

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1080552  
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
-----------------------------------	-----------------	---

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: \_\_\_\_\_

1080552

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
--	---

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
----------------	--	---

Date of First, Resumed Production, SWD or ENHR. _____	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____					
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> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
--	---	---

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Joyce Ann Unit 1-13
Doc ID	1080552

Tops

Name	Top	Datum
Anhydrite	2128	+671
Base Anhydrite	2160	+639
Heebner	3941	-1142
Lansing	3984	-1185
Stark	4267	-1468
Marmaton	4377	-1578
Pawnee	4470	-1671
Ft Scott	4527	-1728
Cherokee	4549	-1750
Mississippi	4618	-1819





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

TICKET  
 N<sup>o</sup> 22056

PAGE 1 OF

SERVICE LOCATIONS  
 1. **NESS CITY, KS.** WELL/PROJECT NO. **1-13** LEASE **JOYCE ANN UNIT** COUNTY/PARISH **LANE** STATE **KS.** CITY **DIGHTON, KS.** DATE **24 FEB 12** OWNER  
 2. TICKET TYPE  SERVICE  SALES CONTRACTOR **WILD WEST WELL SERV** RIG NAME/NO. SHIPPED VIA DELIVERED TO ORDER NO.  
 3. WELL TYPE **DIL** WELL CATEGORY **DEVELOPMENT** JOB PURPOSE **CEMENT PORT COLLAR** WELL PERMIT NO. WELL LOCATION **SS, WILTO**  
 4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575					MILEAGE #110	40	mil			6.00	240.00
576d					Pump CHARGE	1	JOB			1250.00	1250.00
276					FLOCELE	44	lbs			2.00	88.00
290					D-AIR	2	sq			35.00	70.00
330					SWIFT MULTI DENSITY	170	sq			16.50	2805.00
581					SERVICE CHARGE CEMENT	235	sq			2.00	470.00
583					DRAVAGE	23320	lbs	466.40	tm	1.00	466.40

**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 **24 FEB 12** TIME SIGNED **1500**  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?				5389	40
WE UNDERSTOOD AND MET YOUR NEEDS?					
OUR SERVICE WAS PERFORMED WITHOUT DELAY?					
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				Lane TAX 6.3%	186.67
ARE YOU SATISFIED WITH OUR SERVICE? <input type="checkbox"/> YES <input type="checkbox"/> NO				TOTAL	5576.07
<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 24 FEB 12 PAGE NO.

CUSTOMER LARSON ENGINEERING WELL NO. 1-13 LEASE SOYCE ANN UNIT JOB TYPE CEMENT PORT COLLAR TICKET NO. 22056

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1300							ON LOCATION PORT COLLAR @ 2103
	1345				✓		1000	TEST HELD
	1348	3			✓		300	OPEN PORT COLLAR TAKE INT. RATE.
	1352	4	94	✓			500	MIX 170SX SMD
		3	7	✓			100	DISPLACE CEMENT CIRCULATE CEMENT TO SURFACE 20SX
	1414				✓		1000	CLOSE PORT COLLAR TEST HELD
	1416							RUN 4 JTS.
	1422	3	20		✓		200	REVERSE CEMENT OUT
	1430							WASH TRUCK
	1500							JOB COMPLETE
								THANKS #110
								JASON JEFF SHANE



CHARGE TO: LARSON Engineering  
 ADDRESS: \_\_\_\_\_  
 CITY, STATE, ZIP CODE: \_\_\_\_\_

TICKET  
 No 21572

1. SERVICE LOCATIONS: Ness City, KS WELL/PROJECT NO.: 1-13 LEASE: Joyce Ann Unit COUNTY/PARISH: LANE STATE: KS CITY: Dighton DATE: 11 Feb 12 OWNER: \_\_\_\_\_  
 2. TICKET TYPE:  SERVICE  SALES CONTRACTOR: \_\_\_\_\_ RIG NAME/NO.: 3 SHIPPED VIA: CT DELIVERED TO: Location ORDER NO.: \_\_\_\_\_  
 3. WELL TYPE: \_\_\_\_\_ WELL CATEGORY: Development JOB PURPOSE: cement long string WELL PERMIT NO.: \_\_\_\_\_ WELL LOCATION: 13-19-29W  
 4. REFERRAL LOCATION: \_\_\_\_\_ INVOICE INSTRUCTIONS: \_\_\_\_\_

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE TRK 114	40		mi		6.00	240.00
576		1			Pump Charge	1		ea		1500.00	1500.00
325		1			STANDARD Cement (for EA-2)	155		sk		13.50	2092.50
284		1			cat seal	700		lb	7.5k	35.00	245.00
283		1			SALT	800		lb		0.20	160.00
286		1			halo-1	110		lb		7.50	825.00
277		1			Gilsonite	1085		lb		0.75	813.75
276		1			Fluor	25		lb		2.00	50.00
290		1			D-AIR	2		gal		35.00	70.00
280		1			Fluor	500		gal		2.50	1250.00

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

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

x David Roberts  
 DATE SIGNED: \_\_\_\_\_ TIME SIGNED: \_\_\_\_\_  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	
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				1	7246.25
WE UNDERSTOOD AND MET YOUR NEEDS?				2	105.80
OUR SERVICE WAS PERFORMED WITHOUT DELAY?				Subtotal	8352.05
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?				Lane TAX 6.3%	362.64
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO		TOTAL	8514.69
<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: Andy Bell

APPROVAL: \_\_\_\_\_ Thank You!



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

TICKET CONTINUATION

TICKET No. **21572**

CUSTOMER **Laden Engineering** WELL **Hydro Ann No. 1-13** DATE **11/26/12** PAGE **2** OF **2**

PRICE REFERENCE	SECONDARY REFERENCE / PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF								
419		1				Rotating head rental	52	"	1.00		200.00	200.00
221		1				KCL liquid	260				25.00	50.00
581		1				SERVICE CHARGE					155	310.00
583						MILEAGE CHARGE					1.00	345.80
						TOTAL WEIGHT	17290					
						LOADED MILES						
						TON MILES						
							345.8					

CONTINUATION TOTAL **905.80**



JOB LOG

SWIFT Services, Inc.

DATE: 1 Feb 12 PAGE NO.

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
Laden Engineering		1-13		Joyce Ann Unit 1-13		Cement long string		21572	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
									155 sks EA-2 w/ G/sonite
									15.5" 52 in casing 4692' pipe
									42' straight 2102' part collar
	1600								on loc TRK 114
	1720								hook up - circulate - diaphall - ROTATE
	2020	4 3/4	5			250			Pump 5 bbl KCL
		4 3/4	12			250			Pump 500 gal flocheck
		4 3/4	15			250			Pump 15 bbl KCL
	2030		7						Plug RH 30sks
	2035	4 3/4	30			210			Mix EA-2 155 123 sks @ 15.3 PR9
	2045								Drop latch down plug
									Wash out pump & line
	2050	6 3/4				300			Displace plug
		6 3/4	100			900			
	2015	6 3/4	111			1500			Land plug
									Release pressure to truck - derrick up
	2130								Wash truck
									Rack up
	2200								job complete
									Thumps
									Dave Russ & Blaine



**CONSOLIDATED**  
Oil Well Services, LLC



TICKET NUMBER 33825  
LOCATION Oakley  
FOREMAN Fuzzy

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

**FIELD TICKET & TREATMENT REPORT**  
**CEMENT**

KS

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
1-27-12	4802	Joyce Ann - Unit 1-13	13	19	29W	Lane
CUSTOMER Larson Engineering/Larson Oper			Dignow 5 1/2 s W + 20 m			
MAILING ADDRESS			TRUCK #	DRIVER	TRUCK #	DRIVER
CITY			463	JANG		
STATE			439	Cody R		
ZIP CODE				Bobby S		

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 265' CASING SIZE & WEIGHT 8 5/8  
CASING DEPTH 265' DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ OTHER \_\_\_\_\_  
SLURRY WEIGHT 14.7 SLURRY VOL 1.36 WATER gal/sk 4.5 CEMENT LEFT in CASING \_\_\_\_\_  
DISPLACEMENT 15.6 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting with D#3. Rig up and circulate. Mix 175 SKS com 390cc, 290gal. Displace 12 1/2 BBL and shut in cement did circulate approx 5 BBL to pit.

Thanks Fuzzy & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
54015	1	PUMP CHARGE	1085 <sup>00</sup>	1085 <sup>00</sup>
5406	36	MILEAGE	500	180 <sup>00</sup>
5407A	8.23 ton	Ton mileage delivery	167	494 <sup>78</sup>
11045	175 gks	CLASS 'A' Cement	17 <sup>05</sup>	3088 <sup>75</sup>
1102	494 #	Calcium chloride	189	439 <sup>66</sup>
1118B	329 #	Bentonite	125	82 <sup>33</sup>
		subtotal		5370 <sup>44</sup>
		less 10% disc		537 <sup>04</sup>
		subtotal		4833 <sup>40</sup>
		247480	SALES TAX	204 <sup>72</sup>

Ravin 3737

AUTHORIZATION Quincy Turner TITLE Pumper DATE 1-27-12  
ESTIMATED TOTAL 5038<sup>12</sup>

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.



## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.02 @ 00:50:07

End Date: 2012.02.02 @ 07:21:16

Job Ticket #: 45324                      DST #: 1

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

Printed: 2012.02.14 @ 16:18:44



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45324

**DST#: 1**

Test Start: 2012.02.02 @ 00:50:07

## GENERAL INFORMATION:

Formation: **Lansing F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:12:47

Time Test Ended: 07:21:16

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 60

**Interval: 4071.00 ft (KB) To 4083.00 ft (KB) (TVD)**

Reference Elevations: 2799.00 ft (KB)

Total Depth: 4083.00 ft (KB) (TVD)

2792.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8373 Inside**

Press @ Run Depth: 159.17 psig @ 4072.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.02

End Date:

2012.02.02

Last Calib.:

2012.02.02

Start Time: 00:50:07

End Time:

07:21:16

Time On Btm:

2012.02.02 @ 03:10:17

Time Off Btm:

2012.02.02 @ 05:03:47

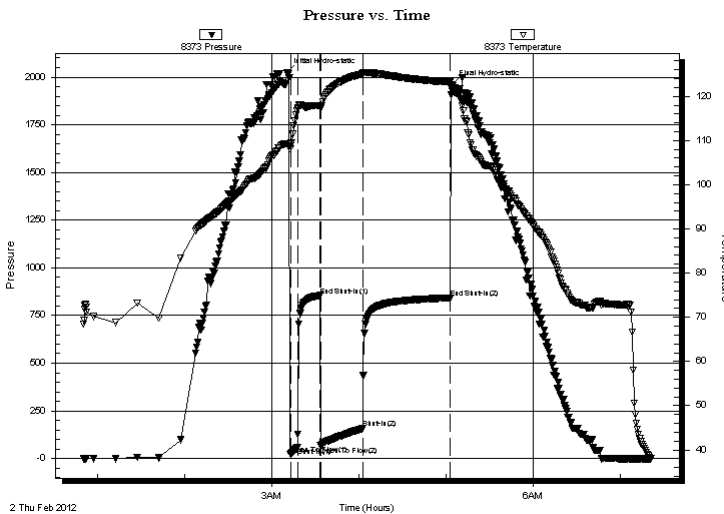
**TEST COMMENT:** IF: 1/4" blow built to 5" in 5 min.

IS: No return.

FF: BOB in 15 min.

FS: No return.

## PRESSURE SUMMARY



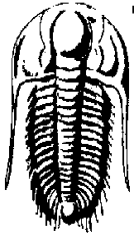
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2024.90	109.29	Initial Hydro-static
3	23.71	108.85	Open To Flow (1)
8	59.72	117.20	Shut-In(1)
23	854.49	117.88	End Shut-In(1)
23	67.10	117.45	Open To Flow (2)
52	159.17	125.07	Shut-In(2)
113	842.14	123.22	End Shut-In(2)
114	1962.08	121.80	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	mcw 95%w 5%m	1.22
114.00	mcw trace of oil 60%w 40%m	1.60
20.00	free oil 100%o	0.28

## 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

**13-19s-29w Lane, KS**

**Joyce Ann Unit #1-13**

Job Ticket: 45324

**DST#: 1**

Test Start: 2012.02.02 @ 00:50:07

### GENERAL INFORMATION:

Formation: **Lansing F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:12:47

Time Test Ended: 07:21:16

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 60

**Interval: 4071.00 ft (KB) To 4083.00 ft (KB) (TVD)**

Reference Elevations: 2799.00 ft (KB)

Total Depth: 4083.00 ft (KB) (TVD)

2792.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8356**      **Outside**

Press@RunDepth: psig @ 4072.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.02

End Date:

2012.02.02

Last Calib.:

2012.02.02

Start Time: 00:50:10

End Time:

07:21:19

Time On Btm:

Time Off Btm:

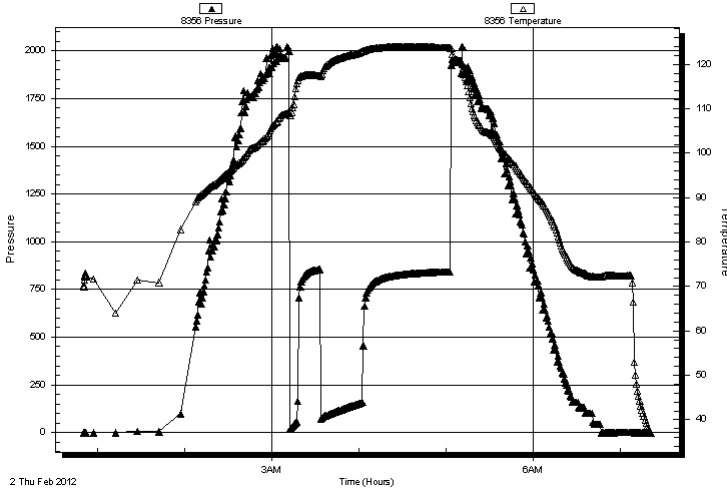
TEST COMMENT: IF: 1/4" blow built to 5" in 5 min.

IS: No return.

FF: BOB in 15 min.

FS: No return.

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
186.00	mcw 95%w 5%m	1.22
114.00	mcw trace of oil 60%w 40%m	1.60
20.00	free oil 100%o	0.28

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45324

**DST#: 1**

ATTN: Vern Schrag

Test Start: 2012.02.02 @ 00:50:07

## Tool Information

Drill Pipe:	Length: 3910.00 ft	Diameter: 3.80 inches	Volume: 54.85 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.60 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4071.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	12.00 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
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4044.00	
Shut In Tool	5.00			4049.00	
Hydraulic tool	5.00			4054.00	
Jars	5.00			4059.00	
Safety Joint	3.00			4062.00	
Packer	5.00			4067.00	28.00 Bottom Of Top Packer
Packer	4.00			4071.00	
Stubb	1.00			4072.00	
Recorder	0.00	8373	Inside	4072.00	
Recorder	0.00	8356	Outside	4072.00	
Perforations	6.00			4078.00	
Bullnose	5.00			4083.00	12.00 Bottom Packers & Anchor

**Total Tool Length: 40.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45324

**DST#: 1**

Test Start: 2012.02.02 @ 00:50:07

## 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:

90000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.94 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2300.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	mcw 95%w 5%m	1.224
114.00	mcw trace of oil 60%w 40%m	1.599
20.00	free oil 100%o	0.281

Total Length: 320.00 ft      Total Volume: 3.104 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

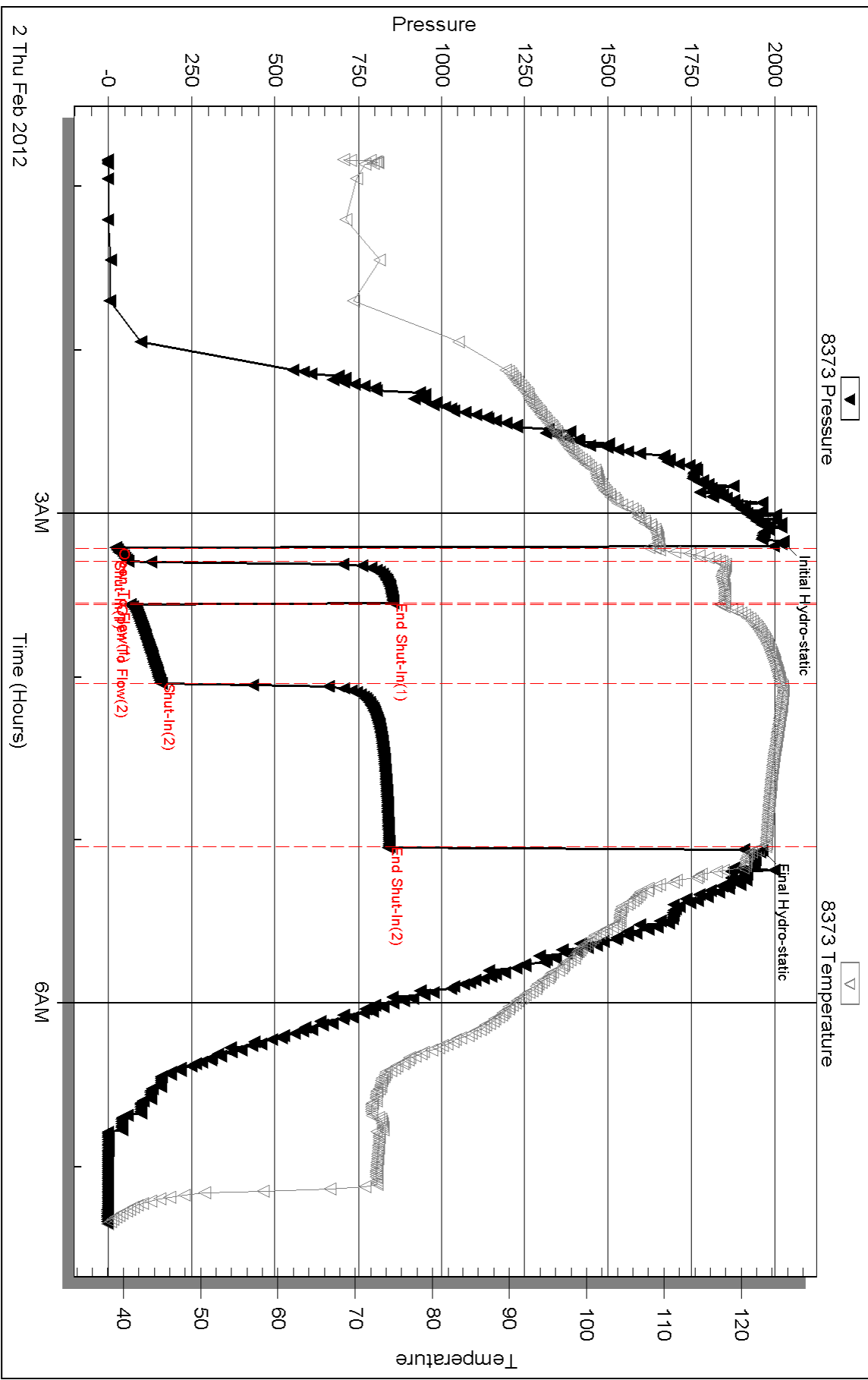
Serial #:

Laboratory Name:

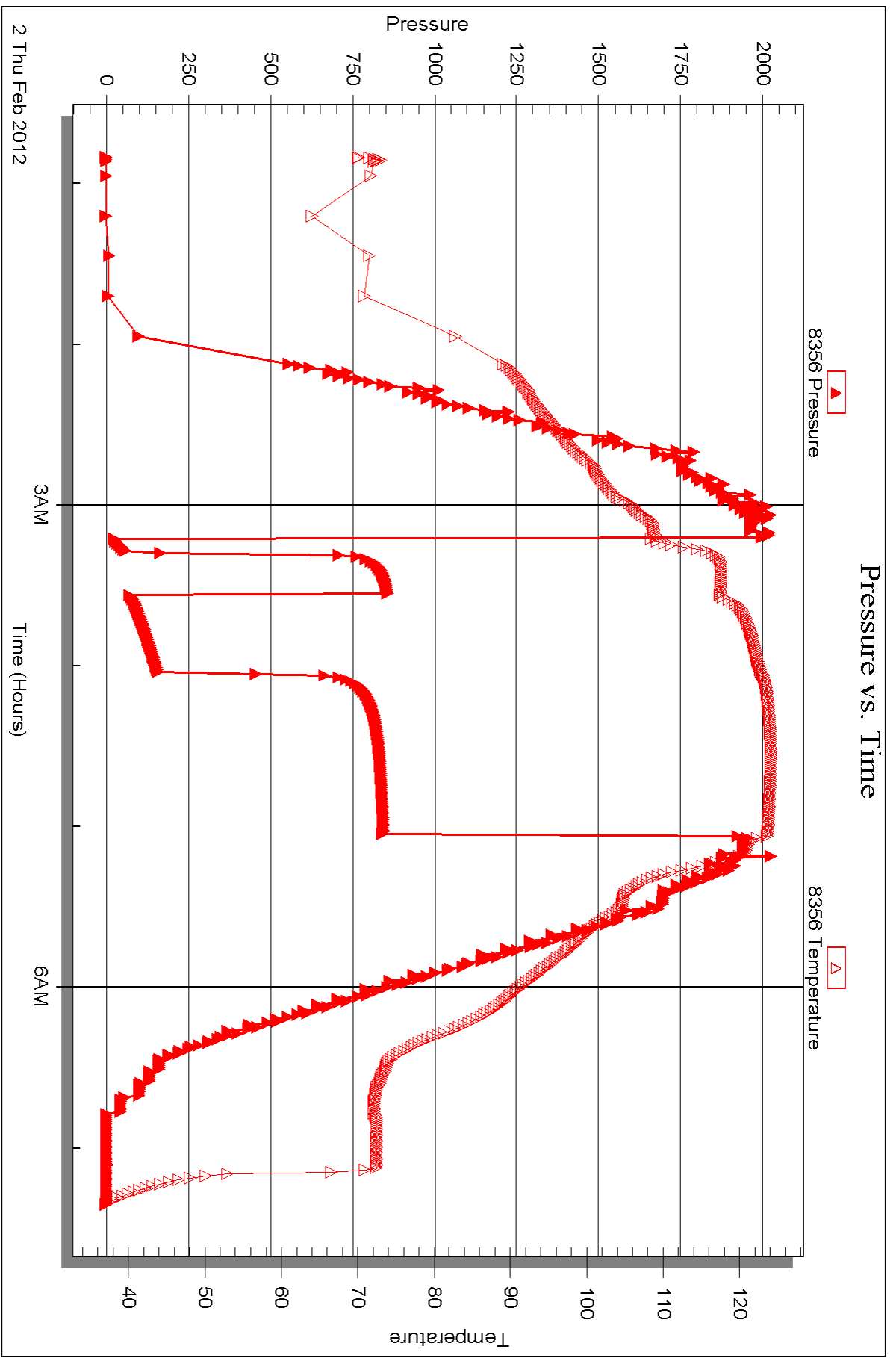
Laboratory Location:

Recovery Comments: .17@37=90000

# Pressure vs. Time









## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.02 @ 23:23:45

End Date: 2012.02.03 @ 05:25:09

Job Ticket #: 45325                      DST #: 2

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

Printed: 2012.02.14 @ 16:17:52



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45325

**DST#: 2**

Test Start: 2012.02.02 @ 23:23:45

## GENERAL INFORMATION:

Formation: **H**  
 Deviated: **No** Whipstock: **ft (KB)**  
 Time Tool Opened: 01:44:55  
 Time Test Ended: 05:25:09  
**Interval: 4166.00 ft (KB) To 4197.00 ft (KB) (TVD)**  
 Total Depth: 4197.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: **Good**  
 Test Type: **Conventional Bottom Hole (Reset)**  
 Tester: **Brandon Turley**  
 Unit No: **60**  
 Reference Elevations: 2799.00 ft (KB)  
 2792.00 ft (CF)  
 KB to GR/CF: 7.00 ft

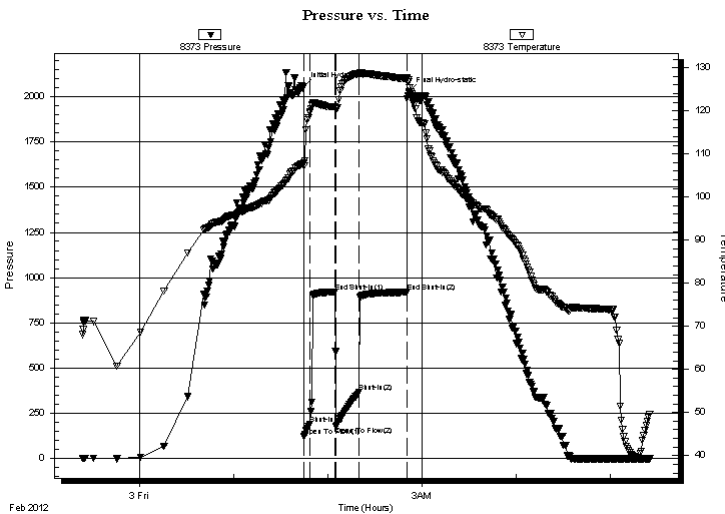
## Serial #: 8373

**Inside**

Press @ Run Depth: 365.52 psig @ 4167.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.02 End Date: 2012.02.03 Last Calib.: 2012.02.03  
 Start Time: 23:23:45 End Time: 05:25:09 Time On Btm: 2012.02.03 @ 01:44:40  
 Time Off Btm: 2012.02.03 @ 02:51:40

**TEST COMMENT:** IF: BOB in 3 min.  
 IS: No return.  
 FF: BOB in 4 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2055.50	107.83	Initial Hydro-static
1	121.01	107.24	Open To Flow (1)
4	191.06	119.88	Shut-In (1)
20	919.59	120.94	End Shut-In (1)
21	179.06	120.60	Open To Flow (2)
36	365.52	128.67	Shut-In (2)
66	918.86	127.36	End Shut-In (2)
67	2025.70	126.72	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	ocmw 5%o 75%w 20%m	2.09
527.00	ocmw 5%o 70%w 25%m	7.39

