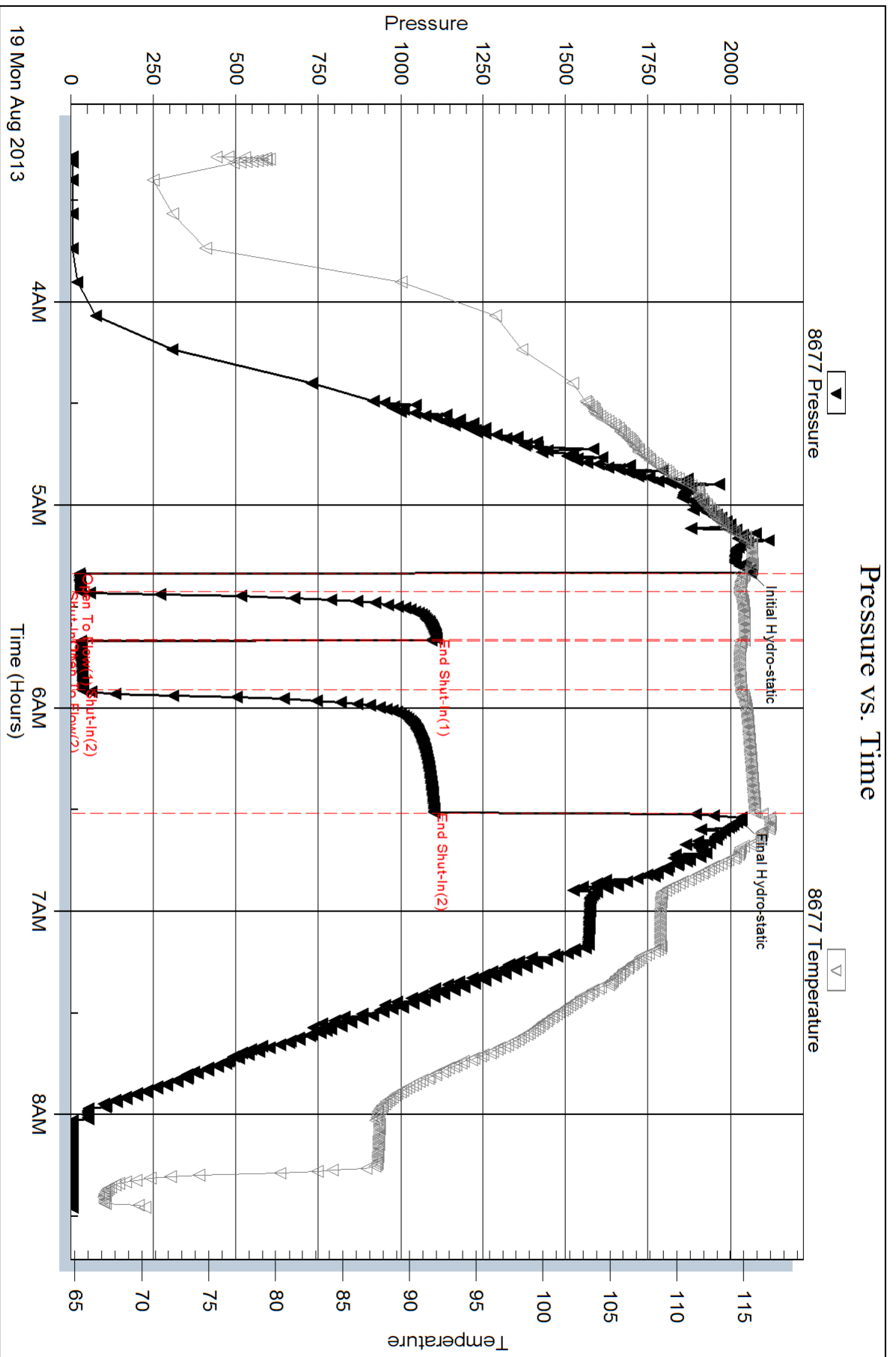
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

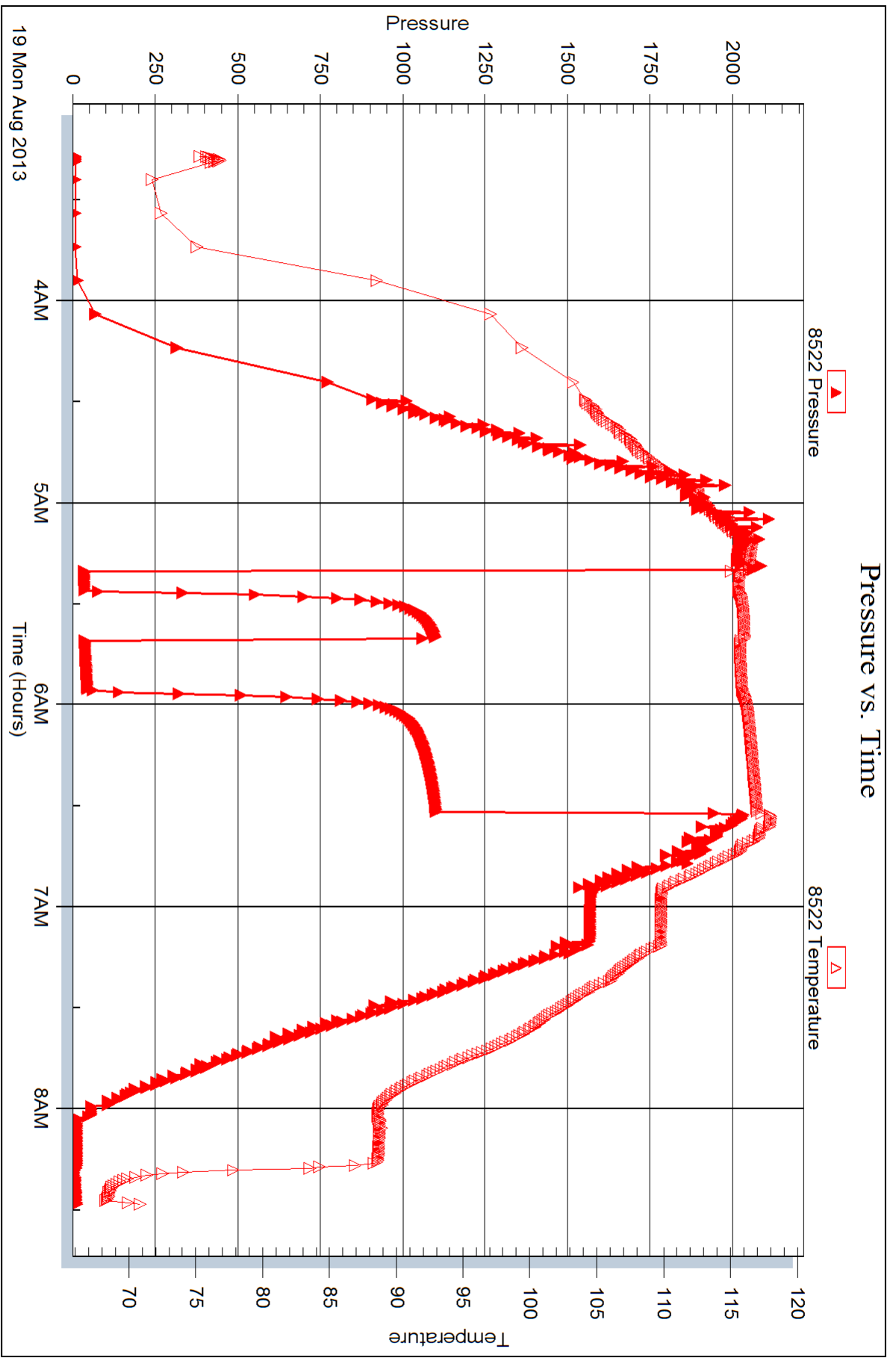


Serial #: 8522

Outside Larson Engineering, Inc

Eugene #1-27

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54978

Printed: 2013.08.26 @ 14:31:39





## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.19 @ 21:04:00

End Date: 2013.08.20 @ 02:00:00

Job Ticket #: 54979                      DST #: 2

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

Printed: 2013.08.26 @ 14:31:08



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**27 18s 28w Lane, KS**  
**Eugene #1-27**  
 Job Ticket: 54979 **DST#: 2**  
 Test Start: 2013.08.19 @ 21:04:00

## GENERAL INFORMATION:

Formation: **LKC - J**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 22:32:45  
 Time Test Ended: 02:00:00  
 Interval: **4199.00 ft (KB) To 4215.00 ft (KB) (TVD)**  
 Total Depth: 4215.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2731.00 ft (KB)  
 2724.00 ft (CF)  
 KB to GR/CF: 7.00 ft

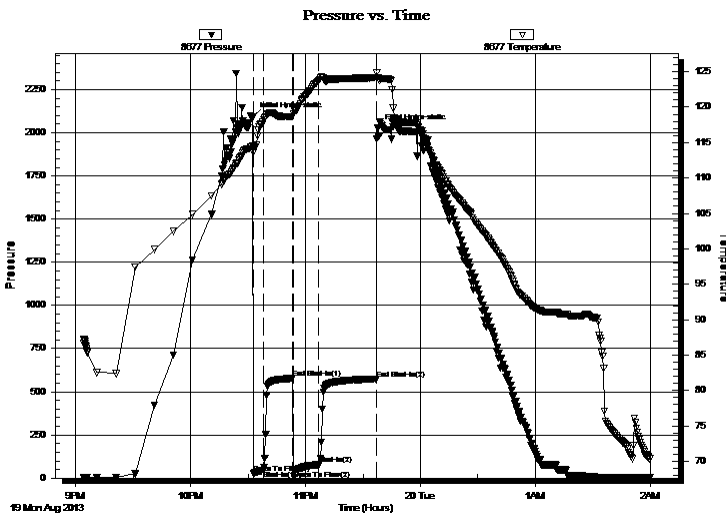
## Serial #: 8677

Inside

Press @ Run Depth: 78.23 psig @ 4200.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.19 End Date: 2013.08.20 Last Calib.: 2013.08.20  
 Start Time: 21:04:05 End Time: 01:59:59 Time On Btm: 2013.08.19 @ 22:32:30  
 Time Off Btm: 2013.08.19 @ 23:37:45

TEST COMMENT: IF: 3 1/2" blow.  
 IS: No return.  
 FF: BOB @ 10 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2091.87	114.52	Initial Hydro-static
1	26.37	113.57	Open To Flow (1)
6	44.84	117.86	Shut-In(1)
21	577.55	118.65	End Shut-In(1)
22	47.57	119.01	Open To Flow (2)
35	78.23	123.77	Shut-In(2)
65	574.09	124.14	End Shut-In(2)
66	2026.42	124.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	gocm 10g 40o 50m	0.30
80.00	gsmco 30g 5m 65o	0.39
0.00	160 GIP	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, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54979

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 21:04:00

## GENERAL INFORMATION:

Formation: **LKC - J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:32:45

Time Test Ended: 02:00:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4199.00 ft (KB) To 4215.00 ft (KB) (TVD)**

Reference Elevations: 2731.00 ft (KB)

Total Depth: 4215.00 ft (KB) (TVD)

2724.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8522 Outside**

Press @ RunDepth: psig @ 4200.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.19

End Date: 2013.08.20

Last Calib.: 2013.08.20

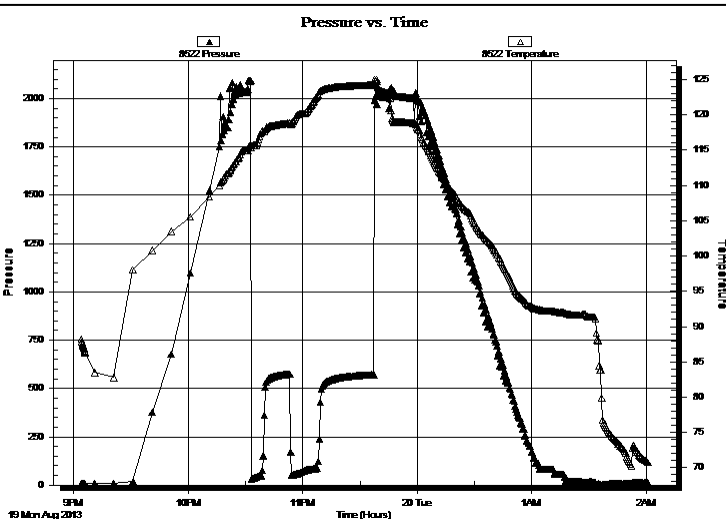
Start Time: 21:04:05

End Time: 02:00:44

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: 3 1/2" blow.  
IS: No return.  
FF: BOB @ 10 min.  
FS: No return.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	gocm 10g 40o 50m	0.30
80.00	gsmco 30g 5m 65o	0.39
0.00	160 GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54979

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 21:04:00

## Tool Information

Drill Pipe:	Length: 4045.00 ft	Diameter: 3.80 inches	Volume: 56.74 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.46 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4199.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	16.00 ft			
Tool Length:	43.00 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			4173.00	
Shut In Tool	5.00			4178.00	
Hydraulic tool	5.00			4183.00	
Jars	5.00			4188.00	
Safety Joint	2.00			4190.00	
Packer	5.00			4195.00	27.00 Bottom Of Top Packer
Packer	4.00			4199.00	
Stubb	1.00			4200.00	
Recorder	0.00	8677	Inside	4200.00	
Recorder	0.00	8522	Outside	4200.00	
Perforations	12.00			4212.00	
Bullnose	3.00			4215.00	16.00 Bottom Packers & Anchor

