

Confidentiality Requested:

☐ Yes ☐ No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

1090444

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:

- |  |   |                                     |
|--|---|-------------------------------------|
| <input type="checkbox"/> New Well              | <input type="checkbox"/> Re-Entry                         | <input type="checkbox"/> Workover   |
| <input type="checkbox"/> Oil                   | <input type="checkbox"/> WSW                              | <input type="checkbox"/> SWD        |
| <input type="checkbox"/> Gas                   | <input type="checkbox"/> D&A                              | <input type="checkbox"/> ENHR       |
| <input type="checkbox"/> OG                    | <input type="checkbox"/> GSW                              | <input type="checkbox"/> Temp. Abd. |
| <input type="checkbox"/> CM (Coal Bed Methane) |   |                                     |
| <input type="checkbox"/> Cathodic              | <input type="checkbox"/> Other (Core, Expl., etc.): _____ |                                     |

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- |  |                                       |  |                                       |
|--|---------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> Deepening       | <input type="checkbox"/> Re-perf.     | <input type="checkbox"/> Conv. to ENHR     | <input type="checkbox"/> Conv. to SWD |
| <input type="checkbox"/> Plug Back       | <input type="checkbox"/> Conv. to GSW | <input type="checkbox"/> Conv. to Producer |                                       |
| <input type="checkbox"/> Commingled      | Permit #: _____                       |  |                                       |
| <input type="checkbox"/> Dual Completion | Permit #: _____                       |  |                                       |
| <input type="checkbox"/> SWD             | Permit #: _____                       |  |                                       |
| <input type="checkbox"/> ENHR            | Permit #: _____                       |  |                                       |
| <input type="checkbox"/> 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: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_ ☐ East ☐ West      County: \_\_\_\_\_

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto: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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Name	Top	Datum
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:					

<div style="text-align: center;"> <b>CASING RECORD</b> <input type="checkbox"/> New    <input type="checkbox"/> Used         </div> <div style="text-align: center;">Report all strings set-conductor, surface, intermediate, production, etc.</div>							
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 (Amount and Kind of Material Used)	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 (Explain) _____			
Estimated Production Per 24 Hours	Oil	Bbbs.	Gas	Mcf	Water	Bbbs.	Gas-Oil Ratio	Gravity	

<p>DISPOSITION OF GAS:</p> <p><input type="checkbox"/> Vented    <input type="checkbox"/> Sold    <input type="checkbox"/> Used on Lease</p> <p><i>(If vented, Submit ACO-18.)</i></p>	<p>METHOD OF COMPLETION:</p> <p><input type="checkbox"/> Open Hole    <input type="checkbox"/> Perf.    <input type="checkbox"/> Dually Comp.    <input type="checkbox"/> Commingled</p> <p><i>(Submit ACO-5)</i></p> <p><input type="checkbox"/> Other <i>(Specify)</i> _____</p>	<p>PRODUCTION INTERVAL:</p> <p>_____</p> <p>_____</p>
--	--	---

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Leroy 1-13
Doc ID	1090444

#### Tops

Name	Top	Datum
Anhydrite	2138	+673
Base Anhydrite	2166	+623
Heebner Sh	3969	-1158
Lansing - KC	4012	-1201
Stark Sh	4298	-1487
Base KC	4382	-1571
Pawnee	4504	-1693
Fort Scott	4552	-1741
Cherokee	4577	-1766
Mississippian	4674	-1863

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

**FIELD TICKET & TREATMENT REPORT  
CEMENT**

TICKET NUMBER 34475

LOCATION F0374

FOREMAN Cahley

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
5-2-12	4802	Leroy 1-13	13	19	29	Lane
CUSTOMER Larson Engineering			D. Stokew			
MAILING ADDRESS			65			
CITY			Winn			
STATE		ZIP CODE				
JOB TYPE			TRUCK #			
HOLE SIZE			DRIVER			
			456-T-118 miles			
			466 Thomas B			
			T-129 Bobby S			

JOB TYPE SURFACE HOLE SIZE 12 1/4 HOLE DEPTH 262 CASING SIZE & WEIGHT 85/8 20#

CASING DEPTH \_\_\_\_\_ DRILL PIPE \_\_\_\_\_ TUBING \_\_\_\_\_ Casing Size & Weight 8 1/8 20

SLURRY WEIGHT 14.7 SLURRY VOL 1.34 WATER gal/hr 6 OTHER \_\_\_\_\_

DISPLACEMENT 15.7 DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ CEMENT LEFT in CASING \_\_\_\_\_

DISPLACEMENT PSI \_\_\_\_\_ MIX PSI \_\_\_\_\_ RATE \_\_\_\_\_

REMARKS: Safety meeting on H.D.#3 Pump and circulate. Mix 175 lbs Class A 30% cc 290 gal. Displace 15 3/4 bags and shed in cement did circulate approx 6 bags to rig.

Thanks Fuzzy &  
Cory

[illegible]

Ravin 3737

AUTHORIZATION George H. Jones TITLE President

DATE 5-2-72

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.



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

**FIELD TICKET & TREATMENT REPORT**

TICKET NUMBER 34531

LOCATION Oakley, KS

FOREMAN Kelly Gabe

DATE		CUSTOMER #	WELL NAME & NUMBER		SECTION	TOWNSHIP	RANGE	COUNTY
5-19-12		4802	Leroy 1-B		13	19	79	KS Lane
CUSTOMER MAILING ADDRESS Larsen Engineering					Dighton			
CITY					TRUCK #	DRIVER	TRUCK #	DRIVER
STATE					4163	Josh G		
ZIP CODE					439	Damon M		
JOB TYPE PTA					HOLE SIZE			
					HOLE DEPTH			

JOB TYPE <u>PTA</u>	HOLE SIZE _____	HOLE DEPTH <u>4769</u>	CASING SIZE & WEIGHT _____
CASING DEPTH _____	DRILL PIPE _____	TUBING _____	OTHER _____
SLURRY WEIGHT _____	SLURRY VOL _____	WATER gal/sk _____	CEMENT LEFT in CASING _____
DISPLACEMENT _____	DISPLACEMENT PSI _____	MIX PSI _____	RATE _____
REMARKS: <u>SAFETY</u>			

REMARKS: Safety meeting, rigged up on HD drilling #3, pumped  
Cement plugs, displaced down

505ks @ 2110

805K5 @ 1320

505K5 @ 660

505K5 @ 300

20 @ 60'

30 RH

[illegible]

Flavin 3737

4:00A/Y

AUTHORIZATION Robert Thomas

TITLE Polanski

SALES TAX	270.02
ESTIMATED TOTAL	6539.41

DATE 5-19-12

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.

P. O. Box 375  
Kechi, Kansas 67067-0375  
316-518-0495  
bobllewellyn@yahoo.com

## GEOLOGICAL REPORT

**Larson Engineering, Inc.**

No. 1-13 Leroy  
347' FSL & 1329' FEL Sec. 13-19S-29W  
Lane County, Kansas

CONTRACTOR:	H D Drilling, LLC Rig 3
SPUDED:	May 02, 2012
DRILLING COMPLETED:	May 16, 2012
SURFACE CASING:	8 5/8" @ 259 KBM/175 sx.
ELECTRIC LOGS:	DIL CNL/CDL MEL
ELEVATIONS:	2811 KB 2804 GL
FORMATION TOPS: (Electric Log)	
Anhydrite	2138 (+ 673)
Base Anhydrite	2166 (+ 623)
Heebner Shale	3969 (-1158)
Lansing-Kansas City Group	4012 (-1201)
Muncie Creek Shale	4194 (-1383)
Stark Shale	4298 (-1487)
Hushpuckney Shale	4338 (-1527)
Base Kansas City	4382 (-1571)
Altamont	4427 (-1616)
Pawnee	4504 (-1693)
Myrick Station	4526 (-1715)
Fort Scott	4552 (-1741)
Cherokee	4577 (-1766)
Mississippian	4674 (-1863)
Electric Log Total Depth	4710 (-1899)

Samples were examined microscopically from 3800 to Rotary Total Depth. Samples were examined wet and dry and samples from potentially productive zones were viewed under a fluoroscope and checked for oil cut. Following is a description of zones of interest, Drill Stem Tests, etc. For a complete lithologic description of all formations refer to the sample log in the back pages of this report.

Lansing-Kansas City Zones:

4019-4026 (A Zone)

Limestone, cream to buff, dense to finely crystalline with much chalky, slightly fossiliferous, zone is mostly tight with no shows of oil.

4050-4057 (B Zone)

Limestone, cream to buff, dense to finely crystalline, partly chalky, poor intercrystalline and vugular porosity, trace of scattered dead stain, no show of live oil.

4070-4097 (C/D Zone)

Limestone, cream to buff, dense to finely crystalline with much chalk, partly fossiliferous, trace of scattered very poor intercrystalline porosity, no show of oil.

4100-4106 (E Zone)

Limestone, buff to tan, trace of brown, dense to finely crystalline and slightly fossiliferous, zone is mostly tight with no shows of oil, trace of light gray fresh, opaque chert.

4109-4114 (F Zone)

Limestone, buff to tan, dense to finely crystalline, slightly fossiliferous, poor scattered intercrystalline and interfossil porosity, some scattered dead stain, no show of live oil.

4132-4150 (G Zone)

Limestone, cream to buff to tan, dense to finely crystalline and oolitic, zone contains much chalk, poor ooliticastic porosity, some poor interoolitic porosity, no show of oil.

4207-4214 (H Zone)

Limestone, buff to tan, some gray and brown to mottled, dense to finely crystalline, fossiliferous, poor interfossil and intercrystalline porosity, poor to fair spotted stain, slight show of free oil, faint odor, poor to fair fluorescence, poor to fair cut.

Drill Stem Test No. 1            4175-4225

5-15-30-60; built to quarter-inch blow on first flow, no blowback; built to 4 1/2" blow on second flow period, no blowback. Recovered 165 feet of mud with oil spots. ISIP 1068# FSIP 1089# IFP 20-36# FFP 38-97# IHP 2107# FHP 2022# BHT 119 degrees F.

4244-4263 (I Zone)

Limestone, buff to tan, some gray, dense to finely crystalline, partly fossiliferous, poor to fair scattered intercrystalline and vugular porosity, trace of interfossil porosity, fair spotted stain, faint odor, fair show of free oil, poor to fair fluorescence, fair cut, some "edge" porosity with show of oil as above.

#Drill Stem Test No. 2

4235-4273

5-15-30-60; built to 1/2" blow on first flow, no blowback; built to 2 1/2" blow on second flow, no blowback. Recovered 65 feet of mud cut water (90% water, 10% mud); chlorides, 30,000 ppm, system chlorides 3000 ppm. ISIP 943# FSIP 943# IFP 19-27# FFP 29-60# IHP 2113# FHP 2068# BHT 115 degrees F.

4274-4286 (J Zone)

Limestone, buff, finely crystalline and coarsely oolitic, good oolitic porosity with scattered fair interoolitic porosity, no show of oil. Samples have a peculiar odor, resembling eggs.

4308-4312 (K Zone)

Limestone, buff, dense to finely crystalline and fossiliferous, scattered poor intercrystalline and interfossil porosity, some vugular porosity, scattered poor spotted stain, slight show of free oil, faint odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 3

4296-4314

5-15-15-30; built to 8 inch blow on first flow period, no blowback; blow off bottom of bucket in 7 1/2 minutes; bled off for 5 minutes, no return blow. Recovered 92 feet of mud cut water (50% water, 50% mud) and 243 feet of water (100% water) chlorides 40,000 ppm, system chlorides 3000 ppm. ISIP 671# FSIP 664# IFP 33-100# FFP 105-200# IHP 2129# FHP 2179# FHT 130 degrees F.

4340-4346 (Middle Creek Zone)

Limestone, tan, some brown, dense to finely crystalline, slightly fossiliferous, scattered poor to fair intercrystalline and vugular porosity, poor to fair spotted stain, very slight show of free oil, faint fleeting odor, poor to fair cut.