\* 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

13-19s-29w Lane, KS

Joyce Ann Unit #1-13

Job Ticket: 45325      **DST#: 2**

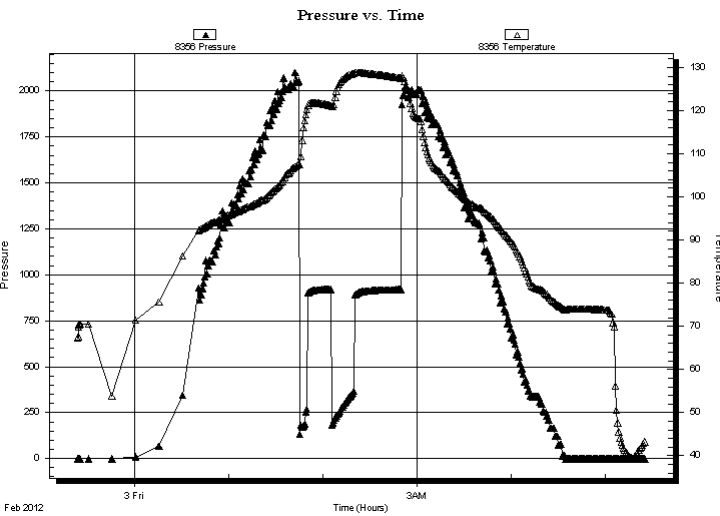
Test Start: 2012.02.02 @ 23:23:45

### GENERAL INFORMATION:

Formation: **H**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 01:44:55  
 Tester: Brandon Turley  
 Time Test Ended: 05:25:09  
 Unit No: 60  
**Interval: 4166.00 ft (KB) To 4197.00 ft (KB) (TVD)**  
 Reference Elevations: 2799.00 ft (KB)  
 Total Depth: 4197.00 ft (KB) (TVD)  
 2792.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 7.00 ft

**Serial #: 8356      Outside**  
 Press@RunDepth: psig @ 4167.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2012.02.02      End Date: 2012.02.03      Last Calib.: 2012.02.03  
 Start Time: 23:23:47      End Time: 05:25:26      Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF:BOB in 3 min.  
 IS: No return.  
 FF: BOB in 4 min.  
 FS: No return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
248.00	ocmw 5%o 75%w 20%m	2.09
527.00	ocmw 5%o 70%w 25%m	7.39

\* 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45325

**DST#: 2**

ATTN: Vern Schrag

Test Start: 2012.02.02 @ 23:23:45

## Tool Information

Drill Pipe:	Length: 4002.00 ft	Diameter: 3.80 inches	Volume: 56.14 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 56.89 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4166.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4139.00	
Shut In Tool	5.00			4144.00	
Hydraulic tool	5.00			4149.00	
Jars	5.00			4154.00	
Safety Joint	3.00			4157.00	
Packer	5.00			4162.00	28.00 Bottom Of Top Packer
Packer	4.00			4166.00	
Stubb	1.00			4167.00	
Recorder	0.00	8373	Inside	4167.00	
Recorder	0.00	8356	Outside	4167.00	
Perforations	25.00			4192.00	
Bullnose	5.00			4197.00	31.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45325

**DST#: 2**

Test Start: 2012.02.02 @ 23:23:45

## 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:

44000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.95 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
248.00	ocmw 5%o 75%w 20%m	2.094
527.00	ocmw 5%o 70%w 25%m	7.392

Total Length: 775.00 ft      Total Volume: 9.486 bbl

Num Fluid Samples: 0

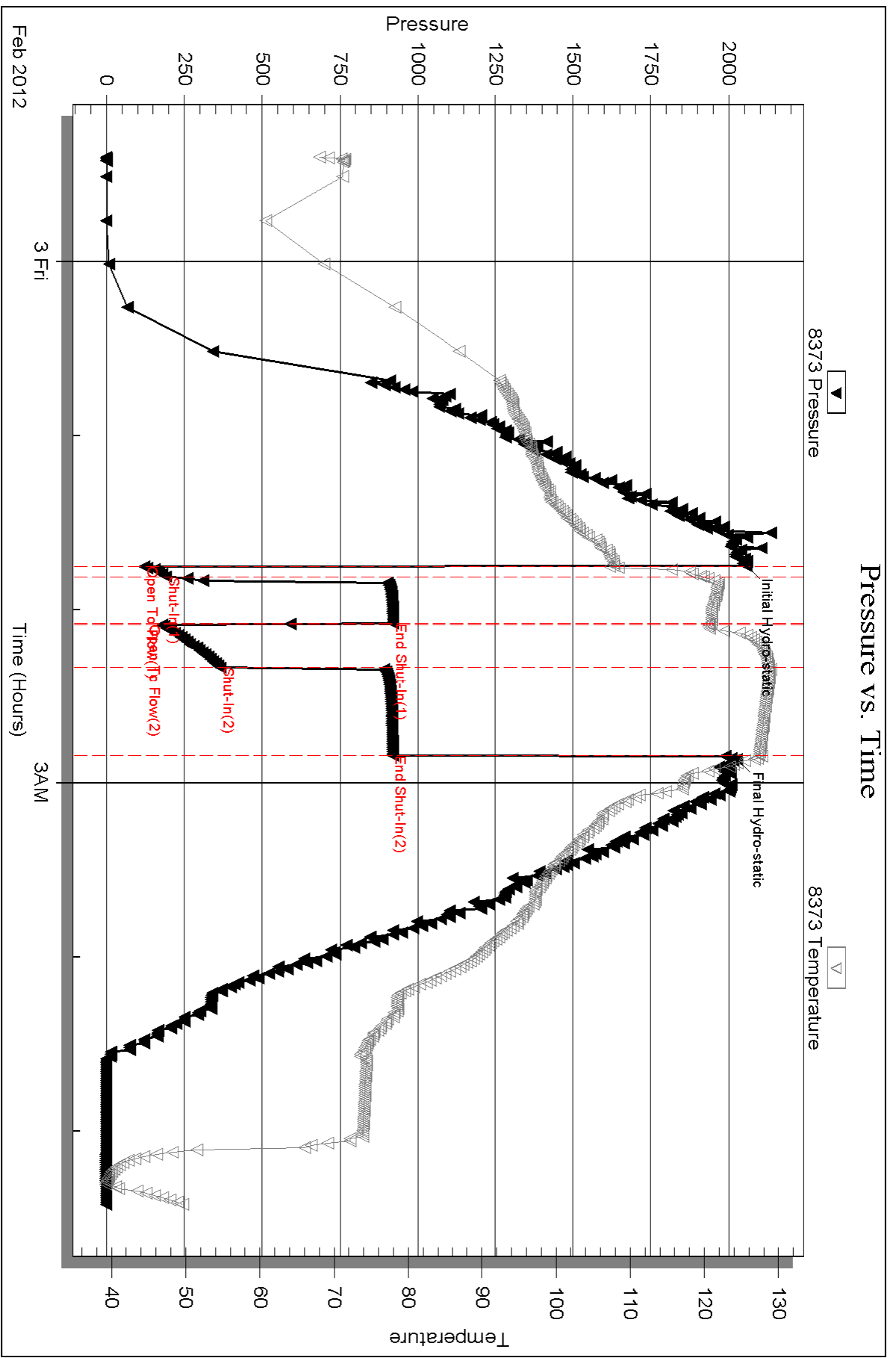
Num Gas Bombs: 0

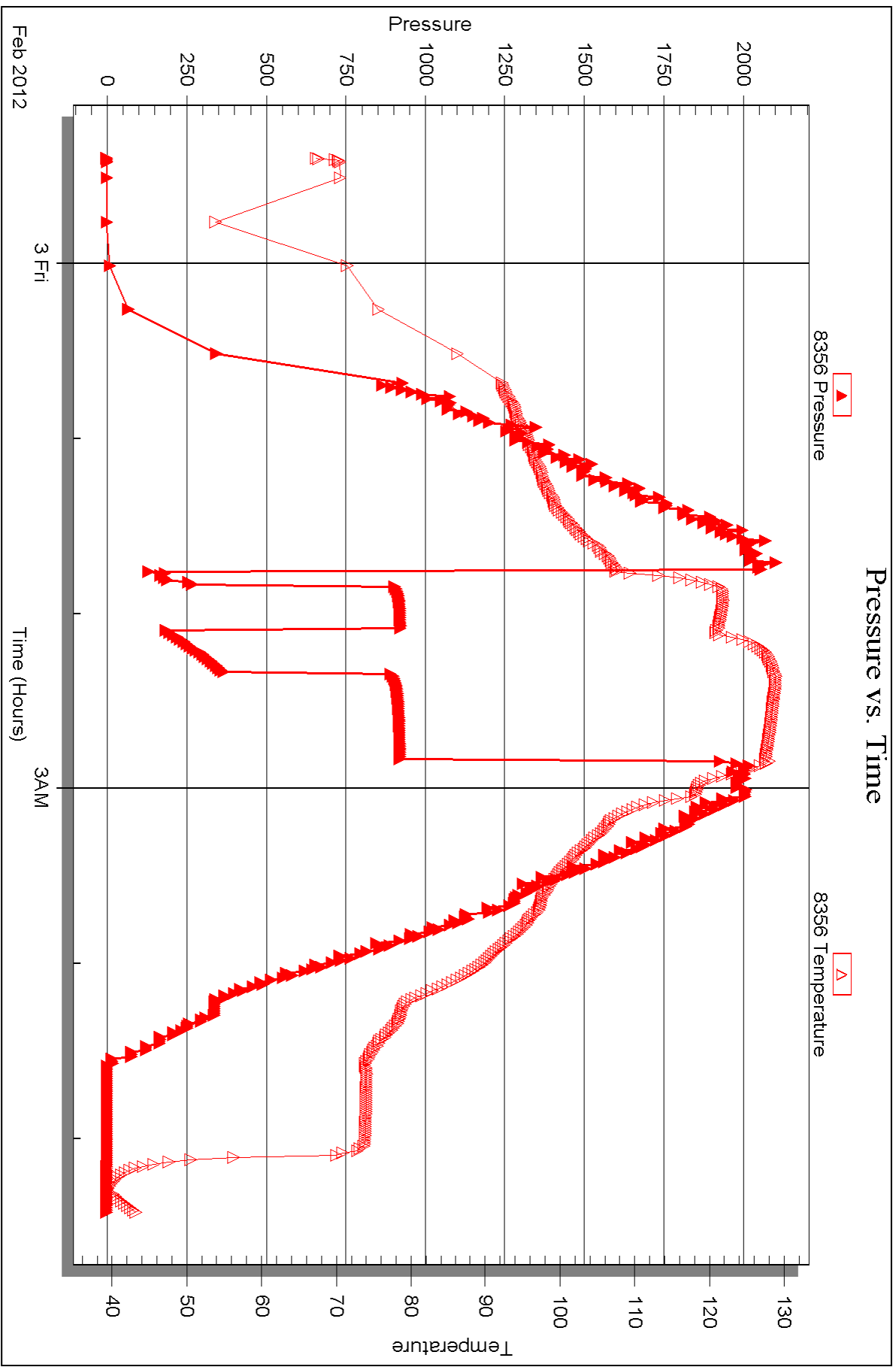
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .28@43=44000









## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.03 @ 15:43:00

End Date: 2012.02.03 @ 21:01:00

Job Ticket #: 45001                      DST #: 3

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

Printed: 2012.02.14 @ 16:16:32



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45001

**DST#: 3**

Test Start: 2012.02.03 @ 15:43:00

## GENERAL INFORMATION:

Formation: I

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:54:45

Time Test Ended: 21:01:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Chuck Smith

Unit No: 60

**Interval: 4210.00 ft (KB) To 4226.00 ft (KB) (TVD)**

Reference Elevations: 2799.00 ft (KB)

Total Depth: 4226.00 ft (KB) (TVD)

2792.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8373**

**Inside**

Press@RunDepth: 15.10 psig @ 4211.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.03

End Date:

2012.02.03

Last Calib.:

2012.02.03

Start Time: 15:43:05

End Time:

21:00:59

Time On Btm:

2012.02.03 @ 17:52:30

Time Off Btm:

2012.02.03 @ 19:04:45

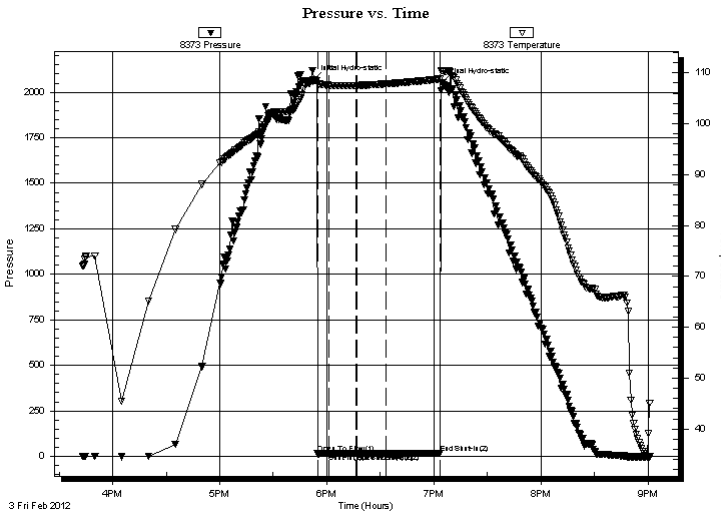
TEST COMMENT: IF: Surface blow .

IS: No return.

FF: No blow .

FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2067.56	108.43	Initial Hydro-static
3	15.02	107.87	Open To Flow (1)
9	15.48	107.57	Shut-In(1)
24	17.27	107.54	End Shut-In(1)
25	15.40	107.54	Open To Flow (2)
41	15.10	107.83	Shut-In(2)
71	18.91	108.80	End Shut-In(2)
73	2051.58	110.43	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
1.00	m100M	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

**13-19s-29w Lane, KS**

**Joyce Ann Unit #1-13**

Job Ticket: 45001

**DST#: 3**

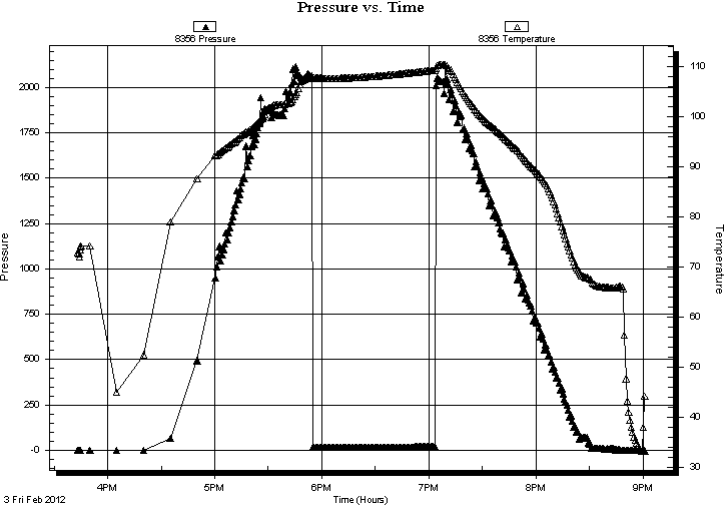
Test Start: 2012.02.03 @ 15:43:00

**GENERAL INFORMATION:**

Formation: <b>I</b>		Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock:	ft (KB)	Tester: Chuck Smith
Time Tool Opened: 17:54:45		Unit No: 60
Time Test Ended: 21:01:00		
<b>Interval: 4210.00 ft (KB) To 4226.00 ft (KB) (TVD)</b>		Reference Elevations: 2799.00 ft (KB)
Total Depth: 4226.00 ft (KB) (TVD)		2792.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good		KB to GR/CF: 7.00 ft

<b>Serial #: 8356</b>	<b>Outside</b>		
Press@RunDepth:	psig @ 4211.00 ft (KB)	Capacity:	8000.00 psig
Start Date:	2012.02.03	End Date:	2012.02.03
Start Time:	15:43:05	End Time:	21:00:59
		Last Calib.:	2012.02.03
		Time On Btm:	
		Time Off Btm:	

**TEST COMMENT:** IF: Surface blow.  
 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)
1.00	m 100M	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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45001

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2012.02.03 @ 15:43:00

### Tool Information

Drill Pipe:	Length: 4034.00 ft	Diameter: 3.80 inches	Volume: 56.59 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4210.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	16.00 ft			
Tool Length:	44.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4183.00	
Shut In Tool	5.00			4188.00	
Hydraulic tool	5.00			4193.00	
Jars	5.00			4198.00	
Safety Joint	3.00			4201.00	
Packer	5.00			4206.00	28.00 Bottom Of Top Packer
Packer	4.00			4210.00	
Stubb	1.00			4211.00	
Recorder	0.00	8373	Inside	4211.00	
Recorder	0.00	8356	Outside	4211.00	
Perforations	10.00			4221.00	
Bullnose	5.00			4226.00	16.00 Bottom Packers & Anchor

**Total Tool Length: 44.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45001

**DST#: 3**

ATTN: Vern Schrag

Test Start: 2012.02.03 @ 15:43:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.35 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	m100M	0.005

Total Length: 1.00 ft      Total Volume: 0.005 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

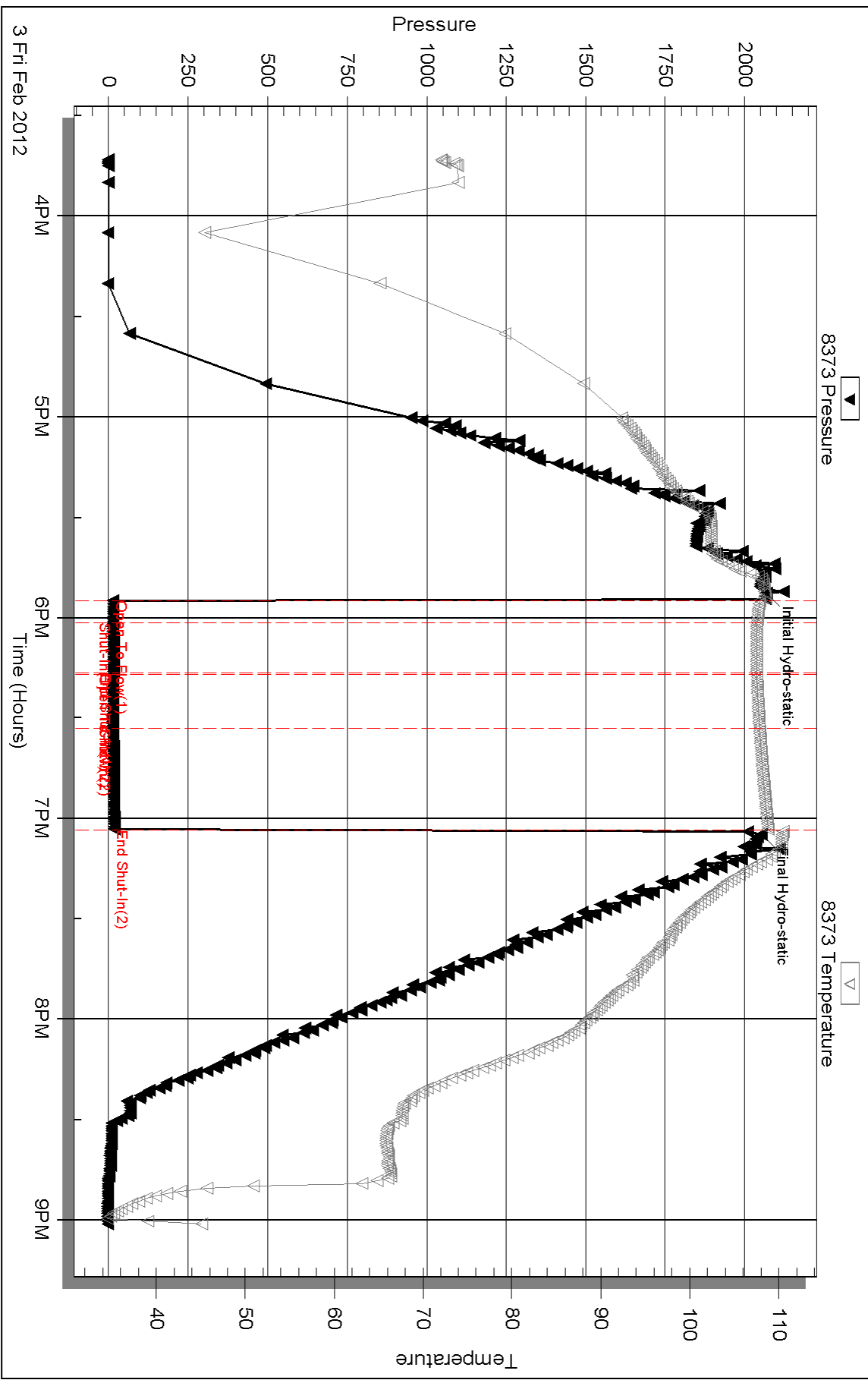
Serial #:

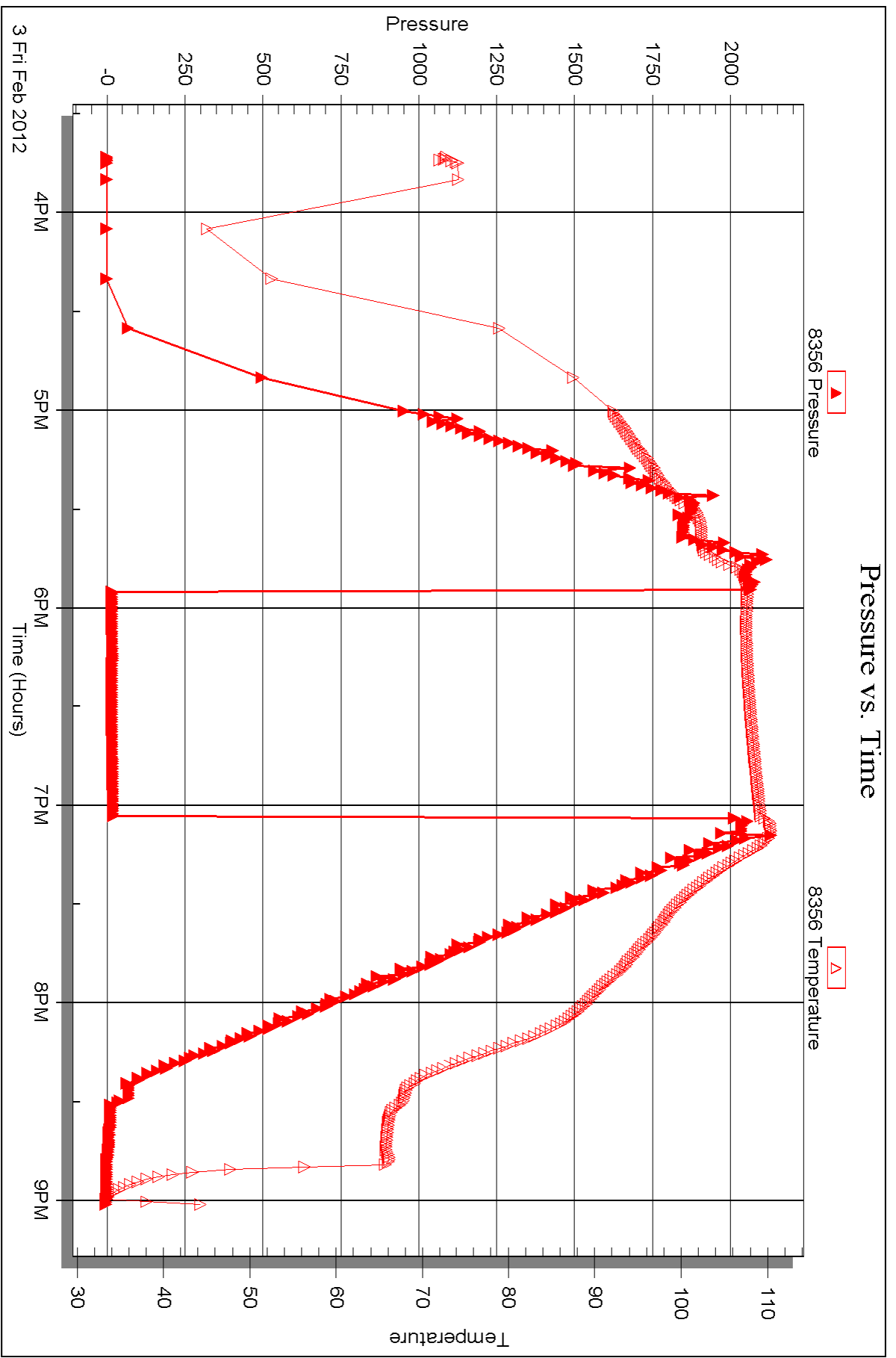
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.04 @ 06:00:40

End Date: 2012.02.04 @ 11:46:04

Job Ticket #: 45002                      DST #: 4

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

Printed: 2012.02.14 @ 16:15:41





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45002

**DST#: 4**

Test Start: 2012.02.04 @ 06:00:40

## GENERAL INFORMATION:

Formation: **J**  
 Deviated: **No Whipstock:** ft (KB)  
 Test Type: **Conventional Bottom Hole (Reset)**  
 Time Tool Opened: 08:25:20  
 Tester: **Brandon Turley**  
 Time Test Ended: 11:46:04  
 Unit No: **60**  
**Interval: 4224.00 ft (KB) To 4247.00 ft (KB) (TVD)**  
 Reference Elevations: 2799.00 ft (KB)  
 Total Depth: 4247.00 ft (KB) (TVD)  
 2792.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: **Good**  
 KB to GR/CF: 7.00 ft

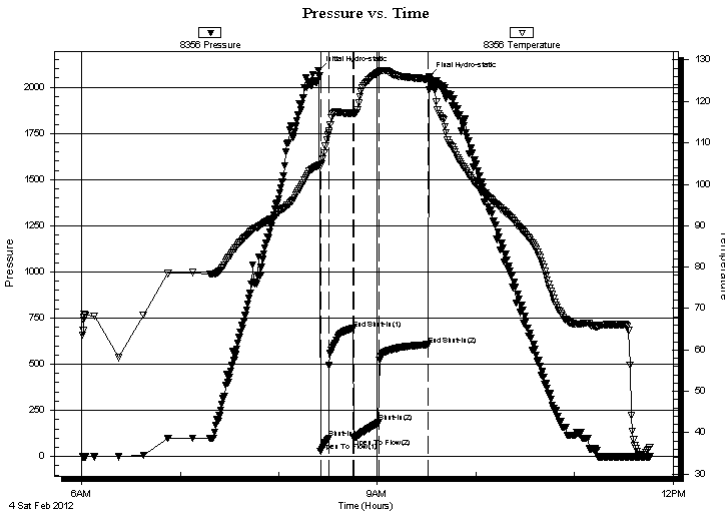
## Serial #: 8356

**Outside**

Press @ Run Depth: 184.09 psig @ 4225.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.04 End Date: 2012.02.04 Last Calib.: 2012.02.04  
 Start Time: 06:00:40 End Time: 11:46:04 Time On Btm: 2012.02.04 @ 08:24:05  
 Time Off Btm: 2012.02.04 @ 09:31:35

**TEST COMMENT:** IF: 1/4 blow built to 7" in 5 min.  
 IS: No return.  
 FF: BOB in 8 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2091.46	104.51	Initial Hydro-static
2	27.73	104.45	Open To Flow (1)
7	97.57	112.45	Shut-In(1)
21	693.00	117.19	End Shut-In(1)
22	100.50	117.09	Open To Flow (2)
37	184.09	127.10	Shut-In(2)
67	606.06	125.26	End Shut-In(2)
68	2056.25	125.46	Final Hydro-static

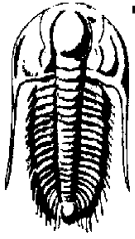
## Recovery

Length (ft)	Description	Volume (bbl)
248.00	mcw 80%w 20%m	2.09
124.00	w cm 10%w 90%m	1.74

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45002

**DST#: 4**

Test Start: 2012.02.04 @ 06:00:40

## GENERAL INFORMATION:

Formation: **J**  
 Deviated: **No Whipstock:** ft (KB)  
 Time Tool Opened: 08:25:20  
 Time Test Ended: 11:46:04

Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brandon Turley  
 Unit No: 60

**Interval: 4224.00 ft (KB) To 4247.00 ft (KB) (TVD)**  
 Total Depth: 4247.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2799.00 ft (KB)  
 2792.00 ft (CF)  
 KB to GR/CF: 7.00 ft

### Serial #: 8373

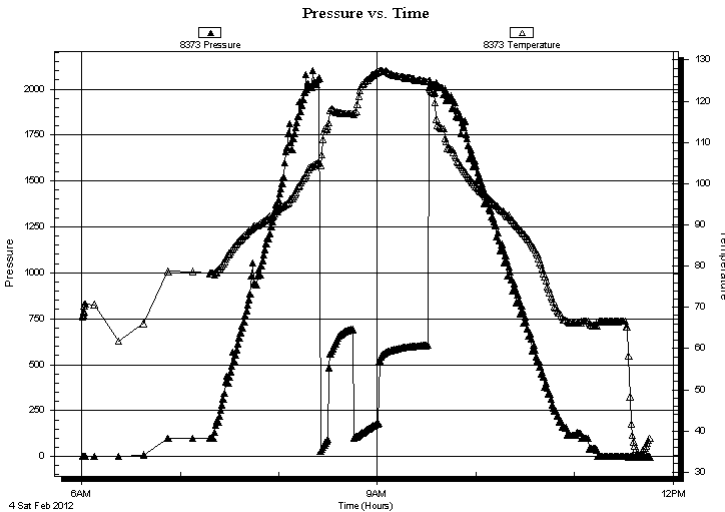
Inside

Press @ Run Depth: psig @ 4225.00 ft (KB)  
 Start Date: 2012.02.04 End Date: 2012.02.04  
 Start Time: 06:00:40 End Time: 11:46:04

Capacity: 8000.00 psig  
 Last Calib.: 2012.02.04  
 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: 1/4 blow built to 7" in 5 min.  
 IS: No return.  
 FF: BOB in 8 min.  
 FS: No return.