**Total Tool Length: 43.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54979

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2013.08.19 @ 21:04:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 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: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	gocm 10g 40o 50m	0.295
80.00	gsmco 30g 5m 65o	0.393
0.00	160 GIP	0.000

Total Length: 140.00 ft

Total Volume: 0.688 bbl

Num Fluid Samples: 0

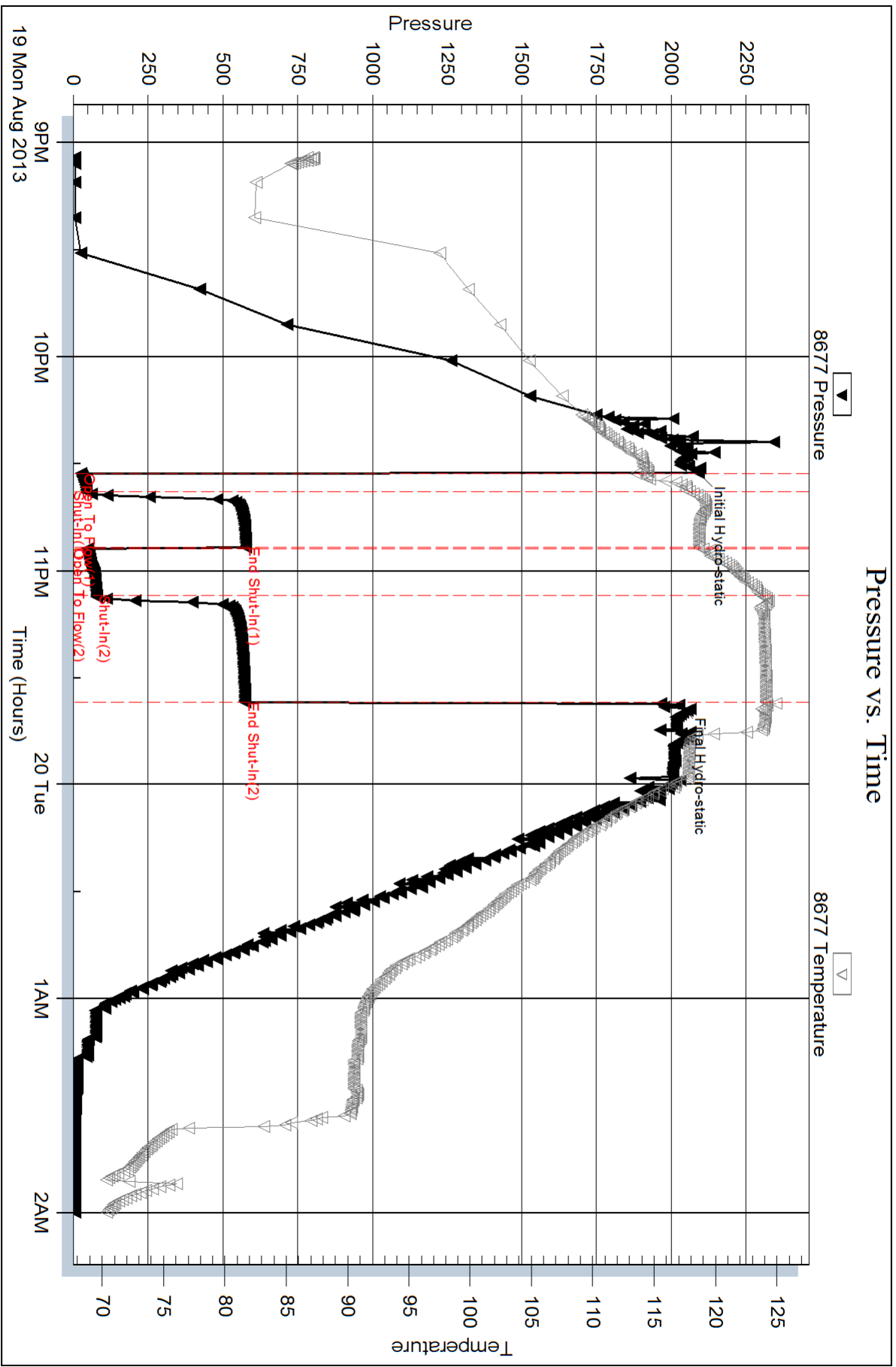
Num Gas Bombs: 0

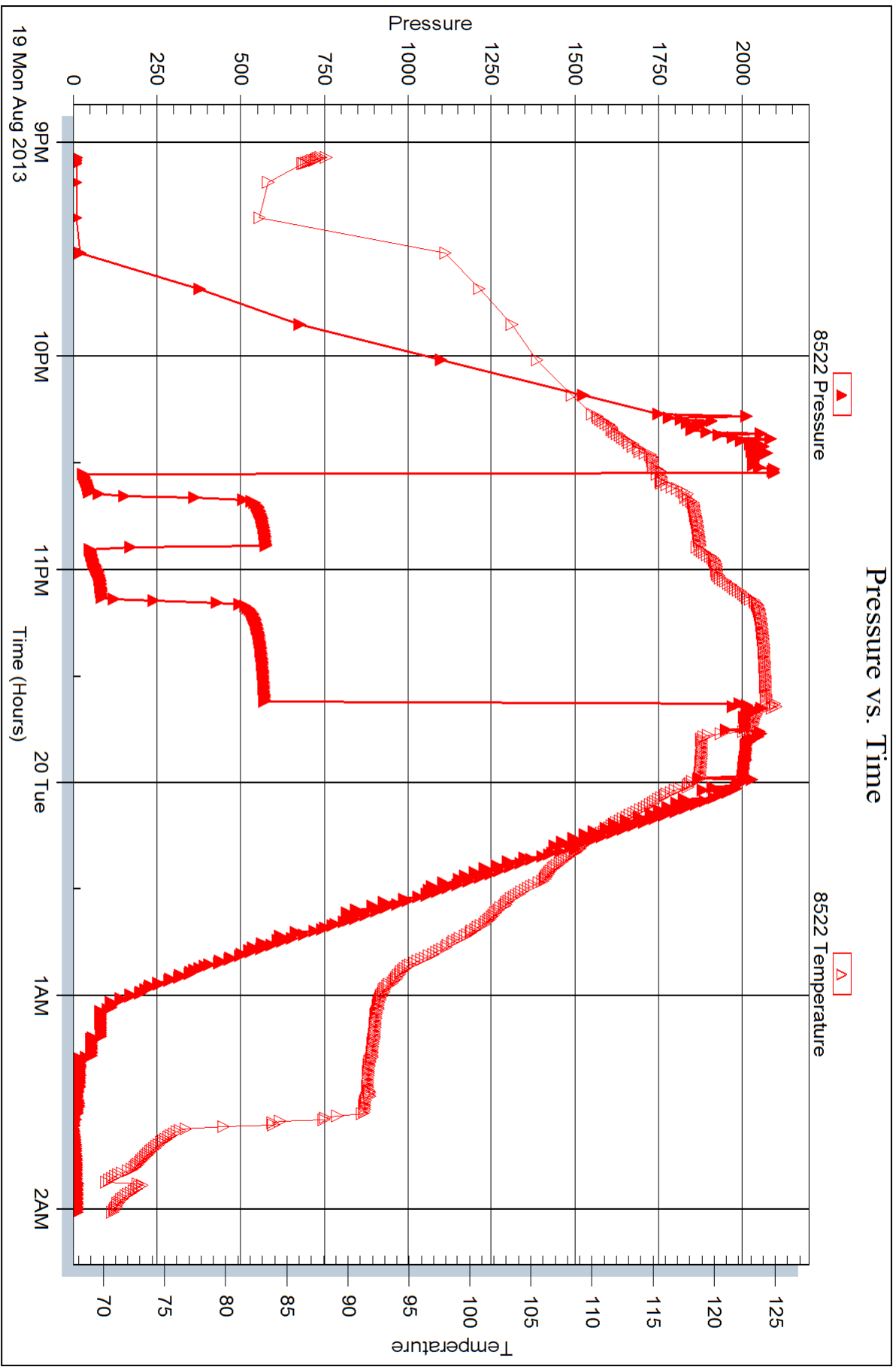
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.20 @ 12:06:00

End Date: 2013.08.20 @ 17:39:15

Job Ticket #: 54980                      DST #: 3

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

Printed: 2013.08.26 @ 14:30:40





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

27 18s 28w Lane, KS

Eugene #1-27

Job Ticket: 54980

DST#: 3

Test Start: 2013.08.20 @ 12:06:00

## GENERAL INFORMATION:

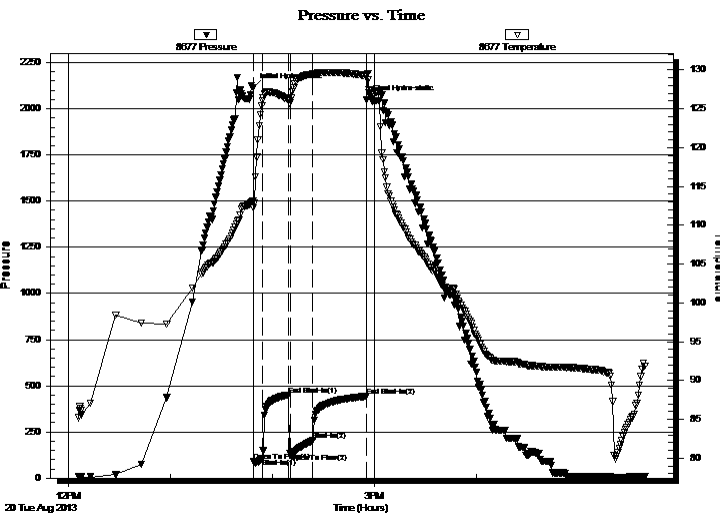
Formation: **LKC - K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 13:49:00  
 Time Test Ended: 17:39:15  
 Interval: **4226.00 ft (KB) To 4250.00 ft (KB) (TVD)**  
 Total Depth: 4250.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2731.00 ft (KB)  
 2724.00 ft (CF)  
 KB to GR/CF: 7.00 ft

## Serial #: 8677

Inside

Press @ RunDepth: 203.21 psig @ 4227.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.20 End Date: 2013.08.20 Last Calib.: 2013.08.20  
 Start Time: 12:06:05 End Time: 17:39:14 Time On Btm: 2013.08.20 @ 13:48:45  
 Time Off Btm: 2013.08.20 @ 14:55:30

TEST COMMENT: IF: BOB @ 2 min.  
 IS: 5" return.  
 FF: BOB @ 1 min.  
 FS: 3" return, Bled off.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2113.71	113.16	Initial Hydro-static
1	90.13	112.21	Open To Flow (1)
6	108.95	126.06	Shut-In(1)
21	450.06	126.15	End Shut-In(1)
22	132.24	126.06	Open To Flow (2)
35	203.21	129.47	Shut-In(2)
67	442.60	129.24	End Shut-In(2)
67	2048.21	129.38	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
140.00	gmco 20g 35m 45o	0.69
350.00	gsmco 40g 3m 57o	4.85
0.00	900' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54980

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2013.08.20 @ 12:06:00

## Tool Information

Drill Pipe:	Length: 4082.00 ft	Diameter: 3.80 inches	Volume: 57.26 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	4226.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 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			4200.00	
Shut In Tool	5.00			4205.00	
Hydraulic tool	5.00			4210.00	
Jars	5.00			4215.00	
Safety Joint	2.00			4217.00	
Packer	5.00			4222.00	27.00 Bottom Of Top Packer
Packer	4.00			4226.00	
Stubb	1.00			4227.00	
Recorder	0.00	8677	Inside	4227.00	
Recorder	0.00	8522	Outside	4227.00	
Perforations	20.00			4247.00	
Bullnose	3.00			4250.00	24.00 Bottom Packers & Anchor

**Total Tool Length: 51.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54980

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2013.08.20 @ 12:06:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

41 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
140.00	gmco 20g 35m 45o	0.688
350.00	gsmco 40g 3m 57o	4.846
0.00	900' GIP	0.000

Total Length: 490.00 ft      Total Volume: 5.534 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