Drill Stem Test No. 4

4332-4348

5-15-30-60; built to 1/2 inch blow on first flow, no blowback; built to one-inch blow on second flow, no return blow. Recovered one foot of free oil and 29 feet of mud. ISIP 671# FSIP 669# IFP 20-22# FFP 22-35# IHP 2235# FHP 2127# BHT 119 degrees F.

4349-4356 (L Zone)

Limestone, buff to tan, some brown, some mottled, dense to finely crystalline, partly fossiliferous, trace of oolitic, poor intercrystalline and vugular porosity, some interfossil porosity, poor spotted stain, very slight show of free oil, faint odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 5

4339-4356

5-15-30-60; blow built to quarter-inch on first flow, no blowback; blow built to one-inch on second flow, no blowback. Recovered 30 feet of mud with an oil scum. ISIP 658# FSIP 655# IFP 19-18# FFP 20-30# IHP 2258# FHP 2123# BHT 118 degrees F.

4356-4365 (Middle L Zone)

Limestone, tan to brown, some gray, some mottled, dense to finely crystalline, slightly fossiliferous, trace of oolitic, scattered poor vugular and intercrystalline porosity with trace of "edge" porosity, poor



spotted stain, very slight show of free oil, faint to fair odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 6            4352-4365

5-15-30-60; built to ½ inch blow on first flow period, no blowback; built to two-inch blow on second flow, no blowback. Recovered 70 feet of mud. ISIP 613# FSIP 612# IFP 18-23# FFP 25-54# IHP 2150# FHP 2097# BHT 118 degrees F.

4382-4401 (Pleasanton Zone)

The Pleasanton section consisted of limestone, cream to buff, some gray, dense to finely crystalline, trace of chalky, scattered poor vugular and intercrystalline porosity, trace of poor spotted stain, rare trace of free oil, faint fleeting odor, poor fluorescence, poor cut.

4404-4425 (Marmaton Zone)

Limestone, buff to tan and brown, some slightly mottled, dense to finely crystalline, scattered poor vugular and intercrystalline porosity, scattered poor spotted stain, trace of poor spotted stain on fracture faces in dense pieces, very slight show of free oil, faint to fair odor, poor fluorescence, poor to fair cut.

4462-4470 (Altamont "A" Zone)

Limestone, cream to buff, some tan, dense to finely crystalline, very slightly chalky, slightly fossiliferous, some scattered oolitic, scattered poor to fair intercrystalline and vugular porosity, poor to fair spotted stain, slight show of free oil, faint to fair odor, poor fluorescence, fair cut.

Drill Stem Test No. 7            4378-4472

5-15-30-60; quarter-inch blow on first flow, no return blow; no blow on second flow period. Recovered five feet of mud. ISIP 181# FSIP 511# IFP 23-23# FFP 23-25# IHP 2188# FHP 2137# BHT 113 degrees F.

4504-4525 (Pawnee Zone)

Limestone, buff to tan to brown, trace of scattered gray, dense to finely crystalline, slightly fossiliferous, trace of poor intercrystalline and vugular porosity, rare trace of poor spotted stain, faint fleeting odor, no free oil, no fluorescence, poor cut.

4526-4545 (Myrick Station Zone)

Limestone, tan to brown, dense to finely crystalline, poor intercrystalline and vugular porosity, scattered poor spotted stain, trace of free oil, faint fleeting odor, no fluorescence, poor cut.

4552-4577 (Fort Scott Zone)

Limestone, cream to buff to tan, some scattered brown, dense to finely crystalline, trace of oolitic, poor intercrystalline porosity, trace of poor spotted stain, faint fleeting odor, trace of free oil, very poor fluorescence, poor cut, trace of oolitic limestone with dark oolites.

4577-4610 (Cherokee Lime Zones)

Limestone, brown, some tan, mostly dense with traces of finely crystalline, interval is mostly tight with rare traces of spotted stain on tight pieces, no free oil, no odor, no fluorescence, no cut.

4610-4640 (Johnson Zone)

Limestone, tan to brown, some medium gray, dense to finely crystalline, partly fossiliferous, scattered poor intercrystalline and vugular porosity, trace of poor spotted stain, very slight show of free oil, faint fleeting odor, poor fluorescence, poor cut.

4646-4668 (Detrital Zone)

Interval consists of white to varicolored shales and cherts with sand, white, very fine grained to fine grained, subround, well sorted, calcareous, well cemented, tight, no show of oil or gas.

Drill Stem Test No. 8                      4492-4650

5-15-30-60; built to one-inch blow on first flow period, no blowback; built to ½ inch blow on second flow, no blowback. Recovered 30 feet of mud. ISIP 966# FSIP 1112# IFP 31-36# FFP 36-45# IHP 2398# FHP 2296# BHT 116 degrees F.

4668-4710 (Mississippian Limestone Zone)

This section consisted of limestone, cream to buff and tan, finely crystalline and chalky with scattered dense, some soft and friable, mostly tight with no shows of oil. The lower section graded into dolomite and dolomitic limestone, buff to tan, finely crystalline with fair scattered intercrystalline porosity, some fair vugular porosity, no shows of oil.

4680                      Electric Log Total Depth

Conclusions and Recommendations:

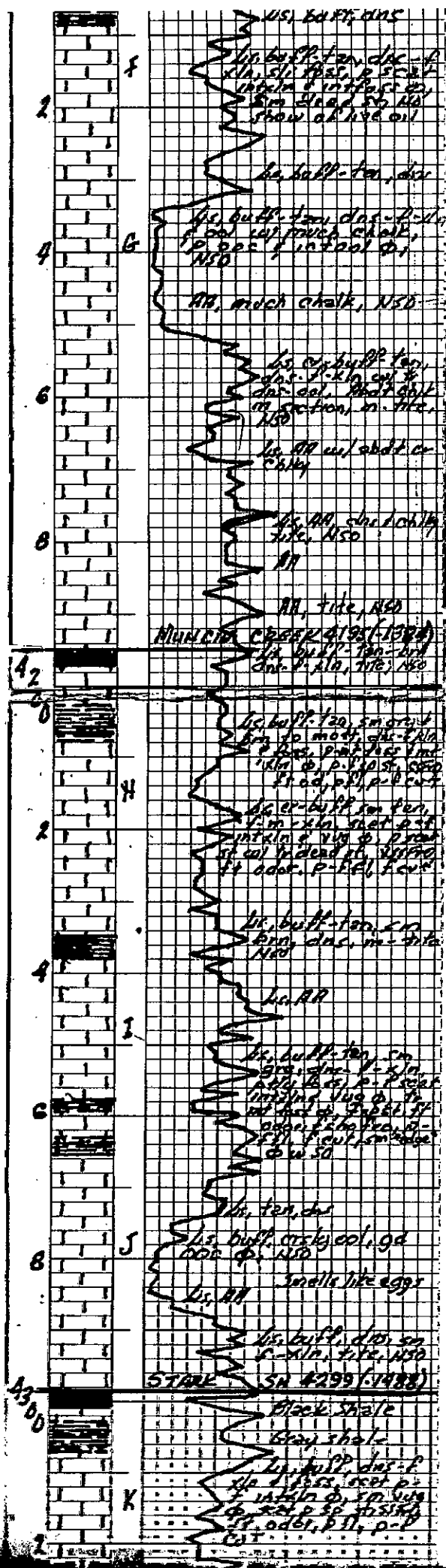
Sample examination, drill stem testing, and electric logging revealed no zones of possible commercial production of oil or gas. Decision was therefore made to plug and abandon the No. 1-13 Leroy.

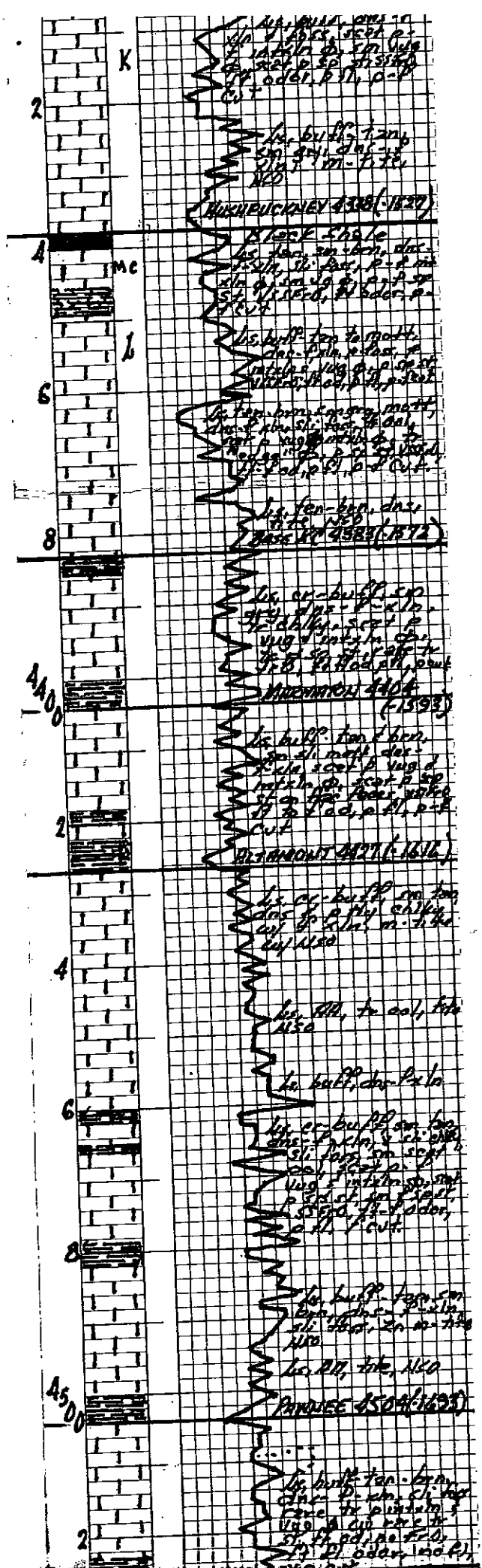
Respectfully submitted,

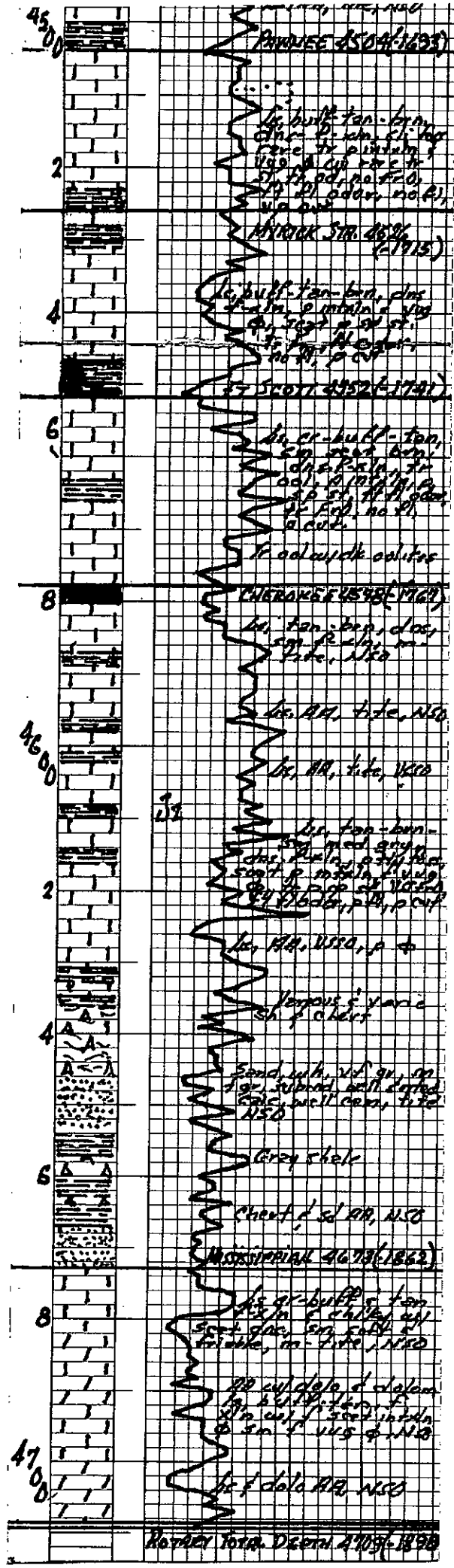
Robert C. Lewellyn  
Consulting Petroleum Geologist