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	mcw 80%w 20%m	2.09
124.00	w cm 10%w 90%m	1.74

## 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45002

**DST#: 4**

Test Start: 2012.02.04 @ 06:00:40

## Tool Information

Drill Pipe:	Length: 4064.00 ft	Diameter: 3.80 inches	Volume: 57.01 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 57.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4224.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4197.00	
Shut In Tool	5.00			4202.00	
Hydraulic tool	5.00			4207.00	
Jars	5.00			4212.00	
Safety Joint	3.00			4215.00	
Packer	5.00			4220.00	28.00 Bottom Of Top Packer
Packer	4.00			4224.00	
Stubb	1.00			4225.00	
Recorder	0.00	8373	Inside	4225.00	
Recorder	0.00	8356	Outside	4225.00	
Perforations	17.00			4242.00	
Bullnose	5.00			4247.00	23.00 Bottom Packers & Anchor

**Total Tool Length: 51.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45002

**DST#: 4**

ATTN: Vern Schrag

Test Start: 2012.02.04 @ 06:00:40

## 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:

55000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.35 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
248.00	mcw 80%w 20%m	2.094
124.00	wcm 10%w 90%m	1.739

Total Length: 372.00 ft      Total Volume: 3.833 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

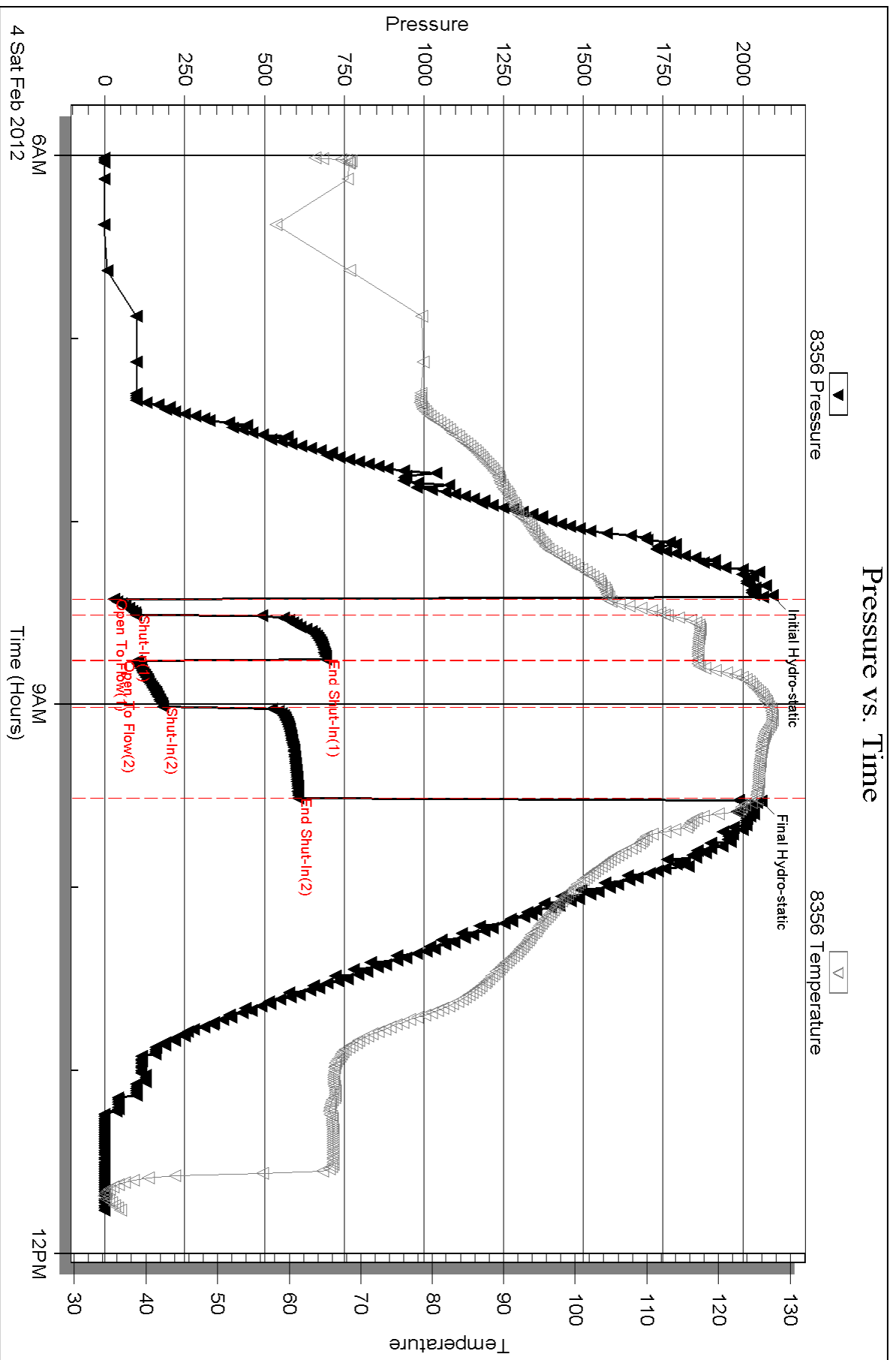
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .27@35=55000

### Pressure vs. Time



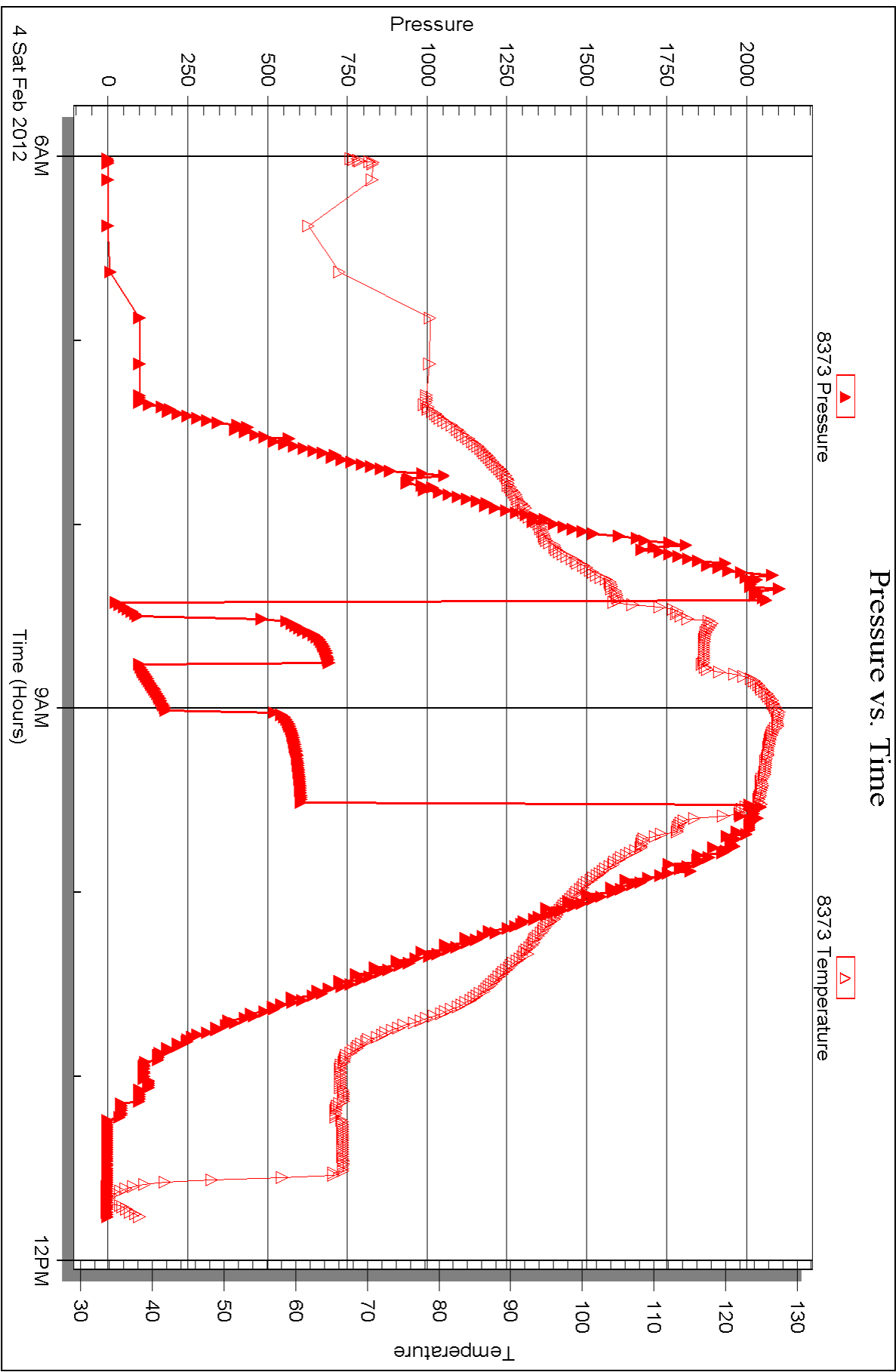
Serial #: 8373

Inside

Larson Engineering Inc.

Joyce Ann Unit #1-13

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.04 @ 21:47:16

End Date: 2012.02.05 @ 03:31:10

Job Ticket #: 45003                      DST #: 5

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

Printed: 2012.02.14 @ 16:15:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
 Job Ticket: 45003 **DST#: 5**  
 Test Start: 2012.02.04 @ 21:47:16

## GENERAL INFORMATION:

Formation: **K**  
 Deviated: **No** Whipstock: **ft (KB)**  
 Time Tool Opened: 23:59:26  
 Time Test Ended: 03:31:10  
 Interval: **4271.00 ft (KB) To 4285.00 ft (KB) (TVD)**  
 Total Depth: **4285.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**  
 Test Type: **Conventional Bottom Hole (Reset)**  
 Tester: **Brandon Turley**  
 Unit No: **60**  
 Reference Elevations: **2799.00 ft (KB)**  
**2792.00 ft (CF)**  
 KB to GR/CF: **7.00 ft**

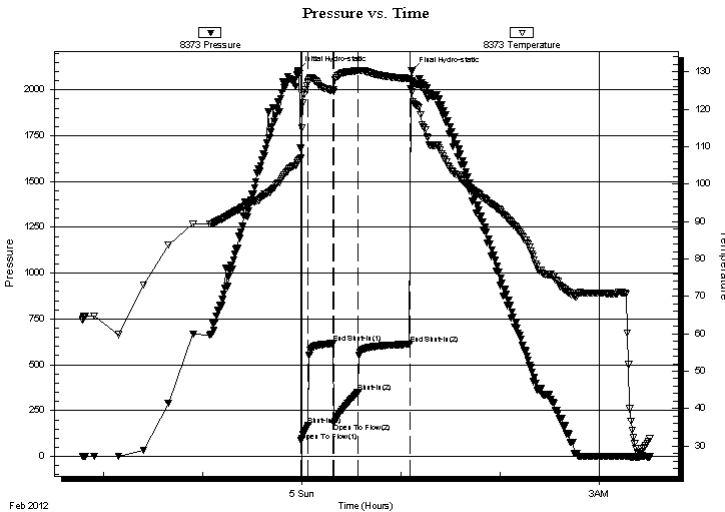
## Serial #: 8373

**Inside**

Press @ Run Depth: **351.12 psig @ 4272.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2012.02.04** End Date: **2012.02.05** Last Calib.: **2012.02.05**  
 Start Time: **21:47:16** End Time: **03:31:10** Time On Btm: **2012.02.04 @ 23:57:26**  
 Time Off Btm: **2012.02.05 @ 01:06:26**

TEST COMMENT: IF: BOB in 2 min.  
 IS: No return.  
 FF: BOB in 3 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2106.70	105.77	Initial Hydro-static
2	84.36	107.01	Open To Flow (1)
7	169.48	127.28	Shut-In(1)
22	615.73	125.08	End Shut-In(1)
22	181.72	124.73	Open To Flow (2)
37	351.12	130.31	Shut-In(2)
68	612.22	128.18	End Shut-In(2)
69	2103.36	127.26	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	water 100%w	2.09
310.00	mcw 90%w 10%m	4.35
186.00	mw oil spots 50%w 50%m	2.61

\* 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

**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
Job Ticket: 45003 **DST#: 5**  
Test Start: 2012.02.04 @ 21:47:16

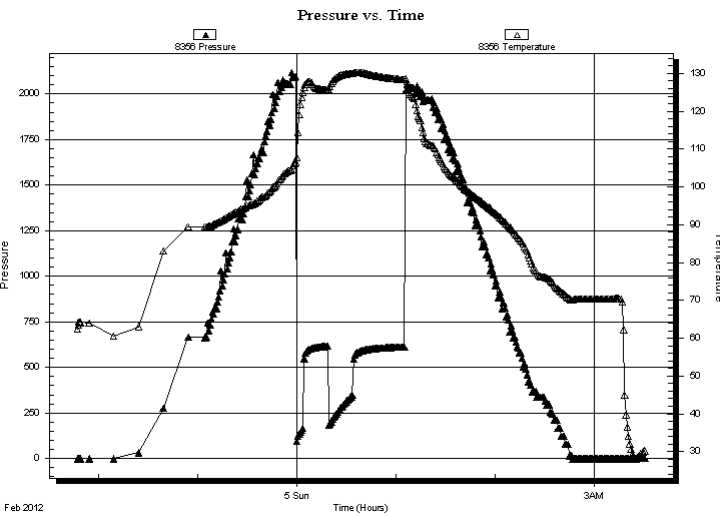
## GENERAL INFORMATION:

Formation: **K**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:59:26  
Time Test Ended: 03:31:10  
Interval: **4271.00 ft (KB) To 4285.00 ft (KB) (TVD)**  
Total Depth: 4285.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Brandon Turley  
Unit No: 60  
Reference Elevations: 2799.00 ft (KB)  
2792.00 ft (CF)  
KB to GR/CF: 7.00 ft

## Serial #: 8356 Outside

Press @ Run Depth: psig @ 4272.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2012.02.04 End Date: 2012.02.05 Last Calib.: 2012.02.05  
Start Time: 21:47:16 End Time: 03:31:10 Time On Btm:  
Time Off Btm:

TEST COMMENT: IF: BOB in 2 min.  
IS: No return.  
FF: BOB in 3 min.  
FS: No return.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
248.00	water 100%w	2.09
310.00	mcw 90%w 10%m	4.35
186.00	mw oil spots 50%w 50%m	2.61

\* 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45003

**DST#: 5**

Test Start: 2012.02.04 @ 21:47:16

## Tool Information

Drill Pipe:	Length: 4097.00 ft	Diameter: 3.80 inches	Volume: 57.47 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.22 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4271.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	42.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4244.00	
Shut In Tool	5.00			4249.00	
Hydraulic tool	5.00			4254.00	
Jars	5.00			4259.00	
Safety Joint	3.00			4262.00	
Packer	5.00			4267.00	28.00 Bottom Of Top Packer
Packer	4.00			4271.00	
Stubb	1.00			4272.00	
Recorder	0.00	8373	Inside	4272.00	
Recorder	0.00	8356	Outside	4272.00	
Perforations	8.00			4280.00	
Bullnose	5.00			4285.00	14.00 Bottom Packers & Anchor

**Total Tool Length: 42.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45003

**DST#: 5**

Test Start: 2012.02.04 @ 21:47:16

## 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:

80000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.36 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
248.00	water 100%w	2.094
310.00	mcw 90%w 10%m	4.348
186.00	mw oil spots 50%w 50%m	2.609

Total Length: 744.00 ft      Total Volume: 9.051 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

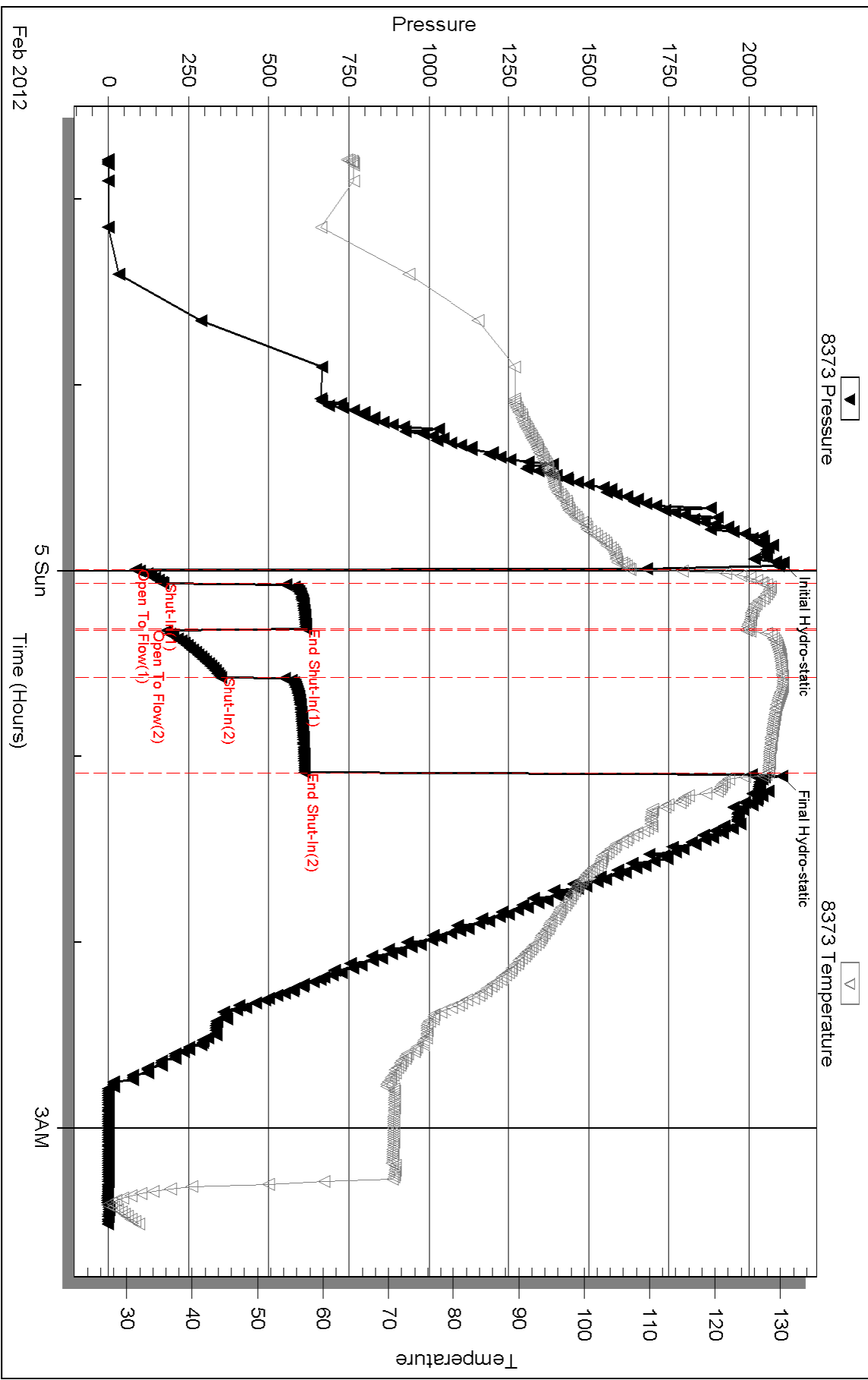
Serial #:

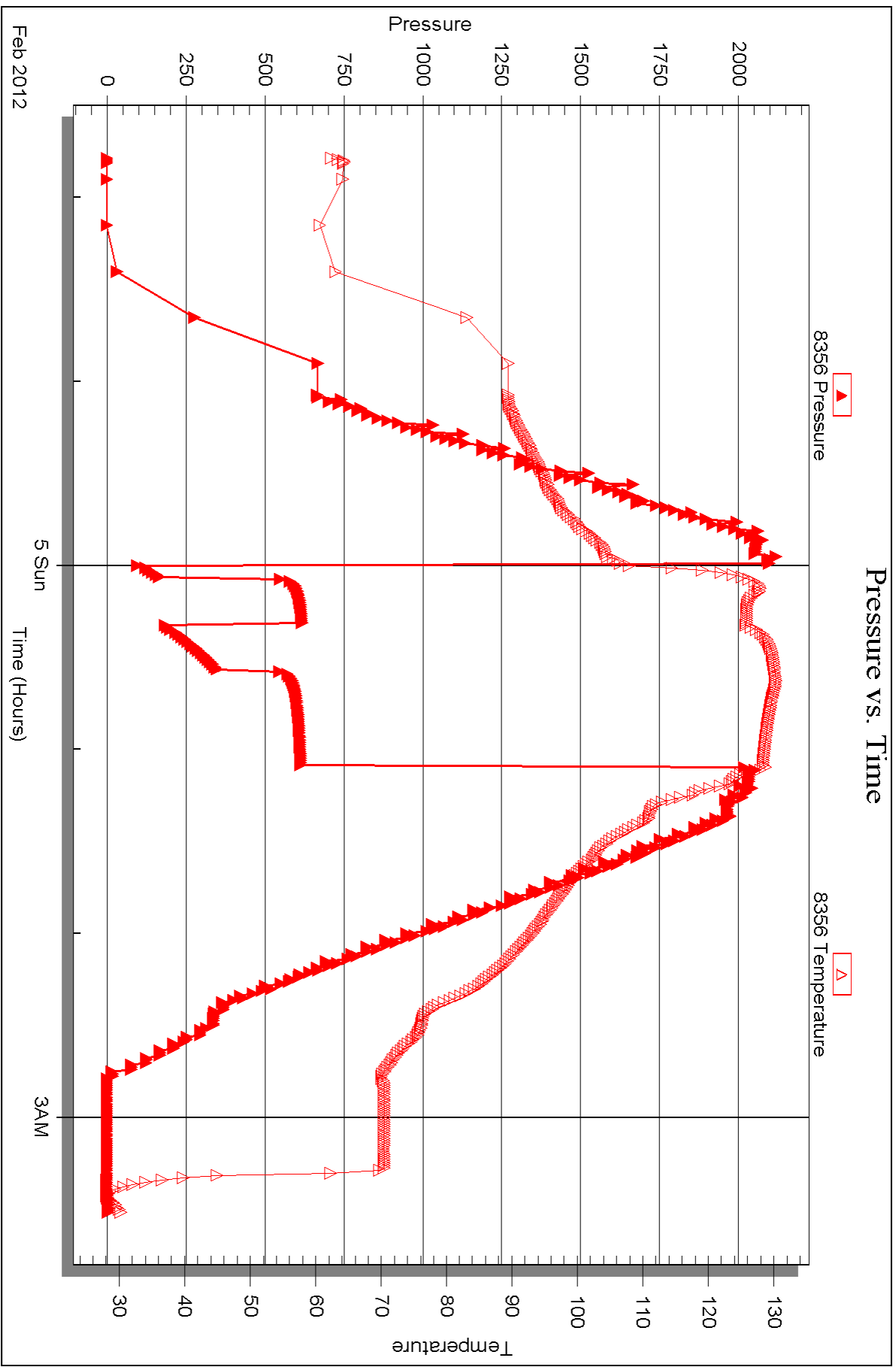
Laboratory Name:

Laboratory Location:

Recovery Comments: .27@25=80000

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.05 @ 12:15:14

End Date: 2012.02.05 @ 17:57:23

Job Ticket #: 45004                      DST #: 6

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

Printed: 2012.02.14 @ 16:14:22



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45004

**DST#: 6**

Test Start: 2012.02.05 @ 12:15:14

## GENERAL INFORMATION:

Formation: **Mid. Creek**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:11:09