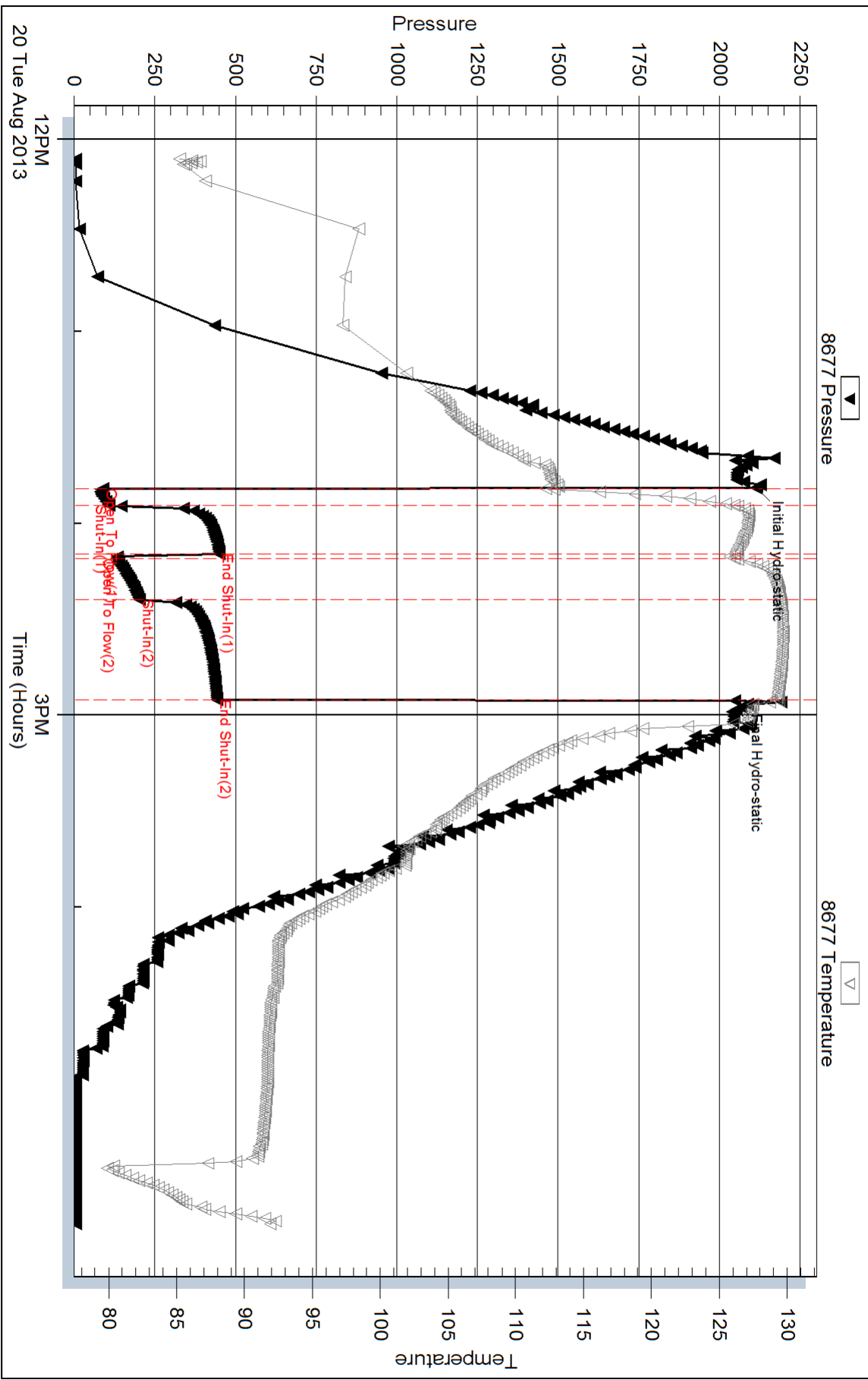
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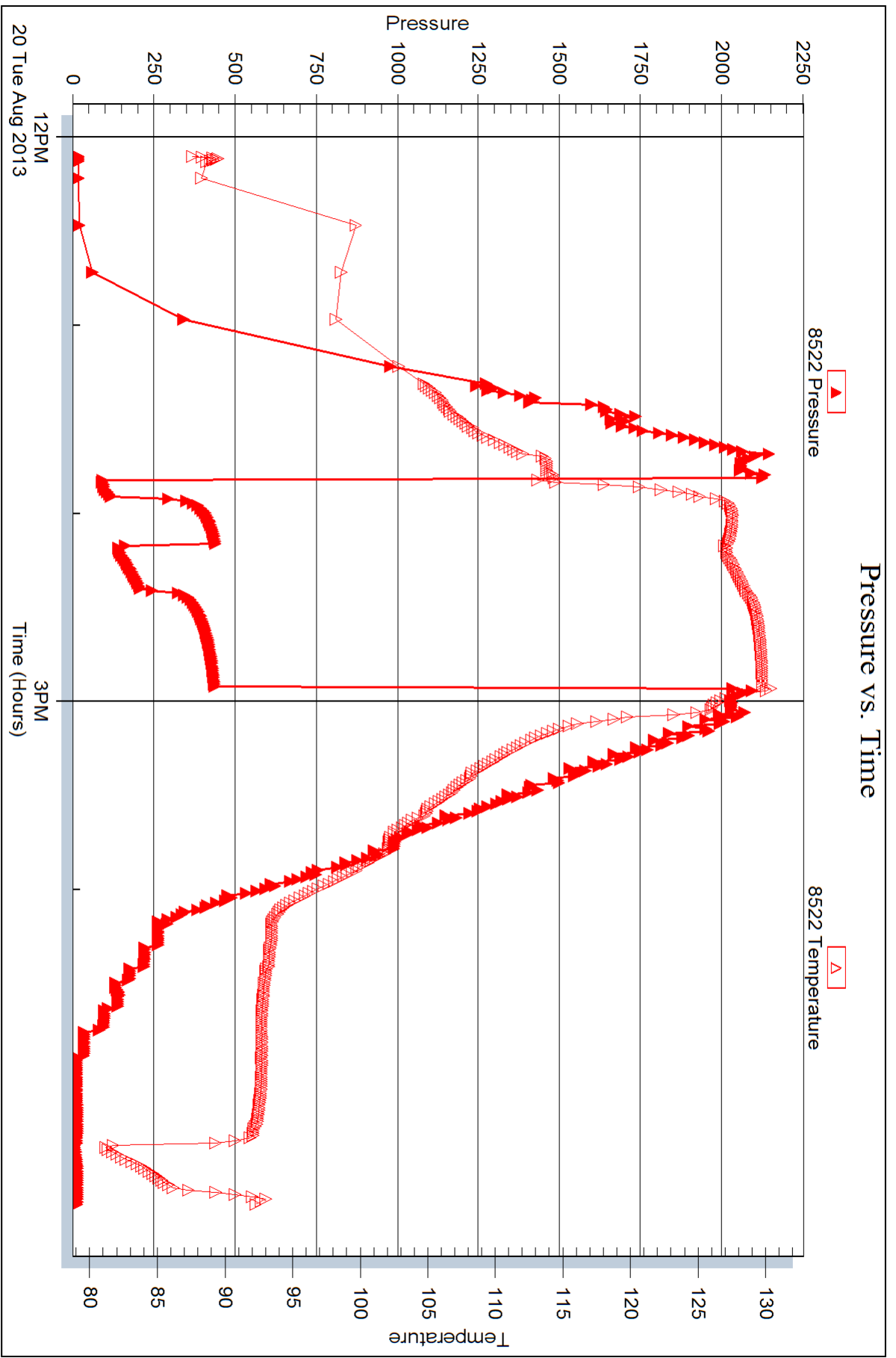
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.21 @ 04:00:00

End Date: 2013.08.21 @ 09:30:30

Job Ticket #: 54981                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.26 @ 14:30:12



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54981

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2013.08.21 @ 04:00:00

## GENERAL INFORMATION:

Formation: **Middle Creek**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:35:00

Time Test Ended: 09:30:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4257.00 ft (KB) To 4270.00 ft (KB) (TVD)**

Reference Elevations: 2731.00 ft (KB)

Total Depth: 4270.00 ft (KB) (TVD)

2724.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8677 Inside**

Press @ Run Depth: 24.06 psig @ 4258.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.21

End Date:

2013.08.21

Last Calib.: 2013.08.21

Start Time: 04:00:05

End Time:

09:30:29

Time On Btm: 2013.08.21 @ 06:34:30

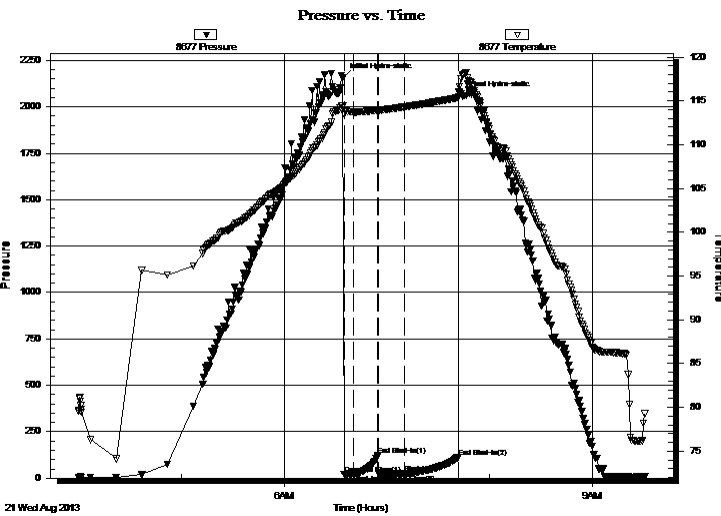
Time Off Btm: 2013.08.21 @ 07:44:15

TEST COMMENT: IF: Died @ 3 min.

IS: No return.

FF: No blow.

FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2155.52	114.47	Initial Hydro-static
1	20.33	113.48	Open To Flow (1)
6	22.55	113.73	Shut-In(1)
21	121.90	113.95	End Shut-In(1)
21	22.95	113.93	Open To Flow (2)
36	24.06	114.32	Shut-In(2)
67	112.51	115.36	End Shut-In(2)
70	2060.34	117.93	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	mud 100m (oil spots)	0.01

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

ATTN: Vern Schrag

Job Ticket: 54981

**DST#: 4**

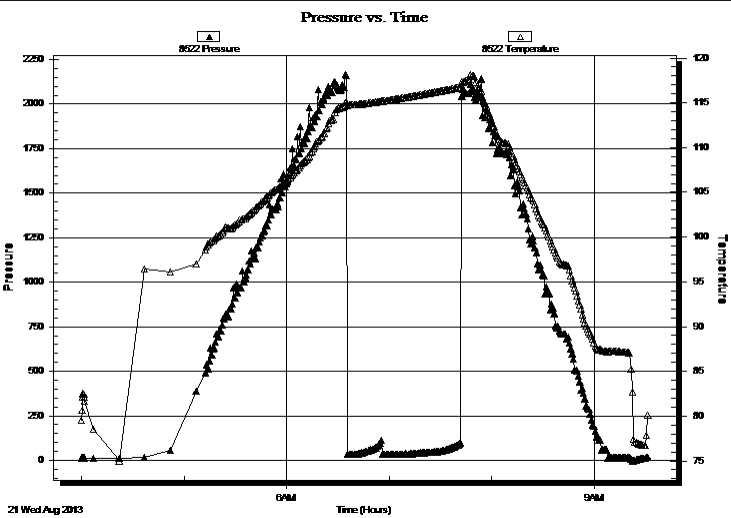
Test Start: 2013.08.21 @ 04:00:00

### GENERAL INFORMATION:

Formation:	<b>Middle Creek</b>		
Deviated:	No	Whipstock:	ft (KB)
Time Tool Opened:	06:35:00		Test Type: Conventional Bottom Hole (Reset)
Time Test Ended:	09:30:30		Tester: Bradley Walter
			Unit No: 69
Interval:	<b>4257.00 ft (KB) To 4270.00 ft (KB) (TVD)</b>	Reference Elevations:	2731.00 ft (KB)
Total Depth:	4270.00 ft (KB) (TVD)		2724.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Good
		KB to GR/CF:	7.00 ft

<b>Serial #: 8522</b>	<b>Outside</b>		
Press @ Run Depth:	psig @	4258.00 ft (KB)	Capacity: 8000.00 psig
Start Date:	2013.08.21	End Date:	2013.08.21
Start Time:	04:00:05	End Time:	09:31:14
		Time On Btm:	
		Time Off Btm:	

**TEST COMMENT:** IF: Died @ 3 min.  
IS: No return.  
FF: No blow.  
FS: No return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
2.00	mud 100m (oil spots)	0.01

### 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, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54981

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2013.08.21 @ 04:00:00

## Tool Information

Drill Pipe:	Length: 4113.00 ft	Diameter: 3.80 inches	Volume: 57.69 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 58.41 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	57000.00 lb
Depth to Top Packer:	4257.00 ft			Final	57000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	13.00 ft				
Tool Length:	40.00 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			4231.00	
Shut In Tool	5.00			4236.00	
Hydraulic tool	5.00			4241.00	
Jars	5.00			4246.00	
Safety Joint	2.00			4248.00	
Packer	5.00			4253.00	27.00 Bottom Of Top Packer
Packer	4.00			4257.00	
Stubb	1.00			4258.00	
Recorder	0.00	8677	Inside	4258.00	
Recorder	0.00	8522	Outside	4258.00	
Perforations	9.00			4267.00	
Bullnose	3.00			4270.00	13.00 Bottom Packers & Anchor

**Total Tool Length: 40.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54981

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2013.08.21 @ 04:00:00

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	mud 100m (oil spots)	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

