Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1072479

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 # 3842
Name: Larson Engineering, Inc. dba Larson Operating Company
Address 1: 562 W STATE RD 4
Address 2:
City: OLMITZ State: KS Zip: 67564 + 8561
Contact Person: Thomas Larson
Phone: (620) 653-7368
CONTRACTOR: License # 33935
Name: H. D. Drilling, LLC
Wellsite Geologist: Bob Lewellyn
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 #:

10/15/2011	10/28/2011	10/28/2011
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22316-00-00
Spot Description:
E2 - SE - SW - SE Sec. 3 Twp. 18 S. R. 28 ☐ East ☑ West
330 Feet from ☐ North / ☑ South Line of Section
1504 Feet from ☑ East / ☐ West Line of Section

Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☑ SE ☐ SW

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Lane
Lease Name: McWhirter 'E' Well #: 1-3
Field Name:
Producing Formation: none
Elevation: Ground: 2721 Kelly Bushing: 2728
Total Vertical Depth: 4661 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 255 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: 26500 ppm Fluid volume: 900 bbls
Dewatering method used: Evaporated

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: 02/10/2012
☑ **Confidential Release Date:** 02/09/2014
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 02/10/2012

1072479

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: McWhirter 'E' Well #: 1-3

Sec. 3 Twp. 18 S. R. 28 ☐ East ☑ West County: Lane

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Dual Induction
Dual Comp Porosity
Microresistivity

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name: Attached Top: Attached Datum: Attached

CASING RECORD ☐ New ☑ 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
Surface	12.25	8.625	20	255	Class A	175	2% gel, 3% CC

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ 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: ☐ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: ☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION: ☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)* ☑ Other *(Specify)* D & A

PRODUCTION INTERVAL:

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	McWhirter 'E' 1-3
Doc ID	1072479

Tops

Name	Top	Datum
Anhydrite	2112	+616
Base Angydrite	2142	+586
Heebner Sh	3938	-1210
Lansing-KC	3978	-1250
Stark Sh	4239	-1511
Base KC	4321	-1593
Marmaton	4342	-1614
Altamont	4342	-1614
Pawnee	4438	-1710
Fort Scott	4491	-1763
Cherokee	4515	-1787
Mississippian	4599	-1871

ALLIED CEMENTING CO., LLC. 037401

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Great Bend, KS

DATE 10-15-11	SEC. 7	TWP. 15	RANGE 25	CALLED OUT	ON LOCATION	JOB START 6:45pm	JOB FINISH 9:15pm
LEASE Mc Wherter	WELL # 1-3	LOCATION Ogden, KS 3 West 1 South 1 East 1/2 South				COUNTY Riley	STATE KS
OLD OR NEW (Circle one)							

CONTRACTOR H.D. Drilling
TYPE OF JOB Surface
HOLE SIZE 12 1/4 T.D. 258
CASING SIZE 8 5/8 DEPTH
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 15 ft.
PERFS.
DISPLACEMENT

OWNER Larson Engineering

CEMENT
AMOUNT ORDERED 170 sx Class A
3% cc 2% gel

EQUIPMENT
PUMP TRUCK # 398 CEMENTER Greg A.
HELPER Shane K
BULK TRUCK # 344 DRIVER Jeff P.
BULK TRUCK # DRIVER

COMMON	170	@ 16.25	2,762.50
POZMIX		@	
GEL	3	@ 21.25	63.75
CHLORIDE	6	@ 58.20	349.20
ASC		@	
HANDLING	179	@ 2.25	402.75
MILEAGE	179 x 20 x .11		393.80
		TOTAL	3,972.00

REMARKS:
Pipe on bottom. Break circulation. Rig up to hookup cement. Pump mix 170 sks class A 3% cc 2% gel. Start displacement. Displace with fresh water. Shut in. Cement did circulate. Plug down @ 9:15 pm

SERVICE
DEPTH OF JOB
PUMP TRUCK CHARGE 1125.00
EXTRA FOOTAGE @
MILEAGE HVM 40 @ 7.00 280.00
MANIFOLD @
@
TOTAL 1405.00

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT
@
@
@
@
@
@
TOTAL

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

SALES TAX (If Any)
TOTAL CHARGES 5377.00
DISCOUNT 70% 21% 1558.47 IF PAID IN 30 DAYS
3818.53

PRINTED NAME Lenard Treaster

SIGNATURE Lenard Treaster

ALLIED CEMENTING CO., LLC. 037409

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT: Great Bend, KS

DATE 10-29-11	SEC. 3	TWP. 18	RANGE 28	CALLED OUT	ON LOCATION	JOB START 11:00 AM	JOB FINISH 2:00 PM
LEASE McCullough	WELL# 1-3	LOCATION Dighton, KS 3 East North 1/2 East entrance				COUNTY Lane	STATE KS
OLD OR (NEW) (Circle one)							

CONTRACTOR HD Drilling
TYPE OF JOB Rotary Plug
HOLE SIZE 77/8 T.D. 4680
CASING SIZE DEPTH
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG.
PERFS.
DISPLACEMENT

OWNER Larson Engineering

CEMENT
AMOUNT ORDERED 280 sks 60-40 poz 4% gel 1/4# flosel

EQUIPMENT

PUMP TRUCK CEMENTER Greg K
398 HELPER Shane K
BULK TRUCK
344-190 DRIVER Jim
BULK TRUCK
DRIVER

REMARKS:

Mix 50 sks @ 2145 ft.
Mix 80 sks @ 1350 ft.
Mix 50 sks @ 640 ft.
Mix 50 sks @ 260 ft.
Mix 40 sks @ 60 ft.
Mix 30 sks in Rathole

COMMON	168	@ 16.25	2730.00
POZMIX	112	@ 8.50	952.00
GEL	10	@ 21.25	212.50
CHLORIDE		@	
ASC		@	
Flo Seal	70	@ 2.70	189.00
		@	
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	293	@ 2.25	659.25
MILEAGE	293 x 20 x .11		644.60
		TOTAL	5387.35

SERVICE

DEPTH OF JOB	2145		
PUMP TRUCK CHARGE			1250.00
EXTRA FOOTAGE		@	
MILEAGE	1 Unit 40	@ 7.00	280.00
MANIFOLD		@	
		@	
		@	
		TOTAL	1530.00

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	
	TOTAL	

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

SALES TAX (If Any)
TOTAL CHARGES 6,917.35
DISCOUNT 70% 20% 1845.11 IF PAID IN 30 DAYS
5071.58

PRINTED NAME LeWayne Tresner

SIGNATURE

Thank You!

Robert C. Lewellyn

Consulting Petroleum Geologist

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

GEOLOGICAL REPORT

Larson Engineering, Inc.
No. 1-3 McWhirter "E"
330' FSL & 1504' FEL Sec. 3-18S-28W
Lane County, Kansas

CONTRACTOR:	H D Drilling, LLC Rig 3
SPUDDED:	October 16, 2011
DRILLING COMPLETED:	October 29, 2011
SURFACE CASING:	8 5/8" @ 255 KBM/175 sx.
ELECTRIC LOGS:	DIL CNL/CDL MEL
ELEVATIONS:	2728 KB 2721 GL

FORMATION TOPS: (Electric Log)

Anhydrite	2112 (+ 616)
Base Anhydrite	2142 (+ 586)
Heebner Shale	3938 (-1210)
Lansing-Kansas City Group	3978 (-1250)
Muncie Creek Shale	4142 (-1414)
Stark Shale	4239 (-1511)
Hushpuckney Shale	4271 (-1543)
Base Kansas City	4321 (-1593)
Marmaton	4342 (-1614)
Altamont	4368 (-1640)
Pawnee	4438 (-1710)
Myrick Station	4461 (-1733)
Fort Scott	4491 (-1763)
Cherokee	4515 (-1787)
Cherokee Sand	4569 (-1841)
Mississippian	4599 (-1871)
Electric Log Total Depth	4668 (-1933)

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:

3983-3987 & 3993-3995 (A Zone)

Limestone, buff , some cream, dense and chalky, some finely crystalline with scattered poor to fair intercrystalline porosity, no show of oil.

4012-4022 (B Zone)

Limestone, cream to buff, dense to finely crystalline and chalky, partly fossiliferous, scattered poor to fair intercrystalline and interfossil porosity, no show of oil.

4032-4056 (C/D Zone)

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

4058-4072 (E Zone)

Limestone, cream to buff, dense to finely crystalline, some cream chalky, slightly fossiliferous, trace of poor intercrystalline and interfossil porosity, no show of oil.

4074-4086 (F Zone)

Limestone, buff to tan, dense to finely crystalline and chalky, slightly oolitic, scattered poor intercrystalline and interoolitic porosity, no show of oil.

4096-4110 (G Zone)

Limestone, cream to buff, fine to medium crystalline and partly oolitic, chalky in part, scattered poorly developed ooliticastic porosity with poor intercrystalline porosity, trace of scattered dead stain, no show of live oil.

4156-4162 (H Zone)

Limestone, cream to buff, dense to finely crystalline, some medium crystalline, fossiliferous and partly oolitic, poor to fair intercrystalline porosity, some poor to fair interfossil and interoolitic porosity, trace of very poor spotted stain with a trace of scattered dead stain, trace of free oil with rainbow show of free oil, faint odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 1 4149-4176
5-15-15-30; surface blow throughout first flow period; blow did not return on second flow period. Recovered five feet of mud with oil spots in the tool. ISIP 1184# FSIP 1163# IFP 16-18# FFP 19-23# IHP 2040# FHP 2038# BHT 114 degrees.

4191-4194 & 4201-4205 (I Zone)

Limestone, cream to buff, finely crystalline and partly oolitic, scattered poor intercrystalline porosity with poor ooliticastic porosity, scattered dead stain, scattered very poor live stain, very slight show of

free oil, faint questionable odor, poor fluorescence, poor cut.