Time Test Ended: 17:57:23

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 60

**Interval: 4296.00 ft (KB) To 4314.00 ft (KB) (TVD)**

Reference Elevations: 2799.00 ft (KB)

Total Depth: 4314.00 ft (KB) (TVD)

2792.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

**Serial #: 8373 Inside**

Press @ Run Depth: 56.31 psig @ 4297.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.02.05 End Date: 2012.02.05

Last Calib.: 2012.02.05

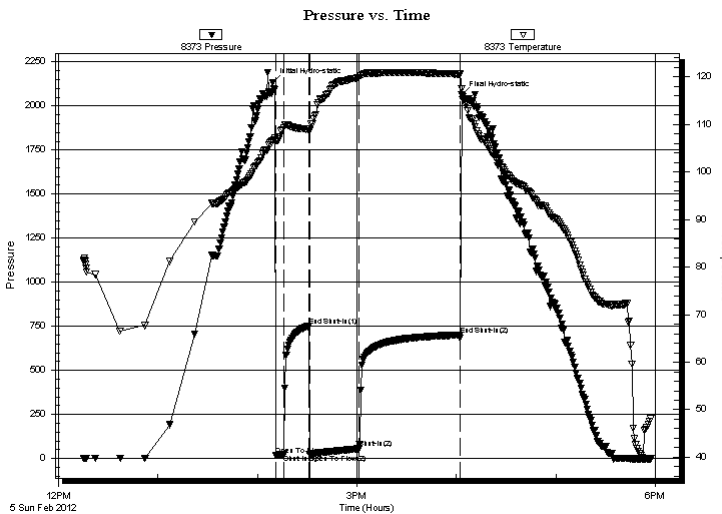
Start Time: 12:15:14 End Time: 17:57:23

Time On Btm: 2012.02.05 @ 14:09:09

Time Off Btm: 2012.02.05 @ 16:03:09

**TEST COMMENT:** IF: Surface blow built to 1/4" in 5 min.  
IS: No return.  
FF: Surface blow built to 2" in 30 min.  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2134.22	106.63	Initial Hydro-static
2	16.90	106.59	Open To Flow (1)
7	22.05	109.31	Shut-In(1)
22	751.32	109.04	End Shut-In(1)
23	25.41	108.67	Open To Flow (2)
53	56.31	119.94	Shut-In(2)
113	701.22	120.62	End Shut-In(2)
114	2061.36	117.63	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
93.00	wcm oil spots 20%w 80%m	0.46

## Gas Rates

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

\* Recovery from multiple tests



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

Joyce Ann Unit #1-13

ATTN: Vern Schrag

Job Ticket: 45004

DST#: 6

Test Start: 2012.02.05 @ 12:15:14

### GENERAL INFORMATION:

Formation: **Mid. Creek**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:11:09

Time Test Ended: 17:57:23

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 60

Interval: **4296.00 ft (KB) To 4314.00 ft (KB) (TVD)**

Total Depth: 4314.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2799.00 ft (KB)

2792.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 8356 Outside

Press @ RunDepth: psig @ 4297.00 ft (KB)

Start Date: 2012.02.05

End Date:

2012.02.05

Start Time: 12:15:09

End Time:

17:57:18

Capacity: 8000.00 psig

Last Calib.:

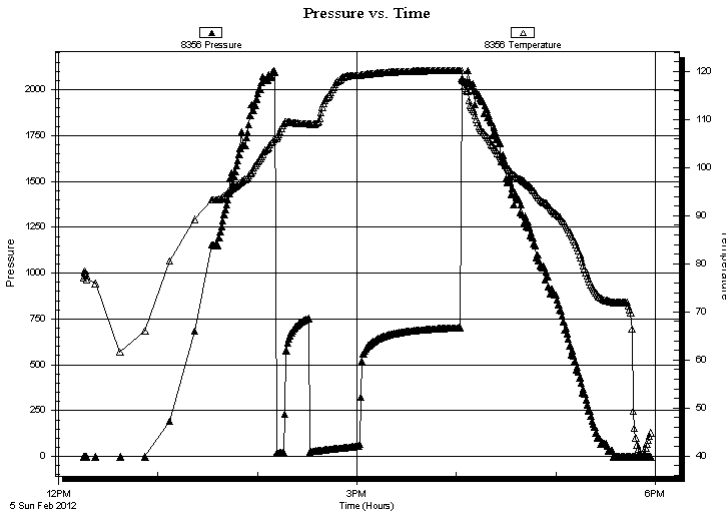
2012.02.05

Time On Btm

Time Off Btm

TEST COMMENT: IF: Surface blow built to 1/4" in 5 min.  
IS: No return.  
FF: Surface blow built to 2" in 30 min.  
FS: No return.

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
93.00	wcm oil spots 20%w 80%m	0.46

### 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45004

**DST#: 6**

ATTN: Vern Schrag

Test Start: 2012.02.05 @ 12:15:14

## Tool Information

Drill Pipe:	Length: 4128.00 ft	Diameter: 3.80 inches	Volume: 57.90 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.65 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4296.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	18.00 ft			
Tool Length:	46.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4269.00	
Shut In Tool	5.00			4274.00	
Hydraulic tool	5.00			4279.00	
Jars	5.00			4284.00	
Safety Joint	3.00			4287.00	
Packer	5.00			4292.00	28.00 Bottom Of Top Packer
Packer	4.00			4296.00	
Stubb	1.00			4297.00	
Recorder	0.00	8373	Inside	4297.00	
Recorder	0.00	8356	Outside	4297.00	
Perforations	12.00			4309.00	
Bullnose	5.00			4314.00	18.00 Bottom Packers & Anchor

**Total Tool Length: 46.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45004

**DST#: 6**

Test Start: 2012.02.05 @ 12:15:14

## 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:

32000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.36 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
93.00	wcm oil spots 20%w 80% <i>m</i>	0.457

Total Length: 93.00 ft      Total Volume: 0.457 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

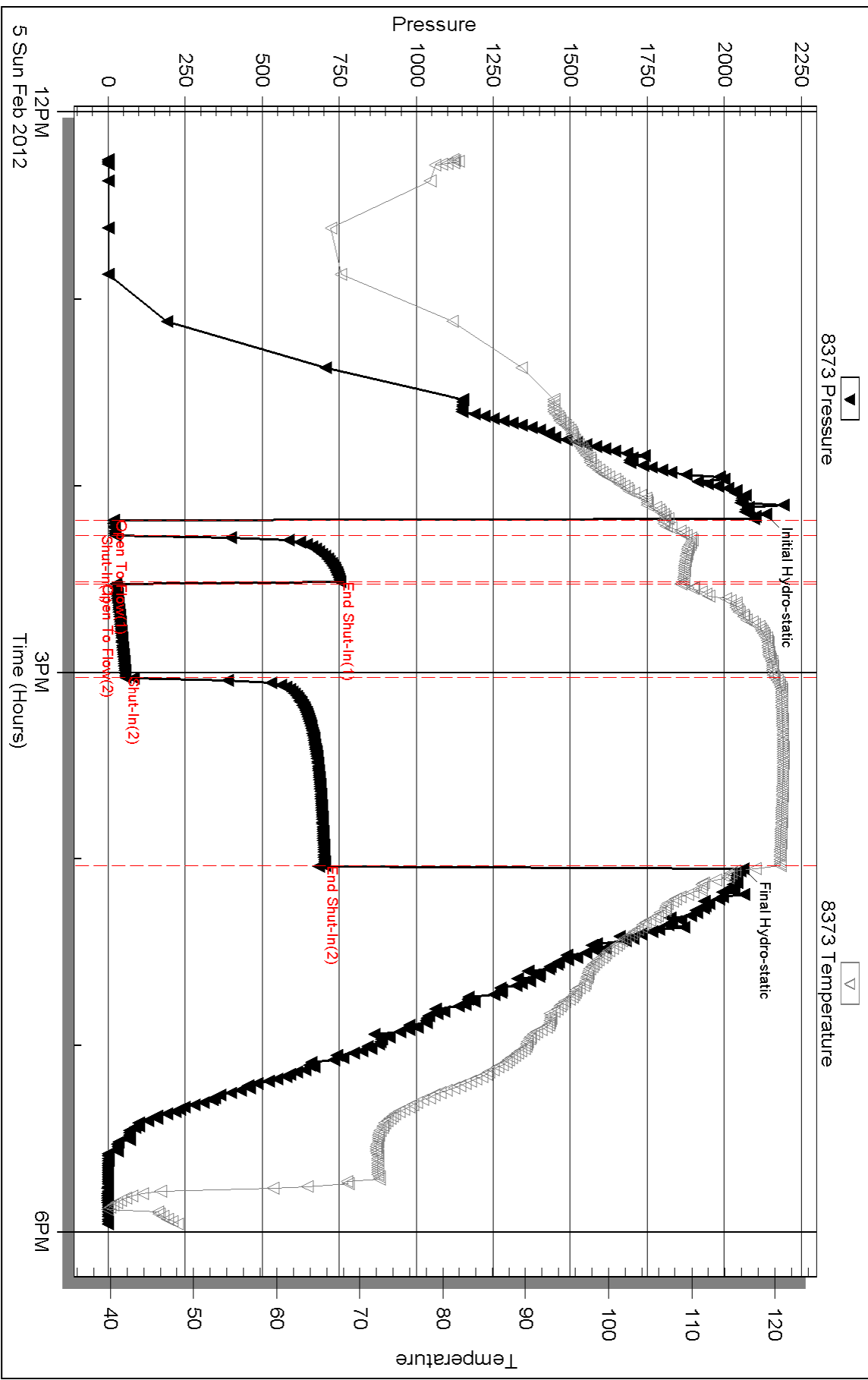
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .25@61=32000

# Pressure vs. Time

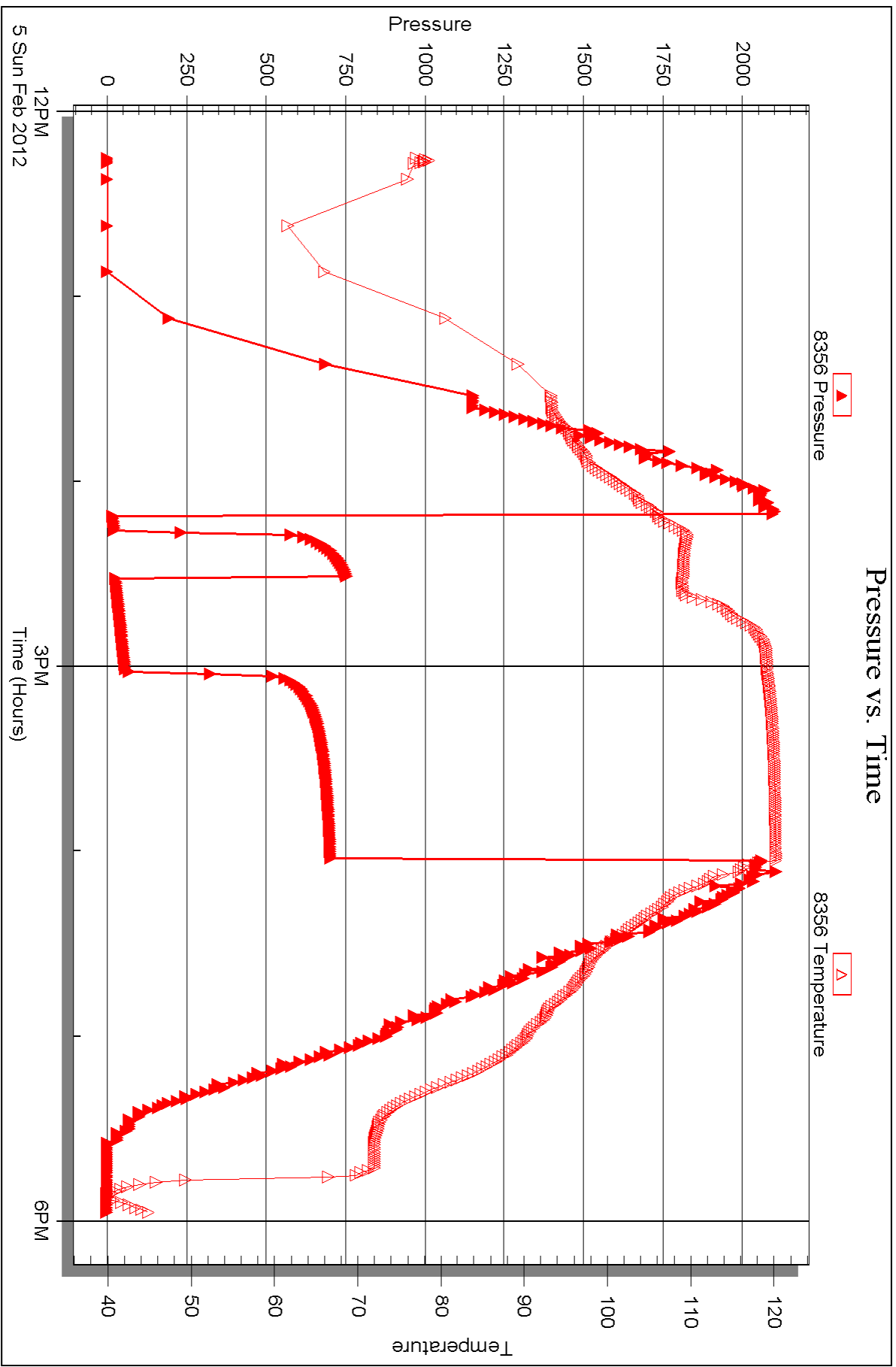


Serial #: 8356

Outside Larson Engineering Inc.

Joyce Ann Unit #1-13

DST Test Number: 6





## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.06 @ 01:22:56

End Date: 2012.02.06 @ 07:41:28

Job Ticket #: 45005                      DST #: 7

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

Printed: 2012.02.14 @ 16:13:36



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
 Job Ticket: 45005 **DST#: 7**  
 Test Start: 2012.02.06 @ 01:22:56

## GENERAL INFORMATION:

Formation: **L**  
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**  
 Time Tool Opened: **03:23:29** Tester: **Brandon Turley**  
 Time Test Ended: **07:41:28** Unit No: **60**  
**Interval: 4313.00 ft (KB) To 4320.00 ft (KB) (TVD)** Reference Elevations: **2799.00 ft (KB)**  
 Total Depth: **4320.00 ft (KB) (TVD)** **2792.00 ft (CF)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good** KB to GR/CF: **7.00 ft**

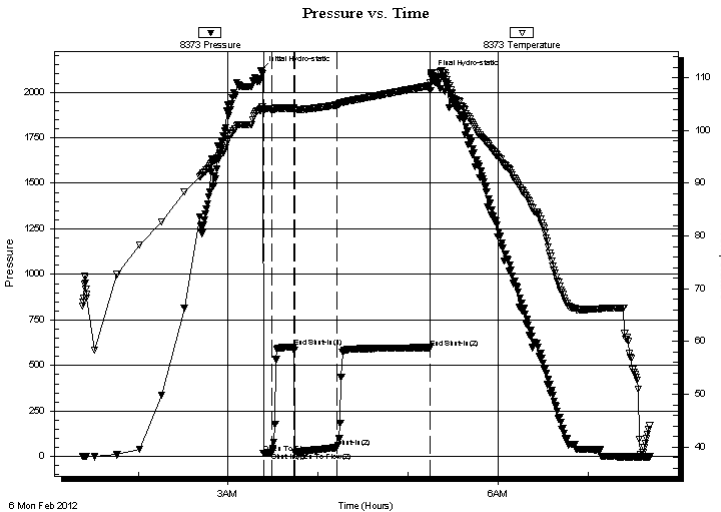
## Serial #: 8373

**Inside**

Press @ Run Depth: **50.10 psig @ 4314.00 ft (KB)** Capacity: **8000.00 psig**  
 Start Date: **2012.02.06** End Date: **2012.02.06** Last Calib.: **2012.02.06**  
 Start Time: **01:22:56** End Time: **07:41:28** Time On Btm: **2012.02.06 @ 03:21:59**  
 Time Off Btm: **2012.02.06 @ 05:15:14**

TEST COMMENT: IF: Surface blow.  
 IS: No return.  
 FF: 1/4 blow built to 8" in 30 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2117.17	104.18	Initial Hydro-static
2	16.91	103.66	Open To Flow (1)
7	20.59	104.07	Shut-In(1)
22	600.07	104.26	End Shut-In(1)
23	21.13	103.98	Open To Flow (2)
51	50.10	104.90	Shut-In(2)
113	597.80	108.53	End Shut-In(2)
114	2097.53	110.82	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	gocm 10%g 10%o 80%m	0.30
62.00	go 10%g 90%o	0.30
0.00	62 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45005

**DST#: 7**

ATTN: Vern Schrag

Test Start: 2012.02.06 @ 01:22:56

## Tool Information

Drill Pipe:	Length: 4159.00 ft	Diameter: 3.80 inches	Volume: 58.34 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4313.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	7.00 ft			
Tool Length:	35.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4286.00	
Shut In Tool	5.00			4291.00	
Hydraulic tool	5.00			4296.00	
Jars	5.00			4301.00	
Safety Joint	3.00			4304.00	
Packer	5.00			4309.00	28.00 Bottom Of Top Packer
Packer	4.00			4313.00	
Stubb	1.00			4314.00	
Recorder	0.00	8373	Inside	4314.00	
Recorder	0.00	8356	Outside	4314.00	
Perforations	1.00			4315.00	
Bullnose	5.00			4320.00	7.00 Bottom Packers & Anchor

**Total Tool Length: 35.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45005

**DST#: 7**

ATTN: Vern Schrag

Test Start: 2012.02.06 @ 01:22:56

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

40 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	gocm 10%g 10%o 80%m	0.305
62.00	go 10%g 90%o	0.305
0.00	62 GIP	0.000

Total Length: 124.00 ft      Total Volume: 0.610 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

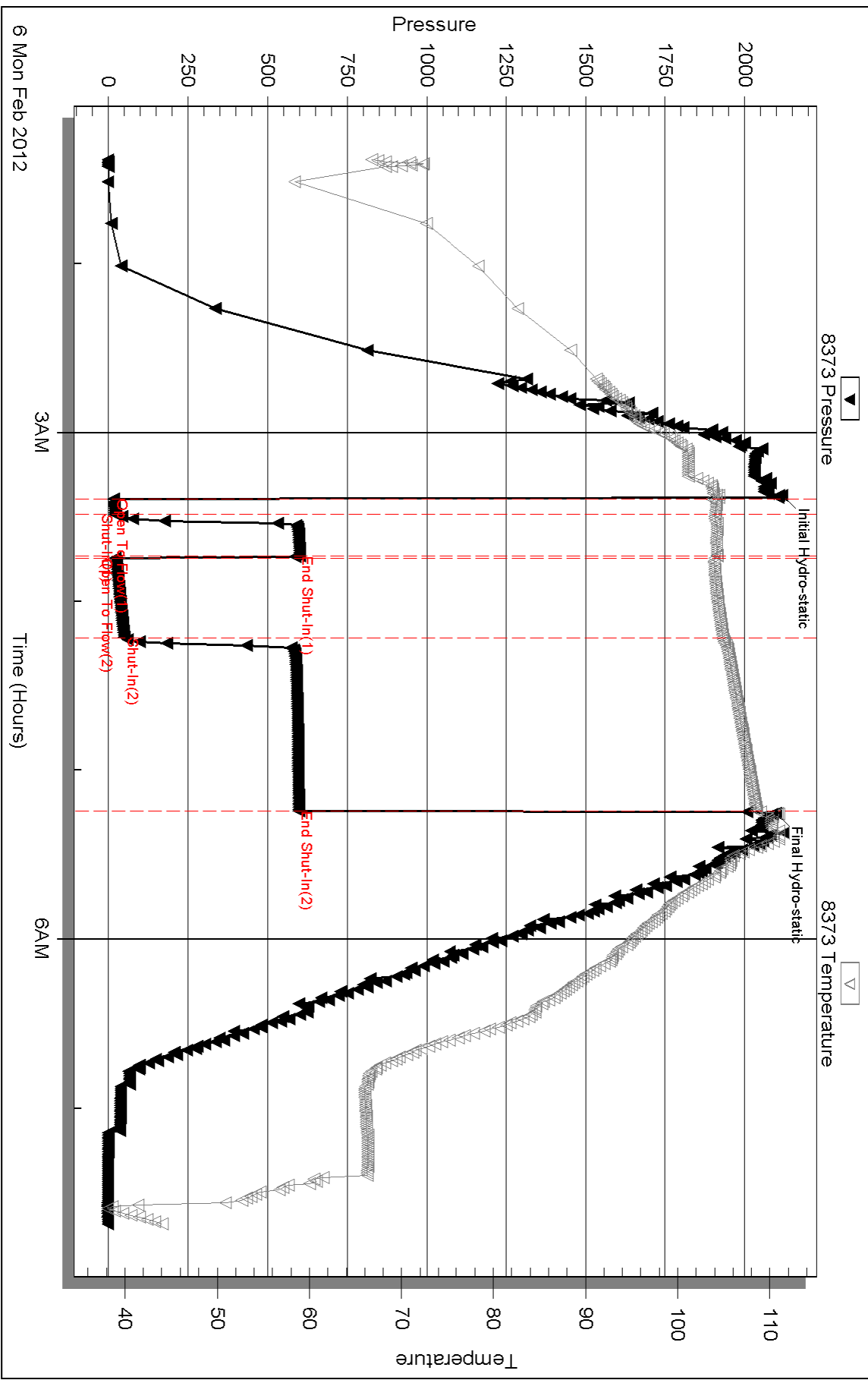
Serial #:

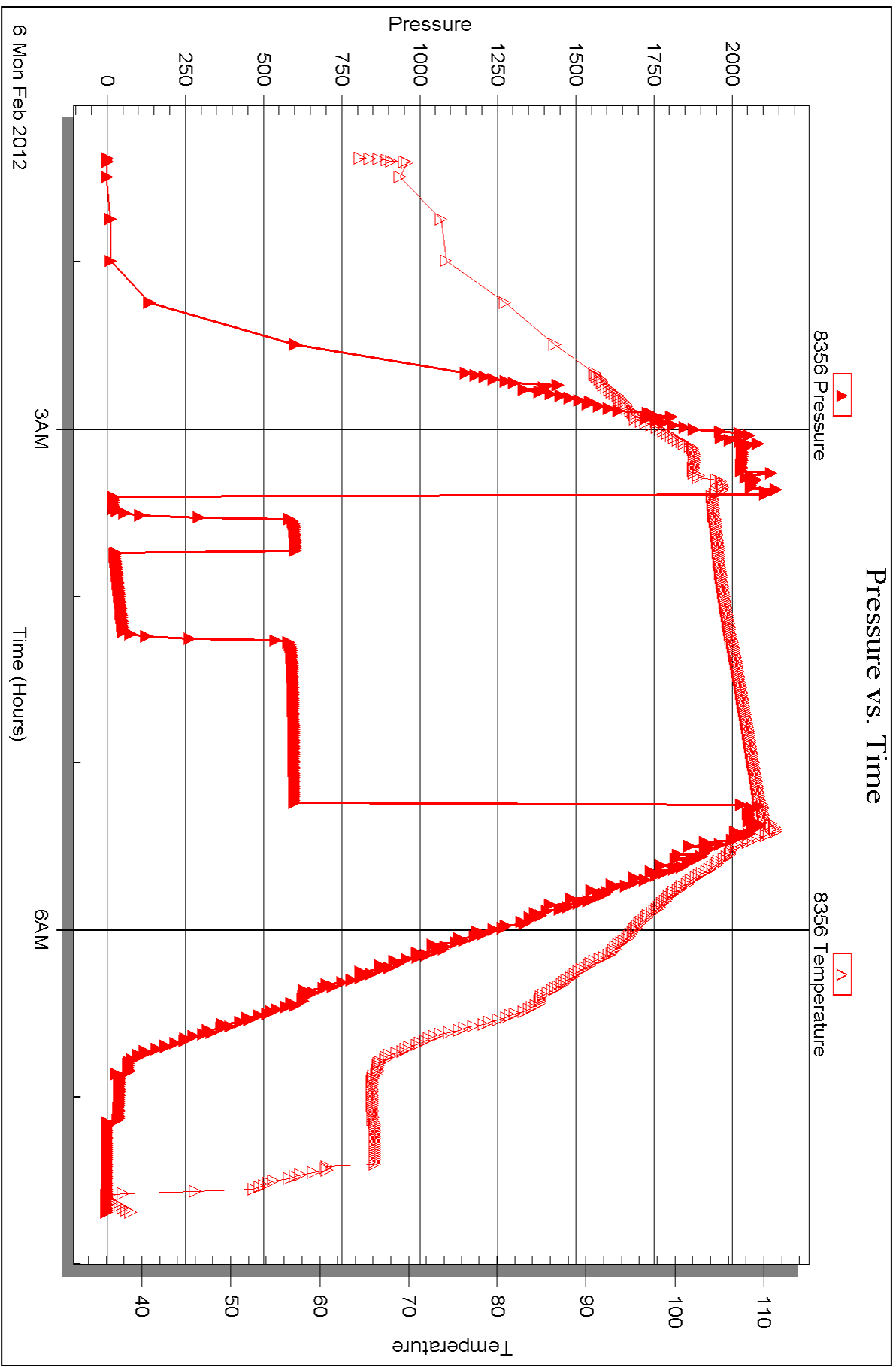
Laboratory Name:

Laboratory Location:

Recovery Comments: 37@30=40

### Pressure vs. Time







## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.06 @ 15:27:52

End Date: 2012.02.06 @ 20:48:46

Job Ticket #: 45006                      DST #: 8

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

Printed: 2012.02.14 @ 16:12:53



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

Joyce Ann Unit #1-13

ATTN: Vern Schrag

Job Ticket: 45006

DST#: 8

Test Start: 2012.02.06 @ 15:27:52

## GENERAL INFORMATION:

Formation: **L**  
 Deviated: **No** Whipstock: **ft (KB)**  
 Time Tool Opened: 16:56:02  
 Time Test Ended: 20:48:46  
 Interval: **4320.00 ft (KB) To 4327.00 ft (KB) (TVD)**  
 Total Depth: 4083.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: **Good**  
 Test Type: **Conventional Bottom Hole (Reset)**  
 Tester: **Brandon Turley**  
 Unit No: **60**  
 Reference Elevations: 2799.00 ft (KB)  
 2792.00 ft (CF)  
 KB to GR/CF: 7.00 ft