RCL:me









Pawnee 4504-1635

ls. buff-tan-bn.  
sh. p. tan, cl. tan  
conc. sh. p. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

Shale 511. 4635  
(1915)

ls. buff-tan-bn. dnc  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

Shale 4552-1791

ls. cr-buff-tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

ls. ad. with oolites

Shale 4548-1767

ls. tan-bn. dnc  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

ls. sh. tan, N50

ls. sh. tan, N50

ls. tan-bn.  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

ls. sh. tan, N50, p. &

various & varic  
sh. & chert

Sand, with, sh. gr. on  
ls. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

Gray shale

Chert, d. sh. sh. N50

Mississippi 4673-1862

ls. cr-buff-tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

ls. sh. tan, N50  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan  
ls. p. tan, cl. tan  
sh. p. tan, cl. tan

ls. sh. tan, N50

Ravens Fork 4705-1890



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

**13-19s-29w**

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45959

**DST#: 1**

ATTN: Bob Lew ellyn

Test Start: 2012.05.09 @ 01:10:00

### GENERAL INFORMATION:

Formation: **Kansas City "H"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:56:15

Time Test Ended: 07:47:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Jace McKinney

Unit No: 46

**Interval: 4175.00 ft (KB) To 4225.00 ft (KB) (TVD)**

Reference Elevations: 2811.00 ft (KB)

Total Depth: 4225.00 ft (KB) (TVD)

2804.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 96.92 psig @ 4176.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.09

End Date:

2012.05.09

Last Calib.: 2012.05.09

Start Time: 01:10:01

End Time:

07:47:15

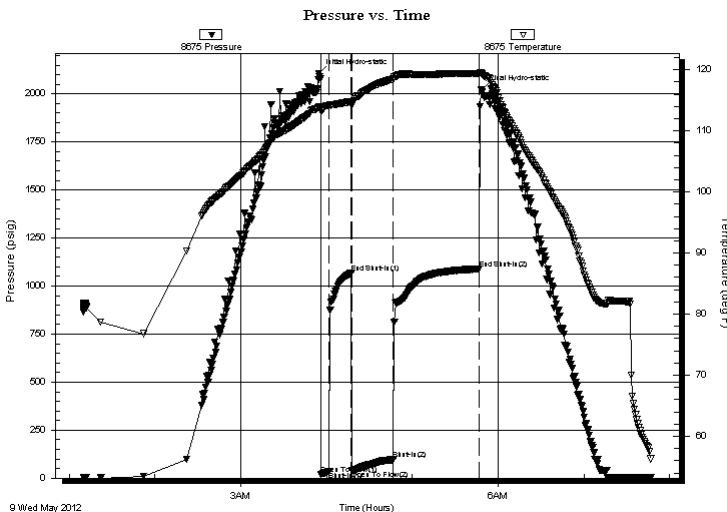
Time On Btm: 2012.05.09 @ 03:54:30

Time Off Btm: 2012.05.09 @ 05:48:45

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

### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2107.06	113.86	Initial Hydro-static
2	20.40	113.28	Open To Flow (1)
8	35.92	114.04	Shut-In(1)
23	1067.85	114.79	End Shut-In(1)
23	38.02	114.21	Open To Flow (2)
53	96.92	118.50	Shut-In(2)
113	1089.26	119.42	End Shut-In(2)
115	2022.31	119.36	Final Hydro-static



### Recovery

Length (ft)	Description	Volume (bbl)
165.00	100% Mud w with oil spots in tool	0.97

### Gas Rates

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



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

**13-19s-29w**

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45959

**DST#: 1**

ATTN: Bob Lew ellyn

Test Start: 2012.05.09 @ 01:10:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 58.00 sec/qt

Water Loss: 8.39 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 2700.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
165.00	100% Mud with oil spots in tool	0.968

Total Length: 165.00 ft

Total Volume: 0.968 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



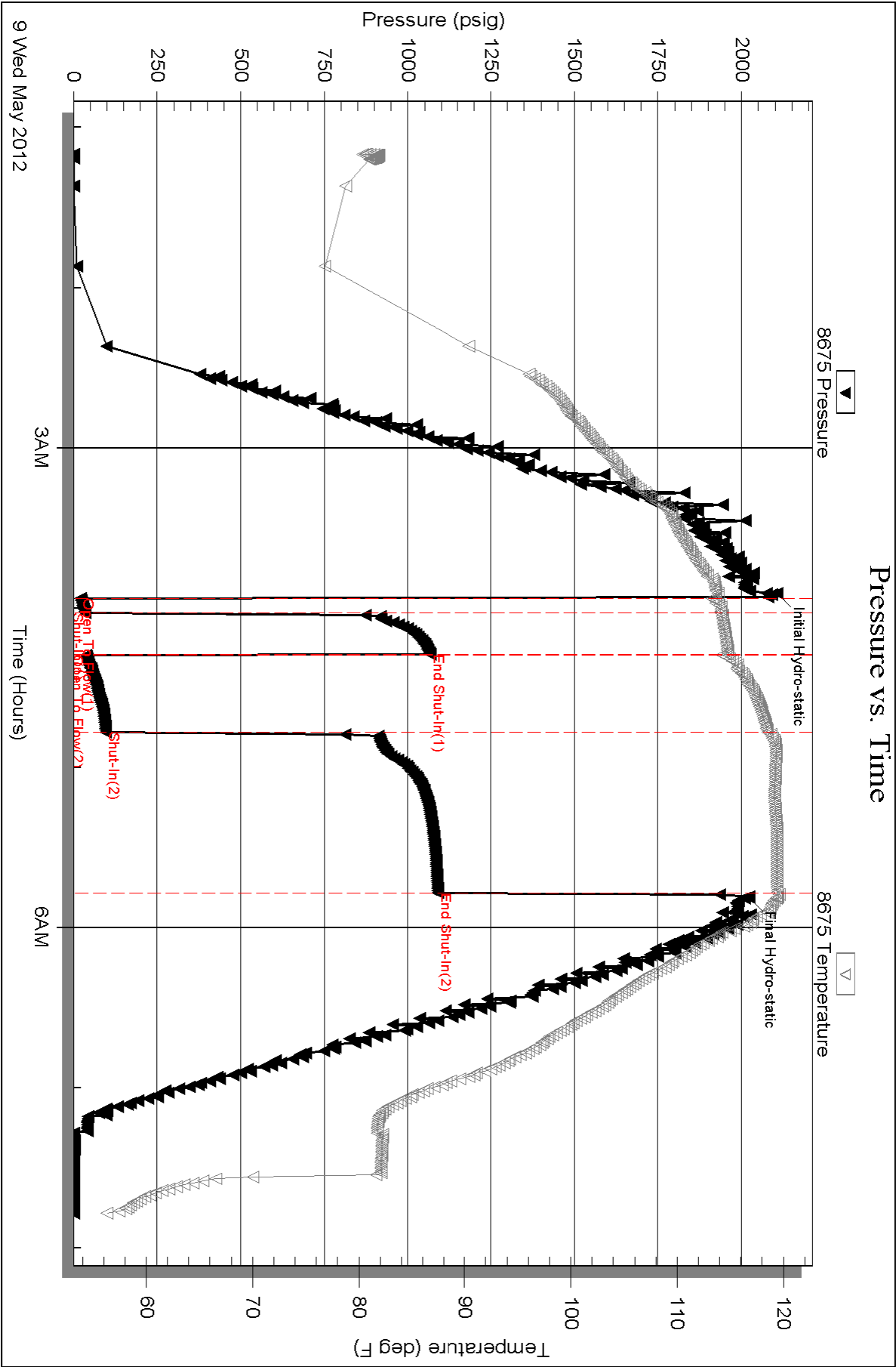
Serial #: 8675

Inside

Larson Engineering Inc.

Leroy 1-13

DST Test Number: 1





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45960

**DST#: 2**

Test Start: 2012.05.09 @ 22:00:00

### GENERAL INFORMATION:

Formation: **Kansas City " I "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:26:30

Time Test Ended: 04:25:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4235.00 ft (KB) To 4273.00 ft (KB) (TVD)**

Total Depth: 4273.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 59.92 psig @ 4236.00 ft (KB)

Start Date: 2012.05.09

End Date:

2012.05.10

Start Time: 22:00:01

End Time:

04:25:15

Capacity: 8000.00 psig

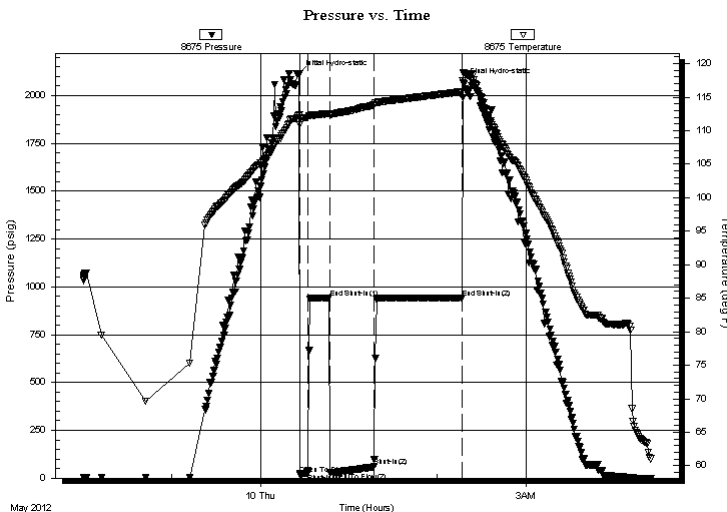
Last Calib.: 2012.05.10

Time On Btm: 2012.05.10 @ 00:26:15

Time Off Btm: 2012.05.10 @ 02:17:30

**TEST COMMENT:** Built to 1/2" blow  
No return blow  
Built to 2 1/2" blow  
No retrun blow

### PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2112.62	112.32	Initial Hydro-static
1	19.31	110.86	Open To Flow (1)
6	27.25	111.96	Shut-In(1)
21	942.69	112.58	End Shut-In(1)
21	28.61	112.29	Open To Flow (2)
51	59.92	113.81	Shut-In(2)
111	943.35	115.83	End Shut-In(2)
112	2068.12	118.66	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
65.00	mcw 10%M 90%W	0.32

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45960

**DST#: 2**

ATTN: Bob Lew ellyn

Test Start: 2012.05.09 @ 22:00:00

### 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: 69.00 sec/qt

Cushion Volume:

bbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	mcw 10%M 90%W	0.320

Total Length: 65.00 ft      Total Volume: 0.320 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .30 @ 55 F = 30,000