Drill Stem Test No. 2 4186-4222
5-15-30-60; half-inch blow on first flow period; built to 3 ½ inch blow on second flow period. Recovered 150 feet of oil spotted mud (100% mud). ISIP 1045# FSIP 1002# IFP 20-33 FFP 36-88# IHP 2059# FHP 2046# BHT 117 degrees.

4222-4229 (J Zone)

Limestone, cream to buff, some gray, finely crystalline and oolitic, good ooliticastic porosity, one piece with very slight show of free oil, porosity 99% barren, no show of oil.

4253-4271 (K Zone)

Limestone, buff to tan, dense to finely crystalline, partly fossiliferous, slightly oolitic, poor to fair intercrystalline and small vug porosity, poor spotted stain, show of free oil, fair odor, fair fluorescence, fair cut.

Drill Stem Test No. 3 4247-4265
5-15-15-30; weak surface blow on first flow period; blow did not return on second flow period. Recovered five feet of mud. ISIP 194# FSIP 601# IFP 17-17# FFP 16-18# IHP 2110# FHP 2112# BHT 113 degrees.

4273-4277 (Middle Creek Zone)

Limestone, buff to tan, dense to finely crystalline, partly fossiliferous, poor to fair scattered vugular porosity, some fair intercrystalline porosity, poor to fair spotted stain, some stain on fracture faces of dense lime, fair show of free oil, good odor, fair fluorescence, fair cut.

4280-4292 (Upper L Zone)

Limestone, buff to tan, dense to finely crystalline, partly fossiliferous, poor to fair scattered vugular and intercrystalline porosity, poor to fair spotted stain, slight show of free oil, fair odor, poor fluorescence, fair to good cut

Drill Stem Test No. 4 4276-4291.
5-15-30-60; one-inch blow on first flow period; blow built to four-inch blow on second flow period. Recovered 50 feet of gassy oil cut mud (3% gas, 25% oil, 72% mud). ISIP 998# FSIP 935# IFP 16-20# FFP 19-35# IHP 2150# FHP 2127# BHT 118 degrees.

4292-4302 (Middle L Zone)

Limestone, buff to tan, some medium gray, dense to finely crystalline, partly fossiliferous, mealy in part, scattered poor to fair vugular and intercrystalline porosity, poor to fair spotted stain, fair to good show of free oil, faint to fair odor, fair fluorescence, fair to good cut.

Drill Stem Test No. 5 4296-4302
5-15-30-60; ¾ inch blow on first flow period; blow increased to four inches on second flow period. Recovered 75 feet of oil cut mud (45% oil, 55% mud). ISIP 237# FSIP 196# IFP 17-23# FFP 22-38#

IHP 2159# FHP 2134# BHT 116 degrees.

4392-4312 (Lower L Zone)

Limestone, cream to buff, some gray, dense to finely crystalline, some scattered chalky, slightly fossiliferous, partly tight with scattered poor intercrystalline and small vug porosity, poor to fair scattered spotted stain, show of free oil, faint to fair odor, fair fluorescence, fair cut.

Drill Stem Test No. 6 4302-4312
5-15-15-30; surface blow throughout first flow period; blow did not return on second flow. Recovered 15 feet of oil spotted mud (100% mud). ISIP 1080# FSIP 1066# IFP 13-18# FFP 18-26# IHP 2147# FHP 2134# BHT 113 degrees.

4323-4338 (Pleasanton Zone)

Limestone, buff to tan, some scattered brown, dense to finely crystalline and partly chalky, scattered poor intercrystalline porosity, few pieces with poor spotted stain, no free oil, no odor, no fluorescence, no cut.

4342-4348 (Marmaton)

Limestone, tan to brown, dense to finely crystalline, few pieces with fair spotted stain, very slight show of free oil, faint fleeting odor, poor fluorescence, poor cut.

4394-4397 (Altamont "A" Zone)

Limestone, cream to buff, trace of brown, dense to finely crystalline, slightly fossiliferous, scattered poor to fair intercrystalline and small vug porosity, scattered fair spotted stain, show of free oil, faint odor, poor fluorescence, poor to fair cut.

Drill Stem Test No. 7 4324-4430
6-15-15-30; quarter-inch blow on first flow period; blow did not return on second flow period. Recovered 15 feet of mud with a few spots of oil in the tool. ISIP 148# FSIP 218# IFP 26-27# FFP 27-29# IHP 2233# FHP 2185# BHT N/A

4438-4443 (Pawnee Zone)

Limestone, buff to tan and brown, dense, some scattered finely crystalline with poor intercrystalline porosity, trace of light spotted stain, trace of free oil, faint fleeting odor, poor fluorescence, poor cut.

4461-4465 (Myrick Station Zone)

Limestone, tan to brown, dense, some finely crystalline with very poor intercrystalline porosity, few pieces with poor to fair spotted stain, rare trace of free oil, questionable odor, poor fluorescence, poor cut.

4491-4497 (Upper Fort Scott Zone)

Limestone, buff to tan, dense to finely crystallline, slightly fossiliferous, section is mostly tight with no

shows of oil.

4507-4515 (Lower Fort Scott Zone)

Limestone, buff to tan, some brown, dense to finely crystalline, trace of oolitic, scattered poor intercrystalline porosity, poor spotted stain, very slight show of free oil, faint fleeting odor, poor fluorescence, fair cut.

4569-4580 & 4583-4596 (Cherokee Sand Zone)

Sand, calcareous, very fine grained, subround, well sorted and well cemented, sand is mostly tight with 10% friable with poor intergranular porosity, poor to fair spotted stain, fair show of free oil, good odor, poor to fair fluorescence, fair cut. Lower portion of sand becomes white, mostly tight, and barren, with a fair to strong influx of chert, white to light gray, fresh, opaque to sub-translucent, no show of oil.

Drill Stem Test No. 8 4425-4585
5-15-15-30; one-inch blow throughout first flow; blow did not return on second flow period. Recovered 30 feet of mud. ISIP 903# FSIP 983# IFP 34-40# FFP 43-47# IHP 2322# FHP 2306# BHT 114 degrees.

Drill Stem Test No. 9 4265-4300
Packer failed, attempted reset, failed

Drill Stem Test No. 10 4224-4444
5-15-30-60; blow built to 9 inches on first flow period, no blowback; blow off bottom of bucket in 13 minutes, 2 ½ inch blowback. Recovered 60 feet of weak gas in pipe and 420 feet of fluid: 180 feet of gassy oil cut mud (10% gas, 10% oil, 80% mud), 240 feet of gassy oil cut mud (20% gas, 15% oil, 65% mud). ISIP 1297# FSIP 1264# IFP 169-210# FFP 218-299# IHP 2377# FHP 2304# BHT 120 degrees.

4599-4626 (Mississippian Zone)

Limestone, slightly dolomitic, buff to tan, dense to finely crystalline, slightly chalky, some scattered poor intercrystalline and vugular porosity, no show of oil.

4626-4661 (Mississippian Zone)

Dolomitic limestone and dolomite, buff to tan, fine to medium crystalline, some scattered dense, poor scattered intercrystalline porosity, no show of oil.

4661 Electric Log Total Depth

Drill stem test shows were judged insufficient in quality and quantity to result in a productive well that will recover the costs of drilling and completing the No. 1-3 McWhirter "E". It was therefore recommended and permission granted to plug the the well.

Respectfully submitted,

Robert C. Lewellyn, Petroleum Geologist

STATE: KANSAS
COUNTY: LANE
BLOCK:
SEC.: 3
T.: 18S
R.: 28W
ALTITUDE: 2728 KB
PRODUCTION: D & A

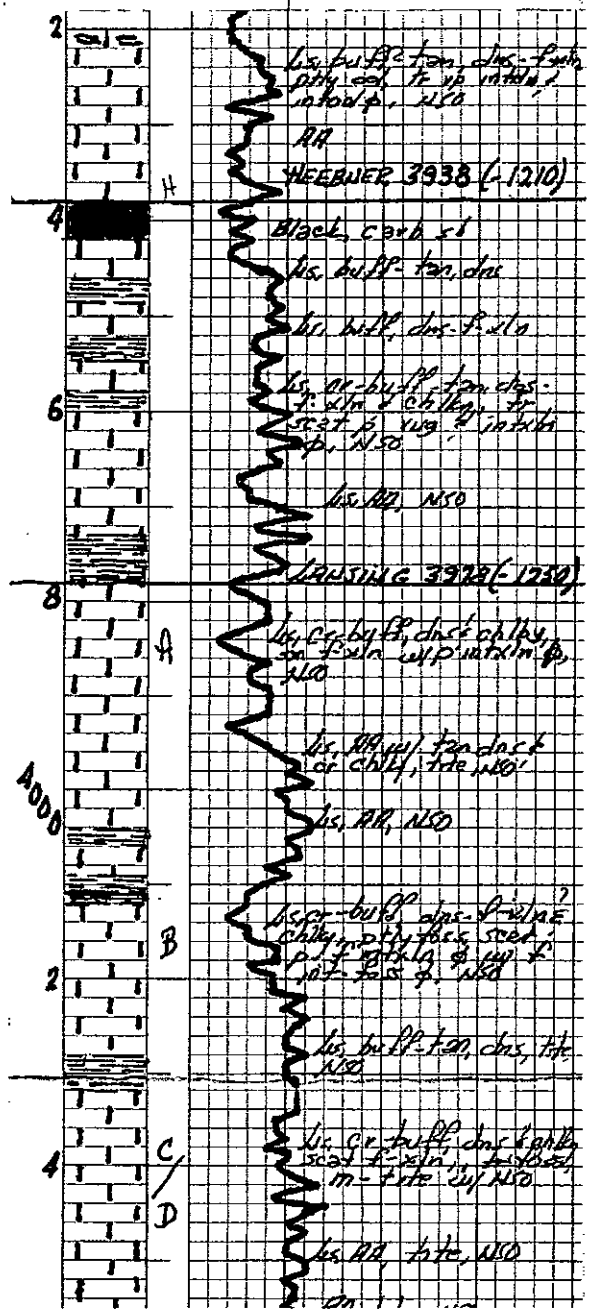
COMPANY: LARSON ENGINEERING Inc.
FARM: MC WHIRTER "E" WELL NO. 1-3
SURVEY: 330' FSL & 1504' FEL