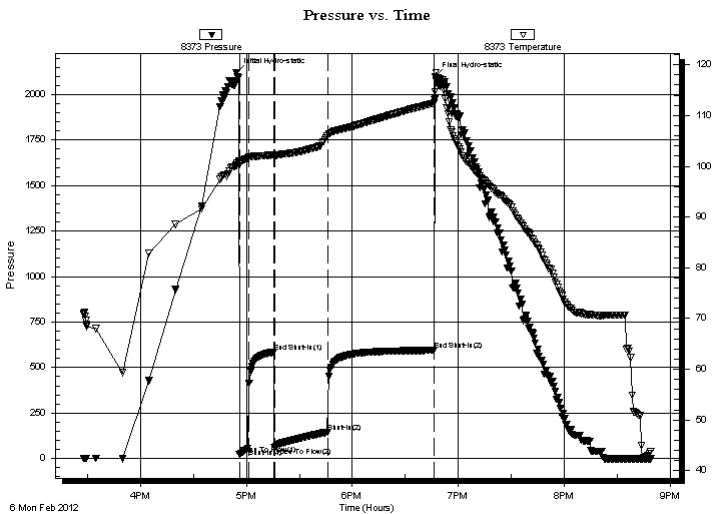
## Serial #: 8373

Inside

Press @ Run Depth: 145.44 psig @ 4321.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.06 End Date: 2012.02.06 Last Calib.: 2012.02.06  
 Start Time: 15:27:52 End Time: 20:48:46 Time On Btm: 2012.02.06 @ 16:54:17  
 Time Off Btm: 2012.02.06 @ 18:46:47

TEST COMMENT: IF: 1/4" blow built to 3 1/2" in 5 min.  
 IS: No return.  
 FF: BOB in 18 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2122.13	100.22	Initial Hydro-static
2	21.96	100.41	Open To Flow (1)
7	56.27	101.61	Shut-In(1)
22	584.96	102.26	End Shut-In(1)
22	61.77	101.98	Open To Flow (2)
52	145.44	105.99	Shut-In(2)
112	594.69	112.44	End Shut-In(2)
113	2096.56	114.68	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	mcw 90%w 10%m	1.22
107.00	mcw oil spots 70%w 30%m	1.50
5.00	free oil 100%o	0.07

\* 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45006

**DST#: 8**

ATTN: Vern Schrag

Test Start: 2012.02.06 @ 15:27:52

## Tool Information

Drill Pipe:	Length: 4160.00 ft	Diameter: 3.80 inches	Volume: 58.35 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.10 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4320.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	7.00 ft			
Tool Length:	35.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4293.00	
Shut In Tool	5.00			4298.00	
Hydraulic tool	5.00			4303.00	
Jars	5.00			4308.00	
Safety Joint	3.00			4311.00	
Packer	5.00			4316.00	28.00 Bottom Of Top Packer
Packer	4.00			4320.00	
Stubb	1.00			4321.00	
Recorder	0.00	8373	Inside	4321.00	
Recorder	0.00	8356	Outside	4321.00	
Perforations	1.00			4322.00	
Bullnose	5.00			4327.00	7.00 Bottom Packers & Anchor

**Total Tool Length: 35.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45006

**DST#: 8**

ATTN: Vern Schrag

Test Start: 2012.02.06 @ 15:27:52

## 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:

62000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbl

Water Loss: 5.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	mcw 90%w 10%m	1.224
107.00	mcw oil spots 70%w 30%m	1.501
5.00	free oil 100%o	0.070

Total Length: 298.00 ft      Total Volume: 2.795 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

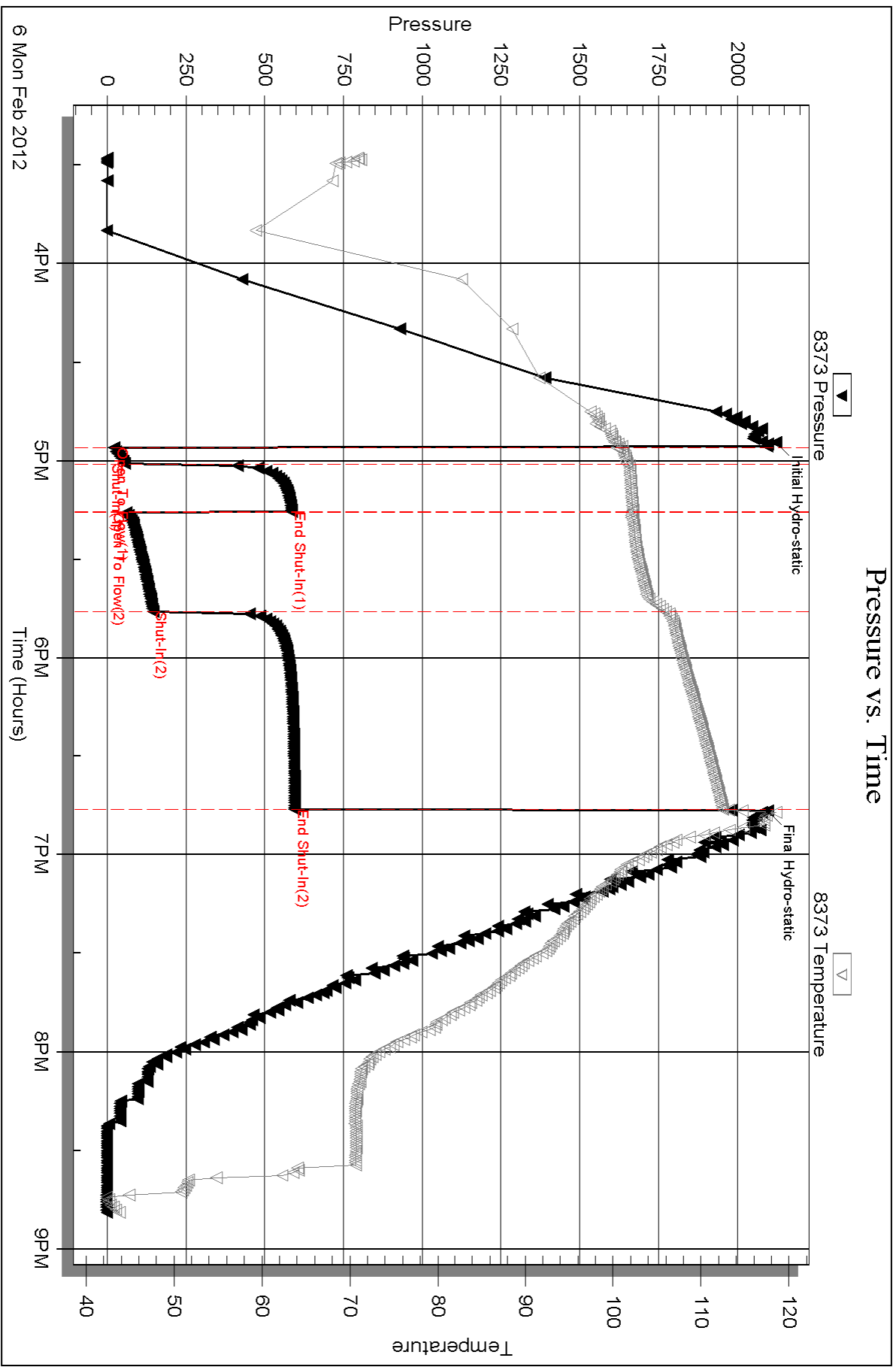
Laboratory Name:

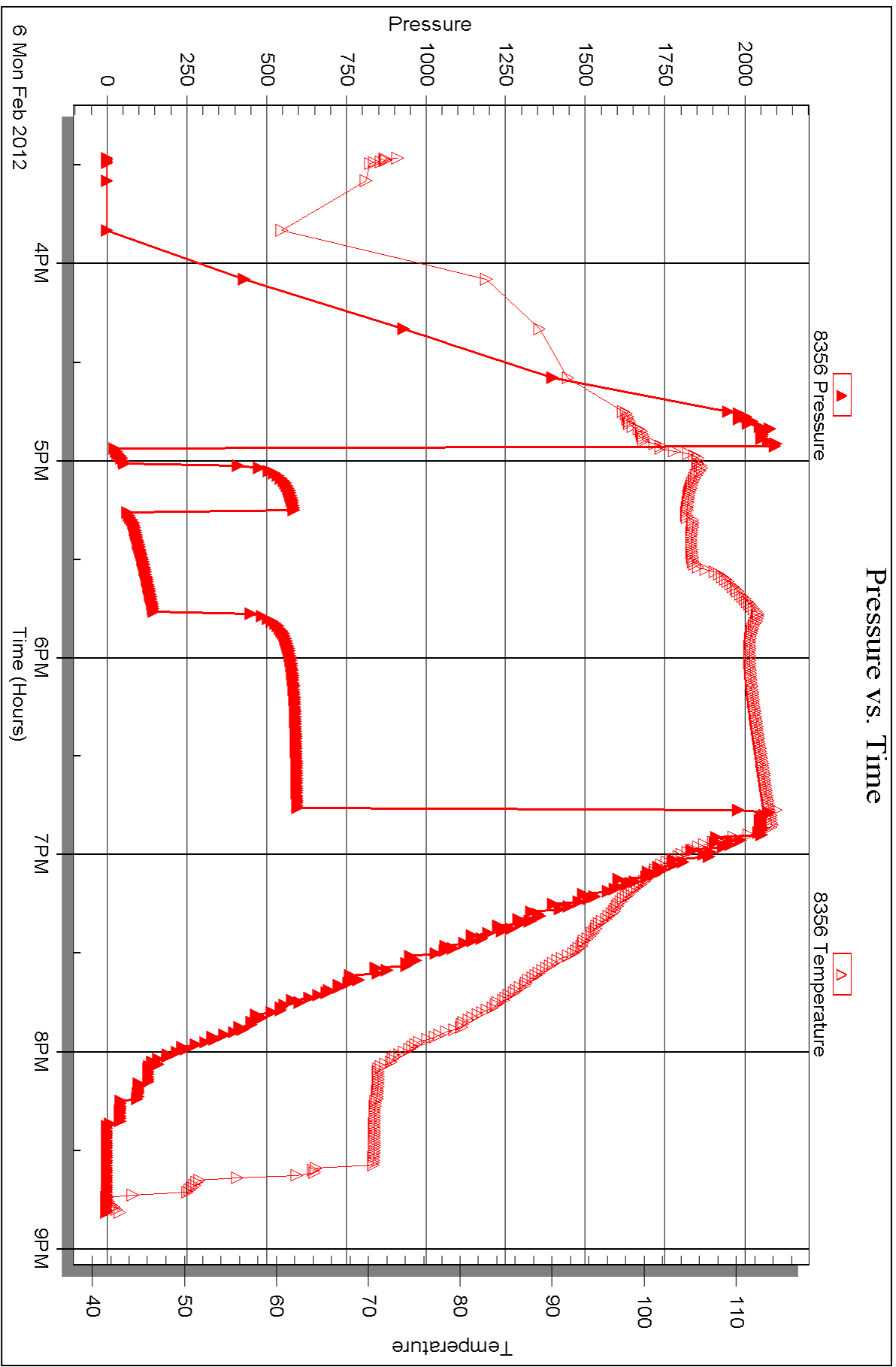
Laboratory Location:

Recovery Comments: .22@40=62000

35 ppm H<sub>2</sub>S in the water









## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.07 @ 06:37:06

End Date: 2012.02.07 @ 13:04:15

Job Ticket #: 45007                      DST #: 9

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

Printed: 2012.02.14 @ 16:12:14

Larson Engineering Inc.

13-19s-29w Lane, KS

Joyce Ann Unit #1-13

DST # 9

Pleasanton

2012.02.07



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
 Job Ticket: 45007 **DST#: 9**  
 Test Start: 2012.02.07 @ 06:37:06

## GENERAL INFORMATION:

Formation: **Pleasanton**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 08:33:01  
 Tester: Brandon Turley  
 Time Test Ended: 13:04:15  
 Unit No: 60  
**Interval: 4348.00 ft (KB) To 4367.00 ft (KB) (TVD)**  
 Reference Elevations: 2799.00 ft (KB)  
 Total Depth: 4367.00 ft (KB) (TVD)  
 2792.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Good  
 KB to GR/CF: 7.00 ft

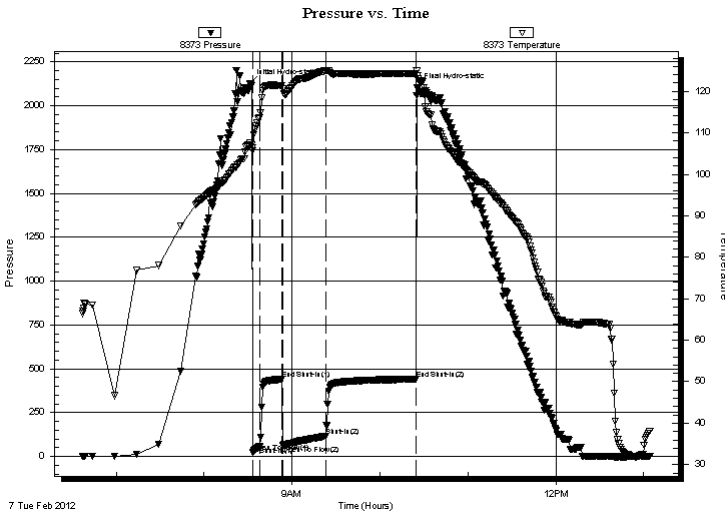
## Serial #: 8373

Inside

Press @ Run Depth: 116.39 psig @ 4349.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.07 End Date: 2012.02.07 Last Calib.: 2012.02.07  
 Start Time: 06:37:06 End Time: 13:04:15 Time On Btm: 2012.02.07 @ 08:31:01  
 Time Off Btm: 2012.02.07 @ 10:25:31

**TEST COMMENT:** IF: 1/4" blow built to 6" in 5 min.  
 IS: No return.  
 FF: BOB in 8 min.  
 FS: Surface blow that died.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2127.03	107.56	Initial Hydro-static
2	25.50	105.71	Open To Flow (1)
7	54.96	113.56	Shut-In(1)
22	439.66	121.29	End Shut-In(1)
23	63.61	120.49	Open To Flow (2)
52	116.39	124.91	Shut-In(2)
114	440.26	124.27	End Shut-In(2)
115	2101.25	123.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	gocw m 10%g 10%o 20%w 60%m	0.61
62.00	mw cgo 30%g 50%o 10%w 10%m	0.61
82.00	mcgo 10%g 80%o 10%m	1.15
0.00	310 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

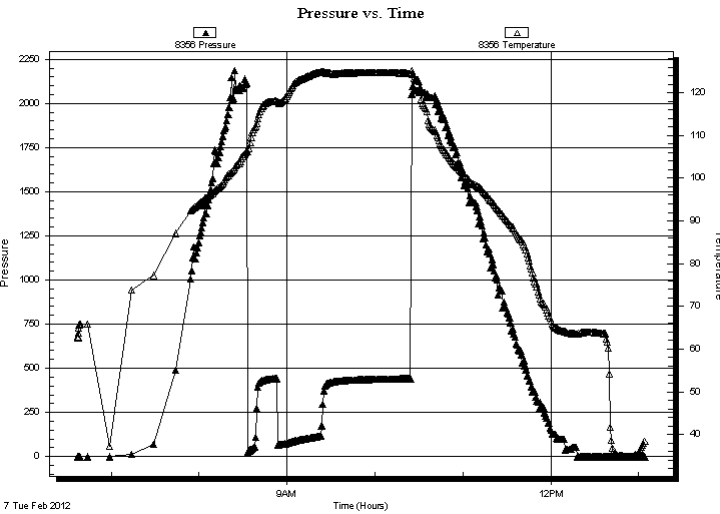
**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
 Job Ticket: 45007 **DST#: 9**  
 Test Start: 2012.02.07 @ 06:37:06

## GENERAL INFORMATION:

Formation: **Pleasanton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:33:01  
 Time Test Ended: 13:04:15  
 Interval: **4348.00 ft (KB) To 4367.00 ft (KB) (TVD)**  
 Total Depth: 4367.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brandon Turley  
 Unit No: 60  
 Reference Elevations: 2799.00 ft (KB)  
 2792.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 8356 Outside**  
 Press @ Run Depth: psig @ 4349.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.07 End Date: 2012.02.07 Last Calib.: 2012.02.07  
 Start Time: 06:37:06 End Time: 13:04:15 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: 1/4" blow built to 6" in 5 min.  
 IS: No return.  
 FF: BOB in 8 min.  
 FS: Surface blow that died.



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
124.00	gocw m 10%g 10%o 20%w 60%m	0.61
62.00	mw cgo 30%g 50%o 10%w 10%m	0.61
82.00	mcgo 10%g 80%o 10%m	1.15
0.00	310 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45007

**DST#: 9**

ATTN: Vern Schrag

Test Start: 2012.02.07 @ 06:37:06

## Tool Information

Drill Pipe:	Length: 4188.00 ft	Diameter: 3.80 inches	Volume: 58.75 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4348.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	19.00 ft			
Tool Length:	47.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4321.00	
Shut In Tool	5.00			4326.00	
Hydraulic tool	5.00			4331.00	
Jars	5.00			4336.00	
Safety Joint	3.00			4339.00	
Packer	5.00			4344.00	28.00 Bottom Of Top Packer
Packer	4.00			4348.00	
Stubb	1.00			4349.00	
Recorder	0.00	8373	Inside	4349.00	
Recorder	0.00	8356	Outside	4349.00	
Perforations	13.00			4362.00	
Bullnose	5.00			4367.00	19.00 Bottom Packers & Anchor

**Total Tool Length: 47.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45007

**DST#: 9**

Test Start: 2012.02.07 @ 06:37:06

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

50000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	gocw m 10%g 10%o 20%w 60%m	0.610
62.00	mw cgo 30%g 50%o 10%w 10%m	0.615
82.00	mcgo 10%g 80%o 10%m	1.150
0.00	310 GIP	0.000

Total Length: 268.00 ft      Total Volume: 2.375 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

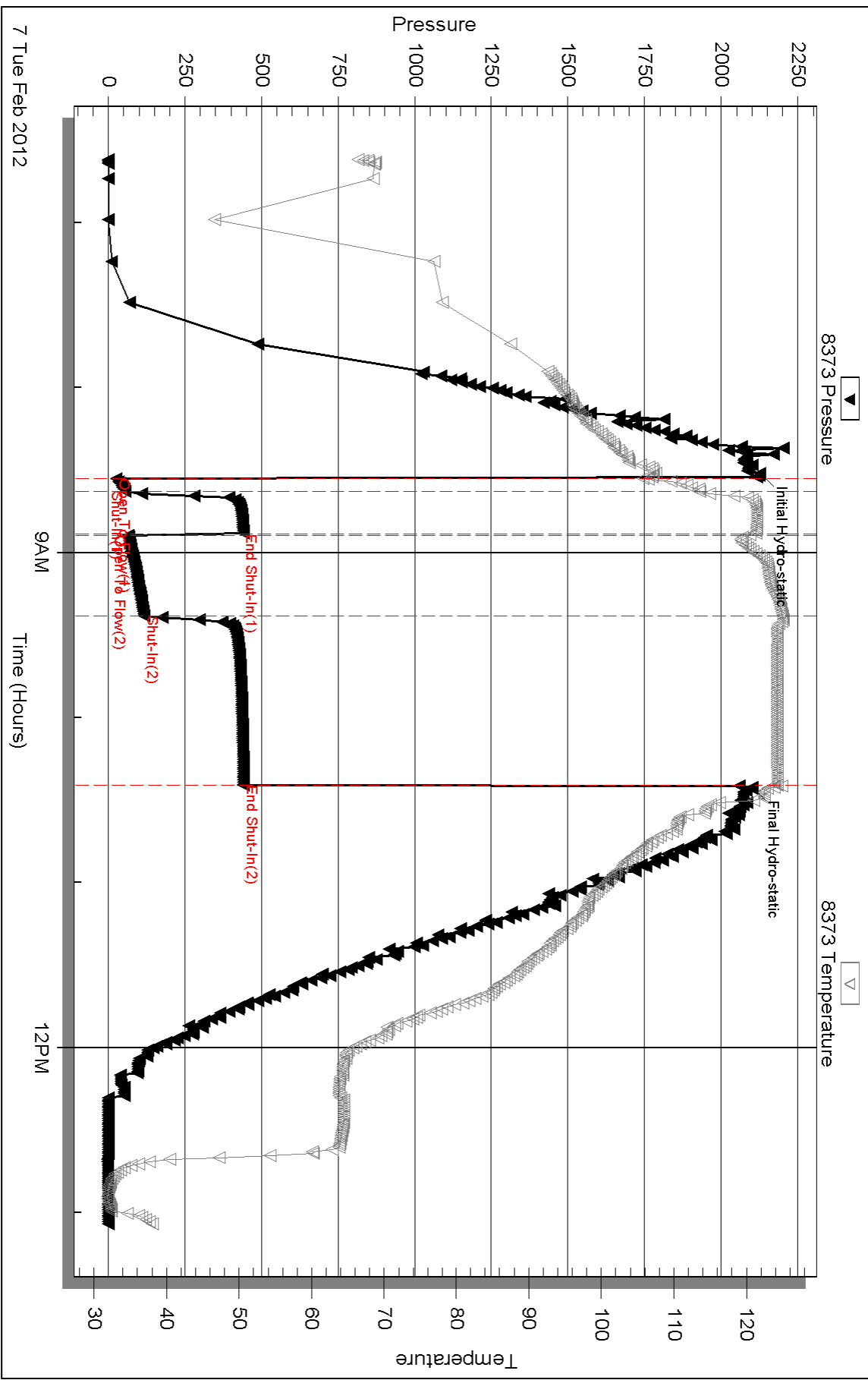
Laboratory Name:

Laboratory Location:

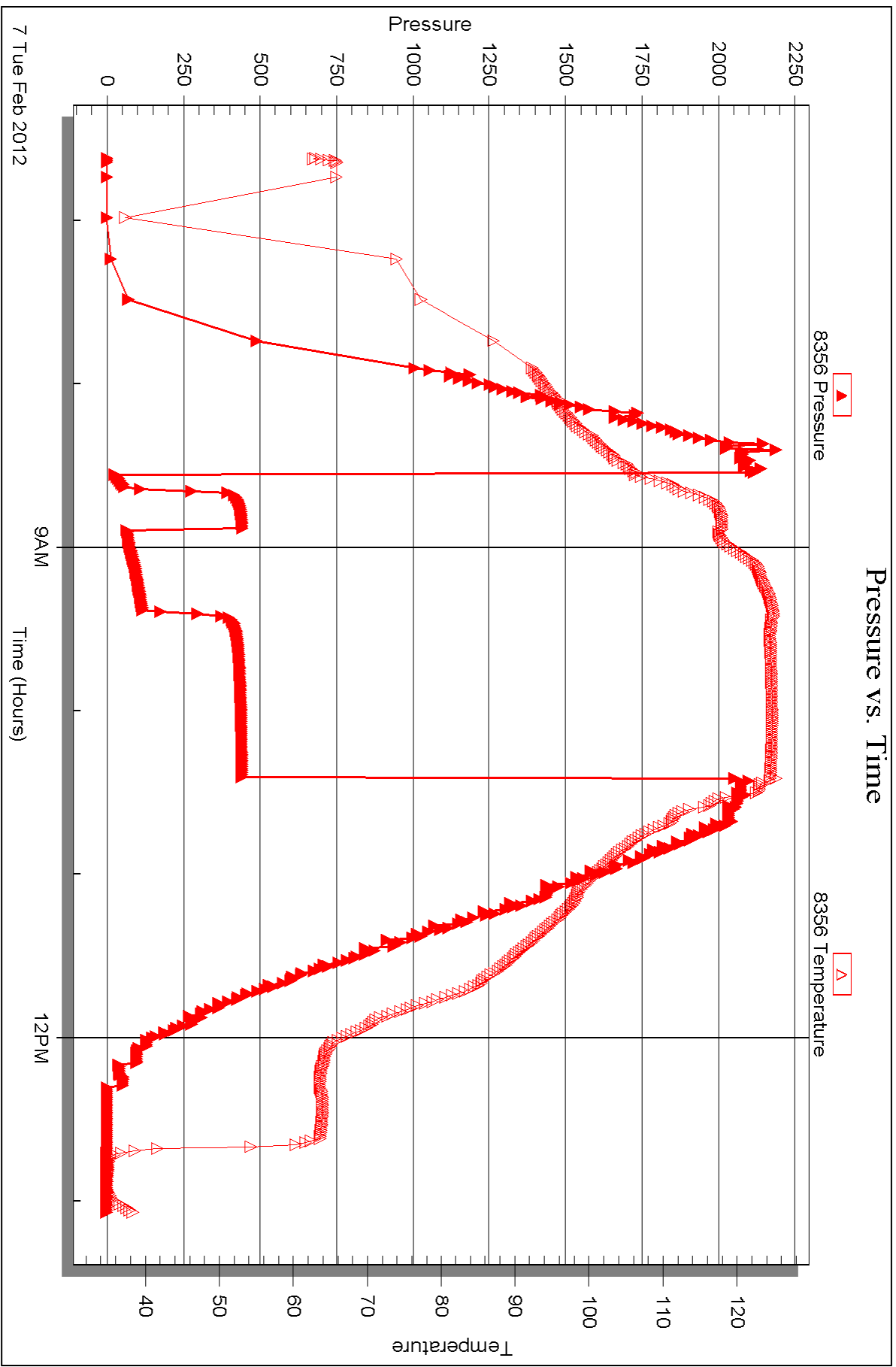
Recovery Comments: 36@40=38

.28@38=50000

### Pressure vs. Time









## DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.07 @ 22:26:55

End Date: 2012.02.08 @ 04:09:49

Job Ticket #: 45008                      DST #: 10

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

Printed: 2012.02.14 @ 16:11:38



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

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

**13-19s-29w Lane, KS**  
**Joyce Ann Unit #1-13**  
 Job Ticket: 45008 **DST#: 10**  
 Test Start: 2012.02.07 @ 22:26:55