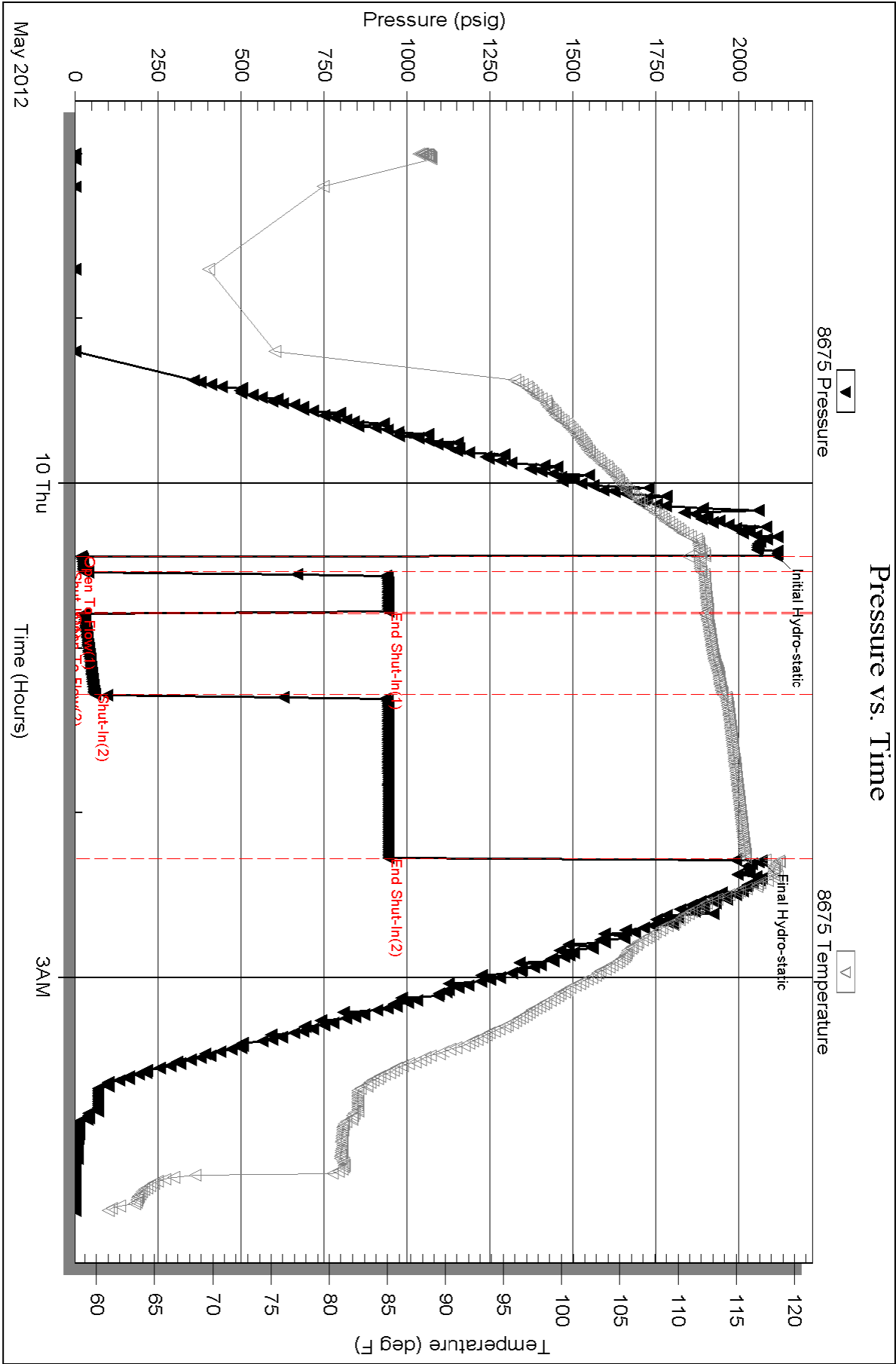
Serial #: 8675

Inside

Larson Engineering Inc.

Leroy 1-13

DST Test Number: 2





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45961

**DST#: 3**

Test Start: 2012.05.10 @ 15:40:00

### GENERAL INFORMATION:

Formation: **Kansas City " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:39:15

Time Test Ended: 20:48:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**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: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 200.35 psig @ 4297.00 ft (KB)

Start Date: 2012.05.10

End Date:

2012.05.10

Start Time: 15:40:01

End Time:

20:48:15

Capacity: 8000.00 psig

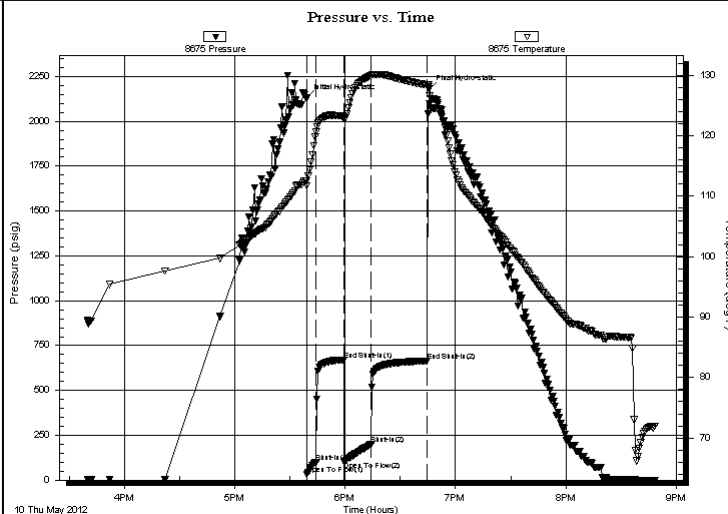
Last Calib.: 2012.05.10

Time On Btm: 2012.05.10 @ 17:39:00

Time Off Btm: 2012.05.10 @ 18:45:30

**TEST COMMENT:** Built to 8" blow  
No return blow  
B.O.B. in 7 1/2 min.  
Bled off for 5 min. No return blow

### PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2128.73	112.56	Initial Hydro-static
1	32.56	111.76	Open To Flow (1)
6	100.44	120.73	Shut-In(1)
21	671.01	123.22	End Shut-In(1)
21	105.23	122.87	Open To Flow (2)
36	200.35	129.94	Shut-In(2)
66	664.29	128.42	End Shut-In(2)
67	2179.01	128.20	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
243.00	100%W	2.06
92.00	mcw 50%M 50%W	1.29

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45961

**DST#: 3**

ATTN: Bob Lew ellyn

Test Start: 2012.05.10 @ 15:40:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 10.00 lb/gal

Viscosity: 50.00 sec/qt

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

Resistivity: ohm.m

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
243.00	100%W	2.063
92.00	mcw 50%M 50%W	1.291

Total Length: 335.00 ft      Total Volume: 3.354 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

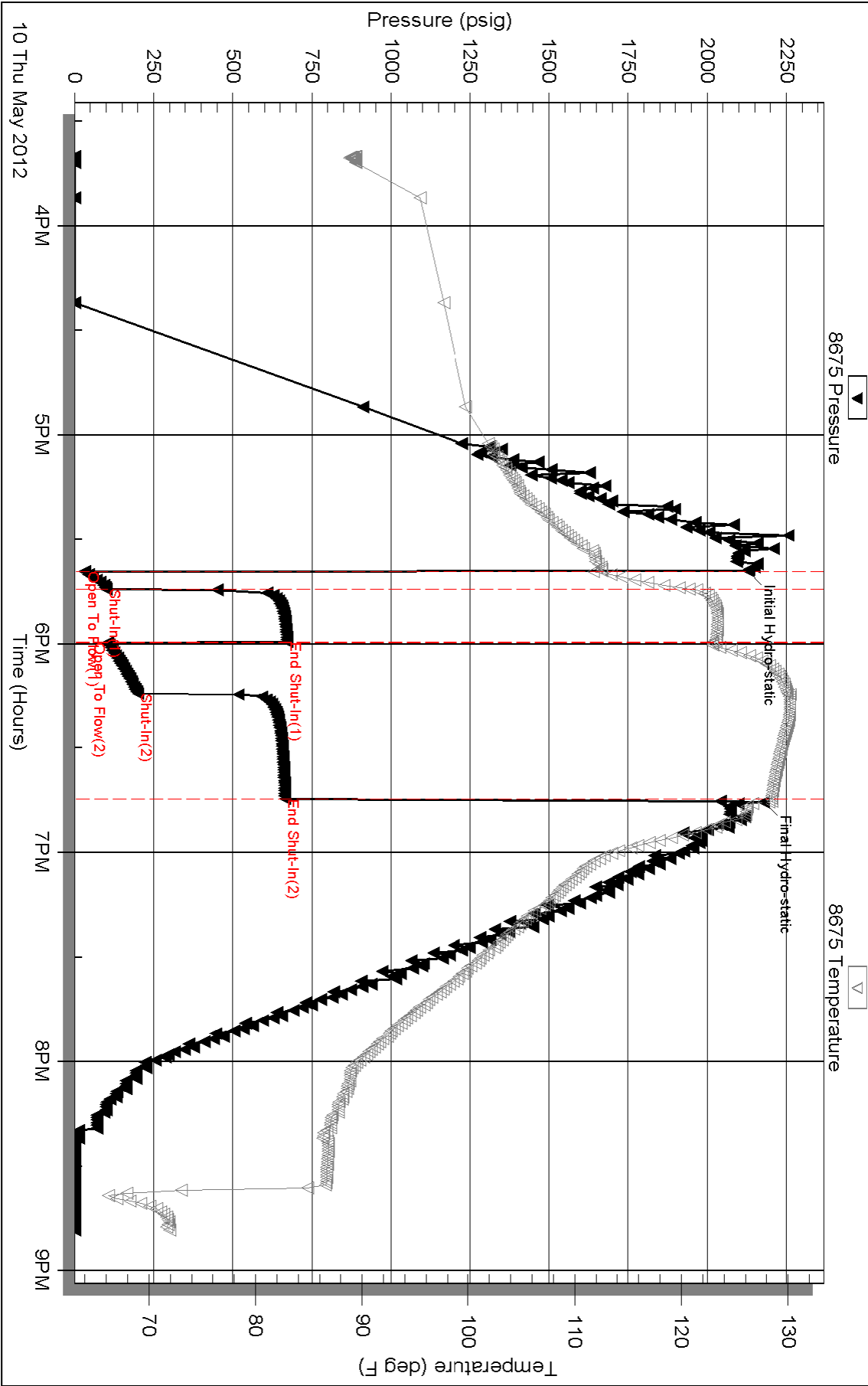
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW: .15 @ 80 F = 40,000

Pressure vs. Time





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45962

**DST#: 4**

Test Start: 2012.05.11 @ 07:45:00

### GENERAL INFORMATION:

Formation: **Middle Creek**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:00:45

Time Test Ended: 13:44:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4332.00 ft (KB) To 4348.00 ft (KB) (TVD)**

Reference Elevations: 2811.00 ft (KB)

Total Depth: 4348.00 ft (KB) (TVD)

2804.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 35.45 psig @ 4333.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.11

End Date:

2012.05.11

Last Calib.: 2012.05.11

Start Time: 07:45:01

End Time:

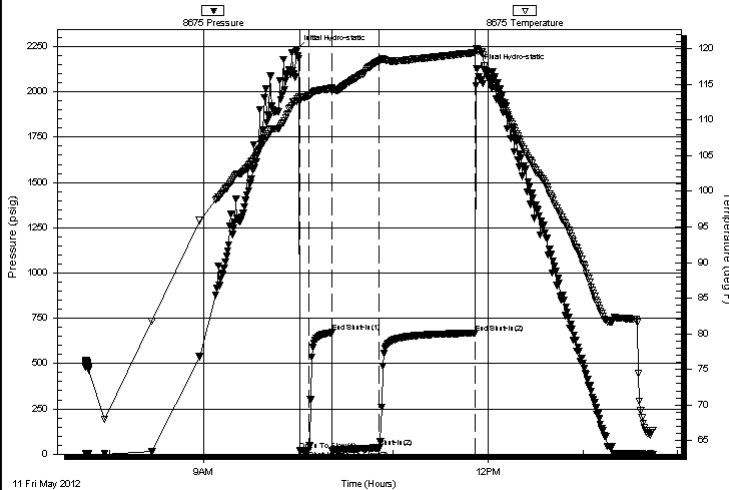
13:44:30

Time On Btm: 2012.05.11 @ 09:58:45

Time Off Btm: 2012.05.11 @ 11:52:45

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

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2234.91	112.57	Initial Hydro-static
2	19.72	112.61	Open To Flow (1)
8	21.53	113.35	Shut-In(1)
23	671.02	114.48	End Shut-In(1)
23	21.85	114.17	Open To Flow (2)
53	35.45	118.28	Shut-In(2)
113	668.53	119.48	End Shut-In(2)
114	2127.41	120.06	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
29.00	100%M	0.14
1.00	Free Oil	0.00

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE**  
**TESTING, INC**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45962

**DST#: 4**

ATTN: Bob Lew ellyn

Test Start: 2012.05.11 @ 07:45:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 10.00 lb/gal

Viscosity: 50.00 sec/qt

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

Resistivity: ohm.m

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
29.00	100%M	0.143
1.00	Free Oil	0.005