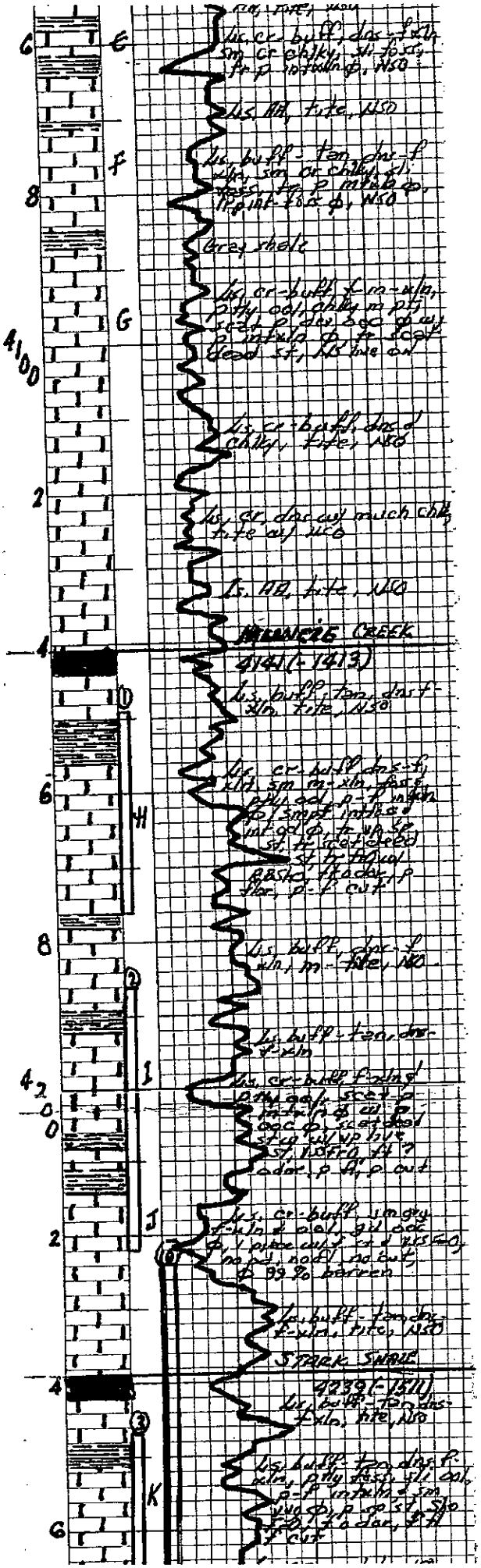
TOTAL DEPTH: 4660
CONTRACTOR: HD Drilling Rig 3
COMMENCED: 10-15-2011
COMPLETED: 10-29-2011
REMARKS:

Robert C. Lewellyn - Geol

CASING RECORD

8 5/8" @ 255 / 175 sx




E
F
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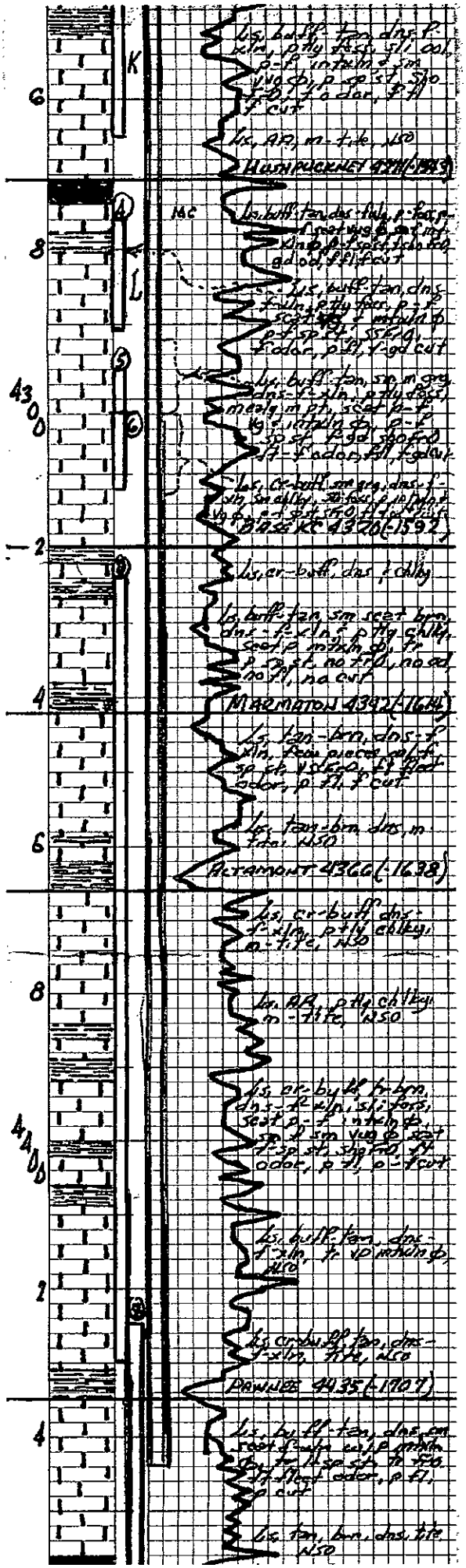
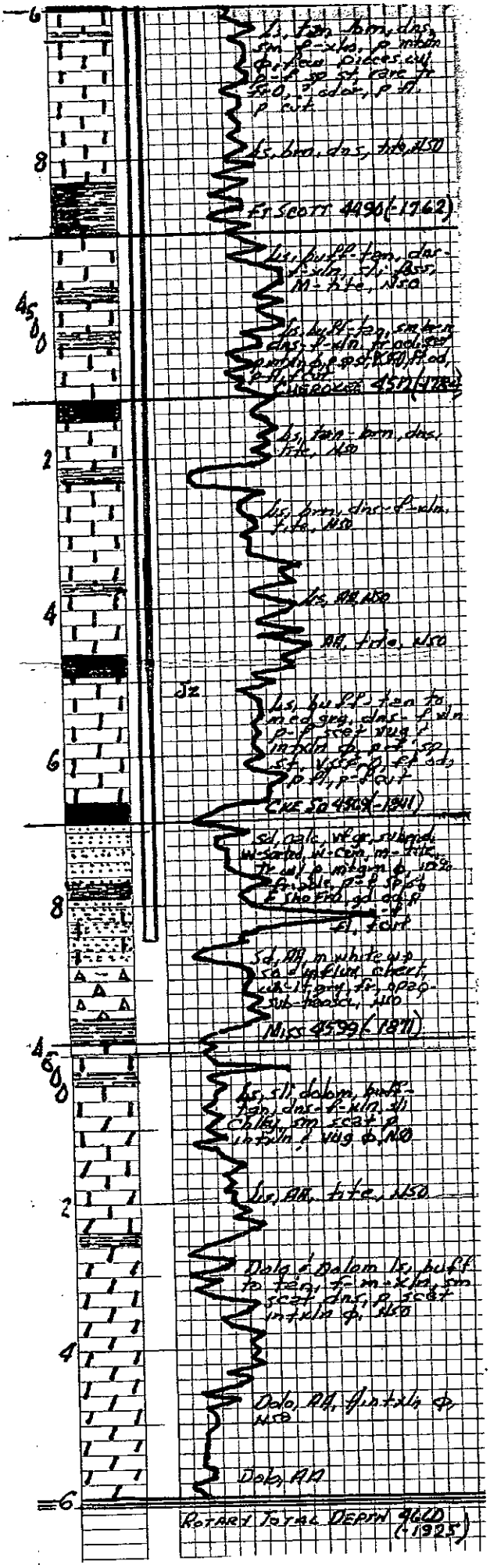
MUNCIE CREEK
STRAIN SHALE


K
L
6
8
4300
2
4
6
8
4400
2
4
MC
Hushpuckney 4378(-1584)
Base KC 4520(-1592)
Marmaton 4392(-1614)
Altamont 4360(-1638)
Pawnee 4435(-1707)


Ls, tan, hom, dns, sm f-xln, p mbn ø, few pieces cut p-f ss, rare ft sh, dol, p fl, p cut
Ls, brn, dns, tite, NSO
Ft Scott 4490 (-1762)
Ls, buff-tan, dns-f xln, fr bss, M-tite, NSO
Ls, buff-tan, earthy dns, f-xln, fr oolsh bnd, sm pp vug ø, NSO, flod, p fl, p cut
Cherokee 4571 (-1843)
Ls, tan-brn, dns, tite, NSO
Ls, brn, dns-f-xln, tite, NSO
BB, tite, NSO
Jz
Ls, buff, tan to med gry, dns-f xln, p-f scat vug ø, intxln sh, pet sp, sl vstr fl, ep cut, p fl, p cut
Cue Sd 4809 (-1941)
Sd, calc, vf gr, subrnd, w-sorted, w-cem, m-tite, tr cal & mbg in ø, NOS
Fr-sli ø, p fl
Shale, gd cut fl
Cl, scat
Sd, BB, m white w p, sa dol lmst, chert, sh-lt gry, fr, appo sub-hedric, NSO
Miss 4899 (-1871)
Ls, sli dolom, buff-tan, dns-f-xln, sli Chtky, sm scat p intxln & vug ø, NSO
Ls, BB, tite, NSO
Dolo & Dolom ls, buff to tan, f-m-xln, sm scat dns, p scat intxln ø, NSO
Dolo, BB, f-intxln ø, NSO
Dolo, BB
Rotary Total Depth 9600 (-1925)