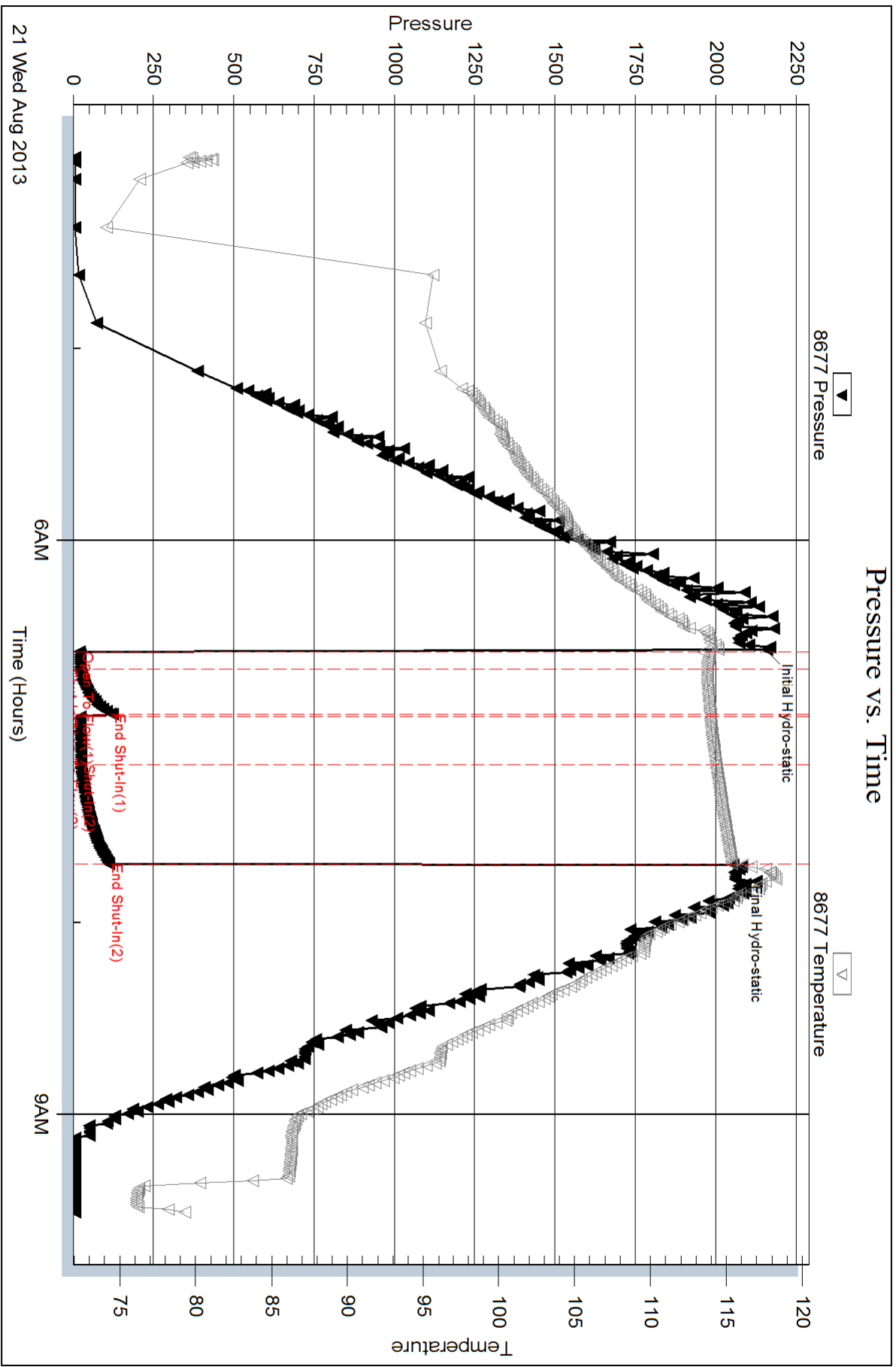
Num Gas Bombs: 0

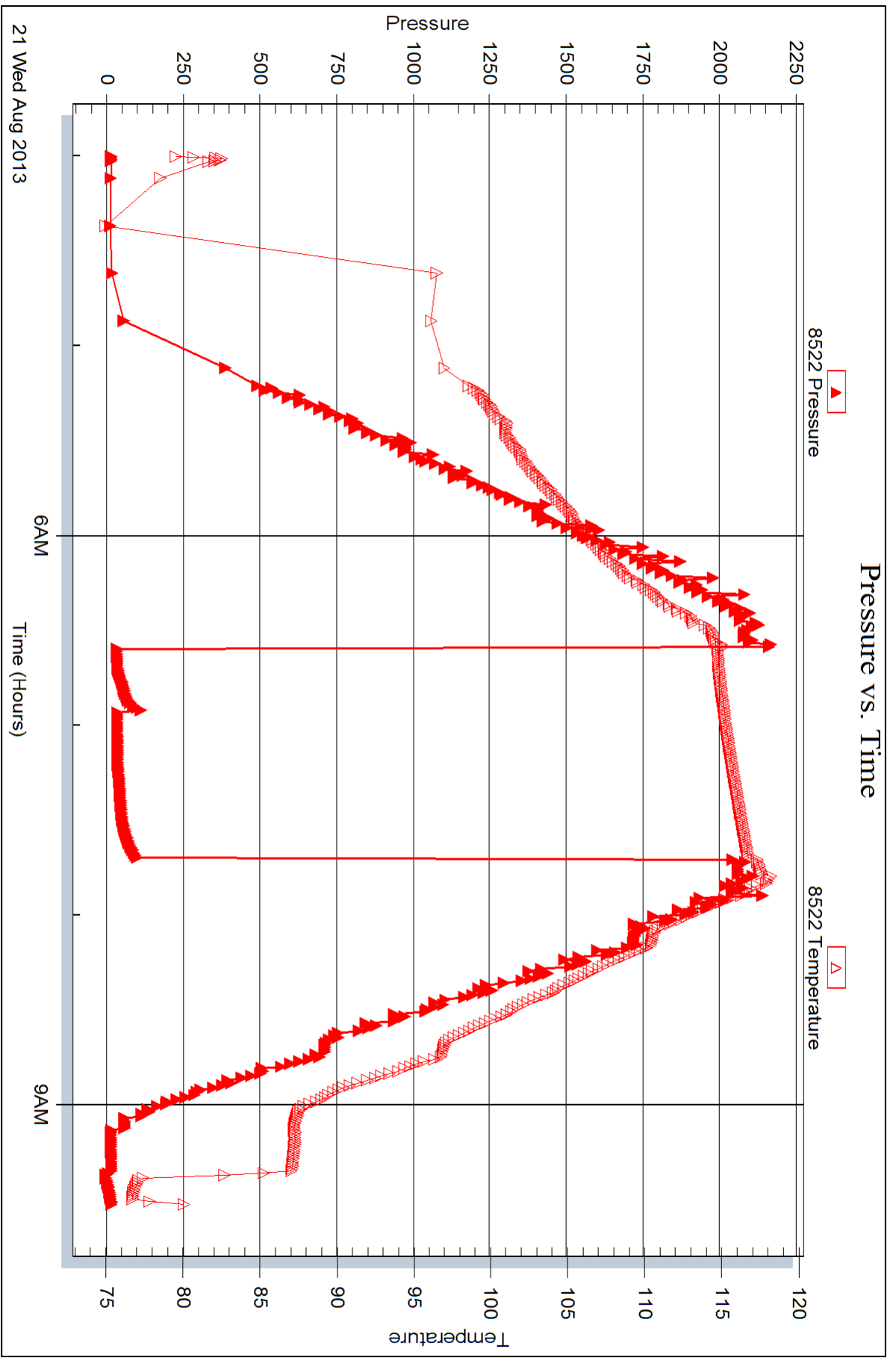
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.21 @ 15:50:00

End Date: 2013.08.21 @ 21:32:15

Job Ticket #: 54982                      DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.26 @ 14:29:42



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

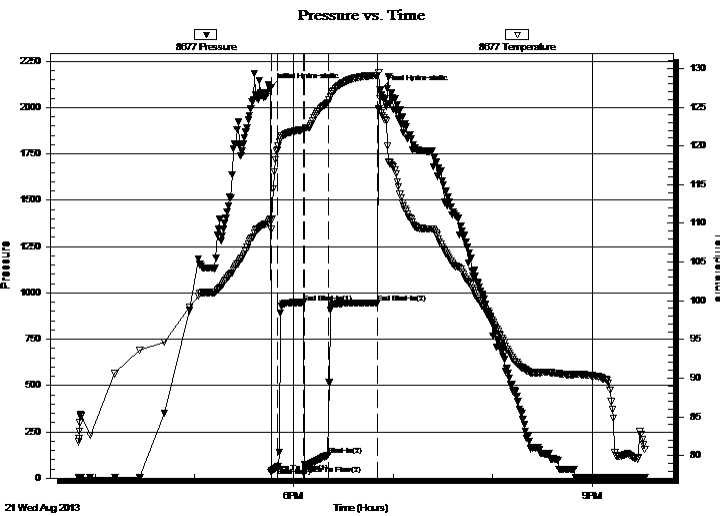
**27 18s 28w Lane, KS**  
**Eugene #1-27**  
 Job Ticket: 54982      **DST#: 5**  
 Test Start: 2013.08.21 @ 15:50:00

## GENERAL INFORMATION:

Formation: **LKC - L**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 17:46:15  
 Time Test Ended: 21:32:15  
 Interval: **4264.00 ft (KB) To 4275.00 ft (KB) (TVD)**  
 Total Depth: 4275.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2731.00 ft (KB)  
 2724.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8677      Inside**  
 Press @ RunDepth: 124.63 psig @ 4265.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2013.08.21      End Date: 2013.08.21      Last Calib.: 2013.08.21  
 Start Time: 15:50:05      End Time: 21:32:14      Time On Btm: 2013.08.21 @ 17:46:00  
 Time Off Btm: 2013.08.21 @ 18:52:00

**TEST COMMENT:** IF: BOB @ 4 min.  
 IS: No return.  
 FF: BOB @ 4 min.  
 FS: BOB @ 10 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2106.55	110.50	Initial Hydro-static
1	31.04	109.20	Open To Flow (1)
4	59.53	119.53	Shut-In(1)
20	947.98	122.08	End Shut-In(1)
21	71.44	122.13	Open To Flow (2)
35	124.63	125.67	Shut-In(2)
65	945.00	129.07	End Shut-In(2)
66	2095.73	126.15	Final Hydro-static

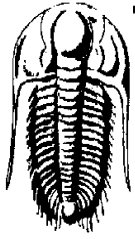
## Recovery

Length (ft)	Description	Volume (bbl)
80.00	gmco 30g 25m 450	0.39
220.00	gsmco 40g 3m 57o	2.48
0.00	750 GIP	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, Inc  
 562 W State Rd 4  
 Olmitz, KS 67564  
 ATTN: Vern Schrag

**27 18s 28w Lane, KS**

**Eugene #1-27**

Job Ticket: 54982

**DST#: 5**

Test Start: 2013.08.21 @ 15:50:00

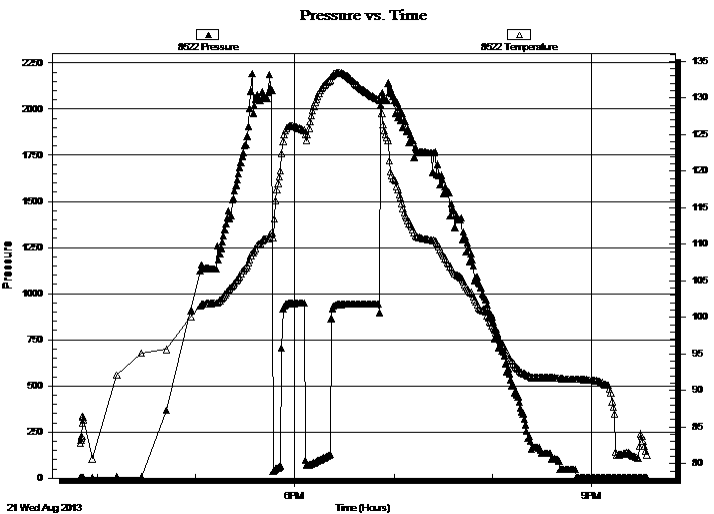
**GENERAL INFORMATION:**

Formation: **LKC - L**  
 Deviated: No Whipstock:                         ft (KB)  
 Time Tool Opened: 17:46:15  
 Time Test Ended: 21:32:15  
 Interval: **4264.00 ft (KB) To 4275.00 ft (KB) (TVD)**  
 Total Depth: 4275.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2731.00 ft (KB)  
 2724.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8522      Outside**

Press @ RunDepth:                         psig @ 4265.00 ft (KB)  
 Capacity: 8000.00 psig  
 Start Date: 2013.08.21      End Date: 2013.08.21      Last Calib.: 2013.08.21  
 Start Time: 15:50:05      End Time: 21:33:14      Time On Btm:  
 Time Off Btm:

TEST COMMENT: IF: BOB @ 4 min.  
 IS: No return.  
 FF: BOB @ 4 min.  
 FS: BOB @ 10 min.