Total Length: 30.00 ft

Total Volume: 0.148 bbl

Num Fluid Samples: 0

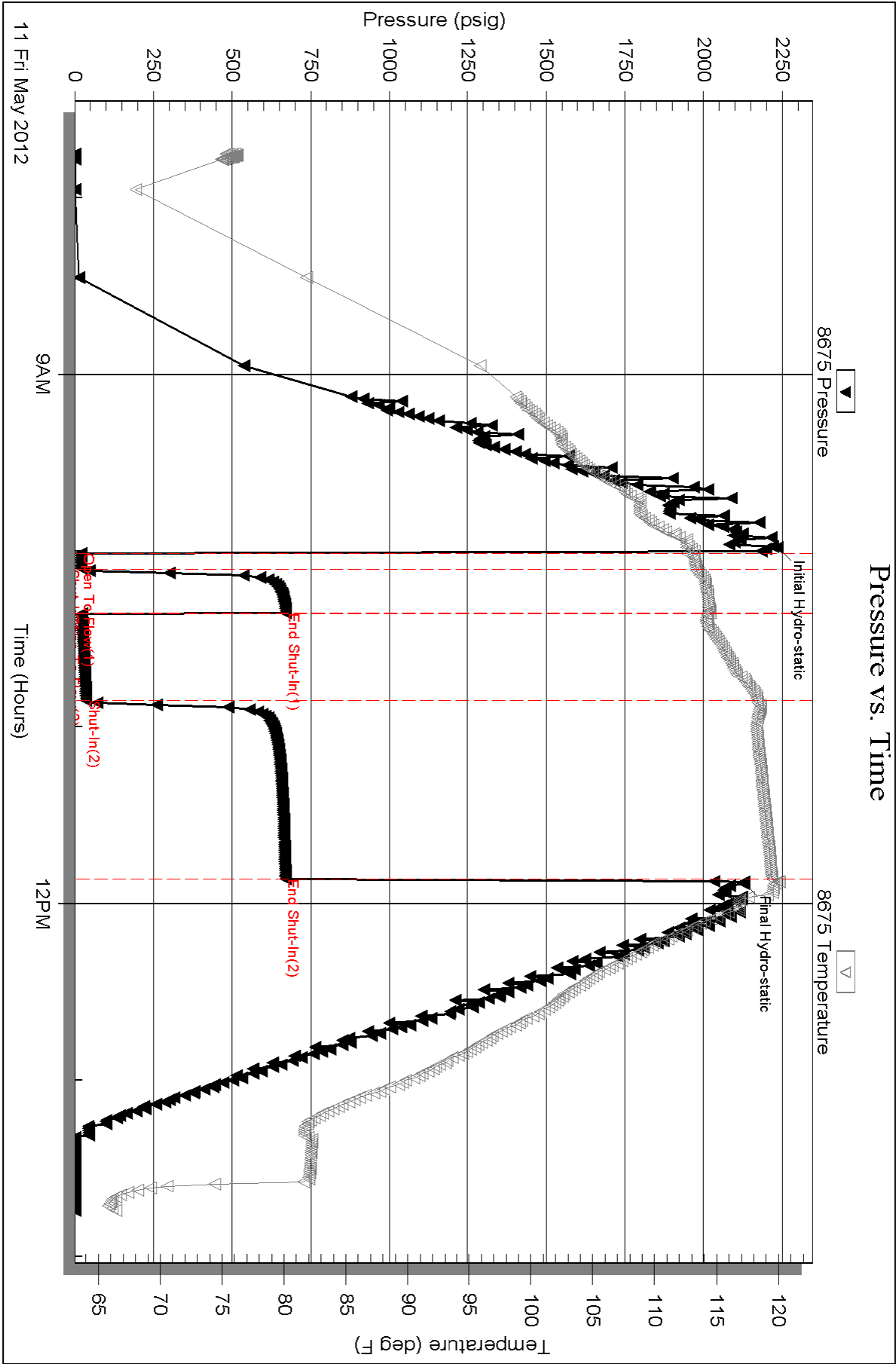
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45963

**DST#: 5**

Test Start: 2012.05.11 @ 22:45:00

### GENERAL INFORMATION:

Formation: **Kansas City " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:42:55

Time Test Ended: 04:24:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4339.00 ft (KB) To 4356.00 ft (KB) (TVD)**

Reference Elevations: 2811.00 ft (KB)

Total Depth: 4356.00 ft (KB) (TVD)

2804.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 30.06 psig @ 4340.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.11

End Date:

2012.05.12

Last Calib.: 2012.05.12

Start Time: 22:45:01

End Time:

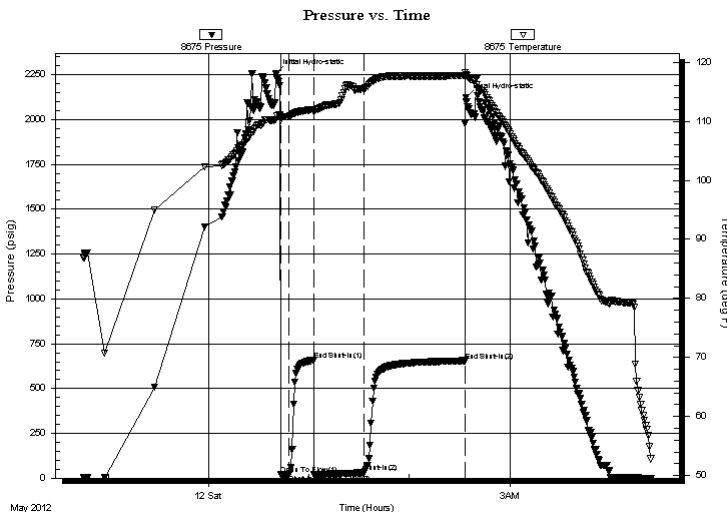
04:24:40

Time On Btm: 2012.05.12 @ 00:40:10

Time Off Btm: 2012.05.12 @ 02:33:55

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

### PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2258.46	110.34	Initial Hydro-static
3	19.27	110.21	Open To Flow (1)
8	18.42	110.86	Shut-In(1)
23	658.03	111.99	End Shut-In(1)
23	20.45	111.59	Open To Flow (2)
53	30.06	115.58	Shut-In(2)
113	654.92	117.76	End Shut-In(2)
114	2122.84	117.91	Final Hydro-static

### Recovery

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

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45963

**DST#: 5**

Test Start: 2012.05.11 @ 22:45:00

### GENERAL INFORMATION:

Formation: **Kansas City " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:42:55

Time Test Ended: 04:24:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4339.00 ft (KB) To 4356.00 ft (KB) (TVD)**

Total Depth: 4356.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8650 Outside**

Press @ Run Depth: psig @ 4340.00 ft (KB)

Start Date: 2012.05.11

End Date:

2012.05.12

Start Time: 22:45:01

End Time:

04:24:45

Capacity: 8000.00 psig

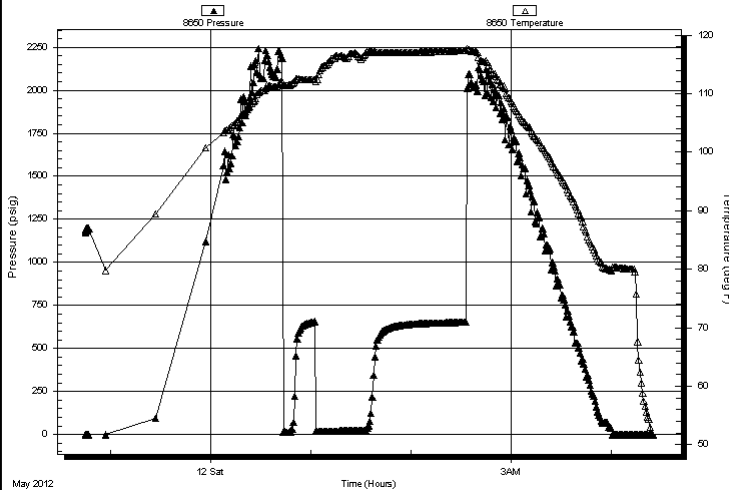
Last Calib.: 2012.05.12

Time On Btm:

Time Off Btm:

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

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

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

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45963

**DST#: 5**

ATTN: Bob Lew ellyn

Test Start: 2012.05.11 @ 22:45:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	100% Mud with Oil scum	0.148

Total Length: 30.00 ft

Total Volume: 0.148 bbl

Num Fluid Samples: 0

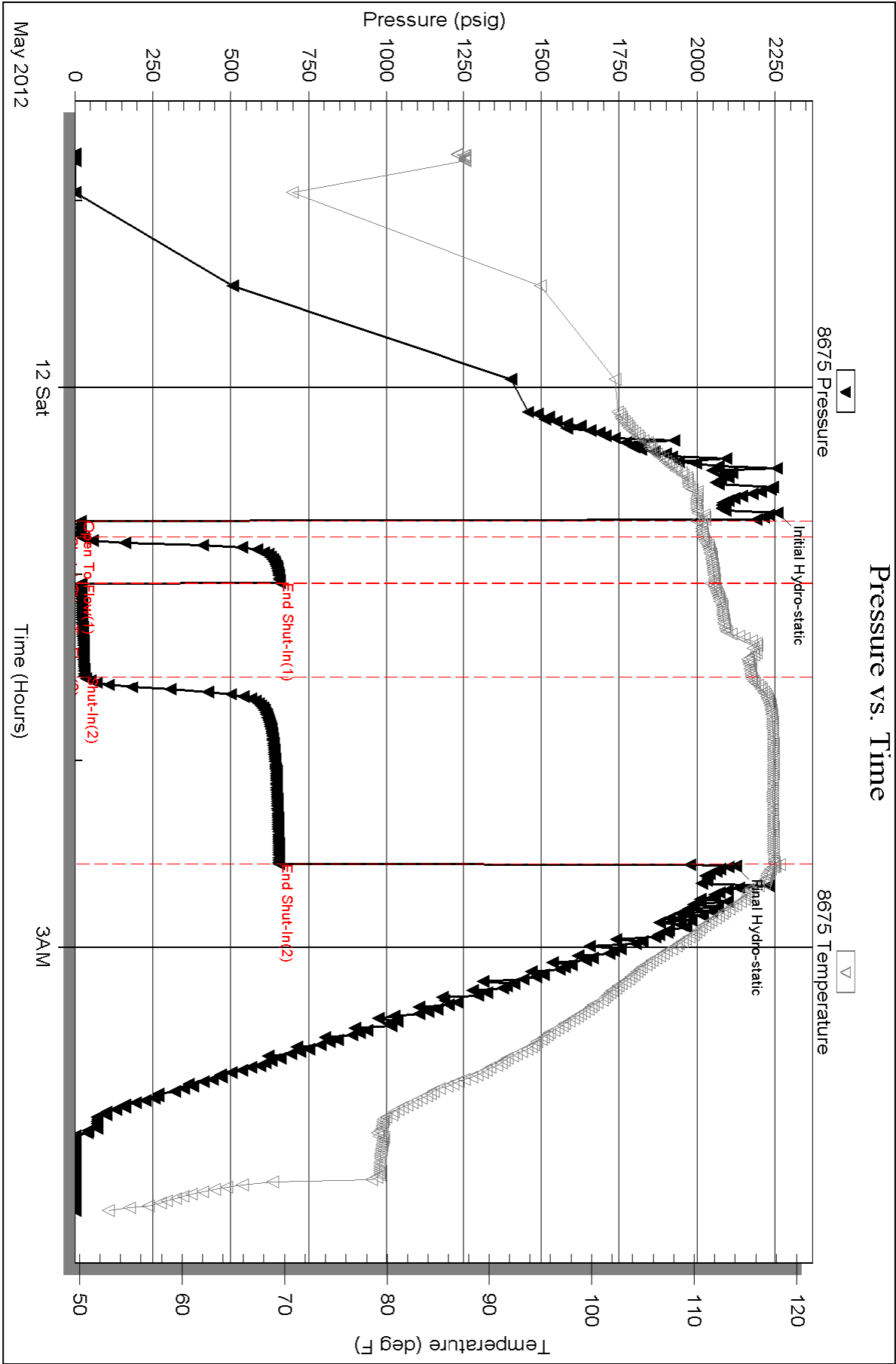
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