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44458 **DST#: 1**

Test Start: 2011.10.21 @ 23:30:00

GENERAL INFORMATION:

Formation: **LKC 'H'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:23:20
Time Test Ended: 04:36:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Chuck Smith
Unit No: 37

Interval: 4149.00 ft (KB) To 4176.00 ft (KB) (TVD)
Total Depth: 4176.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

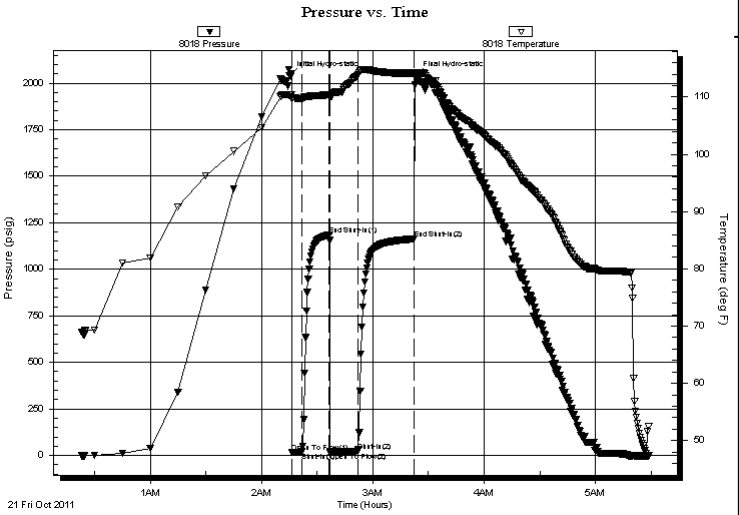
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 22.86 psig @ 4153.00 ft (KB)
Start Date: 2011.10.21 End Date: 2011.10.21
Start Time: 00:23:02 End Time: 05:29:00

Capacity: 8000.00 psig
Last Calib.: 2011.10.22
Time On Btm: 2011.10.21 @ 02:15:00
Time Off Btm: 2011.10.21 @ 03:23:00

TEST COMMENT: Surface blow .
No return.
No blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2040.10	110.33	Initial Hydro-static
2	16.23	109.67	Open To Flow (1)
7	18.21	109.72	Shut-In(1)
22	1183.87	110.41	End Shut-In(1)
22	18.70	109.82	Open To Flow (2)
37	22.86	113.77	Shut-In(2)
68	1162.90	114.17	End Shut-In(2)
68	2038.04	114.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	RW: @ Degrees F = PPM	0.00
5.00	M 100m Oil spots in tool.	0.02

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44458 **DST#: 1**

Test Start: 2011.10.21 @ 23:30:00

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:	50.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.80 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2100.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	RW: @ Degrees F = PPM	0.000
5.00	M 100m Oil spots in tool.	0.025

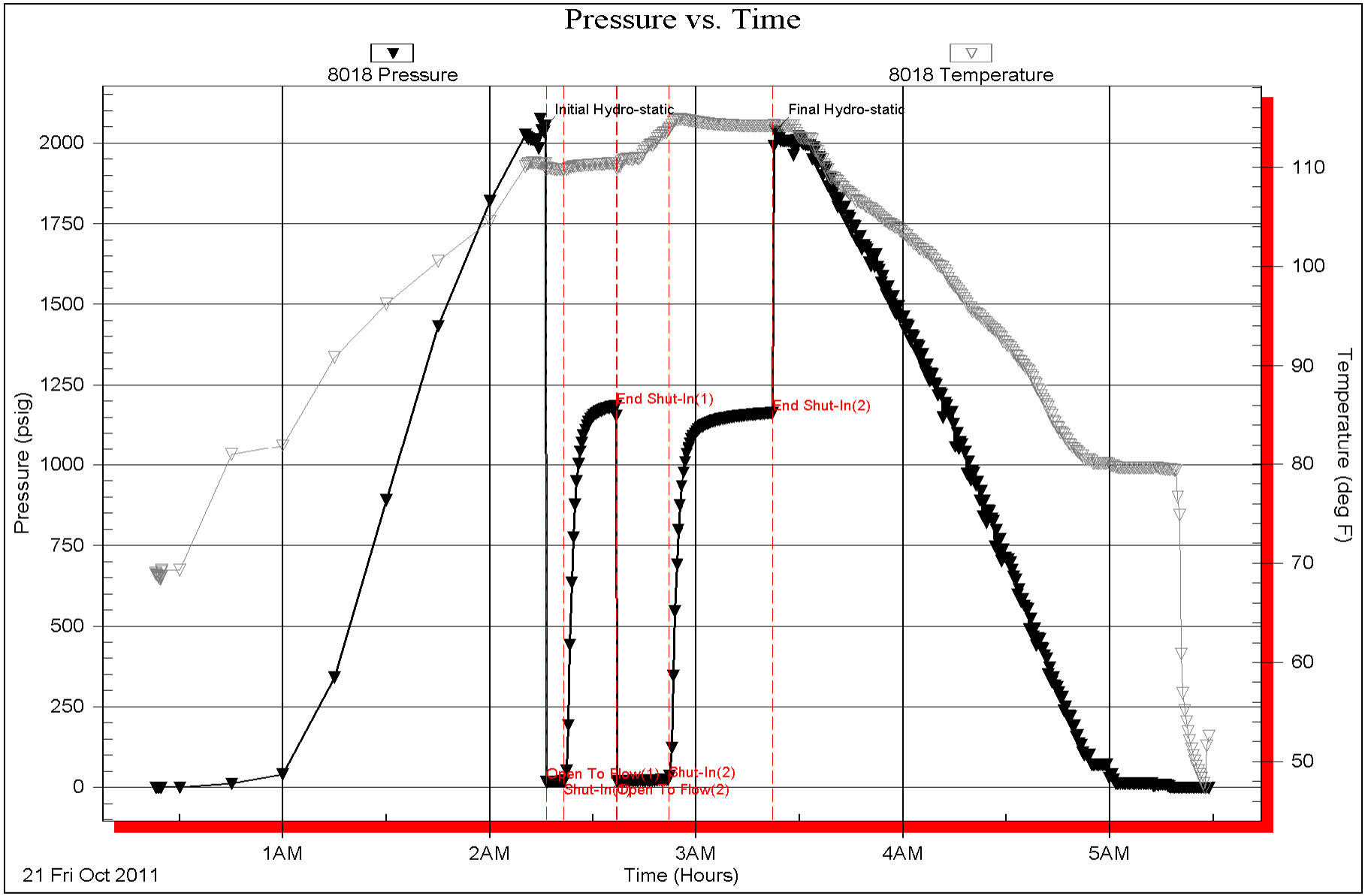
Total Length: 5.00 ft Total Volume: 0.025 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 44458 Printed: 2011.10.22 @ 08:56:27

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44459 **DST#: 2**

Test Start: 2011.10.22 @ 20:01:00

GENERAL INFORMATION:

Formation: **LKC 'I'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:57:10
Time Test Ended: 01:57:20

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4186.00 ft (KB) To 4222.00 ft (KB) (TVD)
Total Depth: 4222.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

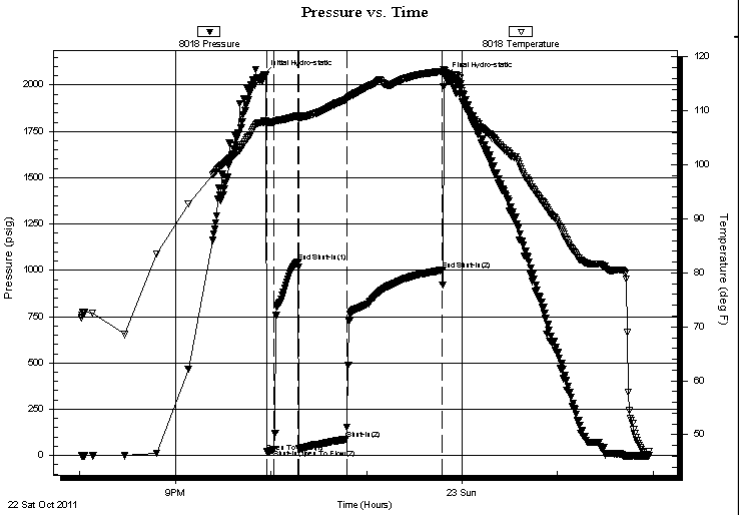
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 88.18 psig @ 4194.00 ft (KB)
Start Date: 2011.10.22 End Date: 2011.10.23
Start Time: 20:01:02 End Time: 01:57:20

Capacity: 8000.00 psig
Last Calib.: 2011.10.23
Time On Btm: 2011.10.22 @ 21:55:20
Time Off Btm: 2011.10.22 @ 23:49:10

TEST COMMENT: 1/2" Blow .
No return.
3 1/2" Blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2058.48	107.96	Initial Hydro-static
2	20.08	107.59	Open To Flow (1)
7	33.14	107.89	Shut-In(1)
22	1045.41	109.09	End Shut-In(1)
22	35.84	108.61	Open To Flow (2)
52	88.18	112.13	Shut-In(2)
113	1001.92	117.29	End Shut-In(2)
114	2045.68	117.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	RW: @ Degrees F = PPM	0.00
150.00	OSM 100m	0.74

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44459 **DST#: 2**

Test Start: 2011.10.22 @ 20:01:00

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:	bbl		
Water Loss:	7.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2200.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	RW: @ Degrees F = PPM	0.000
150.00	OSM 100m	0.738