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
80.00	gmco 30g 25m 450	0.39
220.00	gsmco 40g 3m 57o	2.48
0.00	750 GIP	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, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54982

**DST#: 5**

ATTN: Vern Schrag

Test Start: 2013.08.21 @ 15:50:00

## Tool Information

Drill Pipe:	Length: 4111.00 ft	Diameter: 3.80 inches	Volume: 57.67 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.39 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4264.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	11.00 ft			
Tool Length:	38.00 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			4238.00	
Shut In Tool	5.00			4243.00	
Hydraulic tool	5.00			4248.00	
Jars	5.00			4253.00	
Safety Joint	2.00			4255.00	
Packer	5.00			4260.00	27.00 Bottom Of Top Packer
Packer	4.00			4264.00	
Stubb	1.00			4265.00	
Recorder	0.00	8677	Inside	4265.00	
Recorder	0.00	8522	Outside	4265.00	
Perforations	7.00			4272.00	
Bullnose	3.00			4275.00	11.00 Bottom Packers & Anchor

**Total Tool Length: 38.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54982

**DST#: 5**

ATTN: Vern Schrag

Test Start: 2013.08.21 @ 15:50:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbf

Water Loss: 8.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2900.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
80.00	gmco 30g 25m 450	0.393
220.00	gsmco 40g 3m 57o	2.476
0.00	750 GIP	0.000

Total Length: 300.00 ft      Total Volume: 2.869 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

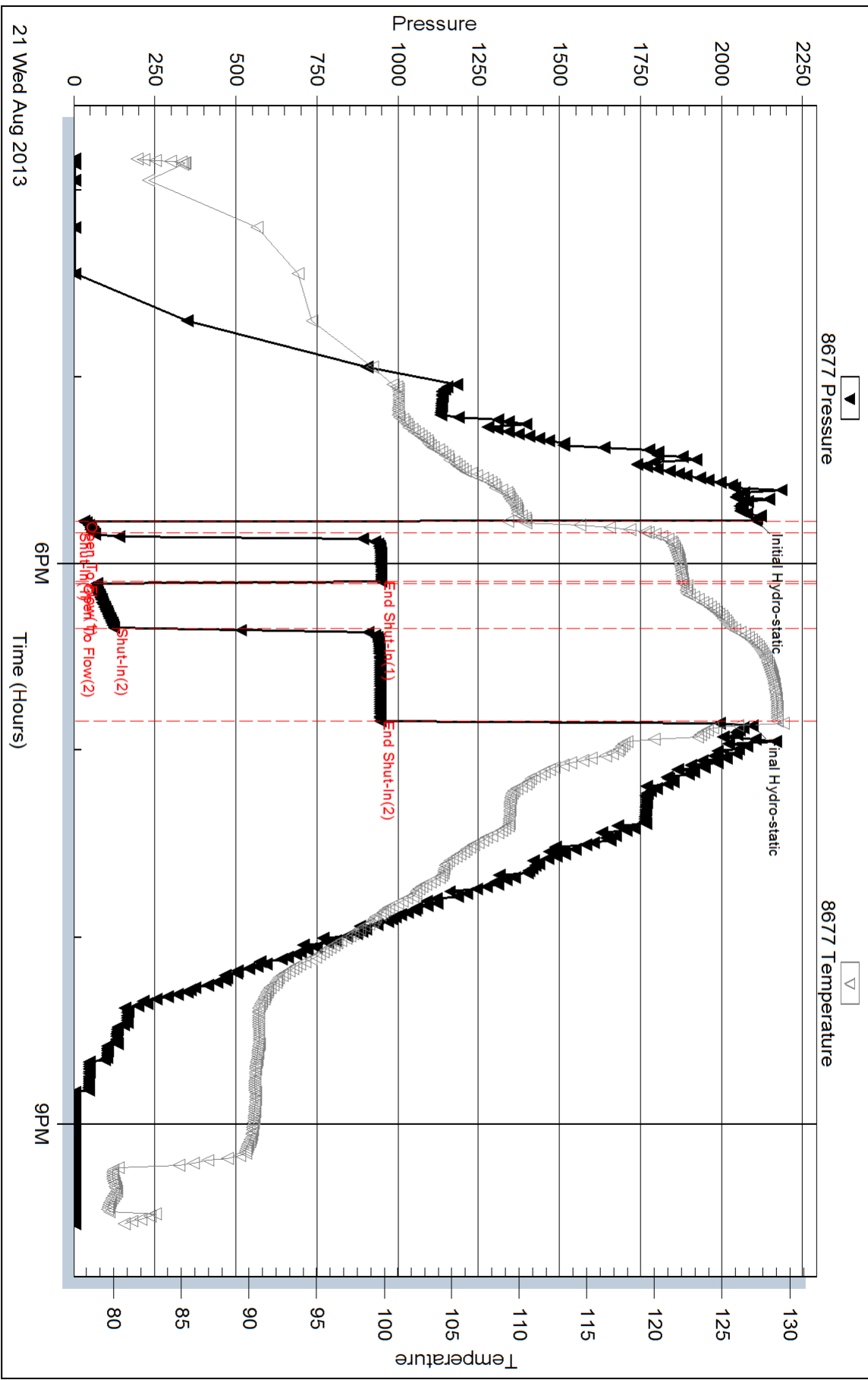
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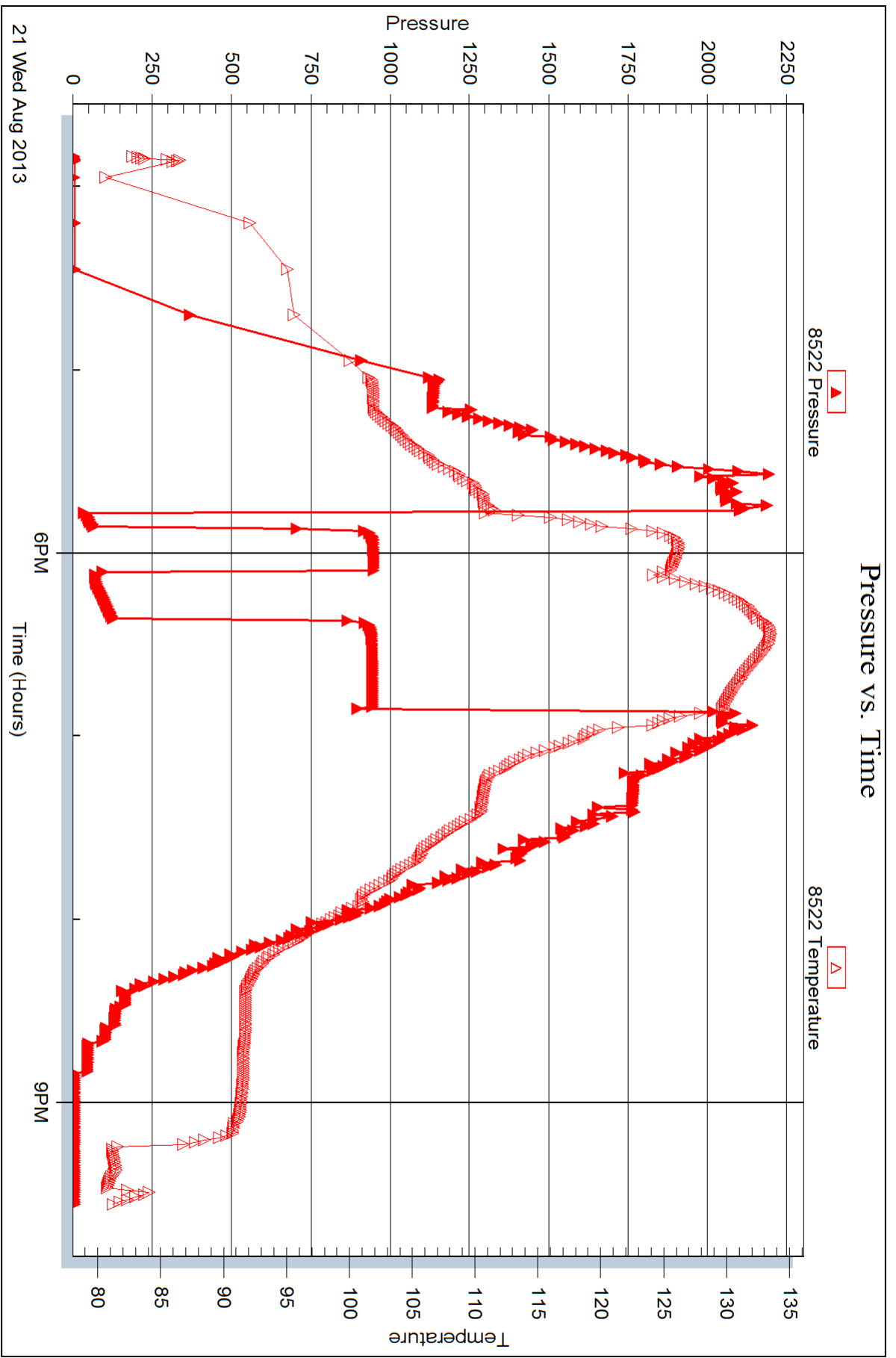
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.22 @ 17:27:00

End Date: 2013.08.22 @ 23:07:15

Job Ticket #: 54984                      DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.26 @ 14:29:13



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

Eugene #1-27

Job Ticket: 54984

DST#: 6

ATTN: Vern Schrag

Test Start: 2013.08.22 @ 17:27:00

## GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:38:15

Time Test Ended: 23:07:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

Interval: **4296.00 ft (KB) To 4410.00 ft (KB) (TVD)**

Reference Elevations: 2731.00 ft (KB)

Total Depth: 4410.00 ft (KB) (TVD)

2724.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: **8522** Outside

Press @ Run Depth: 81.76 psig @ 4297.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.22

End Date: 2013.08.22

Last Calib.: 2013.08.22

Start Time: 17:27:05

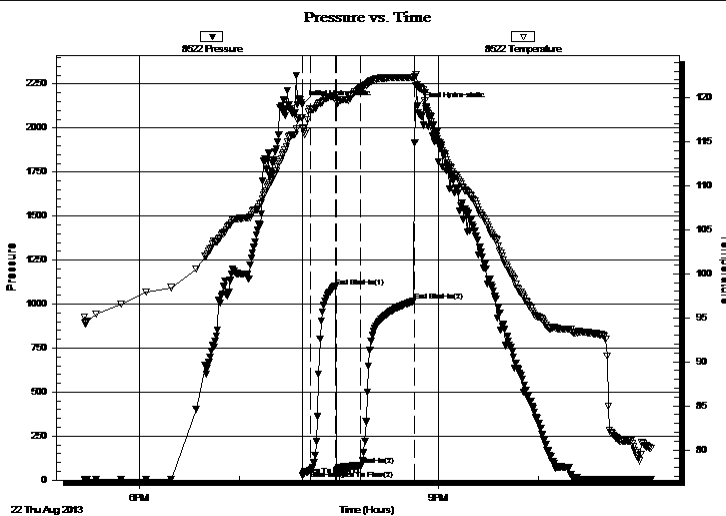
End Time: 23:07:14

Time On Btm: 2013.08.22 @ 19:38:00

Time Off Btm: 2013.08.22 @ 20:47:00

TEST COMMENT: IF: 4" blow.  
IS: No return.  
FF: BOB @ 7 min.  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2132.50	117.74	Initial Hydro-static
1	28.29	116.54	Open To Flow (1)
5	55.72	118.76	Shut-In(1)
20	1097.21	120.17	End Shut-In(1)
21	55.80	119.51	Open To Flow (2)
35	81.76	121.06	Shut-In(2)
67	1018.77	122.24	End Shut-In(2)
69	2124.16	121.52	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
135.00	gocm 20g 30o 50m	0.66
30.00	go 15g 85o	0.31
0.00	195 GIP	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, Inc  
 562 W State Rd 4  
 Olmitz, KS 67564  
 ATTN: Vern Schrag

**27 18s 28w Lane, KS**

**Eugene #1-27**

Job Ticket: 54984

**DST#: 6**

Test Start: 2013.08.22 @ 17:27:00

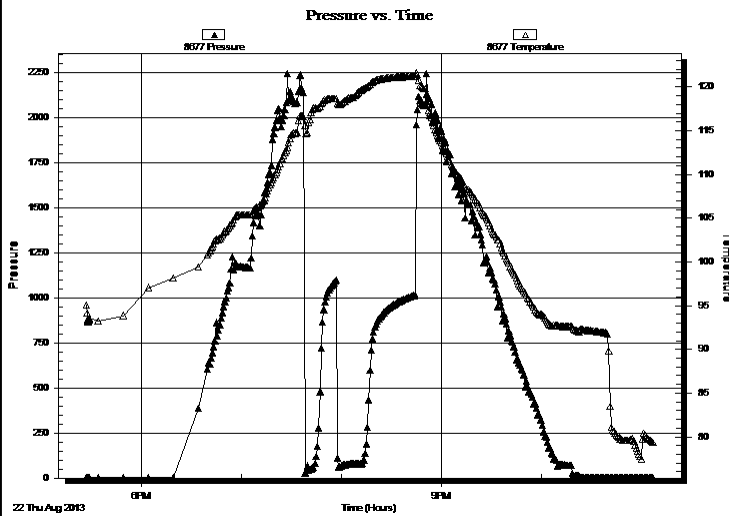
## GENERAL INFORMATION:

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 19:38:15  
 Time Test Ended: 23:07:15  
 Interval: **4296.00 ft (KB) To 4410.00 ft (KB) (TVD)**  
 Total Depth: 4410.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2731.00 ft (KB)  
 2724.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8677 Inside**

Press @ Run Depth: psig @ 4297.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.08.22 End Date: 2013.08.22 Last Calib.: 2013.08.22  
 Start Time: 17:27:05 End Time: 23:06:29 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: 4" blow.  
 IS: No return.  
 FF: BOB @ 7 min.  
 FS: No return.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
135.00	gocm 20g 30o 50m	0.66
30.00	go 15g 85o	0.31
0.00	195 GIP	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, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54984

**DST#: 6**

ATTN: Vern Schrag

Test Start: 2013.08.22 @ 17:27:00

## Tool Information

Drill Pipe:	Length: 4144.00 ft	Diameter: 3.80 inches	Volume: 58.13 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.85 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4296.00 ft			Final 59000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	114.00 ft			
Tool Length:	141.00 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			4270.00	
Shut In Tool	5.00			4275.00	
Hydraulic tool	5.00			4280.00	
Jars	5.00			4285.00	
Safety Joint	2.00			4287.00	
Packer	5.00			4292.00	27.00 Bottom Of Top Packer
Packer	4.00			4296.00	
Stubb	1.00			4297.00	
Recorder	0.00	8677	Inside	4297.00	
Recorder	0.00	8522	Outside	4297.00	
Perforations	14.00			4311.00	
Change Over Sub	1.00			4312.00	
Drill Pipe	94.00			4406.00	
Change Over Sub	1.00			4407.00	
Bullnose	3.00			4410.00	114.00 Bottom Packers & Anchor

**Total Tool Length: 141.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54984

**DST#: 6**

ATTN: Vern Schrag

Test Start: 2013.08.22 @ 17:27:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
135.00	gocm 20g 30o 50m	0.664
30.00	go 15g 85o	0.312
0.00	195 GIP	0.000