## GENERAL INFORMATION:

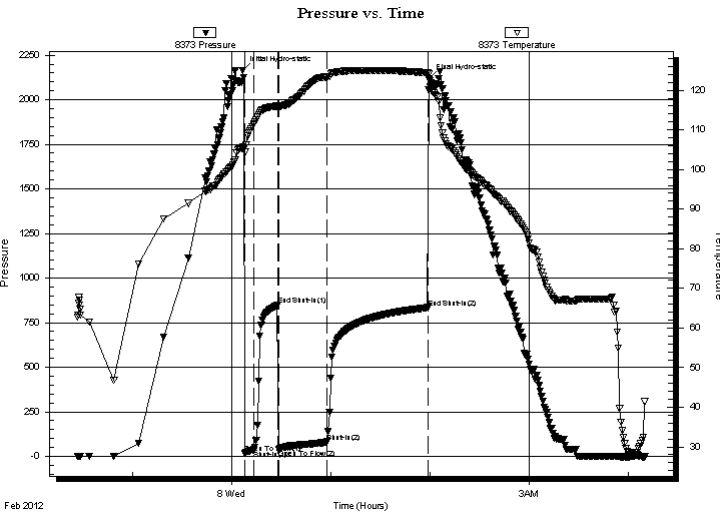
Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 00:08:05 Tester: Brandon Turley  
 Time Test Ended: 04:09:49 Unit No: 60  
 Interval: **4370.00 ft (KB) To 4390.00 ft (KB) (TVD)** Reference Elevations: 2799.00 ft (KB)  
 Total Depth: 4390.00 ft (KB) (TVD) 2792.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 7.00 ft

## Serial #: 8373

Inside

Press @ Run Depth: 79.00 psig @ 4371.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.07 End Date: 2012.02.08 Last Calib.: 2012.02.08  
 Start Time: 22:26:55 End Time: 04:09:49 Time On Btm: 2012.02.08 @ 00:06:35  
 Time Off Btm: 2012.02.08 @ 01:59:20

TEST COMMENT: IF: 1/4" blow built to 4".  
 IS: No return.  
 FF: BOB in 7 min.  
 FS: Surface blow built to 2" in 60 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2164.78	105.64	Initial Hydro-static
2	19.09	104.38	Open To Flow (1)
7	37.15	111.61	Shut-In(1)
22	848.65	116.04	End Shut-In(1)
22	38.71	116.01	Open To Flow (2)
51	79.00	123.32	Shut-In(2)
112	834.08	124.40	End Shut-In(2)
113	2117.78	122.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	mcgo 20%g 60%o 20%m	0.30
134.00	mcgo 10%g 70%o 20%m	1.06
0.00	444 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.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45008

**DST#: 10**

ATTN: Vern Schrag

Test Start: 2012.02.07 @ 22:26:55

## Tool Information

Drill Pipe:	Length: 4216.00 ft	Diameter: 3.80 inches	Volume: 59.14 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.89 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4370.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	48.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4343.00	
Shut In Tool	5.00			4348.00	
Hydraulic tool	5.00			4353.00	
Jars	5.00			4358.00	
Safety Joint	3.00			4361.00	
Packer	5.00			4366.00	28.00 Bottom Of Top Packer
Packer	4.00			4370.00	
Stubb	1.00			4371.00	
Recorder	0.00	8373	Inside	4371.00	
Recorder	0.00	8356	Outside	4371.00	
Perforations	14.00			4385.00	
Bullnose	5.00			4390.00	20.00 Bottom Packers & Anchor

**Total Tool Length: 48.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45008

**DST#: 10**

ATTN: Vern Schrag

Test Start: 2012.02.07 @ 22:26:55

## 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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3200.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	mcgo 20%g 60%o 20%m	0.305
134.00	mcgo 10%g 70%o 20%m	1.060
0.00	444 GIP	0.000

Total Length: 196.00 ft

Total Volume: 1.365 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

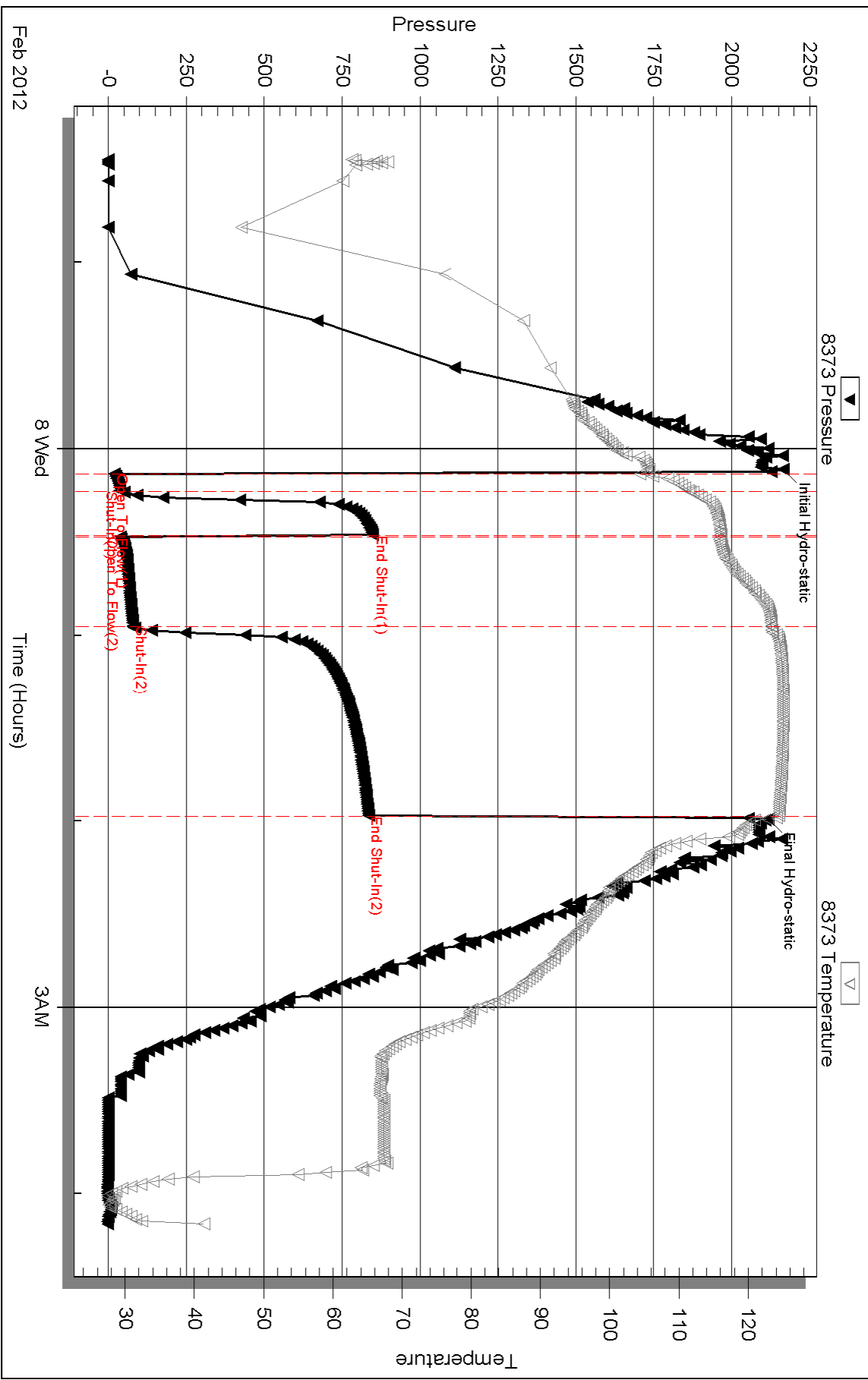
Serial #:

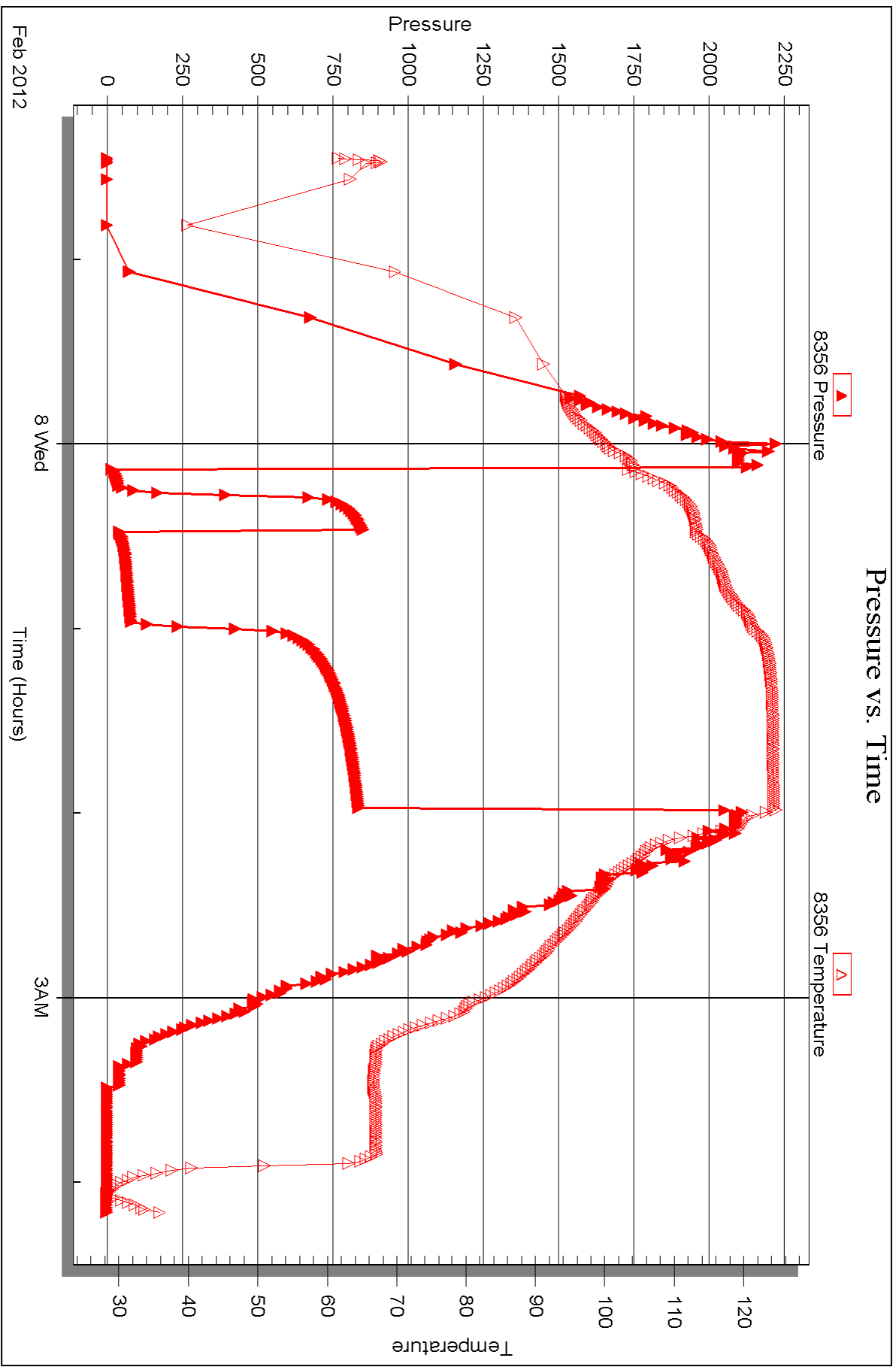
Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time









## DRILL STEM TEST REPORT

Prepared For: **Larson Eneineering Inc.**

562 W State Rd 4  
Olmitz, KS 67564

ATTN: Vern Schrag

**Joyce Ann Unit #1-13**

**13-19s-29w Lane, KS**

Start Date: 2012.02.09 @ 03:48:01

End Date: 2012.02.09 @ 09:55:10

Job Ticket #: 45009                      DST #: 11

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

Printed: 2012.02.14 @ 16:11:02



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Larson Engineering Inc.

13-19s-29w Lane, KS

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

ATTN: Vern Schrag

Job Ticket: 45009

**DST#: 11**

Test Start: 2012.02.09 @ 03:48:01

## GENERAL INFORMATION:

Formation: **Altamont-Ft.Scott**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 06:36:56  
 Time Test Ended: 09:55:10  
 Interval: **4439.00 ft (KB) To 4552.00 ft (KB) (TVD)**  
 Total Depth: 4552.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brandon Turley  
 Unit No: 60  
 Reference Elevations: 2799.00 ft (KB)  
 2792.00 ft (CF)  
 KB to GR/CF: 7.00 ft

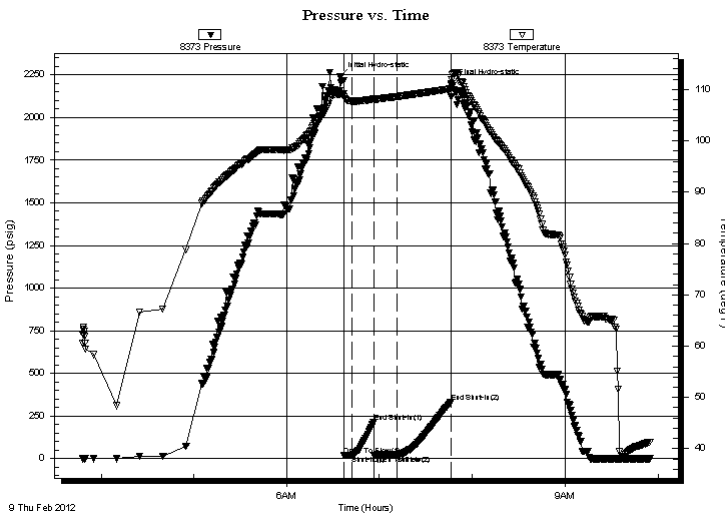
## Serial #: 8373

Inside

Press @ Run Depth: 21.58 psig @ 4440.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.02.09 End Date: 2012.02.09 Last Calib.: 2012.02.09  
 Start Time: 03:48:01 End Time: 09:55:10 Time On Btm: 2012.02.09 @ 06:34:41  
 Time Off Btm: 2012.02.09 @ 07:46:41

TEST COMMENT: IF: Surface blow.  
 IS: No return.  
 FF: No blow.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2237.47	109.16	Initial Hydro-static
3	19.23	108.48	Open To Flow (1)
8	20.34	107.71	Shut-In(1)
22	211.66	108.11	End Shut-In(1)
22	20.54	107.98	Open To Flow (2)
37	21.58	108.62	Shut-In(2)
72	330.00	110.12	End Shut-In(2)
72	2200.82	111.99	Final Hydro-static

## Recovery

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

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Larson Engineering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45009

**DST#: 11**

ATTN: Vern Schrag

Test Start: 2012.02.09 @ 03:48:01

## Tool Information

Drill Pipe:	Length: 4278.00 ft	Diameter: 3.80 inches	Volume: 60.01 bbl	Tool Weight: 2000.00 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: 152.00 ft	Diameter: 2.25 inches	Volume: 0.75 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4439.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	113.00 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
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4412.00	
Shut In Tool	5.00			4417.00	
Hydraulic tool	5.00			4422.00	
Jars	5.00			4427.00	
Safety Joint	3.00			4430.00	
Packer	5.00			4435.00	28.00 Bottom Of Top Packer
Packer	4.00			4439.00	
Stubb	1.00			4440.00	
Recorder	0.00	8373	Inside	4440.00	
Recorder	0.00	8356	Outside	4440.00	
Perforations	13.00			4453.00	
Change Over Sub	1.00			4454.00	
Drill Pipe	92.00			4546.00	
Change Over Sub	1.00			4547.00	
Bullnose	5.00			4552.00	113.00 Bottom Packers & Anchor

**Total Tool Length: 141.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Larson Eneering Inc.

**13-19s-29w Lane, KS**

562 W State Rd 4  
Olmitz, KS 67564

**Joyce Ann Unit #1-13**

Job Ticket: 45009

**DST#: 11**

ATTN: Vern Schrag

Test Start: 2012.02.09 @ 03:48:01

## 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: 49.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3700.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

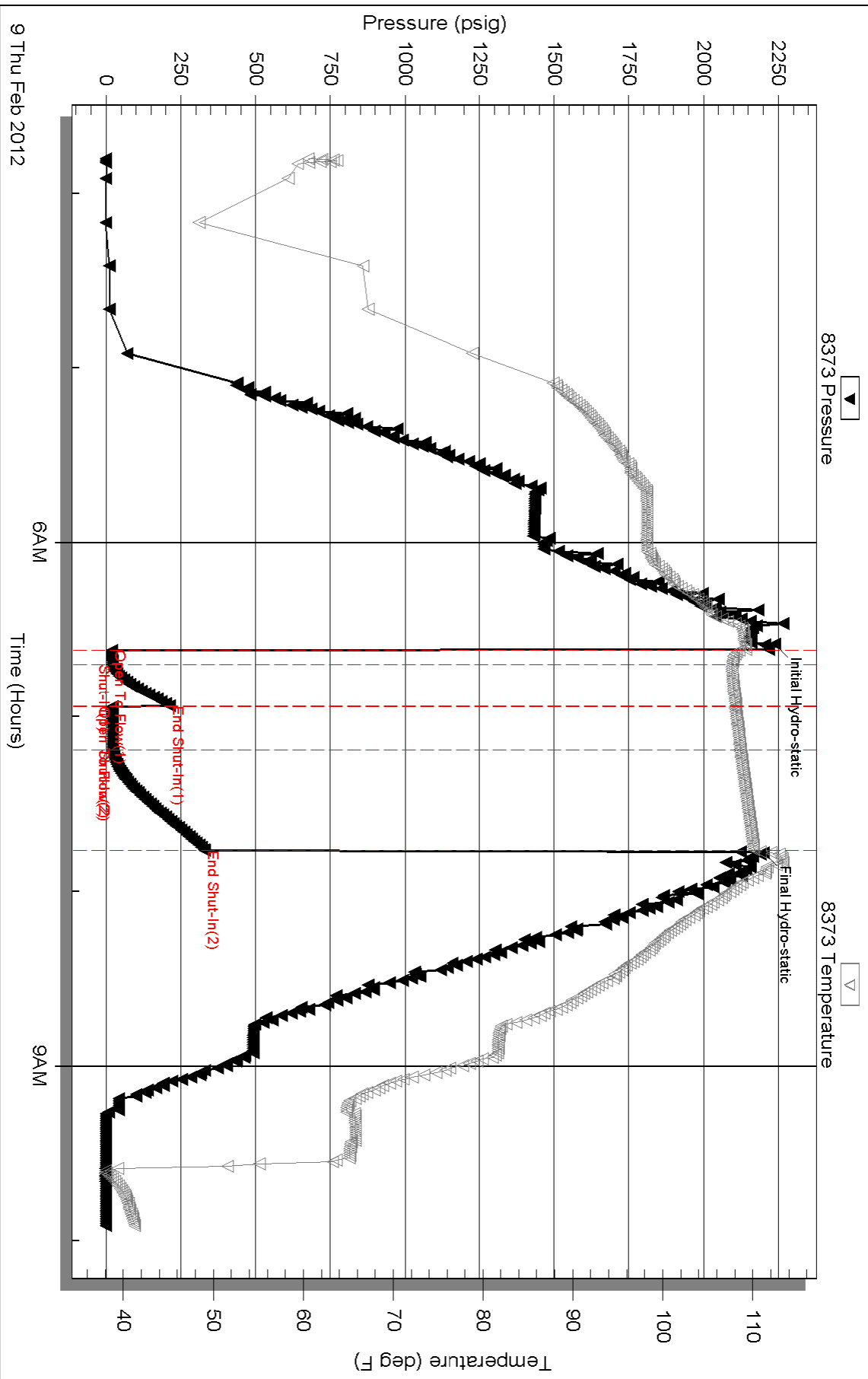
Serial #:

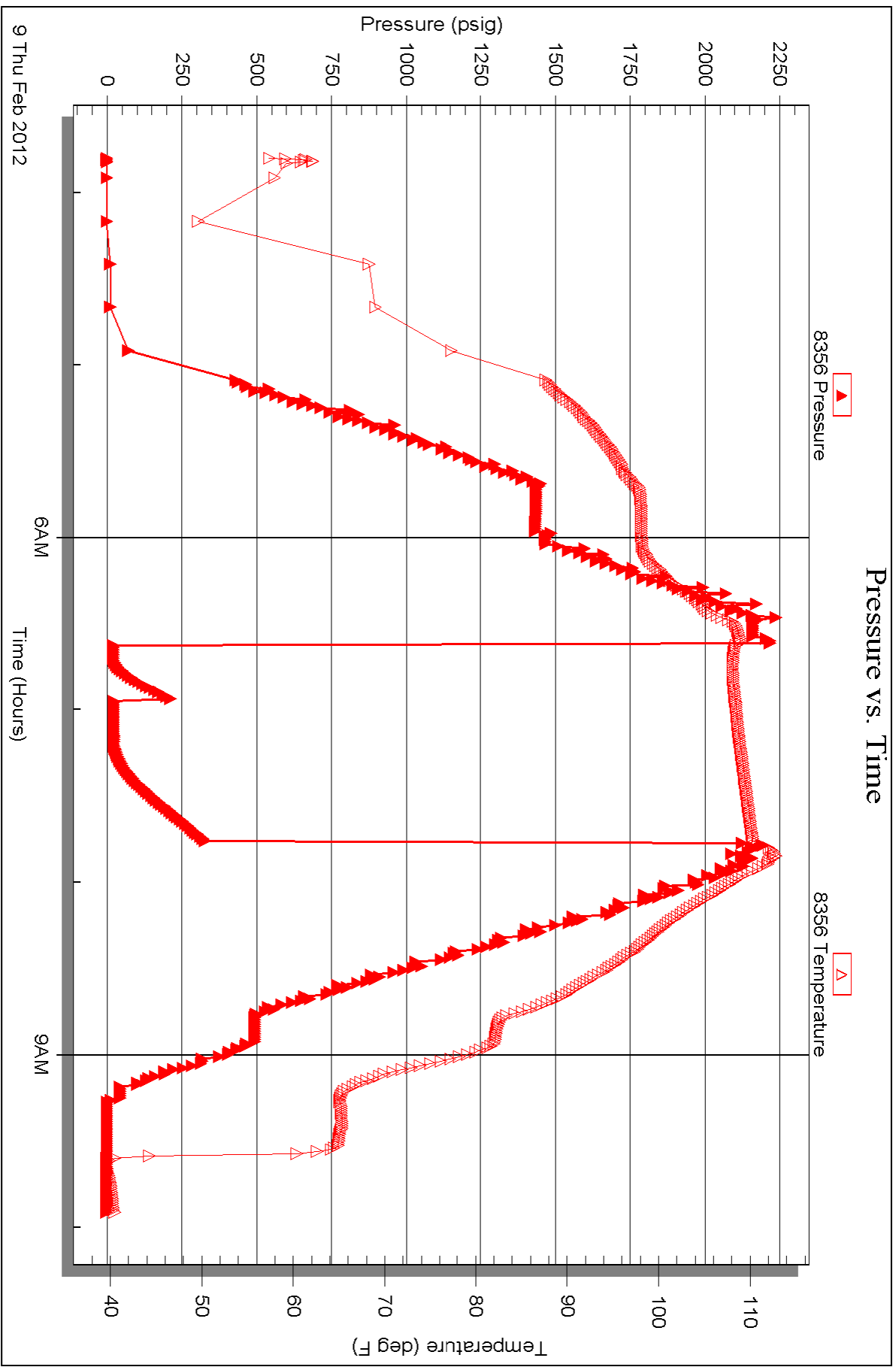
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time







# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45324

Well Name & No. Joyce Ann Unit 1-13 Test No. 1 Date 2-1-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address 562 W state rd 4 Olmitz, KS 67564  
 Co. Rep / Geo. Vern Schrag Rig HD#3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Lane State KS

Interval Tested 4071 4083 Zone Tested Lmsing F  
 Anchor Length 12 Drill Pipe Run 3910 Mud Wt. 9.0  
 Top Packer Depth 4066 Drill Collars Run 152 Vis 55  
 Bottom Packer Depth 4071 Wt. Pipe Run — WL 6.0  
 Total Depth 4083 Chlorides 2300 ppm System LCM 2

Blow Description IF: 1/4 blow built to 5 in 5 min.  
IS: No return.  
KF: BoB in 15 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Free oil</u>	<u>100</u>			
<u>114</u>	<u>mcw Trace of oil</u>		<u>60</u>	<u>40</u>	
<u>186</u>	<u>mcw</u>		<u>95</u>	<u>5</u>	

Rec Total 320 BHT 123 Gravity — API RW 117 @ 37 °F Chlorides 90,000 ppm

(A) Initial Hydrostatic 2024  Test 1225 T-On Location 22:30  
 (B) First Initial Flow 23  Jars 250 T-Started 00:50  
 (C) First Final Flow 59  Safety Joint 75 T-Open 3:12  
 (D) Initial Shut-In 854  Circ Sub N/C T-Pulled 5:02  
 (E) Second Initial Flow 67  Hourly Standby \_\_\_\_\_ T-Out 7:30  
 (F) Second Final Flow 159  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In 842  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1962  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 11034

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

Approved By Vern Schrag Our Representative [Signature]

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





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

## Test Ticket

NO. 45325

RECEIVED  
FEB 13 2012

Well Name & No. Joyce Ann Unit 4-13 Test No. 2 Date 2-2-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Linn State KS

Interval Tested 4166 4197 Zone Tested H  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4002 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run 152 Vis 54  
 Bottom Packer Depth \_\_\_\_\_ Wt. Pipe Run \_\_\_\_\_ WL 6.0  
 Total Depth 4197 Chlorides 2700 ppm System LCM 2  
 Blow Description IF: BoB in 3 min,  
IS: No return,  
FF: BoB in 4 min,  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>527</u>	<u>ocmw</u>	<u>5</u>	<u>70</u>	<u>25</u>	
<u>248</u>	<u>ocmw</u>	<u>5</u>	<u>75</u>	<u>20</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 713 BHT 128 Gravity \_\_\_\_\_ API RW 128 @ 43 ° F Chlorides 44,000 ppm

(A) Initial Hydrostatic <u>2055</u>	<input checked="" type="checkbox"/> Test <u>1225</u>	T-On Location <u>22:46</u>
(B) First Initial Flow <u>121</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:23</u>
(C) First Final Flow <u>191</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1:44</u>
(D) Initial Shut-In <u>919</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>2:49</u>
(E) Second Initial Flow <u>179</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>5:30</u>
(F) Second Final Flow <u>365</u>	<input checked="" type="checkbox"/> Mileage <u>60-84</u>	Comments _____
(G) Final Shut-In <u>918</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>2025</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>8</u>
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>11034</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	

Approved By Jeanne Schrag Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 07 2012  
BY: \_\_\_\_\_

## Test Ticket

NO. 45001

Well Name & No. Joyce Ann Unit 1-13 Test No. 3 Date 2-3-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Lane State KS

Interval Tested 4210-4226 Zone Tested I  
 Anchor Length 16 Drill Pipe Run 4034 Mud Wt. 9.2  
 Top Packer Depth 4206 Drill Collars Run 152 Vis 52  
 Bottom Packer Depth 4210 Wt. Pipe Run — WL 6.4  
 Total Depth 4226 Chlorides 3400 ppm System LCM 2  
 Blow Description IF: Surface blow.  
IS: No return.  
FF: No blow.  
FS: No return.