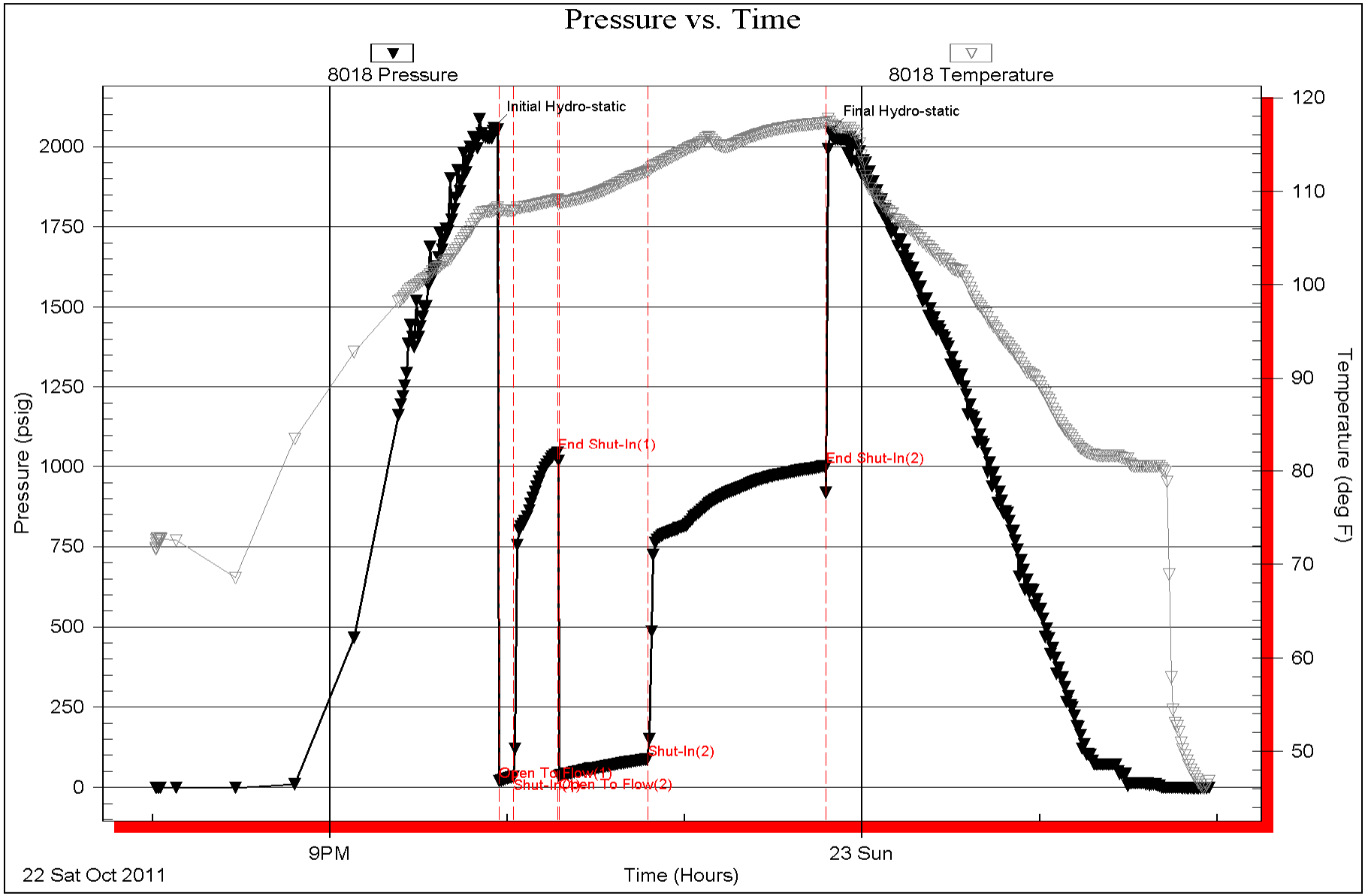
Total Length: 150.00 ft Total Volume: 0.738 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 44459 Printed: 2011.10.23 @ 09:59:01

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44460 **DST#: 3**

Test Start: 2011.10.23 @ 13:43:00

GENERAL INFORMATION:

Formation: **LKC 'K'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:32:10
Time Test Ended: 18:28:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4247.00 ft (KB) To 4265.00 ft (KB) (TVD)
Total Depth: 4265.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

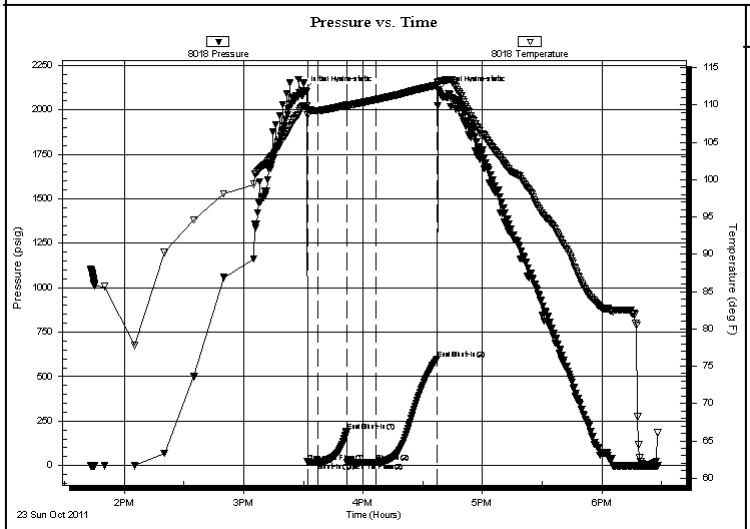
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 17.99 psig @ 4251.00 ft (KB)
Start Date: 2011.10.23 End Date: 2011.10.23
Start Time: 13:43:02 End Time: 18:28:00

Capacity: 8000.00 psig
Last Calib.: 2011.10.23
Time On Btm: 2011.10.23 @ 15:30:20
Time Off Btm: 2011.10.23 @ 16:37:40

TEST COMMENT: Surface blow
No return.
No blow .
No.return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2110.12	109.80	Initial Hydro-static
2	16.70	109.15	Open To Flow (1)
7	17.21	109.21	Shut-In(1)
22	194.11	109.98	End Shut-In(1)
22	16.02	109.82	Open To Flow (2)
37	17.99	110.70	Shut-In(2)
67	600.66	112.63	End Shut-In(2)
68	2111.80	113.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	M 100m	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44460 **DST#: 3**

Test Start: 2011.10.23 @ 13:43:00

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:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.20 in³	Gas Cushion Type:			
Resistivity:	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	M 100m	0.025

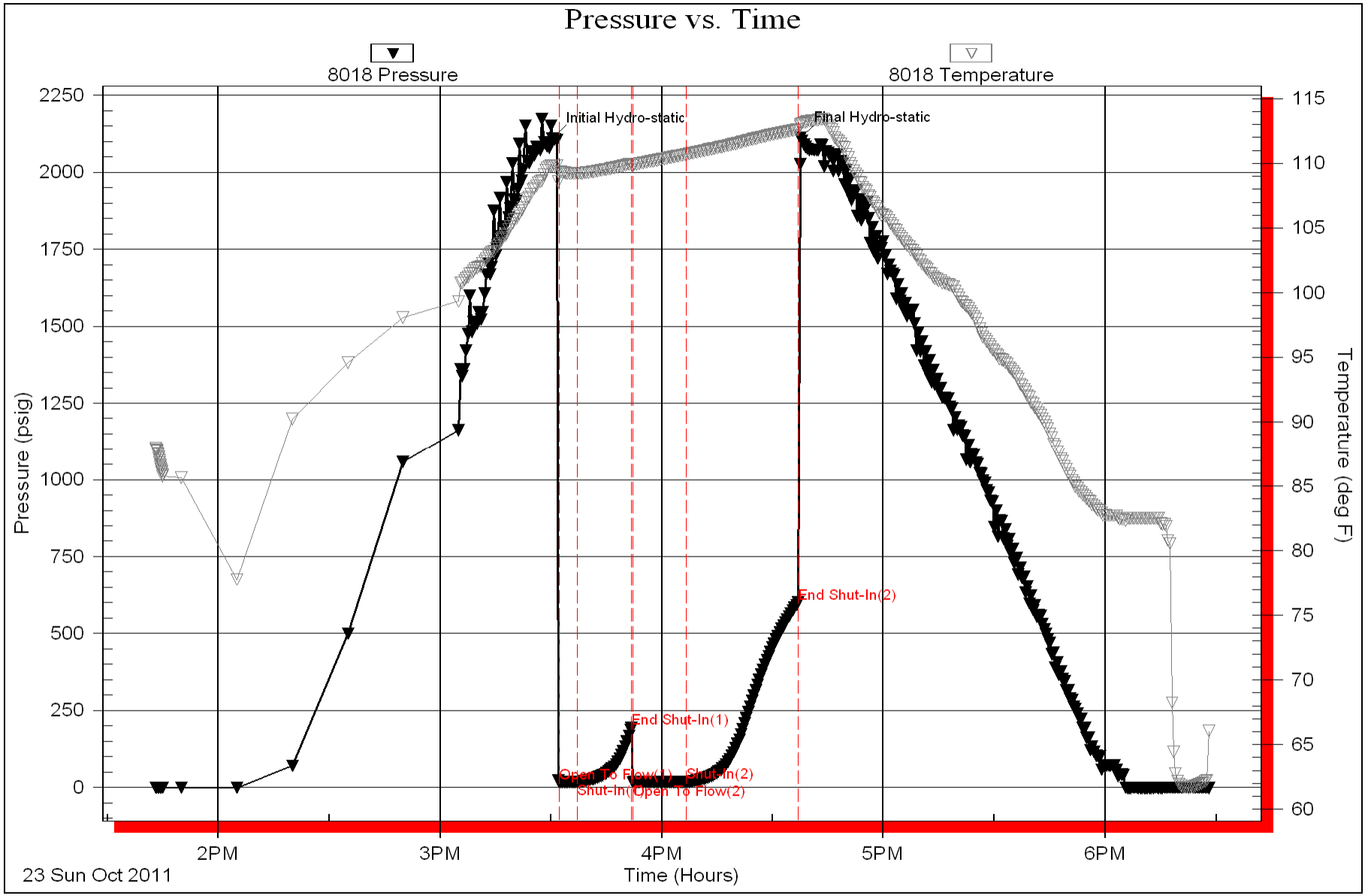
Total Length: 5.00 ft Total Volume: 0.025 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 44460 Printed: 2011.10.24 @ 09:07:54