Total Length: 165.00 ft

Total Volume: 0.976 bbl

Num Fluid Samples: 0

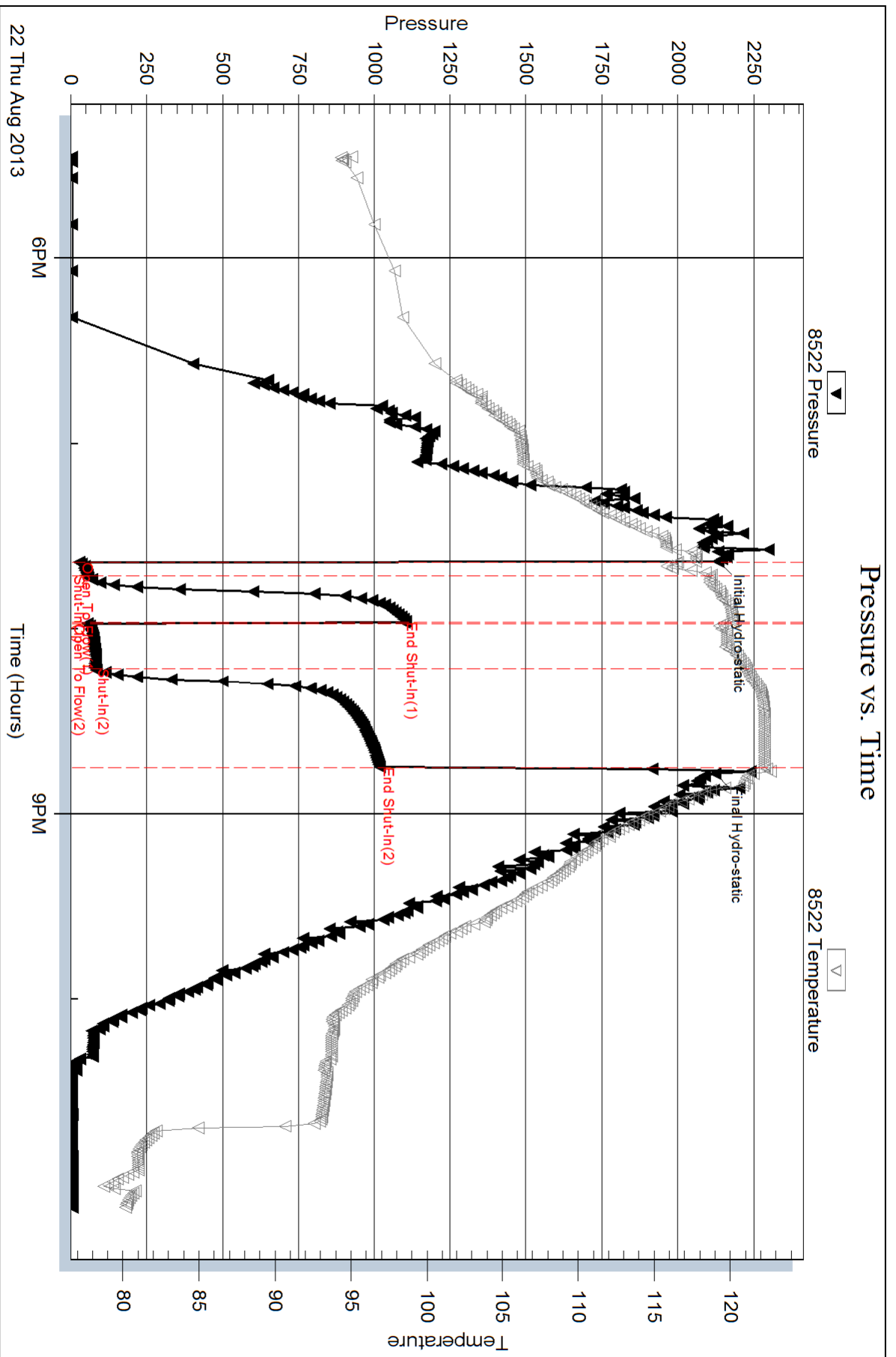
Num Gas Bombs: 0

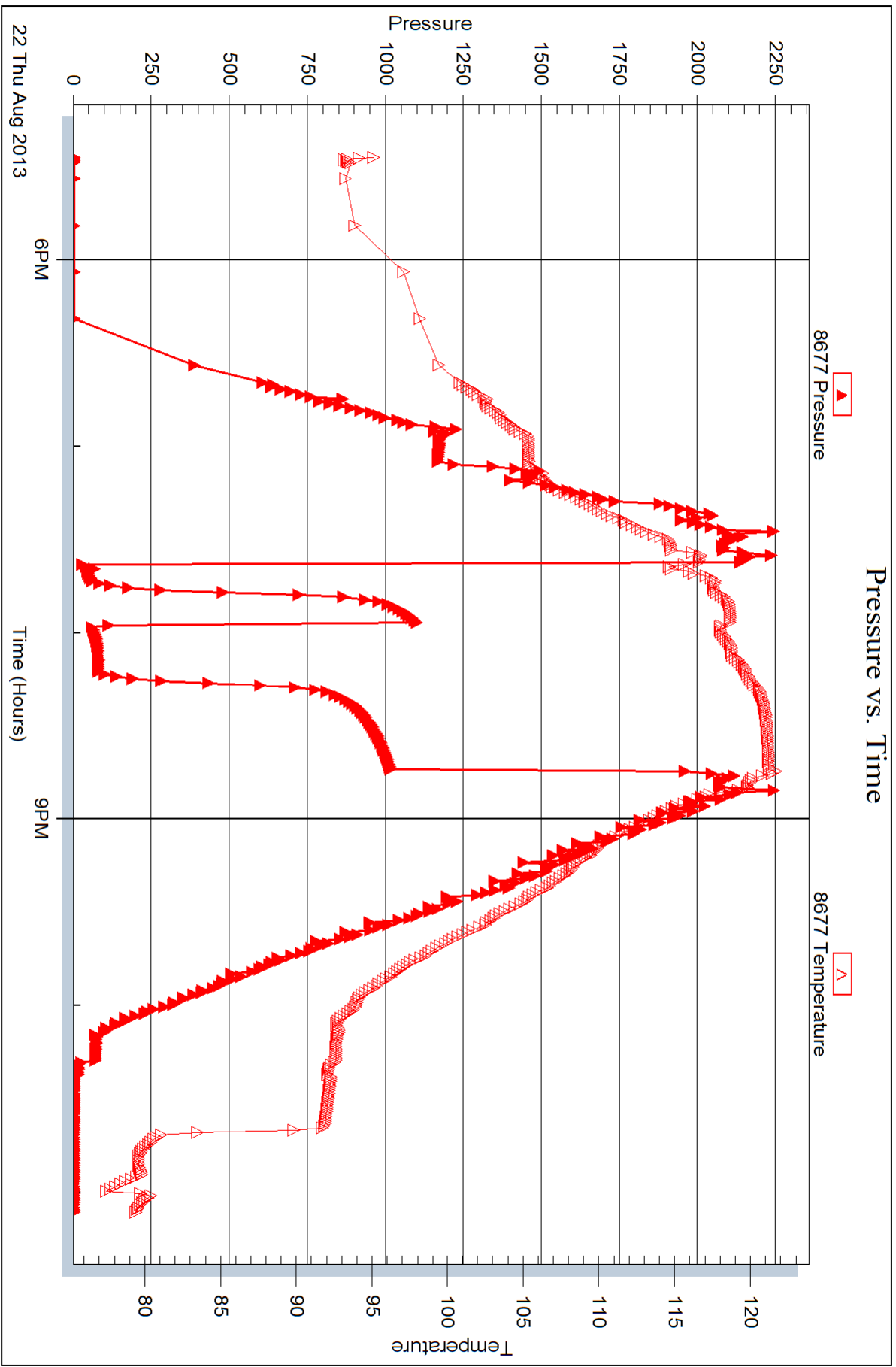
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

### **Eugene #1-27**

#### **27 18s 28w Lane,KS**

Start Date: 2013.08.23 @ 19:57:00

End Date: 2013.08.24 @ 01:42:15

Job Ticket #: 54985                      DST #: 7

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

Printed: 2013.08.26 @ 14:28:35



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering, Inc

27 18s 28w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54985

**DST#: 7**

ATTN: Vern Schrag

Test Start: 2013.08.23 @ 19:57:00

## GENERAL INFORMATION:

Formation: **Pawnee - Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:15

Time Test Ended: 01:42:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

**Interval: 4408.00 ft (KB) To 4560.00 ft (KB) (TVD)**

Reference Elevations: 2731.00 ft (KB)

Total Depth: 4560.00 ft (KB) (TVD)

2724.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8677 Inside**

Press @ Run Depth: 65.75 psig @ 4409.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.23

End Date:

2013.08.24

Last Calib.: 2013.08.24

Start Time: 19:57:05

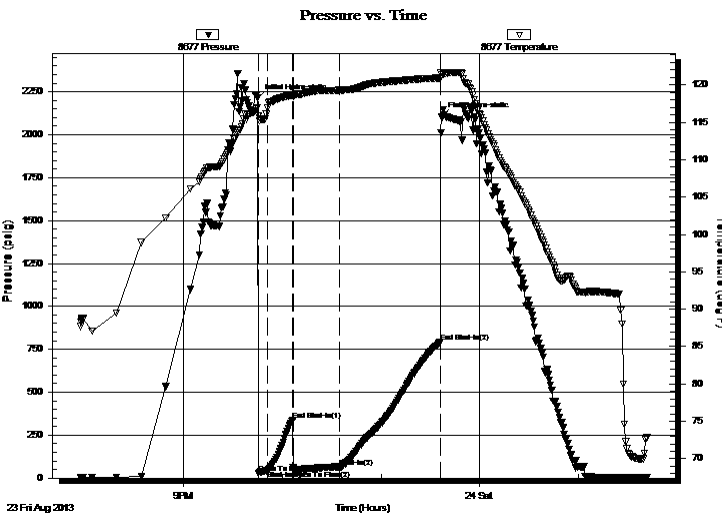
End Time:

01:42:14

Time On Btm: 2013.08.23 @ 21:45:00

Time Off Btm: 2013.08.23 @ 23:37:00

**TEST COMMENT:** IF: 2" blow.  
IS: No return.  
FF: BOB @ 18 min.  
FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2211.77	116.93	Initial Hydro-static
1	28.84	115.88	Open To Flow (1)
6	43.59	116.90	Shut-In(1)
22	336.71	118.57	End Shut-In(1)
22	46.91	118.58	Open To Flow (2)
50	65.75	119.27	Shut-In(2)
112	793.57	120.92	End Shut-In(2)
112	2103.76	121.32	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
90.00	gocm 30g 25o 45m	0.44
0.00	150 GIP	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, Inc

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

27 18s 28w Lane, KS

**Eugene #1-27**

Job Ticket: 54985

**DST#: 7**

Test Start: 2013.08.23 @ 19:57:00

### GENERAL INFORMATION:

Formation: **Pawnee - Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:45:15

Time Test Ended: 01:42:15

**Interval: 4408.00 ft (KB) To 4560.00 ft (KB) (TVD)**

Total Depth: 4560.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Bradley Walter

Unit No: 69

Reference Elevations: 2731.00 ft (KB)

2724.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8522 Outside**

Press @ Run Depth: psig @ 4409.00 ft (KB)

Start Date: 2013.08.23

End Date: 2013.08.24

Start Time: 19:57:05

End Time: 01:43:14

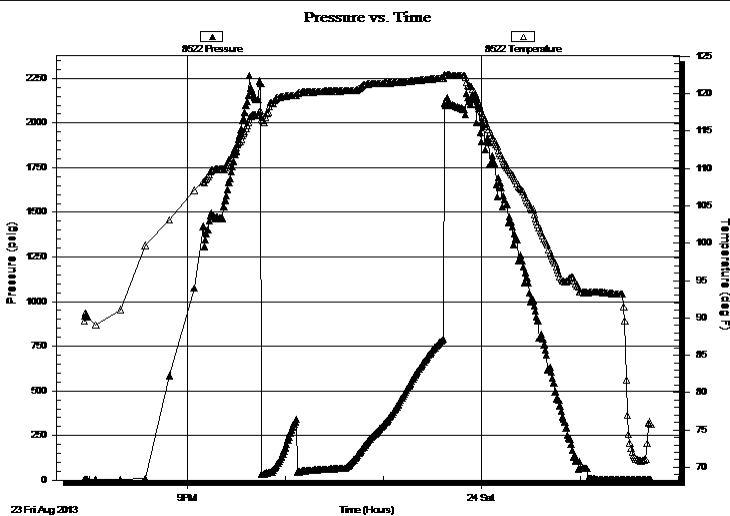
Capacity: 8000.00 psig

Last Calib.: 2013.08.24

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: 2" blow.  
IS: No return.  
FF: BOB @ 18 min.  
FS: No return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
90.00	gocm 30g 25o 45m	0.44
0.00	150 GIP	0.00

\* Recovery from multiple tests

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54985

**DST#: 7**

ATTN: Vern Schrag

Test Start: 2013.08.23 @ 19:57:00

## Tool Information

Drill Pipe:	Length: 4271.00 ft	Diameter: 3.80 inches	Volume: 59.91 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: 147.00 ft	Diameter: 2.25 inches	Volume: 0.72 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.63 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 59000.00 lb
Depth to Top Packer:	4408.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	152.00 ft			
Tool Length:	174.00 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			4387.00	
Shut In Tool	5.00			4392.00	
Hydraulic tool	5.00			4397.00	
Safety Joint	2.00			4399.00	
Packer	5.00			4404.00	22.00 Bottom Of Top Packer
Packer	4.00			4408.00	
Stubb	1.00			4409.00	
Recorder	0.00	8677	Inside	4409.00	
Recorder	0.00	8522	Outside	4409.00	
Perforations	20.00			4429.00	
Change Over Sub	1.00			4430.00	
Drill Pipe	126.00			4556.00	
Change Over Sub	1.00			4557.00	
Bullnose	3.00			4560.00	152.00 Bottom Packers & Anchor