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

Rec Total 1 BHT 109 Gravity — API RW @ \_\_\_\_\_ °F Chlorides — ppm

(A) Initial Hydrostatic 2068  Test 1225 T-On Location 15:40  
 (B) First Initial Flow 15  Jars 250 T-Started 15:43  
 (C) First Final Flow 15  Safety Joint 75 T-Open 17:55  
 (D) Initial Shut-In 17  Circ Sub NIC T-Pulled 19:04  
 (E) Second Initial Flow 15  Hourly Standby \_\_\_\_\_ T-Out 21:01  
 (F) Second Final Flow 15  Mileage 60.84 Comments \_\_\_\_\_  
 (G) Final Shut-In 19  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2052  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

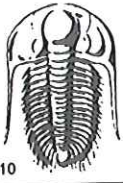
Initial Open 5  
 Initial Shut-In 15  
 Final Flow 15  
 Final Shut-In 30

Sub Total 11634

Sub Total 11634 Total 11634 MP/DST Disc't \_\_\_\_\_

Approved By Vern Schrag Our Representative Chuck Smith

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45002

4/10 BY: \_\_\_\_\_

Well Name & No. Joyce Ann Test No. 4 Date 2-4-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schragg Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Linc State KS

Interval Tested 4224 4247 Zone Tested J  
 Anchor Length 23 Drill Pipe Run 4064 Mud Wt. 9.2  
 Top Packer Depth 4219 Drill Collars Run 152 Vis 53  
 Bottom Packer Depth 4224 Wt. Pipe Run — WL 6.4  
 Total Depth 4247 Chlorides 3400 ppm System LCM 2  
 Blow Description IF: 1/4 blow built to 7 in 5 min.  
FS: No return.  
FF: BoB in 8 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>WCM</u>		<u>10</u>	<u>90</u>	
<u>248</u>	<u>MCW</u>		<u>80</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 372 BHT 125 Gravity — API RW .27 @ 35 ° F Chlorides 55,000 ppm

(A) Initial Hydrostatic  Test 1225 T-On Location 5:00  
 (B) First Initial Flow  Jars 255 T-Started 6:00  
 (C) First Final Flow  Safety Joint 75 T-Open 8:25  
 (D) Initial Shut-In  Circ Sub N/L T-Pulled 9:30  
 (E) Second Initial Flow  Hourly Standby \_\_\_\_\_ T-Out 11:45  
 (F) Second Final Flow  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

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

Sub Total 1434

Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer 320  
 Extra Copies \_\_\_\_\_  
 Sub Total 320  
 Total 1954  
 MP/DST Disc't \_\_\_\_\_

Approved By Vern Schragg Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012  
BY: \_\_\_\_\_

## Test Ticket

NO. 45003

Well Name & No. Joyce Ann unit 1-13 Test No. 5 Date 2-4-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL \_\_\_\_\_  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Lincoln State KS

Interval Tested 4271 4285 Zone Tested K  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4097 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run 152 Vis 52  
 Bottom Packer Depth \_\_\_\_\_ Wt. Pipe Run \_\_\_\_\_ WL 6.4  
 Total Depth 4285 Chlorides 3900 ppm System LCM 2  
 Blow Description IF: BoB in 2 min.  
IS: No return.  
FF: BoB in 3 min.  
FSI No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>MW oil spots</u>		<u>50</u>	<u>50</u>	
<u>310</u>	<u>MCW</u>		<u>90</u>	<u>10</u>	
<u>248</u>	<u>water</u>		<u>100</u>		

Rec Total 744 BHT 130 Gravity - API RW .27 @ 25 ° F Chlorides 89,000 ppm  
 (A) Initial Hydrostatic 2106  Test 1225 T-On Location 21:50  
 (B) First Initial Flow 84  Jars 250 T-Started 21:47  
 (C) First Final Flow 169  Safety Joint 75 T-Open 23:58  
 (D) Initial Shut-In 615  Circ Sub NIC T-Pulled 1:03  
 (E) Second Initial Flow 181  Hourly Standby \_\_\_\_\_ T-Out 3:30  
 (F) Second Final Flow 351  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In 612  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2103  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 5  Extra Recorder \_\_\_\_\_ Sub Total 8  
 Initial Shut-In 15  Day Standby \_\_\_\_\_ Total 11034  
 Final Flow 15  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 30 Sub Total 11034

Approved By Vernon C Schrag Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012  
BY: \_\_\_\_\_

## Test Ticket

NO. 45004

Well Name & No. Joyce Ann unit 1-13 Test No. 6 Date 2-5-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Line State KS

Interval Tested 4296 4314 Zone Tested Mid creek  
 Anchor Length 18 Drill Pipe Run 4128 Mud Wt. 9.1  
 Top Packer Depth 4291 Drill Collars Run 152 Vis 52  
 Bottom Packer Depth 4296 Wt. Pipe Run — WL 6.4  
 Total Depth 4314 Chlorides 3900 ppm System LCM 2

Blow Description IF: Surface blow built to 1/4 in 5 min.  
IS: No return.  
FF: Surface blow built to 2 in 30 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>93</u>	<u>wcm oil spots</u>			<u>20</u>	<u>80</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 93 BHT 120 Gravity — API RW 125 @ 61 ° F Chlorides 32,000 ppm

(A) Initial Hydrostatic 2134  Test 1225 T-On Location 12:00  
 (B) First Initial Flow 16  Jars 250 T-Started 12:15  
 (C) First Final Flow 22  Safety Joint 75' T-Open 14:10  
 (D) Initial Shut-In 451  Circ Sub N/C T-Pulled 16:00  
 (E) Second Initial Flow 25  Hourly Standby \_\_\_\_\_ T-Out 18:00  
 (F) Second Final Flow 56  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In 701  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2061  Straddle \_\_\_\_\_

Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 8  
 Day Standby \_\_\_\_\_ Total 1634  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1634

Approved By Vern C Schrag Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012  
BY: \_\_\_\_\_

## Test Ticket

NO. 45005

Well Name & No. Joyce Ann Unit 1-13 Test No. 7 Date 2-6-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Hern Schrag Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Lame State KS

Interval Tested 4313 4320 Zone Tested L  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4159 Mud Wt. 9.1  
 Top Packer Depth 4308 Drill Collars Run 152 Vis 51  
 Bottom Packer Depth 4313 Wt. Pipe Run \_\_\_\_\_ WL 6.0  
 Total Depth 4320 Chlorides 4000 ppm System LCM 2

Blow Description IF: surface blow.  
IS: No return,  
FFI 1/4 blow built to 8 in 30 min,  
FS No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>90</u>	<u>10</u>	<u>90</u>		
<u>62</u>	<u>90cm</u>	<u>10</u>	<u>10</u>		<u>80</u>
<u>62</u>	<u>62 GIP</u>				

Rec Total 124 BHT 108 Gravity 40 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 2117  Test 1225' T-On Location 00:40  
 (B) First Initial Flow 16  Jars 250' T-Started 1:22  
 (C) First Final Flow 20  Safety Joint 75' T-Open 3:23  
 (D) Initial Shut-In 600  Circ Sub N/C T-Pulled 5:13  
 (E) Second Initial Flow 21  Hourly Standby \_\_\_\_\_ T-Out 7:45  
 (F) Second Final Flow 50  Mileage 60-84' Comments \_\_\_\_\_  
 (G) Final Shut-In 597  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2097  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 5  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 15  Day Standby \_\_\_\_\_ Total 1634'  
 Final Flow 30  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 60 Sub Total 1634'

Approved By [Signature] Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45006

Well Name & No. Joyce Ann unit 1-13 Test No. 8 Date 2-6-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HD#3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Larson State KS

Interval Tested 4320 4327 Zone Tested L  
 Anchor Length 7 Drill Pipe Run 4160 Mud Wt. 9.1  
 Top Packer Depth 4315 Drill Collars Run 152 Vis 51  
 Bottom Packer Depth 4320 Wt. Pipe Run — WL 6.0  
 Total Depth 4327 Chlorides 4000 ppm System LCM 2  
 Blow Description IF: 1/4 blow built to 3 1/2 in 5 min.  
IS: No return.  
FF: BoB in 18 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Free oil</u>	<u>100</u>			
<u>107</u>	<u>MLW oil spots</u>		<u>70</u>	<u>30</u>	
<u>186</u>	<u>MLW</u>		<u>90</u>	<u>10</u>	
		%gas	%oil	%water	%mud
		%gas	%oil	%water	%mud

Rec Total 298 BHT 112 Gravity — API RW 122 @ 40° F Chlorides 62,000 ppm

(A) Initial Hydrostatic 2122  Test 1225 T-On Location 15:20  
 (B) First Initial Flow 21  Jars 250 T-Started 15:27  
 (C) First Final Flow 56  Safety Joint 75' T-Open 16:55  
 (D) Initial Shut-In 584  Circ Sub N/L T-Pulled 18:45  
 (E) Second Initial Flow 61  Hourly Standby \_\_\_\_\_ T-Out 20:50  
 (F) Second Final Flow 145  Mileage 60-84' Comments 3.5 ppm H2S  
 (G) Final Shut-In 594  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2096  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 11634  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_

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

Sub Total 11634

Approved By Vern Schrag Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45007

Well Name & No. Joyce Ann Unit 1-13 Test No. 9 Date 2-7-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schragg Rig HD #3  
 Location: Sec. 13 Twp. 19S Rge. 29W Co. Lane State KS

Interval Tested 4348 4367 Zone Tested Plexston  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4188 Mud Wt. 9.2  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run 152 Vis 60  
 Bottom Packer Depth \_\_\_\_\_ Wt. Pipe Run \_\_\_\_\_ WL 6.0  
 Total Depth \_\_\_\_\_ Chlorides 3700 ppm System LCM 2  
 Blow Description IF: 1/4 blow built to 6 in 5 min.  
IS: No return,  
FF: BoB in 8 min.  
FS: weak surface blow that died.

Rec	Feet of	%gas	%oil	%water	%mud
<u>82</u>	<u>MC90</u>	<u>10</u>	<u>80</u>	<u>10</u>	<u>10</u>
<u>62</u>	<u>MWC90</u>	<u>30</u>	<u>50</u>	<u>10</u>	<u>10</u>
<u>124</u>	<u>90CWM</u>	<u>10</u>	<u>10</u>	<u>20</u>	<u>60</u>
Rec	Feet of <u>310 G#P</u>	%gas	%oil	%water	%mud
Rec	Feet of _____	%gas	%oil	%water	%mud

Rec Total 258 BHT 124 Gravity 38 API RW .28 @ 38 °F Chlorides 50,000 ppm

(A) Initial Hydrostatic <u>2127</u>	<input checked="" type="checkbox"/> Test <u>1225</u>	T-On Location <u>6:00</u>
(B) First Initial Flow <u>25</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>6:37</u>
(C) First Final Flow <u>54</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>8:32</u>
(D) Initial Shut-In <u>439</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIL</u>	T-Pulled <u>10:22</u>
(E) Second Initial Flow <u>63</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>13:05</u>
(F) Second Final Flow <u>116</u>	<input checked="" type="checkbox"/> Mileage <u>GORT 84</u>	Comments _____
(G) Final Shut-In <u>440</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>2101</u>	<input type="checkbox"/> Straddle _____	<input checked="" type="checkbox"/> Ruined Packer <u>320</u>
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>320</u>
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1954</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input type="checkbox"/> Accessibility _____	
	Sub Total <u>1634</u>	

Approved By Vern Schragg Our Representative [Signature]

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





# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45008

4/10

Well Name & No. Joyce Ann Unit 1-13 Test No. 10 Date 2-7-12  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Uern schryg Rig HO #3  
 Location: Sec. 13 Twp. 17S Rge. 29W Co. Lane State KS

Interval Tested 4370 4390 Zone Tested Marmaton  
 Anchor Length 20 Drill Pipe Run 4216 Mud Wt. 9.1  
 Top Packer Depth 4365 Drill Collars Run 152 Vis 52  
 Bottom Packer Depth 4370 Wt. Pipe Run — WL 6.4  
 Total Depth 4390 Chlorides 3200 ppm System LCM 2

Blow Description IF: 1/4 blow built to 4,  
IS: NO return.  
FF: 1 blow BoB in 7 min,  
FS: surface blow built to 2 in 60 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>134</u>	<u>mc90</u>	<u>10</u>	<u>70</u>	<u>20</u>	
<u>62</u>	<u>mc90</u>	<u>20</u>	<u>60</u>	<u>20</u>	
	<u>444 GFP</u>				

Rec Total 196 BHT 124 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2164  Test 1225 T-On Location 21:35  
 (B) First Initial Flow 19  Jars 250 T-Started 22:26  
 (C) First Final Flow 37  Safety Joint 75 T-Open 00:07  
 (D) Initial Shut-In 848  Circ Sub NIC T-Pulled 1:57  
 (E) Second Initial Flow 38  Hourly Standby \_\_\_\_\_ T-Out 4:15  
 (F) Second Final Flow 79  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In 834  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2117  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer 320  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 5  
 Initial Shut-In 15  
 Final Flow 30  
 Final Shut-In 60  
 Sub Total 1634  
 Sub Total 320  
 Total 1954  
 MP/DST Disc't \_\_\_\_\_

Approved By Jerrone Schryg Our Representative [Signature]

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



# TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED  
FEB 13 2012

## Test Ticket

NO. 45009

Well Name & No. Joyce AMN Unit 1-13 Test No. 11 Date 2-9-11  
 Company Larson Engineering Elevation 2799 KB 2792 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Vern Schrag Rig HO #3  
 Location: Sec. 13 Twp. 17S Rge. 29W Co. Lone State KS

Interval Tested 4439 4552 Zone Tested Altamont - Ft. Scott  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4298 Mud Wt. 9.3  
 Top Packer Depth 4434 Drill Collars Run 152 Vis 49  
 Bottom Packer Depth 4439 Wt. Pipe Run \_\_\_\_\_ WL 8.0  
 Total Depth 4552 Chlorides 3200 ppm System LCM 1

Blow Description IF: surface blow.  
IS: No return,  
FF: No blow,  
FS: No return,

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

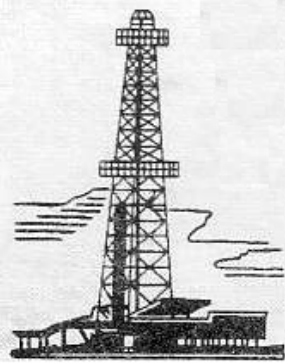
Rec Total 5 BHT 110 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2237  Test 12:25 T-On Location 3:10  
 (B) First Initial Flow 19  Jars 250 T-Started 3:47  
 (C) First Final Flow 20  Safety Joint 75 T-Open 6:36  
 (D) Initial Shut-In 211  Circ Sub N/C T-Pulled 7:41  
 (E) Second Initial Flow 20  Hourly Standby \_\_\_\_\_ T-Out 10:00  
 (F) Second Final Flow 21  Mileage 60-84 Comments \_\_\_\_\_  
 (G) Final Shut-In 330  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2200  Straddle \_\_\_\_\_  
 Shale Packer 250  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 5  
 Initial Shut-In 15  
 Final Flow 15  
 Final Shut-In 30  
 Sub Total 1884  
 Total 1884  
 MP/DST Disc't \_\_\_\_\_

Approved By Vern C Schrag Our Representative [Signature]

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



# WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG  
CONSULTANT GEOLOGIST



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

Well Name: Joyce Ann Unit #1-13  
Location: NW NW NE NE Sec 13 - 19s - 29w  
Licence Number: API: 15-101-22340  
Spud Date: January 27, 2012  
Surface Coordinates: 95' FNL & 1050' FEL

Region: Lane Co., Kansas  
Drilling Completed: February 11, 2012

Bottom Hole Coordinates:	Vertical Hole
Ground Elevation (ft): 2792'	K.B. Elevation (ft): 2799'
Logged Interval (ft): 3700'	To: RTD Total Depth (ft): 4690'
Formation: Mississippi	
Type of Drilling Fluid: Chemical Premix (Displaced)	

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://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 2-1/4" (ave) x 574.08', Kelly + Bit 41.30', Tool Joint 5.5" ; Bit: JZ EP00123, 7-7/8", jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

Surface Casing: 8-5/8" at 262' (20#)

Pump: EMSCO D-300, duplex, 6 x 14, 54-56 spm, SPP: 625-800 psi; Chemical, premix; mud up about 3600', Morgan Mud, Inc., McCook, Nebraska, David Lines, Cade Lines.

## GAS DETECTION SYSTEM:

USB-1208LS-41, portable hot-wire, Delphian 3.0 volt catalytic bead combustible gas detector.

## OPEN HOLE LOGS:

Run-1: DN (DGA), DI (SP); Run-2: ML; 5" detail LTD-3600; 2" DI to surface casing; No Sonic Log; LogTech-Pioneer Wireline, Hays, KS, Chris Desaire, Log total depth (4692') was two feet low to rotary total depth (4690').

**COMPLETION:**

Oil Well

**DRILL STEM TEST #1:**

Zone: Lansing "F": Interval: 4071-4083' (12'); Blow: weak incr 5" IFP, no RB, weak incr BOB 15 min FFP, no RB; Time Periods: 5-15-30-60; Recovery: 320' TF; 20' CO (100% O), 114' MCW w/trace oil (40% M, 60% W), 186' SMCW (5% M, 95% W, Rw 0.17 at 37 F, chl 90k); HP: 2024-1962; SIP: 854-852; FP: 23-59, 67-159; BHT: 123 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #2:**

Zone: Kans. City "H": Interval: 4166-4197 (31'); Blow: BOB 3 min IFP, no RB, BOB 4 min FFP, no RB; Time Periods: 5-15-15-30; Recovery: 713 TF; 527' OCMW (5%O, 25%M, 70%W), 248' OCMW (5%O, 20%M, 75%W, Rw 0.28 at 43 F, chl 44k); HP: 2055-2025, SIP: 919-918, FP: 121-191, 179-365; BHT: 128 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #3:**

Zone: Kans. City "I": Interval: 4210-4226 (16'); Blow: weak surf blow IFP, no RB, no blow FFP; Time Periods: 5-15-15-30; Recovery: 1' mud no show; HP: 2068-2052; SIP: 17-19, FP: 15-15, 15-15; BHT: 109 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Chuck Smith.

**DRILL STEM TEST #4:**

Zone: Kans. City "J": Interval: 4224-4247 (23'); Blow: weak incr 7" IFP, no RB, BOB 8 min FFP, no RB; Time Periods: 5-15-15-30; Recovery: 372' TF, 124' WCM (10%W, 90%M), 248' MCW (20%M, 80%W, Rw 0.27 @ 35 F, chl 55k); HP: 2091-2056, SIP: 693-606; FP: 27-97, 100-184; BHT: 125 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #5:**

Zone: Kans. City "K": Interval: 4271-4285 (14'); Blow: BOB 2 min IFP, no RB, BOB 3 min FFP, no RB; Time Periods: 5-15-15-30; Recovery: 744' TF, 186' MW w/oil spots (50%M, 50% W), 310' MCW (10%M, 90%W), 248' SW (100%W, Rw 0.27 @ 25 F, chl 80k); HP: 2106-2103, SIP: 615-612, FP: 84-169, 181-351; BHT: 130 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #6:**

Zone: Kans. City "Lower-K" & Middle Creek: Interval: 4296-4314 (18'); Blow: weak 1/4" IFP, no RB, weak incr 2" FFP, no RB; Time Periods: 5-15-30-60; Recovery: 93' WCM w/oil spots (20%W, 80%M); HP: 2134-2061, SIP: 751-701; FP: 16-22, 25-56; BHT: 120 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #7:**

Zone: Kans. City "L": Interval: 4313-4320 (7'); Blow: weak surf IFP, no RB, weak incr 8" FFP, no RB; Time Periods: 5-15-30-60; Recovery: 124' TF, 62' GO (10%G, 90%O, 40 Grav), 62' OCM (10%G, 10%O, 80%M); HP: 2117-2097; SIP: 600-597; FP: 16-20, 21-50; BHT: 124 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #8:**

Zone: Kans. City "L": Interval: 4320-4327 (7'); Blow: weak incr 3.5" IFP, no RB, BOB 18 min FFP, no RB; Time Periods: 5-15-30-60; Recovery: 298' TF, 5' Oil (100%O), 107' MCW w/oil spots (30%M, 70%W), 186' MCW (10%M, 90%W, Rw 0.22 @ 40 F, chl 62k); HP: 2122-2096, SIP: 584-594, FP: 21-56, 61-145; BHT: 112 F; surf monitor indicates 35 ppm H2S at recovery time; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #9:**

Zone: Pleasanton: Interval: 4348-4367 (19'): Blow: weak incr 6" IFP, no RB, BOB 8 min FFP, weak surf RB; Time Periods: 5-15-30-60; Recovery: 310' GIP, 268' TF, 82' MGO (10%G, 10%M, 80%O, 38 Grav), 62' MWCGO (10%M, 10%W, 30%G, 50%O), 124' GOCWM (10%G, 10%O, 20%W, 60%M); HP: 2127-2101, SIP: 439-440, FP: 25-54, 63-116; BHT: 124 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**DRILL STEM TEST #10:**

Zone: Marmaton: Interval: 4370-4390 (20'): Blow: weak incr 4" IFP, no RB, BOB 7 min FFP, 2" RB FSIP; Time Periods: 5-15-30-60; Recovery: 444' GIP, 196' TF, 134' MCGO (10%G, 20%M, 70%O), 62' MCGO (20%G, 20%M, 60%O); HP: 2164-2117, SIP: 848-834, FP: 19-37, 38-79; BHT: 124 F; dual packers, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

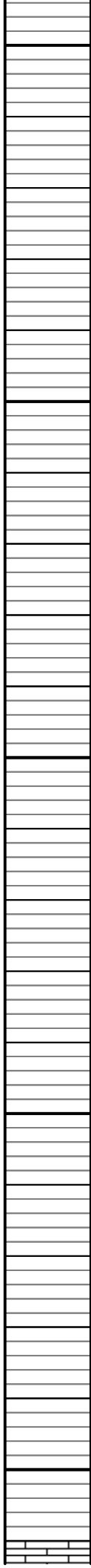
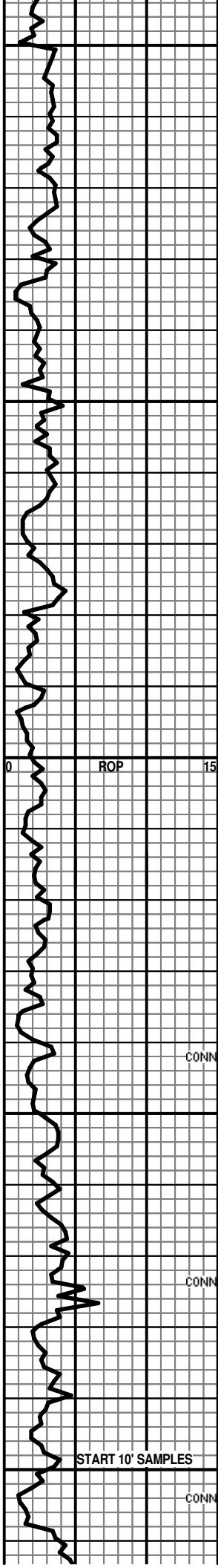
**DRILL STEM TEST #11:**

Zone: Lower Marmaton thru Ft. Scott: Interval: 4434-4452 (113'): Blow: weak surf IFP, no RB, no blow 2nd open, no RB; Time Periods: 5-15-15-30; Recovery: 5' mud; HP: 2237-2200, SIP: 211-330, FP: 19-20, 20-21; BHT: 110 F; dual packers w/shale packer, 152' DC, jars, safety joint; Trilobite Testing, Inc., Scott City, KS; Brandon Turley.

**7AM DAILY ACTIVITY:**

- 01/27: MIRT, SPUD
- 01/28: 330' Drilling
- 01/29: 1810' Drilling
- 01/30: 2840' Drilling
- 01/31: 3425' Drilling, , Call 3400 5:45 am
- 02/01: 3922' Drilling
- 02/02: 4083' DST #1
- 02/03: 4197' DST #2
- 02/04: 4247' DST #4
- 02/05: 4294' Drilling
- 02/06: 4320' DST #7
- 02/07: 4367' DST #9
- 02/08: 4390' Drilling
- 02/09: 4552' DST #11
- 02/10: 4620' Repairs, RTD 8:06 pm
- 02/11: Released 6:01 am

ROP ROP (min/ft)	DST	Lithology	Porosity and Show	Depth	Geological Descriptions	Total Gas TG (units)
					<p>ANHYDRITE 2128 (+671) B/ANHY 2160 (+639)</p> <p>LS: lt-dk gray; vf-xtal; shaley; no visible por; N.S.</p>	<p>REFERENCE WELL: ABERCROMBIE &amp; MOBLE C. HOOVER - VOSHELL #1, NE NE 13-19S-29W.</p> <p>MORGAN MUD: 3599: 01/31-2pm: VIS 68, WT 8.6, WL 6.4, CHL 1200, pH 11.5, LCM 1#.</p>



3700  
3750  
3800  
3850  
3900

LS: lt-md brn w/tiny dk brn specks; vf-xtal; dense; minor fine vug & pin-point porosity; N.S.

LS: lt-med grayish-brn w/scattered dk gray pellets & grains; dense; no visible porosity; N.S.

LS: lt-md grayish-brn; vf-xtal; finely granular & finely oolitic in part; no visible porosity; N.S.

LS: lt-md grayish-brn; vf-xtal; dense; with dk gray sh including chalky grains; no porosity; N.S.

LS: lt-md grayish-brn w/few dk gray grains; vf-xtal; dense; no visible porosity; N.S.

LS: grayish-brn; vf-xtal; fair vugular porosity; N.S.

LS: gray, brn mixed grains & few dk gray pellets; fos; dense; no visible porosity; N.S.