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lew ellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44461 **DST#: 4**

Test Start: 2011.10.24 @ 05:25:00

GENERAL INFORMATION:

Formation:
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:52:30
Time Test Ended: 10:30:20

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4276.00 ft (KB) To 4291.00 ft (KB) (TVD)
Total Depth: 4291.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

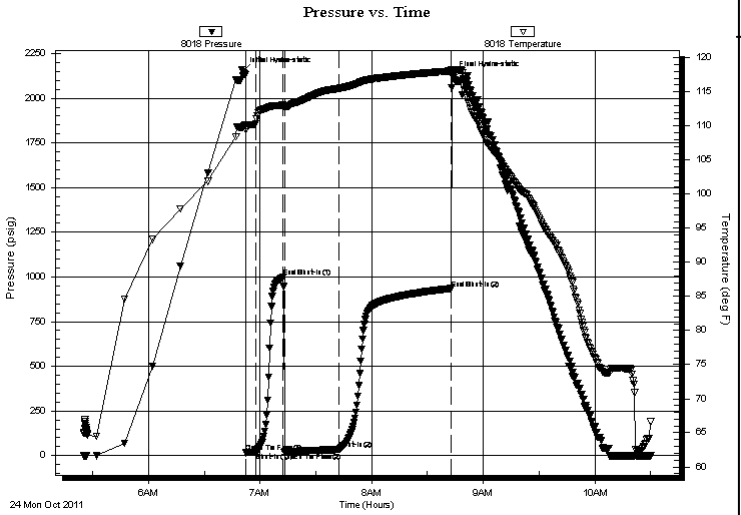
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 34.51 psig @ 4280.00 ft (KB)
Start Date: 2011.10.24 End Date: 2011.10.24
Start Time: 05:25:02 End Time: 10:30:20

Capacity: 8000.00 psig
Last Calib.: 2011.10.24
Time On Btm: 2011.10.24 @ 06:50:40
Time Off Btm: 2011.10.24 @ 08:43:20

TEST COMMENT: 1" Blow .
No return.
4" Blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2149.57	109.79	Initial Hydro-static
2	16.14	109.47	Open To Flow (1)
7	19.60	110.34	Shut-In(1)
22	998.23	113.04	End Shut-In(1)
23	19.16	112.67	Open To Flow (2)
52	34.51	115.50	Shut-In(2)
112	935.21	118.06	End Shut-In(2)
113	2127.09	118.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
50.00	GOCM 3g 25o 72m	0.25
0.00	10 Feet w eak GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44461 **DST#: 4**

Test Start: 2011.10.24 @ 05:25:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	sec/qt	Cushion Volume:	bbl		
Water Loss:	7.20 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3700.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
50.00	GOCM 3g 25o 72m	0.246
0.00	10 Feet weak GIP	0.000

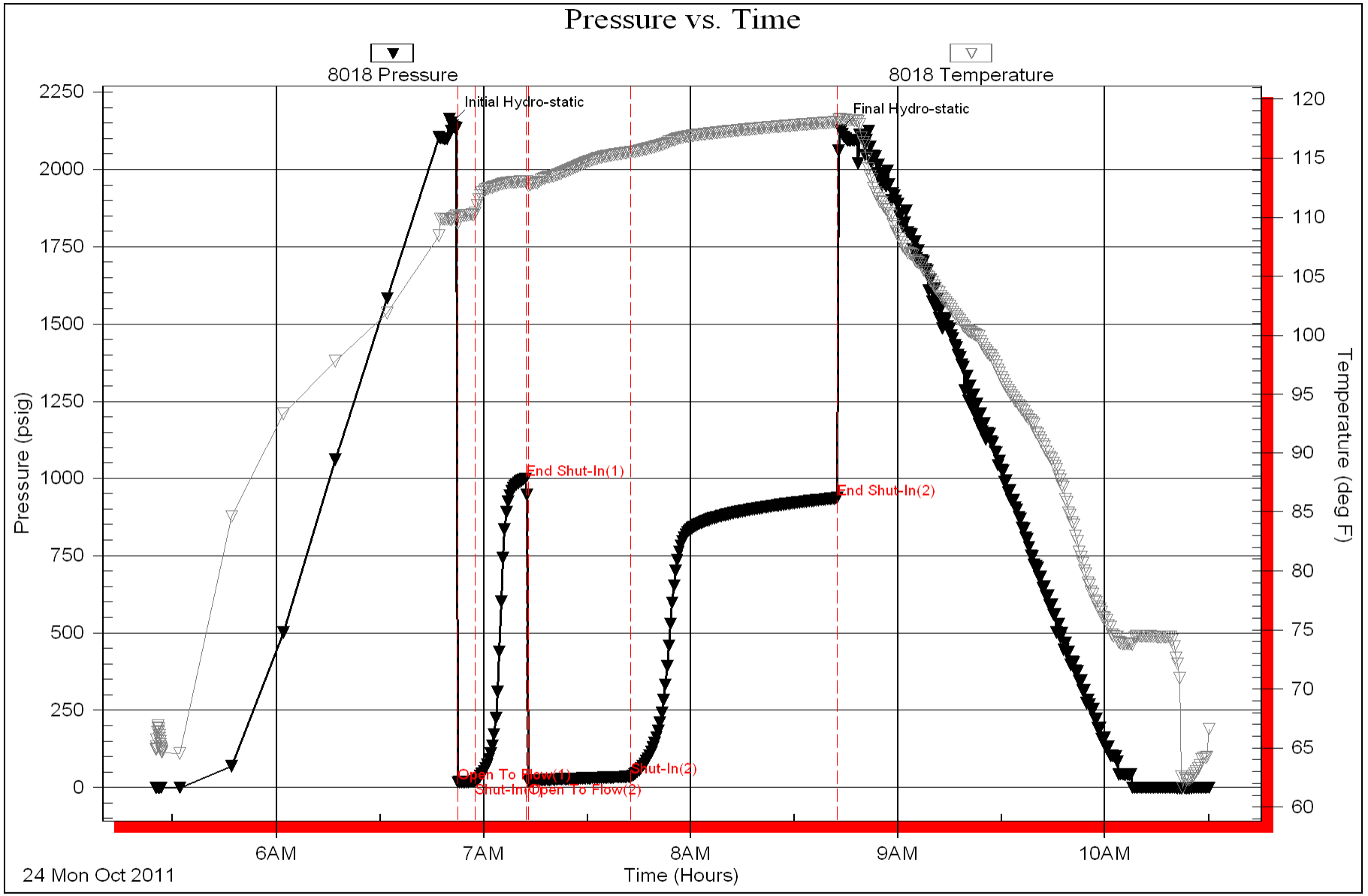
Total Length: 50.00 ft Total Volume: 0.246 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 44461 Printed: 2011.10.24 @ 11:14:58

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lew ellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44462 **DST#: 5**

Test Start: 2011.10.24 @ 17:53:00

GENERAL INFORMATION:

Formation: **LKC 'L'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:26:30
Time Test Ended: 23:07:50

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4296.00 ft (KB) To 4302.00 ft (KB) (TVD)
Total Depth: 4302.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

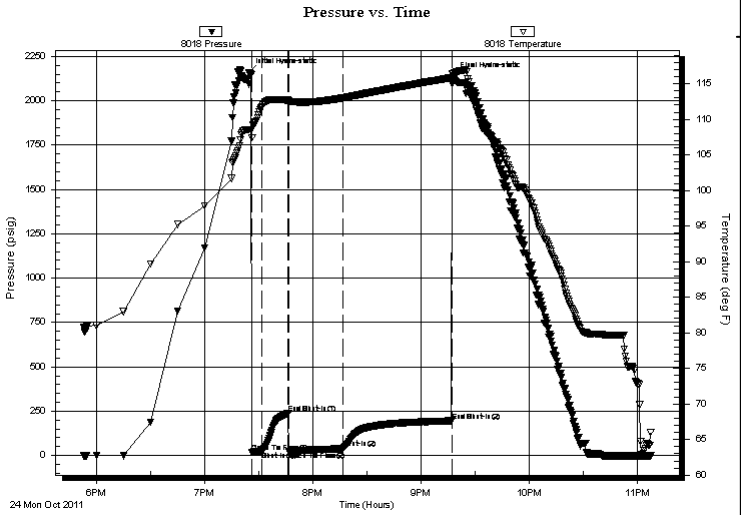
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 38.35 psig @ 4299.00 ft (KB)
Start Date: 2011.10.24 End Date: 2011.10.24
Start Time: 17:53:02 End Time: 23:07:50

Capacity: 8000.00 psig
Last Calib.: 2011.10.24
Time On Btm: 2011.10.24 @ 19:24:50
Time Off Btm: 2011.10.24 @ 21:17:50

TEST COMMENT: 3/4" Blow .
No return.
4" Blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2158.90	108.54	Initial Hydro-static
2	17.41	107.39	Open To Flow (1)
7	22.68	111.67	Shut-In(1)
22	237.15	112.66	End Shut-In(1)
23	22.09	112.51	Open To Flow (2)
52	38.35	112.97	Shut-In(2)
113	195.64	115.83	End Shut-In(2)
113	2134.11	116.41	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM 45o 55m	0.37

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44462 **DST#: 5**

Test Start: 2011.10.24 @ 17:53:00

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:	53.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.60 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