**Total Tool Length: 174.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Engineering, Inc

**27 18s 28w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Eugene #1-27**

Job Ticket: 54985

**DST#: 7**

ATTN: Vern Schrag

Test Start: 2013.08.23 @ 19:57:00

## 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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	gocm 30g 25o 45m	0.443
0.00	150 GIP	0.000

Total Length: 90.00 ft      Total Volume: 0.443 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

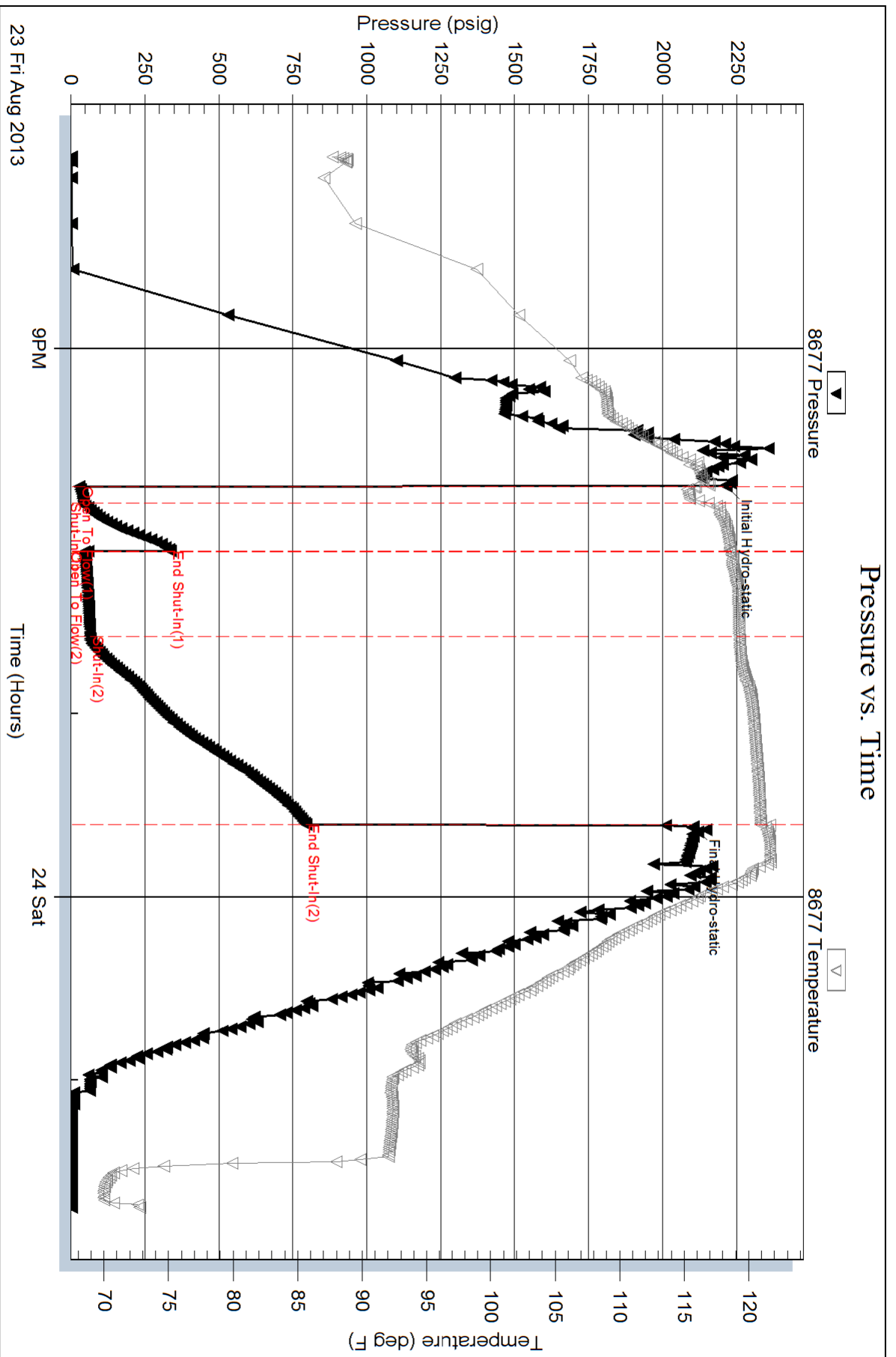
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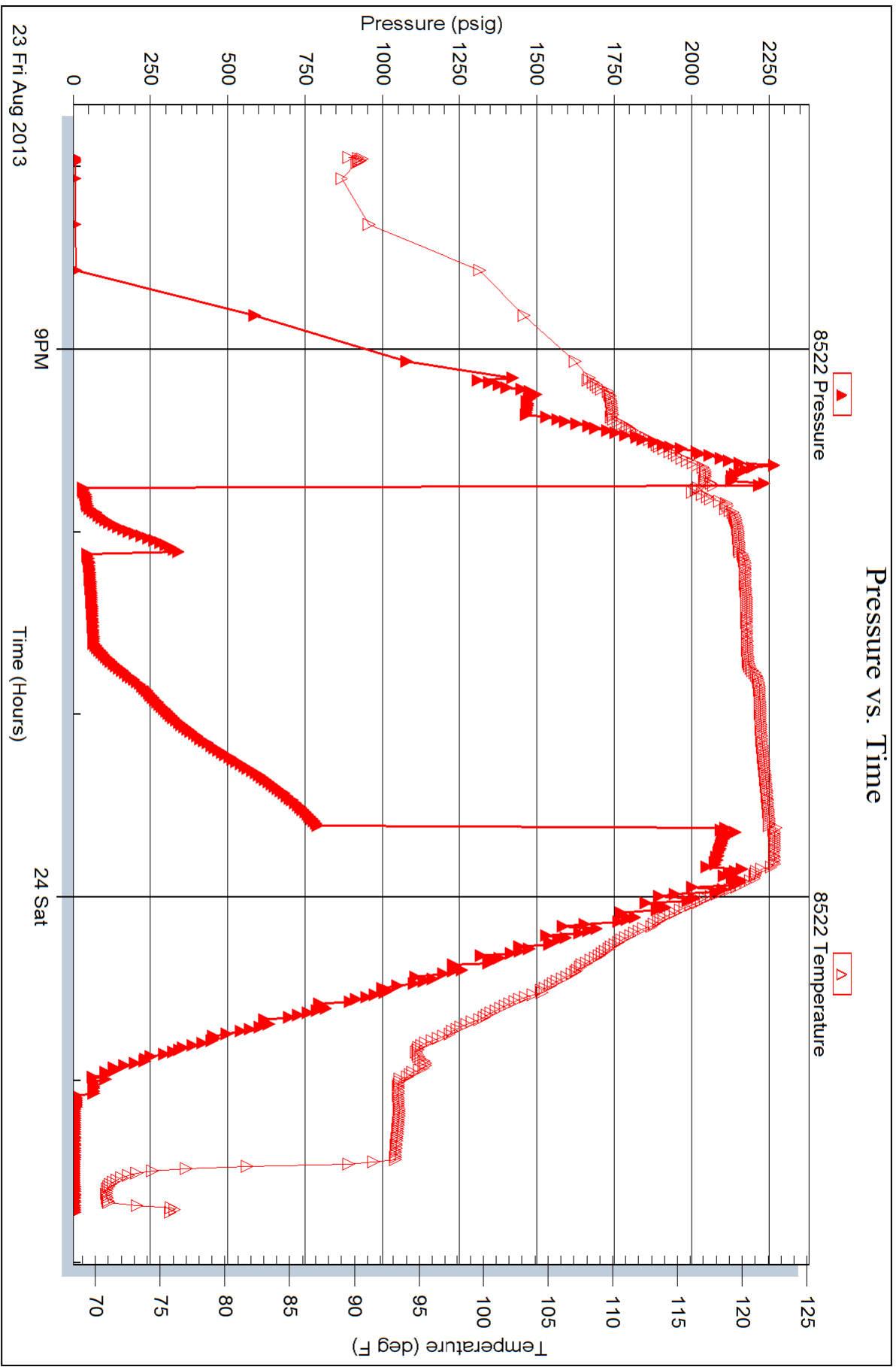
Laboratory Name:

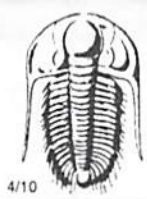
Laboratory Location:

Recovery Comments:









# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **54978**

Well Name & No. Eugene #1-27 Test No. 1 Date 8/20<sup>19</sup>/13  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address 562 W State Rd #4 Olmitz, ks 67564  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 27 Twp. 18s Rge. 28w Co. Lane State \_\_\_\_\_

Interval Tested 4124 4152 Zone Tested LKC -H  
 Anchor Length 28 Drill Pipe Run 3983 Mud Wt. 9.1  
 Top Packer Depth 4119 Drill Collars Run 147 Vis 53  
 Bottom Packer Depth 4124 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4152 Chlorides 3000 ppm System LCM 1#

Blow Description IF: 1/4" blow.  
IST: No return  
FF: Surface blow.  
FST: x10 return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>MUD (Thick)</u>			<u>100</u>	

Rec Total 20 BHT 117 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2060  Test 1250 T-On Location 0240  
 (B) First Initial Flow 27  Jars 250 T-Started 0528-0317  
 (C) First Final Flow 29  Safety Joint 75 T-Open 0520  
 (D) Initial Shut-In 1108  Circ Sub N/C T-Pulled 0625  
 (E) Second Initial Flow 32  Hourly Standby \_\_\_\_\_ T-Out 0828  
 (F) Second Final Flow 38  Mileage 60RT 93  
 (G) Final Shut-In 1101  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2030  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Sub Total 1668

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

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1668  
 MP/DST Disc \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative \_\_\_\_\_

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54979

Well Name & No. Eugene #1-27 Test No. 2 Date 8/20/13  
 Company Larson Engineering Inc. Elevation 2731 KB 2724 GL  
 Address 562 W. State rd 4 Olmitz, Ks 67564  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 27 Twp. 18s Rge. 28w Co. Lane State Ks

Interval Tested 4199-4215 Zone Tested LKC - J  
 Anchor Length 16' Drill Pipe Run 4045 Mud Wt. 9.1  
 Top Packer Depth 4194 Drill Collars Run 147 Vis 56  
 Bottom Packer Depth 4199 Wt. Pipe Run Ø WL 8.0  
 Total Depth 4215 Chlorides 3,000 ppm System LCM 1.5

Blow Description IF! 3 1/2" blow.  
ISI! No return  
FF! BOB @ 10 min.  
FSI! No return.

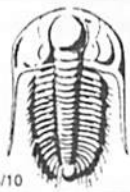
Rec	Feet of	(BOTTOM)	%gas	%oil	%water	%mud
<u>60</u>	<u>60cm</u>		<u>10</u>	<u>40</u>	<u>—</u>	<u>50</u>
<u>80</u>	<u>65mco</u>	(TOP)	<u>30</u>	<u>65</u>	<u>—</u>	<u>5</u>
<u>160</u>	<u>GIP</u>					
<u>140</u>	<u>BHT 124</u>	<u>Gravity 37</u>	<u>API RW —</u>	<u>@ —</u>	<u>° F</u>	<u>Chlorides — ppm</u>

(A) Initial Hydrostatic 2092  Test 1250 T-On Location 2030  
 (B) First Initial Flow 26  Jars 250 T-Started 2103  
 (C) First Final Flow 45  Safety Joint 75 T-Open 2233  
 (D) Initial Shut-In 578  Circ Sub N/C T-Pulled 2338  
 (E) Second Initial Flow 48  Hourly Standby \_\_\_\_\_ T-Out 0201  
 (F) Second Final Flow 78  Mileage 60 RT 93 Comments \_\_\_\_\_  
 (G) Final Shut-In 574  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2026  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1668  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1668

Approved By Vern C Schrag Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54980

Well Name & No. Eugene #1-27 Test No. 3 Date 8/20/13  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address 562 W. State Rd 4 Olmitz, Ks 67564  
 Co. Rep / Geo. Vern Schnag Rig HD #3  
 Location: Sec. 27 Twp. 18s Rge. 28w Co. Lanc State Ks

Interval Tested 4226 - 4250 Zone Tested LKC - K  
 Anchor Length 24 Drill Pipe Run 4082 Mud Wt. 9.1  
 Top Packer Depth 4221 Drill Collars Run 147 Vis SS  
 Bottom Packer Depth 4226 Wt. Pipe Run Ø WL 8.0  
 Total Depth 4250 Chlorides 3000 ppm System LCM 1#

Blow Description TFI BOB @ 2 min  
TSI: 5" return.  
FF: BOB @ 1 min  
PST: 3" return. bled off.