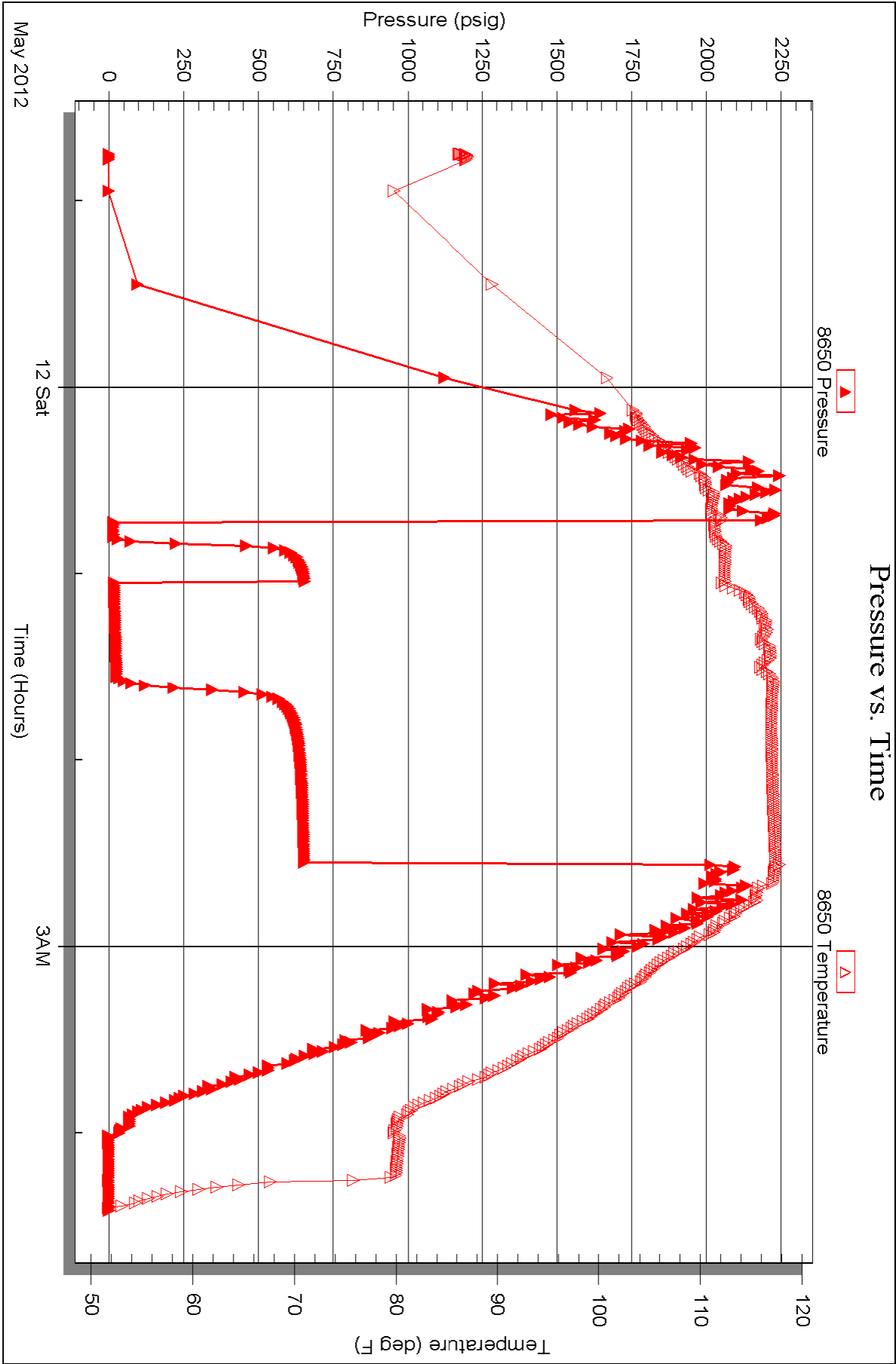


Serial #: 8650

Outside Larson Engineering Inc.

Leroy 1-13

DST Test Number: 5





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45964

**DST#: 6**

Test Start: 2012.05.12 @ 13:10:00

### GENERAL INFORMATION:

Formation: **Kansas City Lower "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:08:00

Time Test Ended: 18:59:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4352.00 ft (KB) To 4365.00 ft (KB) (TVD)**

Total Depth: 4365.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 53.74 psig @ 4353.00 ft (KB)

Start Date: 2012.05.12

End Date:

2012.05.12

Start Time: 13:10:01

End Time:

18:59:00

Capacity: 8000.00 psig

Last Calib.: 2012.05.12

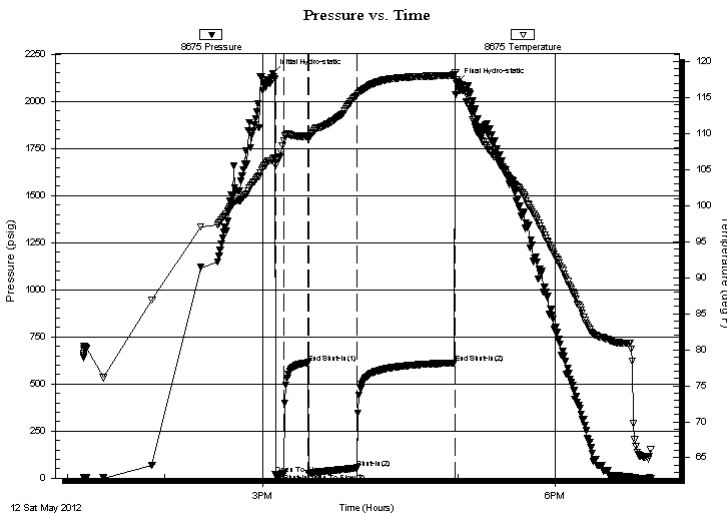
Time On Btm: 2012.05.12 @ 15:06:15

Time Off Btm: 2012.05.12 @ 16:59:45

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

### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2148.70	106.46	Initial Hydro-static
2	18.09	105.60	Open To Flow (1)
7	22.99	109.06	Shut-In(1)
22	613.32	109.64	End Shut-In(1)
22	24.62	109.36	Open To Flow (2)
52	53.74	115.29	Shut-In(2)
112	611.57	118.11	End Shut-In(2)
114	2097.47	117.24	Final Hydro-static



### Recovery

Length (ft)	Description	Volume (bbl)
70.00	100% Mud	0.34

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45964

**DST#: 6**

Test Start: 2012.05.12 @ 13:10:00

### GENERAL INFORMATION:

Formation: **Kansas City Lower "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:08:00

Time Test Ended: 18:59:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4352.00 ft (KB) To 4365.00 ft (KB) (TVD)**

Total Depth: 4365.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8650 Outside**

Press @ Run Depth: psig @ 4353.00 ft (KB)

Start Date: 2012.05.12

End Date:

2012.05.12

Start Time: 13:10:01

End Time:

18:59:15

Capacity: 8000.00 psig

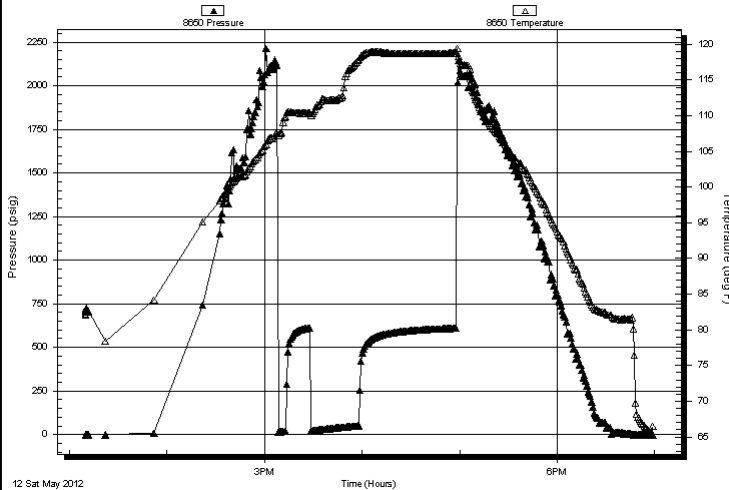
Last Calib.: 2012.05.12

Time On Btm:

Time Off Btm:

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

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
70.00	100% Mud	0.34

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45964

**DST#: 6**

ATTN: Bob Lew ellyn

Test Start: 2012.05.12 @ 13:10:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	100% Mud	0.344

Total Length: 70.00 ft

Total Volume: 0.344 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

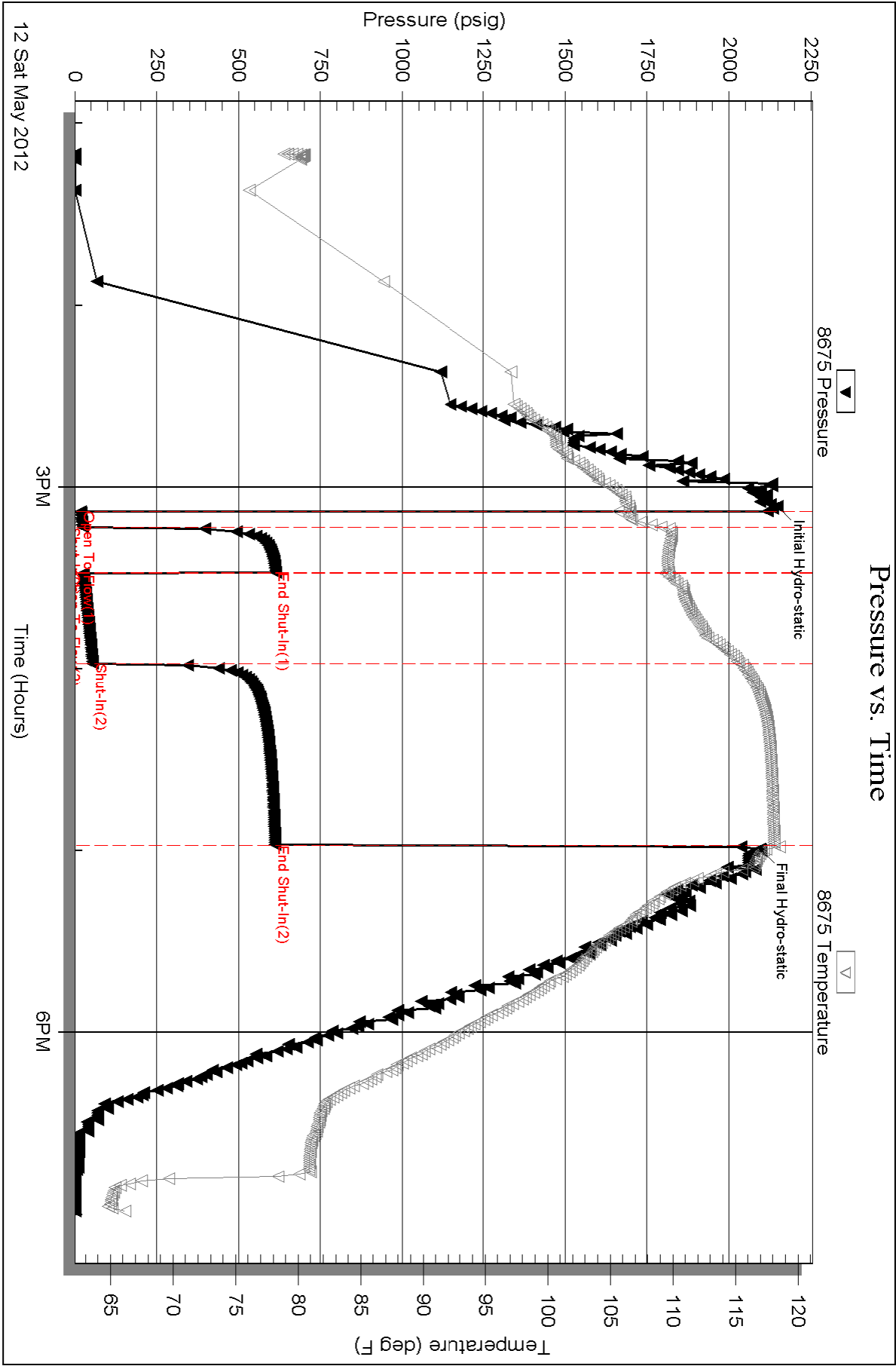
Serial #: 8675

Inside

Larson Engineering Inc.