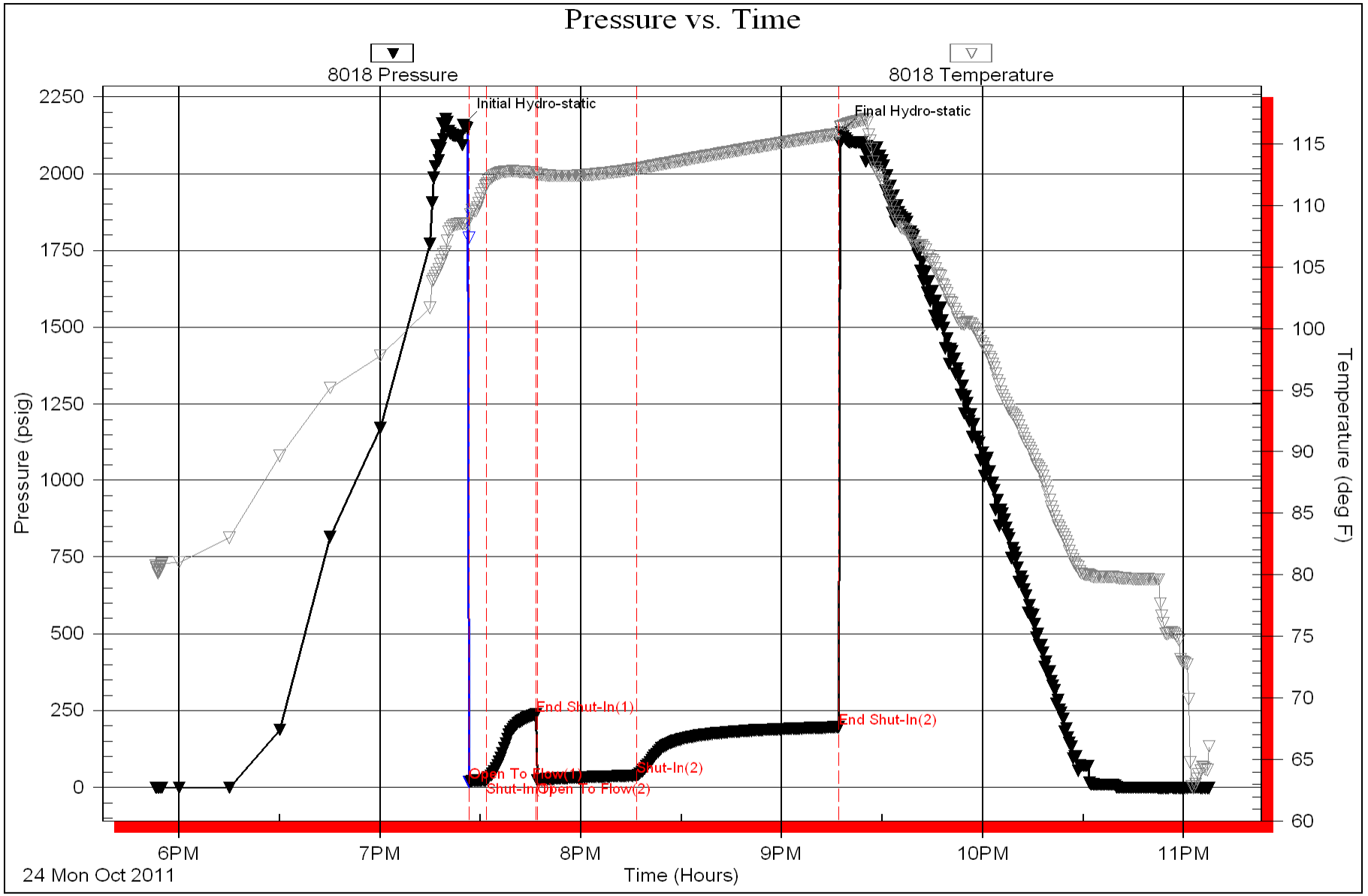
Recovery Table

Length ft	Description	Volume bbl
75.00	OCM 45o 55m	0.369

Total Length: 75.00 ft Total Volume: 0.369 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 44462 Printed: 2011.10.25 @ 08:37:14

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44463 **DST#: 6**

Test Start: 2011.10.25 @ 06:45:00

GENERAL INFORMATION:

Formation: **LKC 'L'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:05:30
Time Test Ended: 12:11:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4302.00 ft (KB) To 4312.00 ft (KB) (TVD)
Total Depth: 4312.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

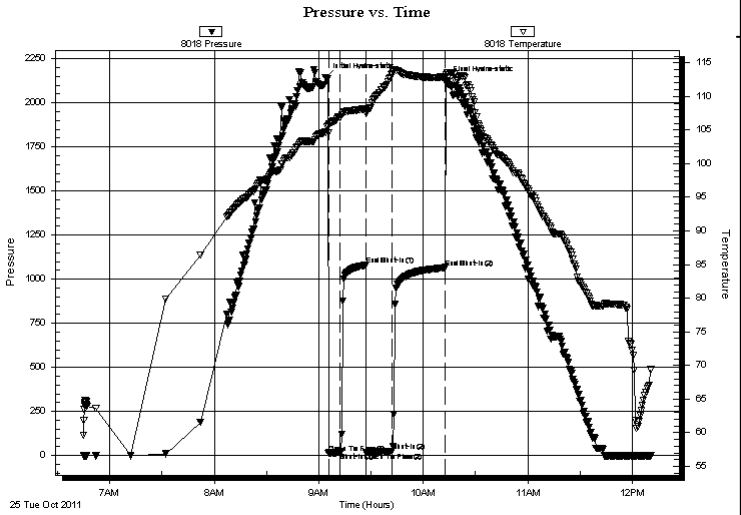
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 25.79 psig @ 4306.00 ft (KB)
Start Date: 2011.10.25 End Date: 2011.10.25
Start Time: 06:45:02 End Time: 12:11:00

Capacity: 8000.00 psig
Last Calib.: 2011.10.25
Time On Btm: 2011.10.25 @ 09:03:50
Time Off Btm: 2011.10.25 @ 10:13:20

TEST COMMENT: Surface blow .
No return.
No blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2143.12	104.70	Initial Hydro-static
2	13.06	104.56	Open To Flow (1)
9	17.80	106.80	Shut-In(1)
24	1080.05	108.20	End Shut-In(1)
24	18.35	107.50	Open To Flow (2)
39	25.79	113.37	Shut-In(2)
69	1066.37	112.89	End Shut-In(2)
70	2123.85	113.28	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OSM	0.07

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44463 **DST#: 6**

Test Start: 2011.10.25 @ 06:45:00

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:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3600.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

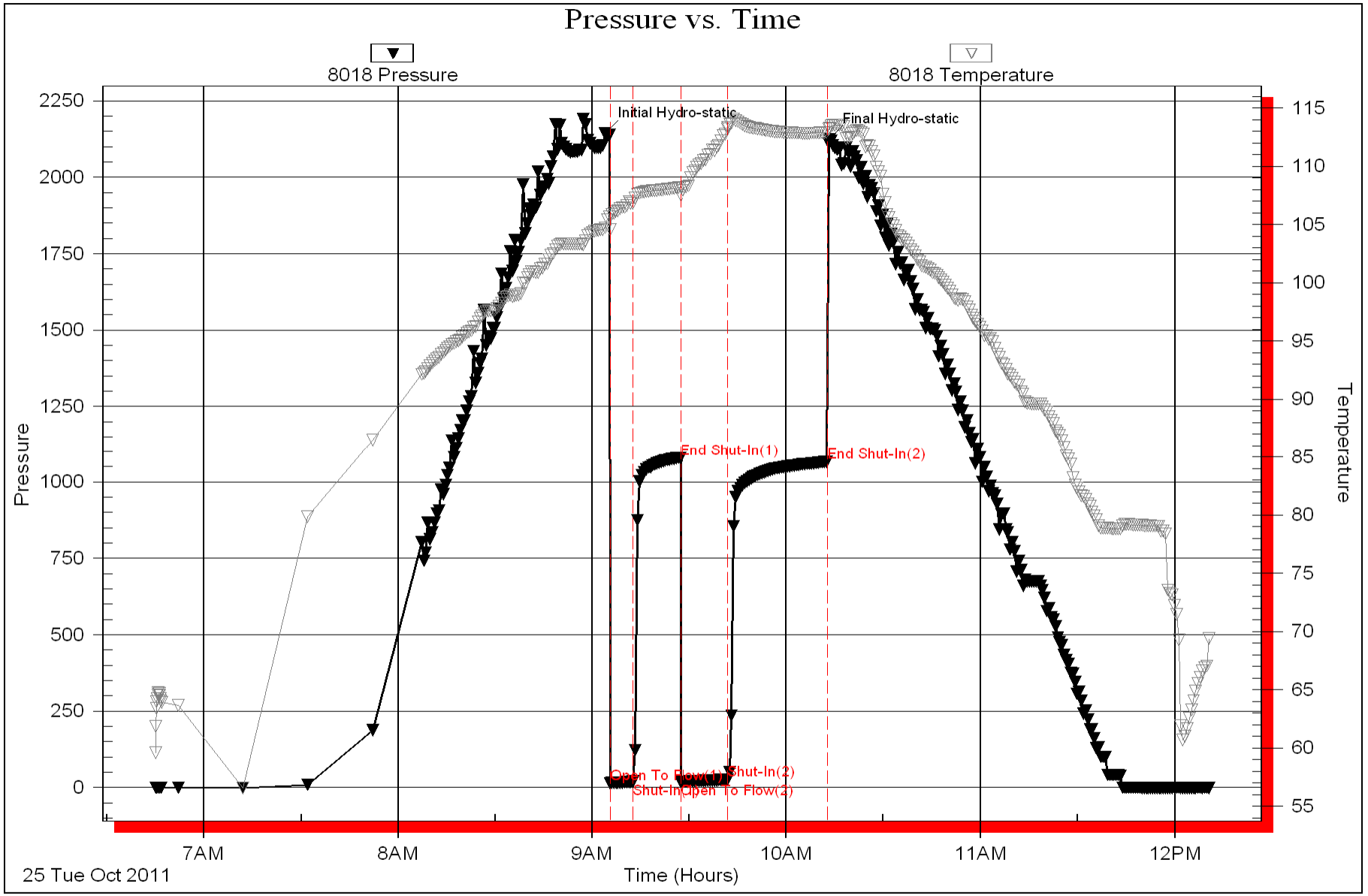
Recovery Table

Length ft	Description	Volume bbl
15.00	OSM	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 6