Rec	Feet of	%gas	%oil	%water	%mud
<u>350</u>	<u>GSMCO</u>	<u>40%</u>	<u>57%</u>	<u>3</u>	
<u>140</u>	<u>CMCO</u>	<u>20%</u>	<u>45%</u>	<u>35</u>	
	<u>900' GIP</u>				

Rec Total 490 BHT 129 Gravity 41 API RW — @ —°F Chlorides — ppm

(A) Initial Hydrostatic 2114  Test 1250 T-On Location 1180  
 (B) First Initial Flow 90  Jars 250 T-Started 1205  
 (C) First Final Flow 109  Safety Joint 75 T-Open 1349  
 (D) Initial Shut-In 450  Circ Sub N/C T-Pulled 1454  
 (E) Second Initial Flow 132  Hourly Standby \_\_\_\_\_ T-Out 1740  
 (F) Second Final Flow 203  Mileage 60 RT 93  
 (G) Final Shut-In 443  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2048  Straddle \_\_\_\_\_

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1668

Initial Open 5  
 Initial Shut-In 15  
 Final Flow 15  
 Final Shut-In 20

Sub Total 1668

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **54981**

Well Name & No. Eugene # 1-27 Test No. 4 Date 8/21/13  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address Larson Engineering, Inc 562 W State RD 4 Olmitz, Ks 67564  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 27 Twp. 18S Rge. 28W Co. Lane State Ks

Interval Tested 4257 - 4270 Zone Tested Middle Creek  
 Anchor Length 13 Drill Pipe Run 4113 Mud Wt. 9.0  
 Top Packer Depth 4252 Drill Collars Run 147 Vis 55  
 Bottom Packer Depth 4257 Wt. Pipe Run 0 WL 8.8  
 Total Depth 4270 Chlorides 2800 ppm System LCM 1#

Blow Description IF! Dred @ 3 min.  
ISI! No return.  
FF! No blow  
FSI! No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>MOD (OIL SPOTS)</u>				

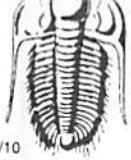
Rec Total 2 BHT 116 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2156</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>0330</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0408</u>
(C) First Final Flow <u>23</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0636</u>
(D) Initial Shut-In <u>122</u>	<input checked="" type="checkbox"/> Circ Sub <u>H/L</u>	T-Pulled <u>0741</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0931</u>
(F) Second Final Flow <u>24</u>	<input checked="" type="checkbox"/> Mileage <u>60 RT</u> <u>93</u>	Comments
(G) Final Shut-In <u>113</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2060</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<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>1668</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1668</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54982

Well Name & No. Eugene #1-27 Test No. 5 Date 8/21/13  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address 562 W State Rd 4 Olmitz, Ks 67564  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 27 Twp. 18S Rge. 28W Co. Lane State Ks

Interval Tested 4264-4275 Zone Tested LKC-L  
 Anchor Length 11 Drill Pipe Run 413 Mud Wt. 9.1  
 Top Packer Depth 4259 Drill Collars Run 147 Vis 55  
 Bottom Packer Depth 4264 Wt. Pipe Run 0 WL 8.4  
 Total Depth 4275 Chlorides 2900 ppm System LCM 1#

Blow Description IF: BOB @ 4 min  
ISI: No return  
FF: BOB @ 4 min  
FSI: BOB @ 10 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>220</u>	<u>GSMCO</u>	<u>40%</u>	<u>57%</u>	<u>3%</u>	<u></u>
<u>80</u>	<u>G MCO</u>	<u>30%</u>	<u>45%</u>	<u>25%</u>	<u></u>
		%gas	%oil	%water	%mud
	<u>750' GIP</u>	%gas	%oil	%water	%mud
		%gas	%oil	%water	%mud

Rec Total 300 BHT 129 Gravity 37 API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2107</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>1520</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1550</u>
(C) First Final Flow <u>60</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1750</u>
(D) Initial Shut-In <u>948</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>1855</u>
(E) Second Initial Flow <u>71</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2133</u>
(F) Second Final Flow <u>125</u>	<input checked="" type="checkbox"/> Mileage <u>60 RT</u> <u>93</u>	Comments
(G) Final Shut-In <u>945</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2096</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
Initial Open <u>5</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Initial Shut-In <u>15</u>	<input type="checkbox"/> Day Standby	Total <u>1668</u>
Final Flow <u>15</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
Final Shut-In <u>30</u>	Sub Total <u>1668</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54984

Well Name & No. Eugene #1-27 Test No. 6 Date 8/22/18  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address 562 W. State Rd 4 Olmitz, ks 67564  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 27 Twp. 18s Rge. 28w Co. Lane State Ks

Interval Tested 4264-4296 -4410 Zone Tested Marmaton  
 Anchor Length 114 Drill Pipe Run 4144 Mud Wt. 9.1  
 Top Packer Depth 4291 Drill Collars Run 147 Vis 54  
 Bottom Packer Depth 4296 Wt. Pipe Run Ø WL 8.8  
 Total Depth 4410 Chlorides 3,600 ppm System LCM 1#

Blow Description IF! 4" blow.  
ISI: No return.  
FF: BOB @ 7 min.  
FSI: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>60</u>	<u>15</u>	<u>85</u>		
<u>135</u>	<u>60cm</u>	<u>20</u>	<u>30</u>		<u>50</u>
	<u>195' GIP</u>				

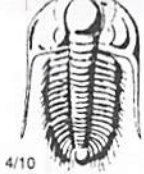
Rec Total 165 BHT 124 Gravity 37 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2133</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>1700</u>
(B) First Initial Flow <u>29</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1727</u>
(C) First Final Flow <u>56</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1938</u>
(D) Initial Shut-In <u>1097</u>	<input checked="" type="checkbox"/> Circ Sub	T-Pulled <u>2043</u>
(E) Second Initial Flow <u>56</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2307</u>
(F) Second Final Flow <u>82</u>	<input checked="" type="checkbox"/> Mileage <u>60 RT</u> 93	Comments
(G) Final Shut-In <u>1019</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2124</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<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>1668</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1668</u>	

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 54985

Well Name & No. Eugene #1-27 Test No. 7 Date 8/24/13  
 Company Larson Engineering, Inc Elevation 2731 KB 2724 GL  
 Address 562 W. State Rd #4 Olmitz, Ks 67564  
 Co. Rep / Geo. Vern Schragg Rig HD#3  
 Location: Sec. 27 Twp. 18s Rge. 28w Co. Lane State Ks

Interval Tested 4408 - 4560 Zone Tested TKK Pawnee - Cheyenne  
 Anchor Length 152 Drill Pipe Run 4271 Mud Wt. 9.1  
 Top Packer Depth 4403 Drill Collars Run 147 Vis 58  
 Bottom Packer Depth 4408 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4560 Chlorides 2500 ppm System LCM 1#  
 Blow Description IF! 2" blow  
TST! No return  
FF! BOB @ 18 min.  
FST! No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>60CM</u>	<u>30%</u>	<u>25%</u>	<u>45%</u>	<u>0%</u>
Rec	Feet of <u>150' GIP</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

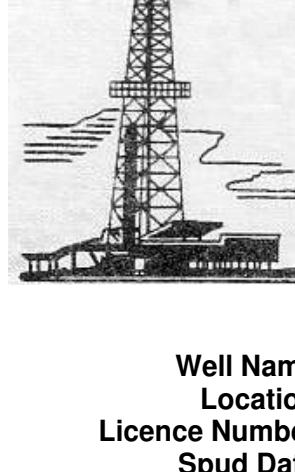
Rec Total 90 BHT 121 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2212</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>1930</u>
(B) First Initial Flow <u>29</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1957</u>
(C) First Final Flow <u>44</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2145</u>
(D) Initial Shut-In <u>337</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>2335</u>
(E) Second Initial Flow <u>47</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0143 8/24</u>
(F) Second Final Flow <u>66</u>	<input checked="" type="checkbox"/> Mileage <u>60 RT</u> 93	Comments
(G) Final Shut-In <u>794</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>2104</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer
Initial Open <u>5</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Packer	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Total <u>1668</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	MP/DST Disc't
	<input type="checkbox"/> Accessibility	
	Sub Total <u>1668</u>	

Approved By

Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged or 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.



# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



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

Well Name: EUGENE #1-27  
Location: E2 SE SW SW SEC. 27-18s-28w  
Licence Number: API: 15-101-22455  
Spud Date: August 12, 2013  
Surface Coordinates: 330' FSL & 1060' FWL

Region: Lane Co., KS  
Drilling Completed: August 24, 2013

Bottom Hole Coordinates: 2724' Ground Elevation (ft): 2724' K.B. Elevation (ft): 2731'  
Logged Interval (ft): 3800' To: RTD Total Depth (ft): 4625'  
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

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 500'; 560'; Kelly 40.30'; Tool Joint 5.5"; Bit: JZ-HA20-Q, 7-7/8"; jets 15-15-15; rpm 80, WOB 30k-35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

Rig is short one stand of drill collars and this is the reason for the reduced weight on bit (30k) until replacement drill collars were installed at 4152' and normal weight on bit (35k) was resumed.

## CASING:

Set 8-5/8" casing at 272'  
Set 5-1/2" casing at 4624' (rotary).

## CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3362 to 3380'; earth pits, Morgan Mud, Inc., Cade Lines.

SPP was a little low around 650 psi.

## DRILL STEM TEST #1:

LKC "H-zone": Interval: 4124-4152 (28') : Blow: 3-1/2" IFP, no RB, surf blow FFP, no RB; Times: 5-15-15-30; Recovery: 20' thick mud (100%M); Pressures: HP: 2060-2030; SIP: 1108-1101; FP: 27-29, 32-38; BHT: 117 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #2:

LKC "J-zone": Interval: 4199-4215 (16') : Blow: 3-1/2" IFP, no RB, BOB 10 min FFP, no RB; Times: 5-15-15-30; Recovery: 160' GIP, 140' TF: 80' GMCO (30%G, 65%O, 5%M, Grav 37), 60' GOCM (10%G, 40%O, 50%M); Pressures: HP: 2092-2026; SIP: 578-574, FP: 26-45, 48-78; BHT: 124 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #3:

LKC "K-zone": Interval: 4226-4250 (24') : Blow: BOB 2 min IFP, 5" RB, BOB 1 min FFP, 3" RB at start, final RB unknown FFP; Times: 5-15-15-30; Recovery: 900' GIP, 490' TF: 350' GMCO (40%G, 57%O, 3%M, Grav 41), 140' GMCO (20%G, 45%O, 35%M); Pressures: HP: 2114-2048, SIP: 450-443, FP: 90-109, 132-203; BHT: 129 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #4:

LKC "Middle Creek": Interval: 4257-4270 (13') : Blow: died in 3 min IFP, no further blows; Times: 5-15-15-30; Recovery: 2' mud w/oil spots (100%M); Pressures: HP: 2156-2060, SIP: 122-113, FP: 20-23, 23-24; BHT: 116 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #5:

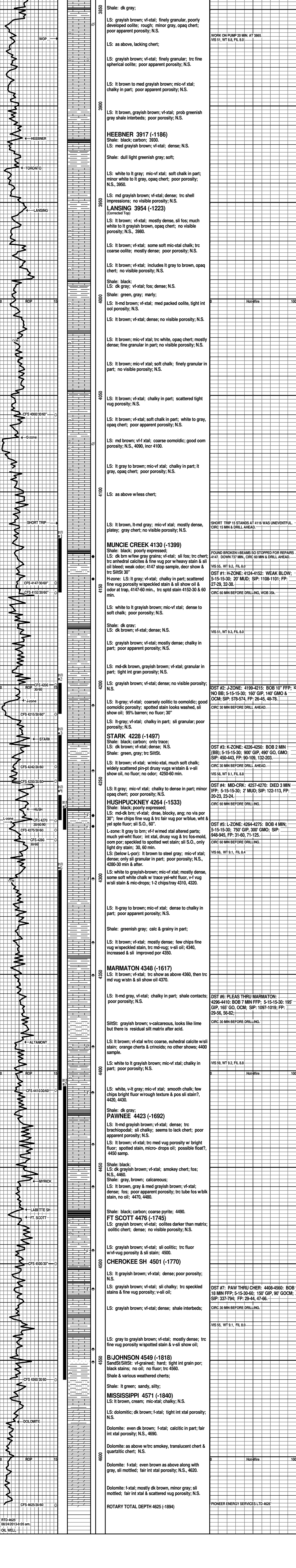
LKC "L-zone": Interval: 4264-4275 (11') : Blow: BOB 4 min IFP, no RB, BOB 4 min FFP, BOB RB 10 min FFP; Times: 5-15-15-30; Recovery: 750' GIP, 300' TF: 220' GMCO (40%G, 57%O, 3%M, Grav 37), 80' GMCO (30%G, 45%O, 25%M); Pressures: HP: 2107, 2096; SIP: 948-945, FP: 31-60, 71-125; BHT: 129 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #6:

Pleasanton thru Marmaton "Altamont": Interval: 4296-4410 (114') : Blow: incr 4" IFP, no RB, BOB 7 min FFP, no RB; Times: 5-15-15-30; Recovery: 195' GIP, 165' TF: 30' GO (15%G, 85%O, Grav 37), 135' GOCM (20%G, 30%O, 50%M); Pressures: HP: 2133-2124, SIP: 1097-1019, FP: 29-56, 56-82; BHT: 124 F; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.

## DRILL STEM TEST #7:

Lower Altamont thru Cherokee Johnson Zone: Interval: 4408-4560 (152') : Blow: weak 2" IFP, no RB, BOB 18 min FFP, no RB; Times: 5-15-15-30; Recovery: 150' GIP, 90' GOCM (30%G, 25%O, 45%M); Pressures: HP: 2212-2104, SIP: 337-794, FP: 29-44, 47-66; BHT: 121 F; Apparent multi-zone influence; Trilobite Testing, Inc., Scott City, KS, Bradley "Walt" Walter.



RTD 4625' 1  
6824/2013-6:05 am.  
OIL WELL

PIONEER ENERGY SERVICES LTD 4626'