Leroy 1-13

DST Test Number: 6

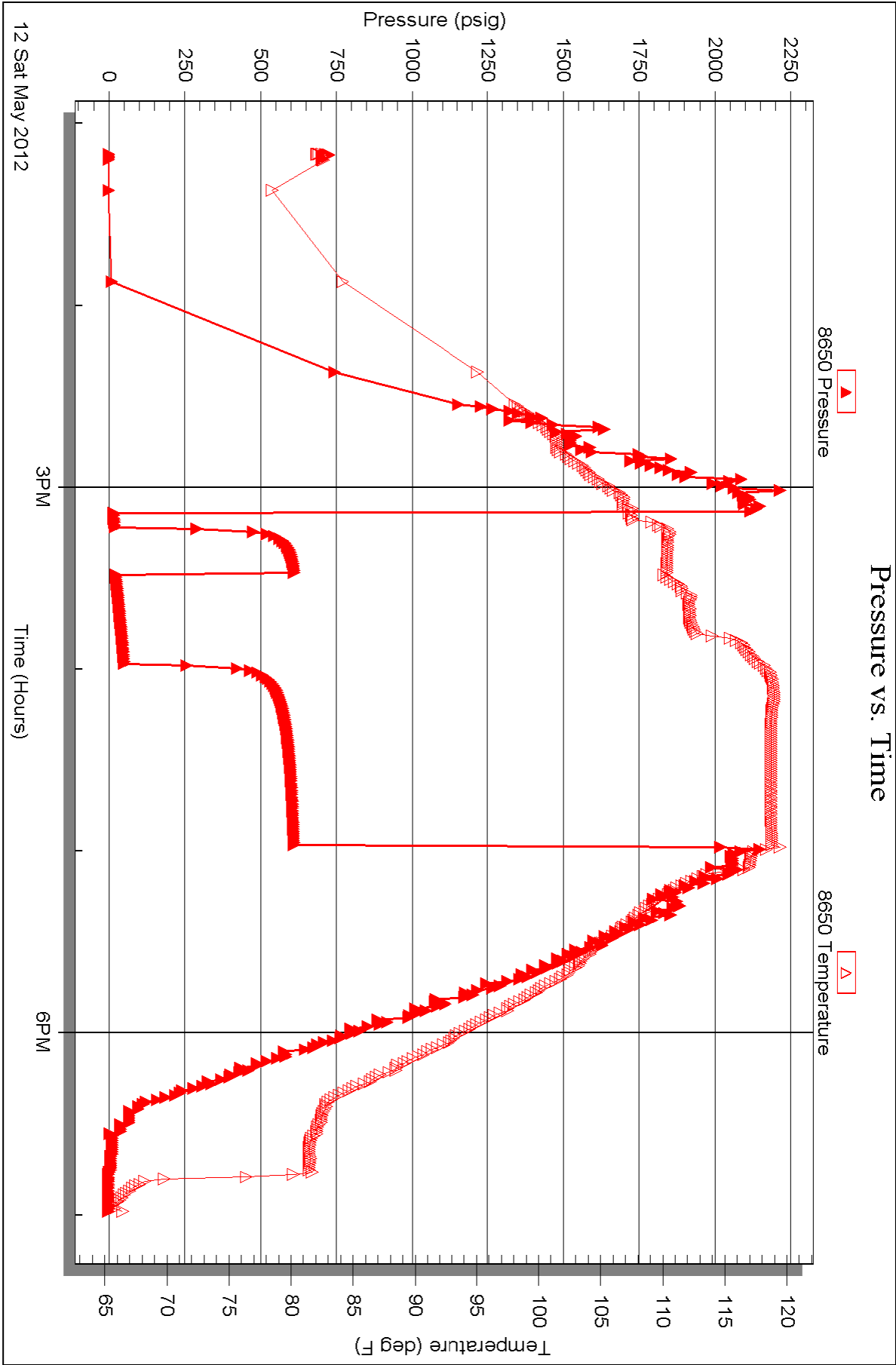


Serial #: 8650

Outside Larson Engineering Inc.

Leroy 1-13

DST Test Number: 6





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45965

**DST#: 7**

Test Start: 2012.05.13 @ 13:15:00

### GENERAL INFORMATION:

Formation: **Marmaton & Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:24:30

Time Test Ended: 19:12:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

Interval: **4378.00 ft (KB) To 4472.00 ft (KB) (TVD)**

Total Depth: 4478.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2811.00 ft (KB)

2804.00 ft (CF)

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 25.44 psig @ 4379.00 ft (KB)

Start Date: 2012.05.13

End Date:

2012.05.13

Start Time: 13:15:01

End Time:

19:12:15

Capacity: 8000.00 psig

Last Calib.: 2012.05.13

Time On Btm: 2012.05.13 @ 15:22:15

Time Off Btm: 2012.05.13 @ 17:17:45

TEST COMMENT: Built to 1/4" blow

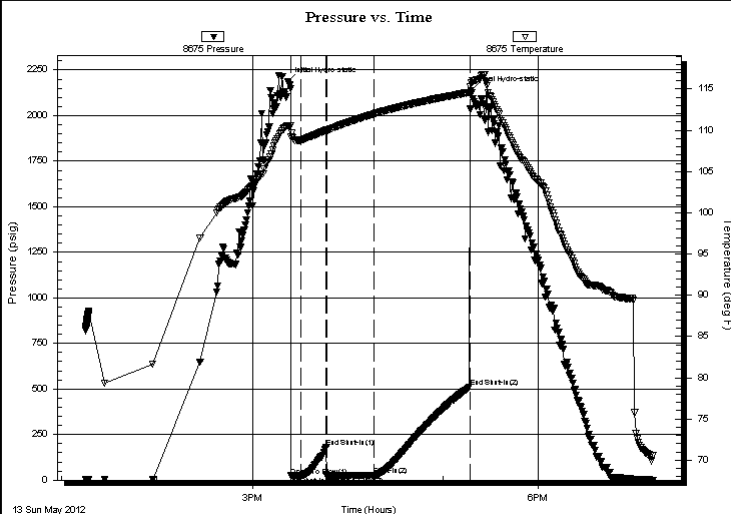
No return blow

No blow

No return blow

### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.05	110.57	Initial Hydro-static
3	23.40	109.18	Open To Flow (1)
9	23.23	108.82	Shut-In(1)
25	181.09	110.02	End Shut-In(1)
25	23.30	109.93	Open To Flow (2)
55	25.44	111.98	Shut-In(2)
115	510.93	114.61	End Shut-In(2)
116	2137.07	115.71	Final Hydro-static



### Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% Mud	0.02

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lew ellyn

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

**Leroy 1-13**

Job Ticket: 45965

**DST#: 7**

Test Start: 2012.05.13 @ 13:15:00

### GENERAL INFORMATION:

Formation: **Marmaton & Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:24:30

Time Test Ended: 19:12:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

Interval: **4378.00 ft (KB) To 4472.00 ft (KB) (TVD)**

Reference Elevations: 2811.00 ft (KB)

Total Depth: 4478.00 ft (KB) (TVD)

2804.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8650 Outside**

Press @ Run Depth: psig @ 4379.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.13

End Date:

2012.05.13

Last Calib.:

2012.05.13

Start Time: 13:15:01

End Time:

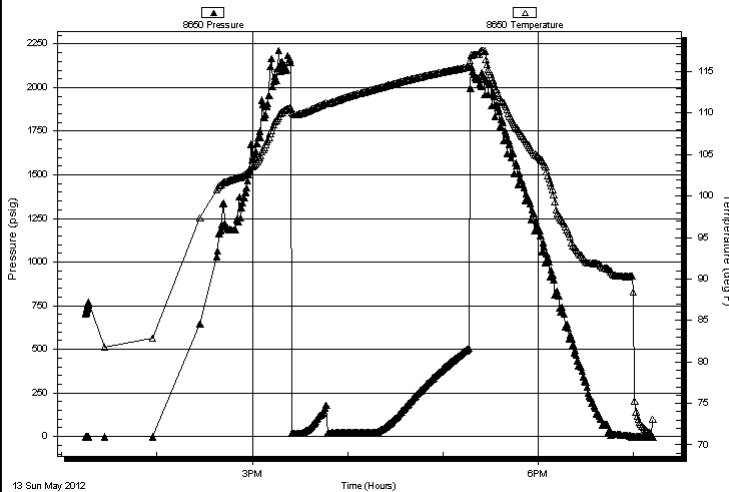
19:12:00

Time On Btm:

Time Off Btm:

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

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% Mud	0.02

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45965

**DST#: 7**

ATTN: Bob Lew ellyn

Test Start: 2012.05.13 @ 13:15:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbl

Water Loss: 8.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	100% Mud	0.025

Total Length: 5.00 ft

Total Volume: 0.025 bbl

Num Fluid Samples: 0

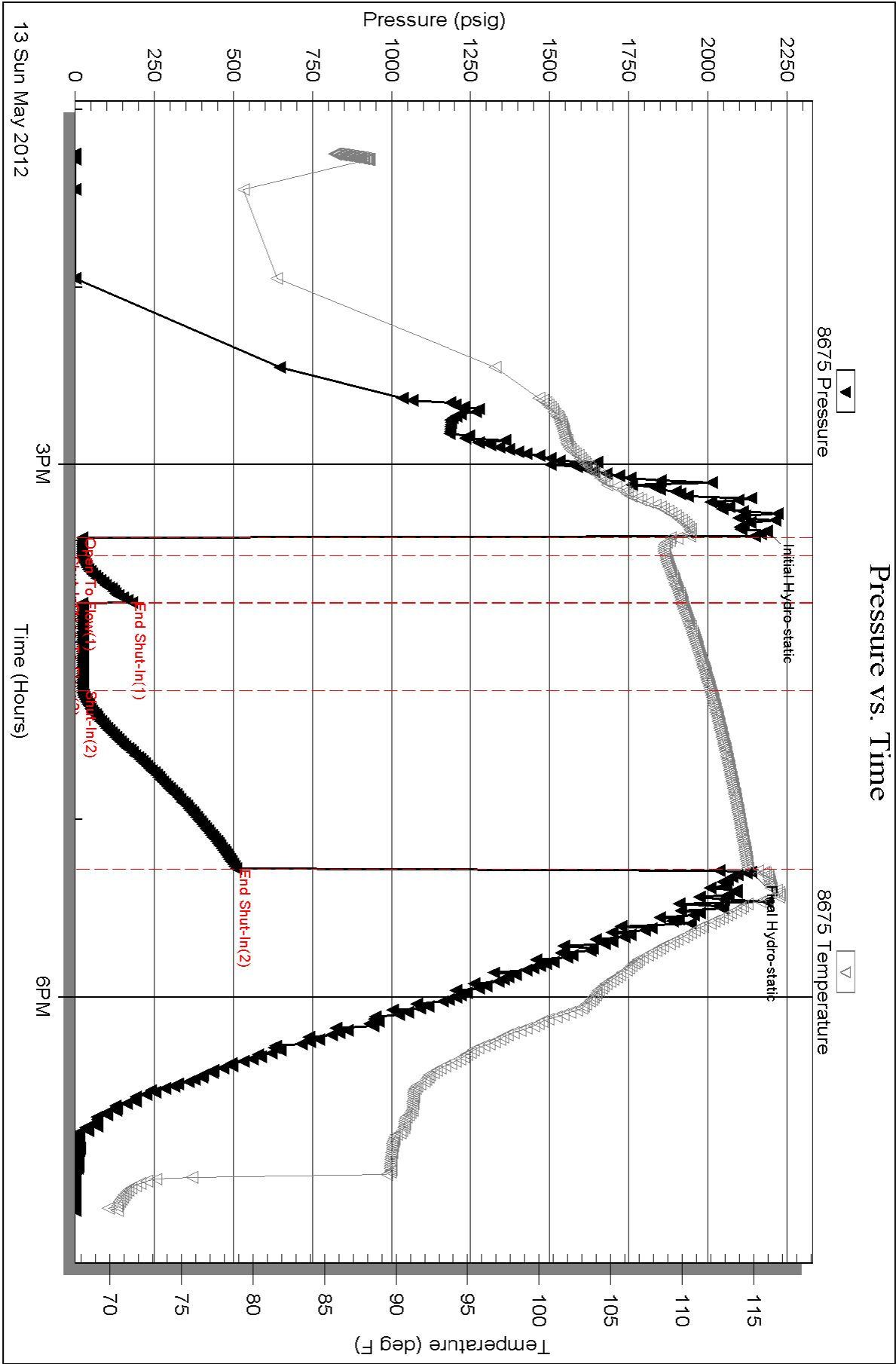
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