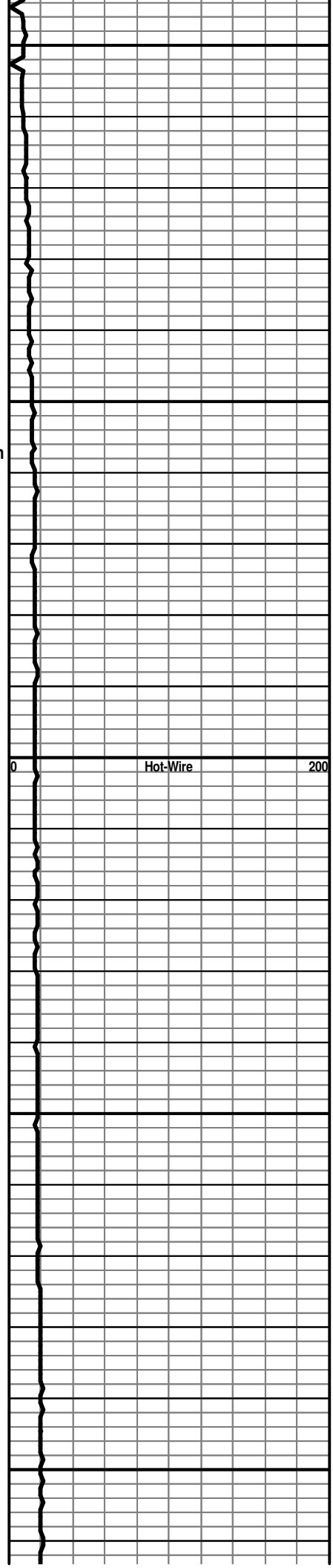
LS: lt-brown, specked md-dk brown; vf-xtal; finely granular; fair int gran porosity; N.S.

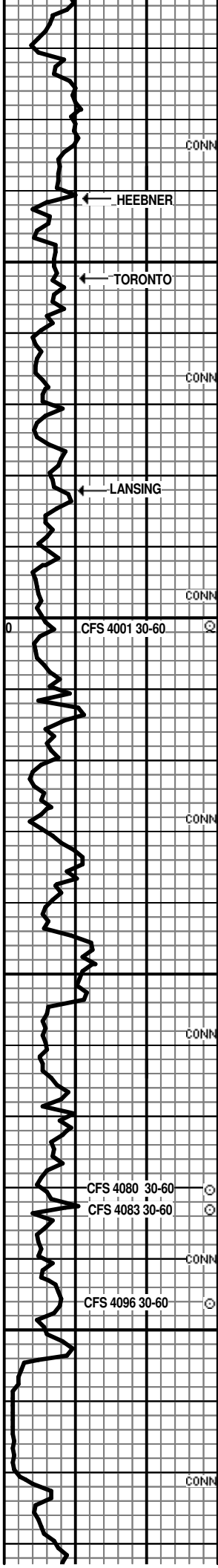
LS: lt-brown, off-white; mic-vf xtal; chalky; poor apparent porosity; N.S.

LS: lt-md grayish-brown; vf-xtal; trc finely oolitic; dense to sli chalky; poor apparent porosity; N.S.

LS: dk brown, dense mixed w/lt-gray, earthy; poor apparent porosity; N.S.

LS: off-white; mic-xtal; soft chalk; poor apparent porosity; N.S.





3950

LS: lt-gray, lt brown; vf-xtal; fine int gran por & vug porosity; N.S.

LS: med-dk grayish brn; vf-xtal; shaley; fos; no visible porosity; no shows;

**HEEBNER 3941 (-1142)**

Shale: black; carbon; 3960.  
LS: med-dk grayish-brown; vf-xtal; dense; sli fos; N.S.

Shale: gray;

LS: lt-med grayish brown; vf-xtal; fos; tight int fos-frag porosity; N.S.

LS: lt brown; vf-xtal; trace opa chert; dense to sli chalky; finely granular in part; no visible porosity; N.S.

**LANSING 3984 (-1185)**

LS: lt-brown; vf-xtal; dense; smooth; no visible porosity; no shows;

LS: lt-brown; vf-xtal; white to lt brown, semi- trans to opa chert; mostly dense; sli chalky; fine vugular & fos-moldic porosity; N.S. 30 min.

4000

LS: lt-brn, lt gray; mic-vf xtal; mostly dense; some soft chalk; scattered vug porosity; N.S.

LS: white, lt brown; mic-vf xtal; mostly dense; minor soft chalk; trc opa chert; scattered vugular porosity; N.S. 4035.

LS: lt brown; vf-xtal; finely granular in part; poor-fair int gran porosity; N.S. 4050.

4050

LS: lt brown, grayish brn; vf-xtal; mostly dense; scattered fine-med vug porosity; N.S. 4070, 4080.

LS: lt brown; vf-xtal; dense; no visible porosity; no shows;

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

LS: med brn; vf-xtal; 1 chip fine-med vug por; crush dk brn oil; no odor; only calcite fluor; 4080-60; scattered pin pt por & sli show oil 4083-30; no improv 60m or dry samples.

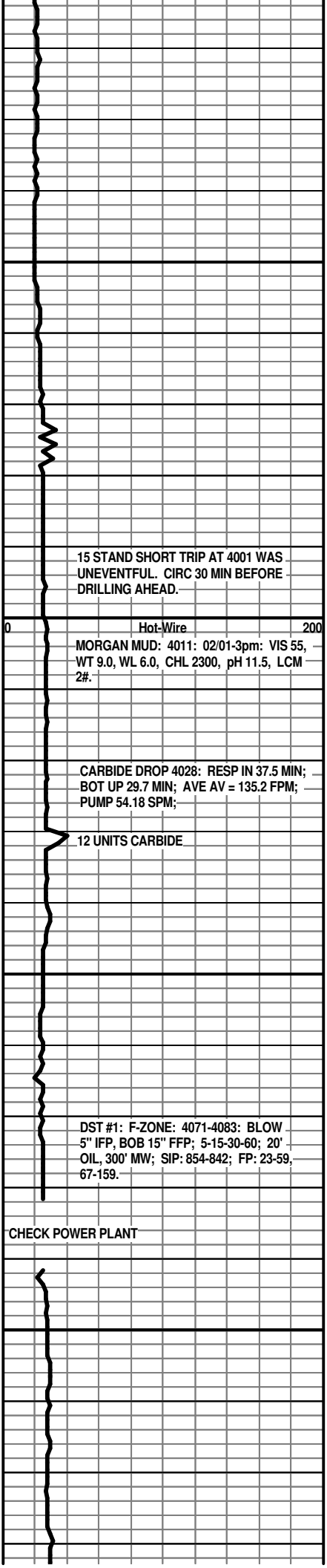
4100

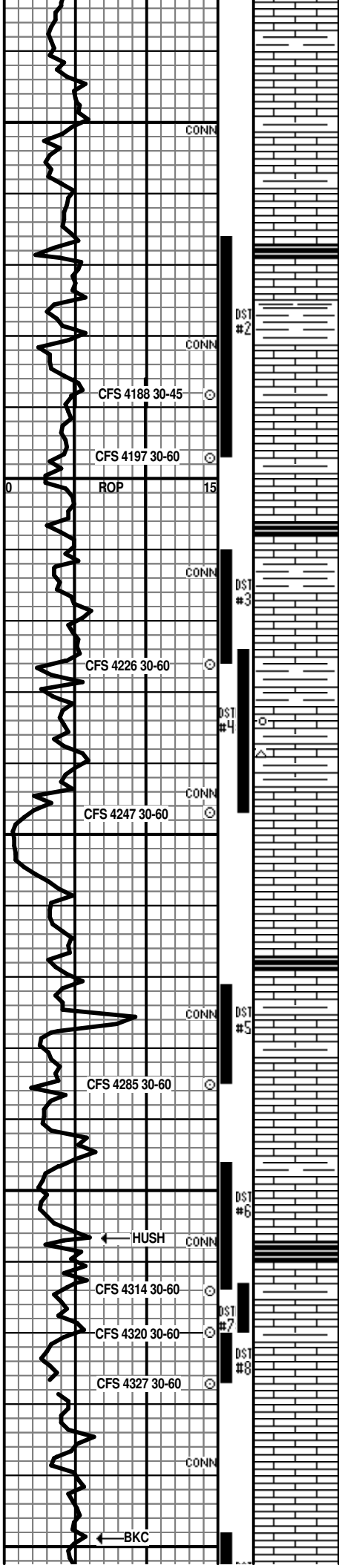
LS: lt-md brown; vf-xtal; dense to chalky in part; scattered vug porosity; N.S.

LS: md-brown; vf-xtal; good md-crs oomoldic porosity; N.S., >50% 4140 sample.

LS: lt brown, vf xtal; dense; with mic-xtal soft chalk; no visible porosity; N.S.

LS: lt-brown: mic-vf xtal: dense: no visible porosity:





N.S.

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

4150

LS: lt-brown, white; mic-vf xtal; chalky in part; poor apparent porosity; N.S.

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

**MUNCIE CREEK 4167 (-1368)**  
Shale: black; carbon; 4180.

LS: md-dk brown; vf-xtal; coarse fos granular; dense; no apparent porosity; N.S.

H-zone Top Bed: LS: lt gray; vf-xtal; trc v-fine vug por w/pin pt stn, v sli oil on break & bright fluor 4188; incr 30 & 45m; then w/trc coarse sub-hedral calcite & med vug por; spotted -sat stain dry; no odor;

H-zone 2nd Bed: LS: lt brn; vf-xtal; scattered fine-md vug & trc coarse vug porosity w/dk brn spotted stain & v sli show oil, v sli odor 4197-30;

4200

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

LS: lt-brown, grayish-brown; vf-xtal; oolitic in part; mostly dense; tight vf scattered vug porosity w/dk brn pin-point stain; spotted to sat stain dry; no odor; no live oil;

LS: lt brn; vf-xtal; oolitic - fos frag; trc ool chert; N.S. 4240.

LS: md-dk brn; vf-xtal; dense oolite; much smokey semi-trans ool chert; N.S. 4247.

J-Zone: LS: lt-gray, lt brn; vf-xtal; trc fos-frag w/ pin pt stain & sli show oil 30 min; coarse oomoldic, 1/6 w/spotted stain & v-sli show oil at best; no odor; trc md-crs euhedral calcite; spotted-sat stain dry, 60 min; followed by much barren oom after drill ahead 4270 sample.

LS: v-dk brown; vf-xtal; dense; no visible porosity; N.S. 4280.

**STARK 4267 (-1468)**  
Shale: black; carbon; 4280, incr 4285.

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

Marl: white; soft; sticky;

K-Zone: LS: md grayish-brn; vf-xtal; trc poor oom, N.S.; finely vugular porosity; rough textured; pin-pt to spotted brn stain; trc free oil; no odor; spotted stain dry; 4285-30;

LS: lt gray, lt brn; vf-xtal; md-crs oomoldic; 99% barren, trc pin pt stain; odor; 4300.

Lower-K: LS: lt gray; vf-xtal; minor soft chalk & white opa q chert; fine-coarse vug por; spotted dk brn stain, sli free oil, faint odor; 4314.

Shale: black; carbon; 4314-30.

LS: dk-brown; mic-vf xtal; dense, blocky; trc blk sh contact; no visible porosity; N.S. 4314-60

L-Zone: LS: md gray-brn; vf-xtal; vf-crs vug por w/dk brn sptd stain; tiny drops FO, some bright fluor; md anhedral calcite cluster, trc crs anhedral free calcite 4320-30; more & w/faint odor 4320-60. no improv dry;

L-Zone 2nd cut: LS: lt-brn; vf-xtal; oolitic; more chalk than abv, wht-wash; trc fine vug w/pp stn & v-sli S.O. like abv but decr; no FO or odor; sptd stn dry; 4327-30.

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

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

MORGAN MUD: 4161: 02/02-4pm: VIS 54, WT 9.1, WL 6.0, CHL 2700; pH 11.5, LCM 2#.

DST #2: H-ZONE: 4166-4197: BOB 3 MIN; 5-15-15-30; 713' OCMW; SIP: 919-918; FP: 121-191, 179-365.

TRIP

Hot-Wire

DST #3: I-ZONE: 4210-4226: WEAK SURF BLOW DIED; 5-15- 15-30; 1' MUD N.S.; SIP: 17-19, FP: 15-15, 15-15.

10 UNIT TRIP GAS

DST #4: J-ZONE: 4224-4247; BUILD 7" IFP, BOB 8 MIN FFP; 124' WCM, 248' MCW; SIP: 693-606, FP: 27-97, 100-184.

MORGAN MUD: 4265: 02/04-3pm: VIS 52, WT 9.1, WL 6.4, CHL 3900, pH 11.5, LCM 2#.

REPAIR CHAIN 108 MIN 4275

DST #5: K-ZONE: 4271-4285: BOB 2 MIN; 744' MW, SIP: 615-612, FP: 84-169, 181-351;

PUMPING 55.93 SPM, ADJUST AV 139.56

MORGAN MUD: 4314: 02/05-1pm: VIS 51, WT 9.1, WL 6.0, CHL 4k, pH 11.0, LCM 2#.

DST #6: LOWER-K & MID CRK: 4296-4314: WEAK BLOW; 93' WCM; SIP: 751-701; FP: 16-22, 25-56.

DST #7: L-ZONE: 4313-4320: WEAK BLOW; 5-15-30-60; 62' GO, 62' OCM; SIP: 600-597; FP: 16-20, 21-50.

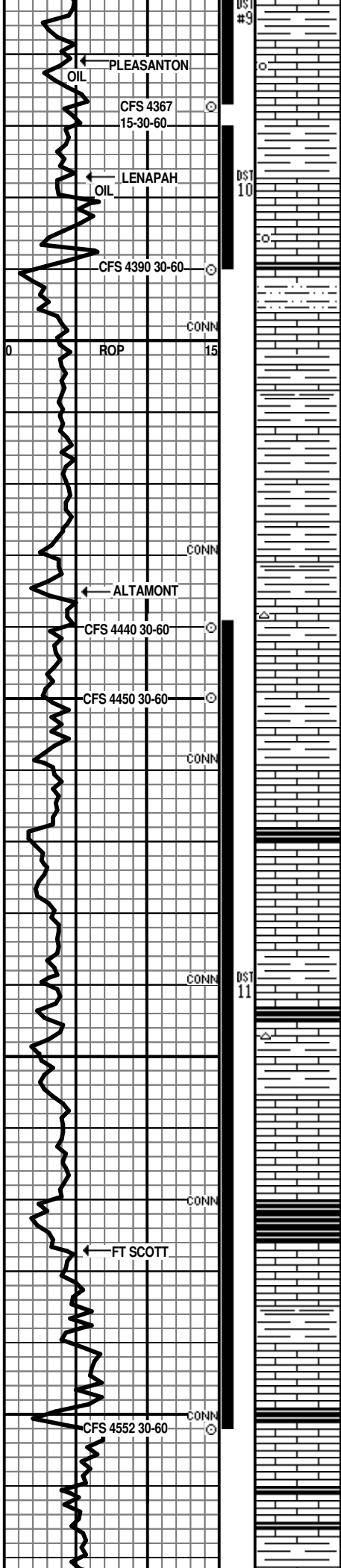
54/27

27 UNIT INCR H2S

DST #8: L-ZONE: 4320-4327: WEAK 3" BLOW IFP, BOB 18 MIN FFP; 5-15-30-60; 5' OIL, 293' MW, SIP: 584-594, FP: 21-56, 61-145.

DST #9: DI FACANTON: 4348-4367: 6"





porosity, N.S.

LS: lt-brown; vf-xtal; f-m oolite; tight int ool porosity; spotted dk brn stain; sli show oil; no odor; few chips 4367-15.

**MARMATON 4377 (-1578)**  
(CORRECTED TOP)  
LS: lt-dk brn, mottled; vf-xtal; many fensters & various grains, trc oolite; dense but w/much fine vug porosity w/spotted to speckled stain; slow bleeding oil; no odor; starts 4390 (only 29 min lift ?) lots in 4320-30 and more yet 4320-60. Floats to 4410.

Siltst: greenish;  
LS: lt-brown; vf-xtal; dense; green clay contact; N.S.

LS: lt-brn, dense; mixed w/sh, green, gray & calc siltst;  
Shale: gray, mixed w/shaley lime

Shale: gray, green

LS: lt gray, vf-xtal, dense, alternating w/ minor off-white mic-xtal chalk; much semi-trans orange chert; no visible porosity; N.S. 4440-60.  
LS: lt-gray, vf-xtal; dense alternating w/white, mic-xtal chalk portions; few f-m irregular orange inclusions; minor tan-orange, semi-trans chert; white-wash; trc pin-pt por w/stain, no oil; 4450-30.

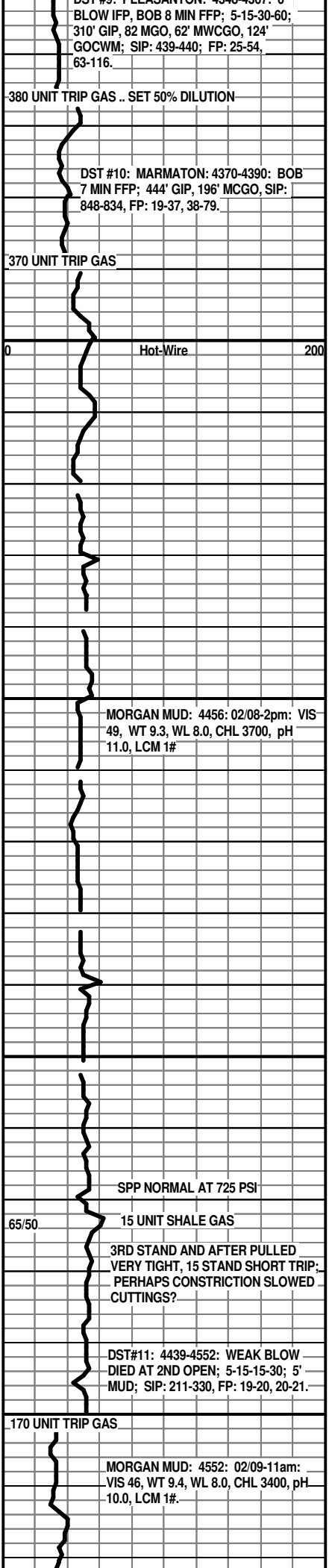
LS: lt-brown, sli white mottled; vf-xtal; dense; trc orange crinoids & scattered orange inclusions; N.S. 4470.

**PAWNEE 4470 (-1671)**  
(Corrected Top)  
LS: lt-brown, sli white mottled; vf-xtal; chalky; trc fine shallow vug w/pin pt stains; no oil; no odor; 4480, 4490.  
LS: off-white; mic-vf xtal; dense to chalky; trc fine vug w/spotted stain; no visible oil; 4500.  
LS: lt grayish brn; vf-xtal; trc semi-trans, smokey chert; trc fine scattered vug w/spotted stain, no oil; 4510.  
Shale: dk gray;

**MYRICK STATION 4505 (-1706)**  
LS: lt-brown; vf-xtal; shaley in part; trc fine scattered vug w/spotted stain, no oil; no odor; 4540 seems slow.  
Shale: black; carbon; good expression 4550, very slow cuttings ! should have been 4540.

**FT. SCOTT 4527 (-1728)**  
LS: dk grayish brown; vf-xtal; oolites darker than matrix; dense; looks tight; N.S. 4550.  
LS: dk grayish brown w/dk brown oolites & some white ground-mass; vf-xtal; dense; N.S. 4552-30.

**CHEROKEE SH 4549 (-1750)**  
LS: lt-brown; vf-xtal; trc dk-brn oolites w/lt brn matrix; chalky in part; trc chalk w/fine vug & pin point stain; no visible oil; 4560.  
LS: lt-brn, grayish-brn, dk brn, mixed; w/black, gray & green sh; no visible porosity; no shows;



DST #9: PLEASANTON: 4348-4367: 10 BLOW IFF, BOB 8 MIN FFP; 5-15-30-60; 310' GIP, 82 MGO, 62' MWCGO, 124' GOCWM; SIP: 439-440; FP: 25-54, 63-116.

380 UNIT TRIP GAS .. SET 50% DILUTION

DST #10: MARMATON: 4370-4390: BOB 7 MIN FFP; 444' GIP, 196' MCGO, SIP: 848-834, FP: 19-37, 38-79.

370 UNIT TRIP GAS

Hot-Wire 200

MORGAN MUD: 4456: 02/08-2pm: VIS 49, WT 9.3, WL 8.0, CHL 3700, pH 11.0, LCM 1#

SPP NORMAL AT 725 PSI

65/50

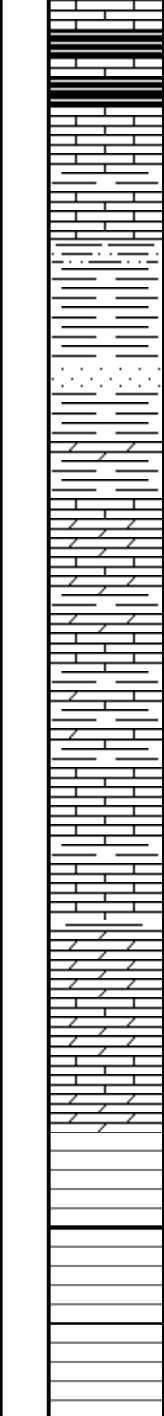
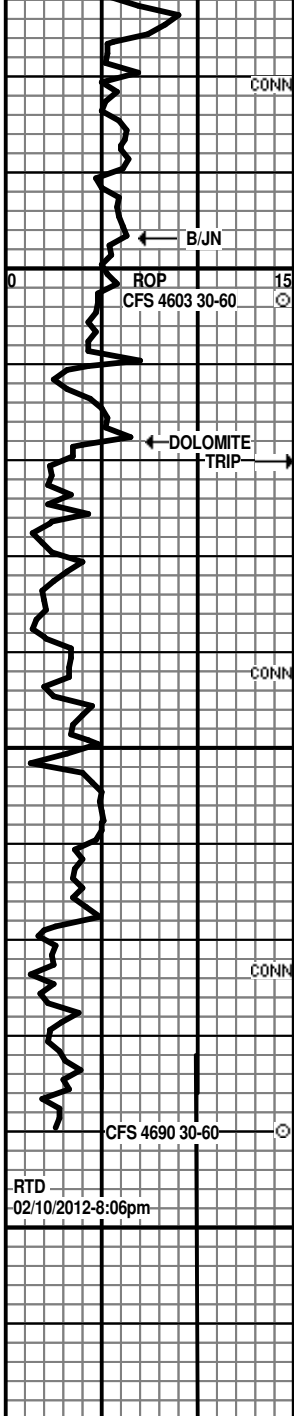
15 UNIT SHALE GAS

3RD STAND AND AFTER PULLED VERY TIGHT, 15 STAND SHORT TRIP; PERHAPS CONSTRICTION SLOWED CUTTINGS?

DST#11: 4439-4552: WEAK BLOW DIED AT 2ND OPEN; 5-15-15-30; 5' MUD; SIP: 211-330, FP: 19-20, 20-21.

170 UNIT TRIP GAS

MORGAN MUD: 4552: 02/09-11am: VIS 46, WT 9.4, WL 8.0, CHL 3400, pH 10.0, LCM 1#.



4600

4650

4700

LS & Shale as above;

LS: lt-brn, grayish-brn; vf-xtal; sli chalky; no visible porosity; N.S.

LS: grayish-brown; vf-xtal; trc vf-vug w/pin pt stain; no oil show; no odor; 4603-30.

**B/JOHNSON 4697 (-1798)**  
(Corrected Top)

Silt: white; grainy; chalky; 4603-60.

Shale: green, gray; silty; w/white Siltst; 4610.

Conglom: vari-color sh; oxidized chert; wht-greenish Siltst; weathered lime; trc quartz cluster w/oil stain, trc vuggy lime w/spotted stain; trc free oil; 4620.

**EROS. MISS 4618 (-1819)**

Dol: tan; f-m xtal; fair int xtal & fine vug por; N.S. with gray sh, lt brn LS, variable chert; trc 4620-30, 4630, incr 4640.

Dol \* Dolomitic LS: lt brn, tan; vf-f xtal; appears oolitic in part; good int xtal & vug por in part; N.S. much in 4650.

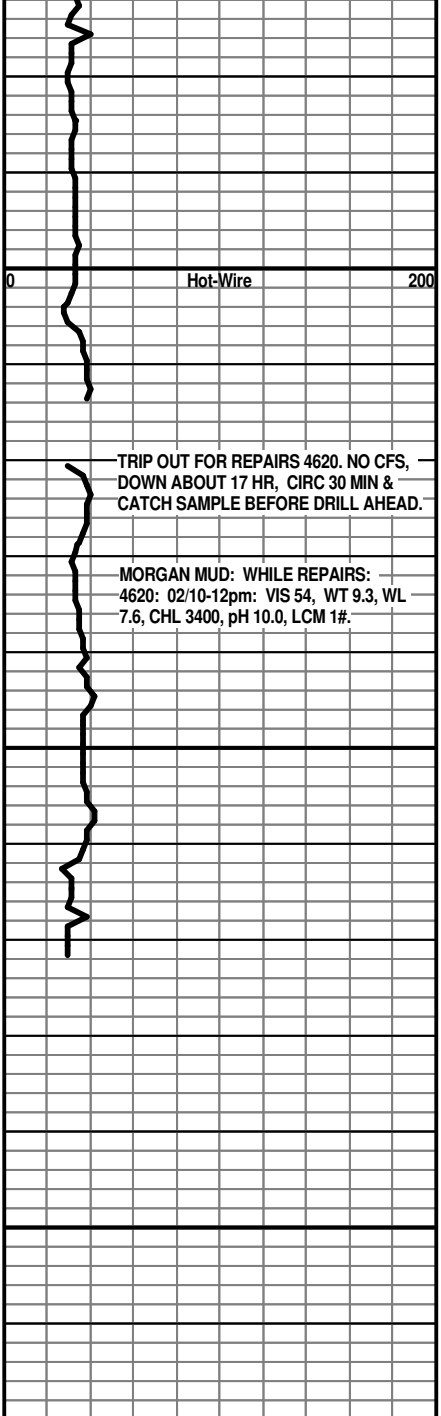
LS: dolomitic in part; vf-xtal; fos; some shaley; poor apparent porosity; N.S.

LS: grayish-brn; vf-xtal; v-fos; poor apparent porosity; N.S. 4680.

Dol & Dol-LS: grayish-brn; vf-f xtal; fair int xtal porosity; N.S.

Dol & Dol-LS: as above.

**ROTARY TOTAL DEPTH 4690 (-1891)**



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



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

Mark Sievers, Chairman  
Ward Loyd, Commissioner  
Thomas E. Wright, Commissioner

Sam Brownback, Governor

May 24, 2012

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

Re: ACO1  
API 15-101-22340-00-00  
Joyce Ann Unit 1-13  
NE/4 Sec.13-19S-29W  
Lane County, Kansas

Dear Production Department:

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

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

Respectfully,  
Thomas Larson