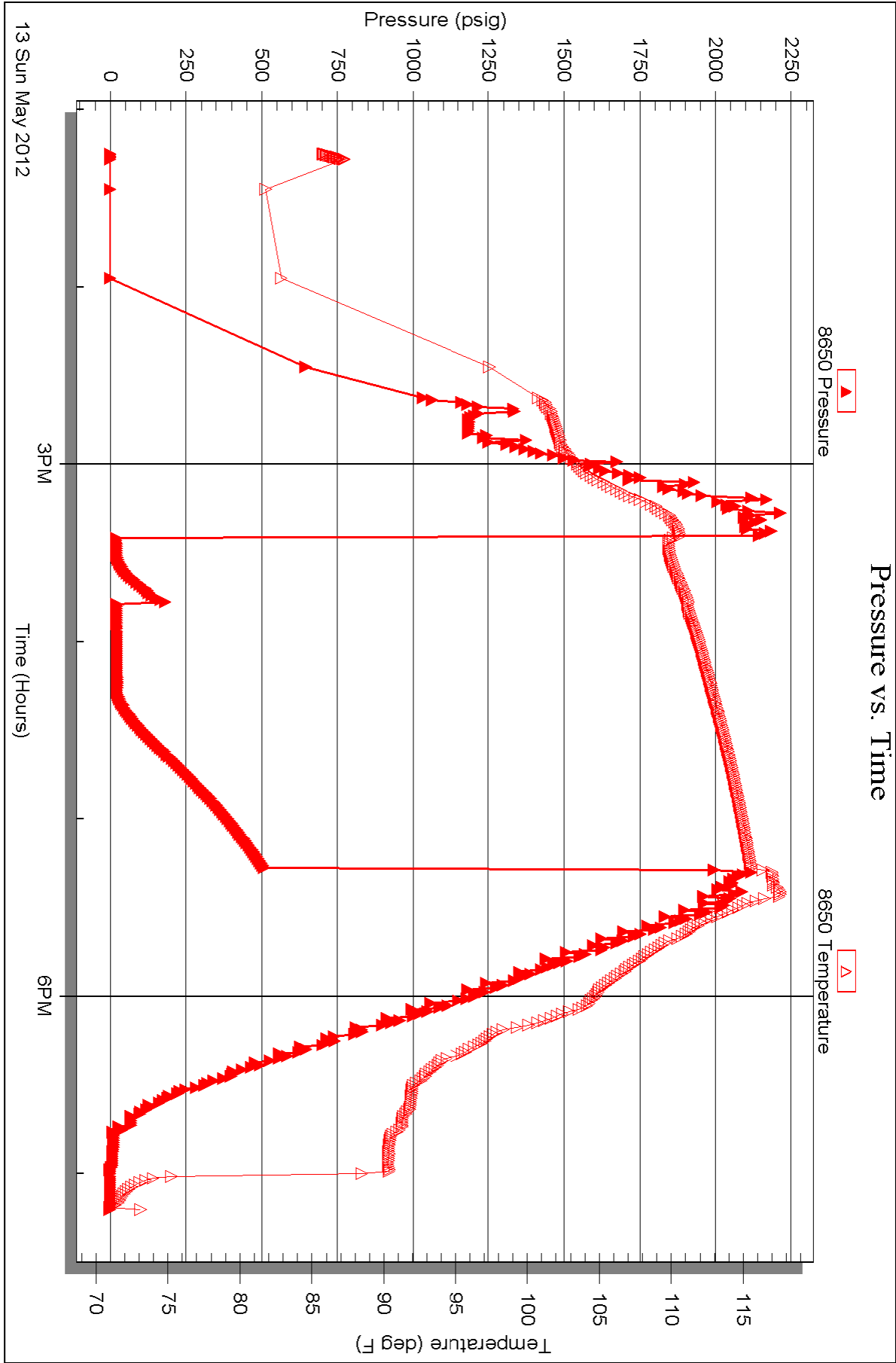


Serial #: 8650

Outside Larson Engineering Inc.

Leroy 1-13

DST Test Number: 7





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Larson Engineering Inc.

562 W State RD 4  
Olmitz KS 67564-8561

ATTN: Bob Lewellyn

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

**Leroy 1-13**

Job Ticket: 45966

**DST#: 8**

Test Start: 2012.05.15 @ 06:30:00

### GENERAL INFORMATION:

Formation: **Pawnee/Fort Scott/Jo**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:38:40

Time Test Ended: 12:38:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Jace McKinney

Unit No: 46

**Interval: 4492.00 ft (KB) To 4650.00 ft (KB) (TVD)**

Reference Elevations: 2811.00 ft (KB)

Total Depth: 4650.00 ft (KB) (TVD)

2804.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8675 Inside**

Press @ Run Depth: 45.31 psig @ 4493.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.05.15

End Date:

2012.05.15

Last Calib.: 2012.05.15

Start Time: 06:30:01

End Time:

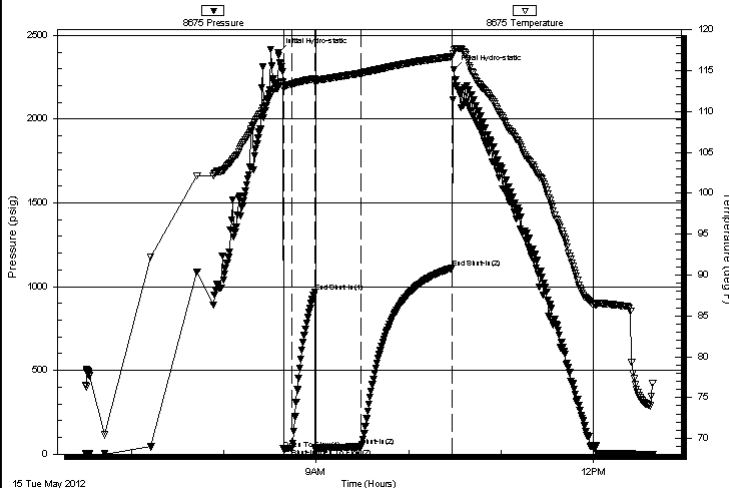
12:38:55

Time On Btm: 2012.05.15 @ 08:35:25

Time Off Btm: 2012.05.15 @ 10:29:40

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

Pressure vs. Time



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2397.84	113.02	Initial Hydro-static
4	31.24	112.85	Open To Flow (1)
9	36.27	113.33	Shut-In (1)
24	966.27	114.01	End Shut-In (1)
24	36.36	113.56	Open To Flow (2)
54	45.31	114.67	Shut-In (2)
113	1111.85	116.70	End Shut-In (2)
115	2296.22	117.50	Final Hydro-static

### Recovery

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

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

### FLUID SUMMARY

Larson Engineering Inc.

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

562 W State RD 4  
Olmitz KS 67564-8561

**Leroy 1-13**

Job Ticket: 45966

**DST#: 8**

ATTN: Bob Lew ellyn

Test Start: 2012.05.15 @ 06:30:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 57.00 sec/qt

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

Resistivity: ohm.m

Salinity: 2900.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	100% Mud	0.148

Total Length: 30.00 ft

Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

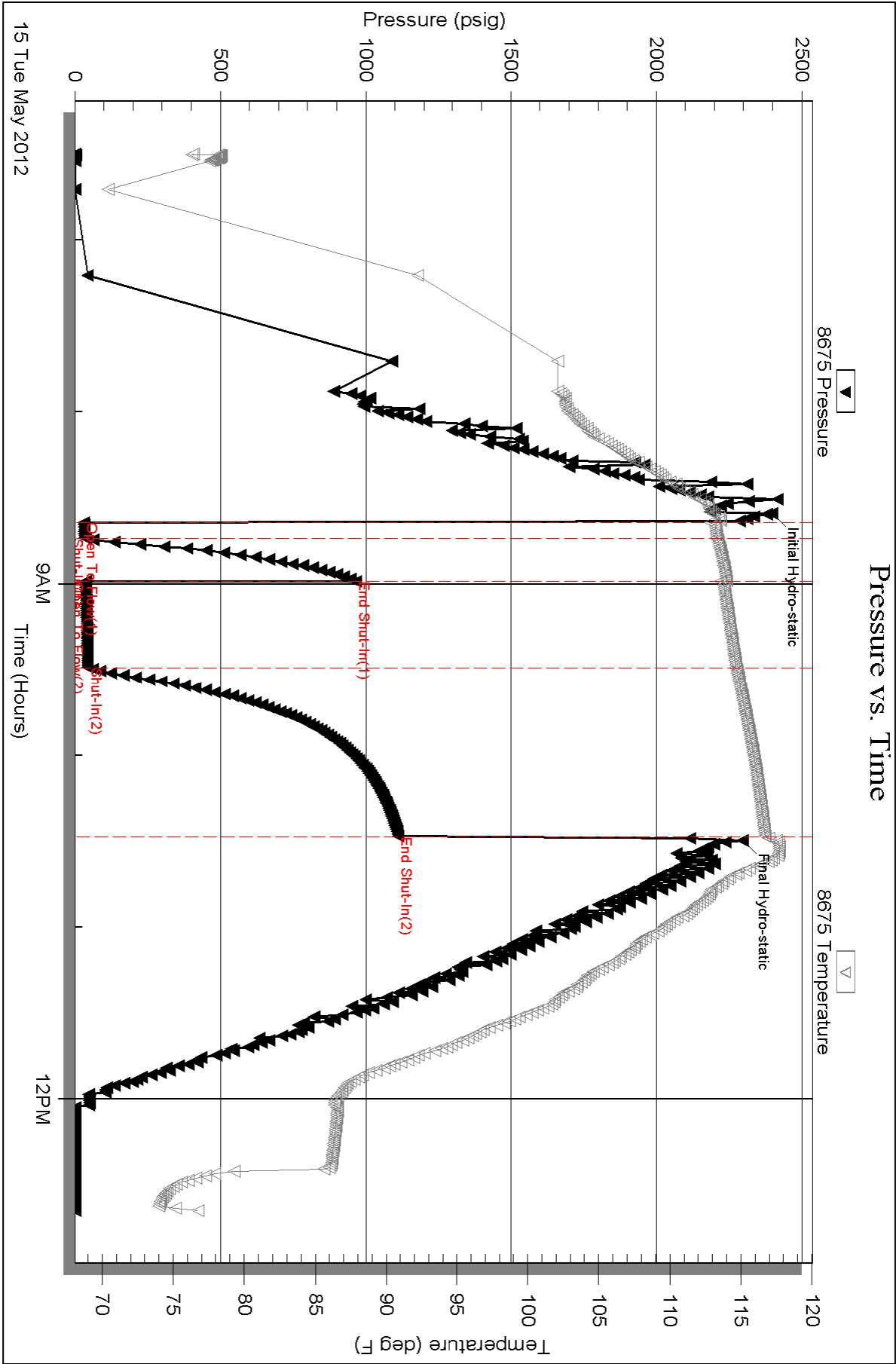
Serial #: 8675

Inside

Larson Engineering Inc.

Leroy 1-13

DST Test Number: 8



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  
Thomas E. Wright, Commissioner

Sam Brownback, Governor

August 29, 2012

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

Re: ACO1  
API 15-101-22368-00-00  
Leroy 1-13  
SE/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