Trilobite Testing, Inc Ref. No: 44463 Printed: 2011.10.26 @ 13:18:17

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44464 **DST#: 7**

Test Start: 2011.10.26 @ 06:58:00

GENERAL INFORMATION:

Formation: **Marmaton - Altamont**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:26:30
Time Test Ended: 12:31:39

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4324.00 ft (KB) To 443.00 ft (KB) (TVD)
Total Depth: 4430.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

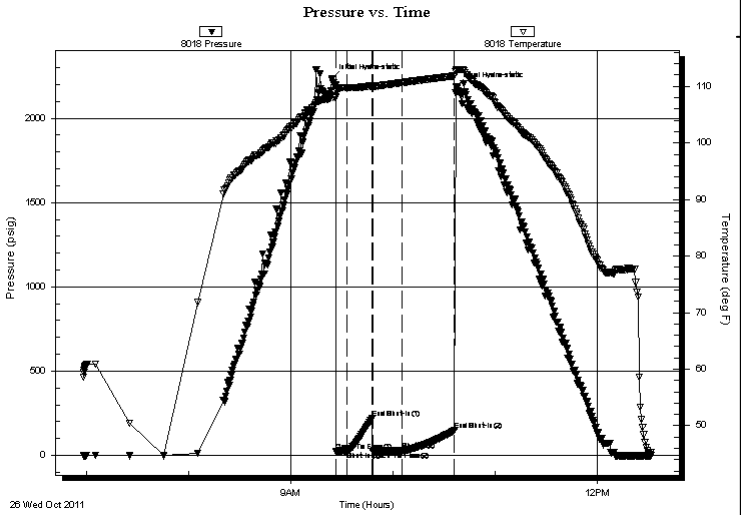
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 29.04 psig @ 4328.00 ft (KB)
Start Date: 2011.10.26 End Date: 2011.10.26
Start Time: 06:58:02 End Time: 12:31:40

Capacity: 8000.00 psig
Last Calib.: 2011.10.26
Time On Btm: 2011.10.26 @ 09:24:00
Time Off Btm: 2011.10.26 @ 10:37:20

TEST COMMENT: 1/4" Blow .
No return.
No blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2233.39	108.32	Initial Hydro-static
3	26.36	107.96	Open To Flow (1)
9	27.04	109.72	Shut-In(1)
24	218.39	110.10	End Shut-In(1)
24	27.04	109.95	Open To Flow (2)
42	29.04	110.66	Shut-In(2)
73	148.23	111.86	End Shut-In(2)
74	2185.03	113.01	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	M 100m A few oil spots in tool.	0.07

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44464 **DST#: 7**

Test Start: 2011.10.26 @ 06:58:00

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:	6.78 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3200.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

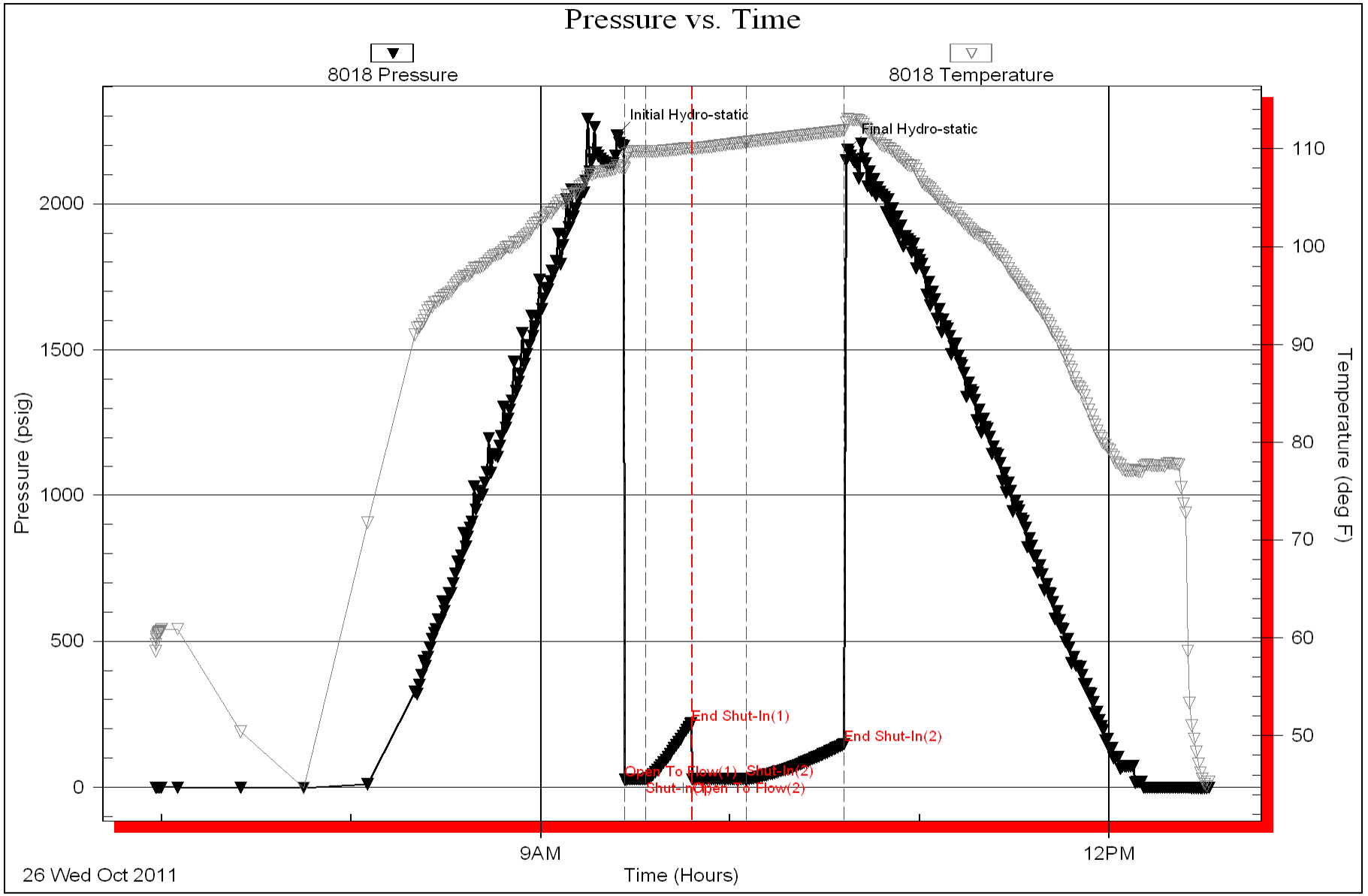
Recovery Table

Length ft	Description	Volume bbl
15.00	M 100m A few oil spots in tool.	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 7



Trilobite Testing, Inc Ref. No: 44464 Printed: 2011.10.26 @ 13:16:09

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44465 **DST#: 8**

Test Start: 2011.10.27 @ 13:09:00

GENERAL INFORMATION:

Formation: **Pawnee - Ft. Scott**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:30:40
Time Test Ended: 18:58:39

Test Type: Conventional Bottom Hole (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4425.00 ft (KB) To 4585.00 ft (KB) (TVD)
Total Depth: 4585.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

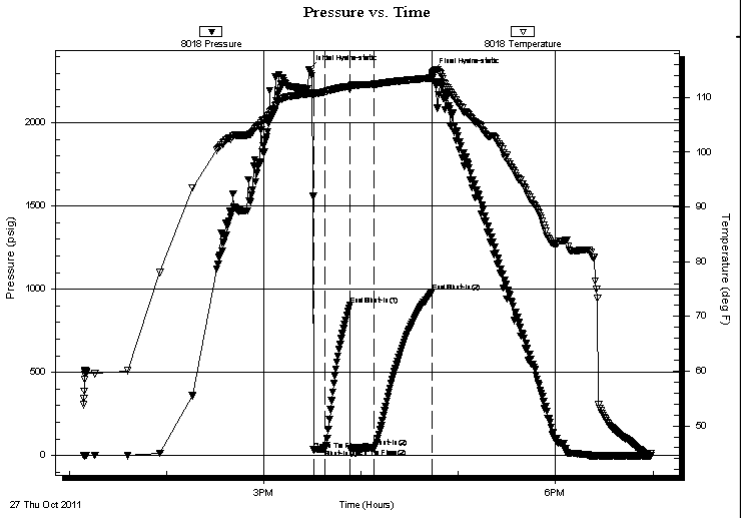
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: 46.98 psig @ 4429.00 ft (KB)
Start Date: 2011.10.27 End Date: 2011.10.27
Start Time: 13:09:02 End Time: 18:58:40

Capacity: 8000.00 psig
Last Calib.: 2011.10.27
Time On Btm: 2011.10.27 @ 15:27:50
Time Off Btm: 2011.10.27 @ 16:44:00

TEST COMMENT: 1" Blow .
No return.
No blow .
No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2322.33	110.73	Initial Hydro-static
3	34.35	110.29	Open To Flow (1)
11	39.54	111.05	Shut-In(1)
26	903.17	112.04	End Shut-In(1)
26	42.82	111.45	Open To Flow (2)
41	46.98	112.43	Shut-In(2)
76	982.76	113.58	End Shut-In(2)
77	2306.22	114.18	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	M 100m	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44465 **DST#: 8**

Test Start: 2011.10.27 @ 13:09:00

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:	7.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3000.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

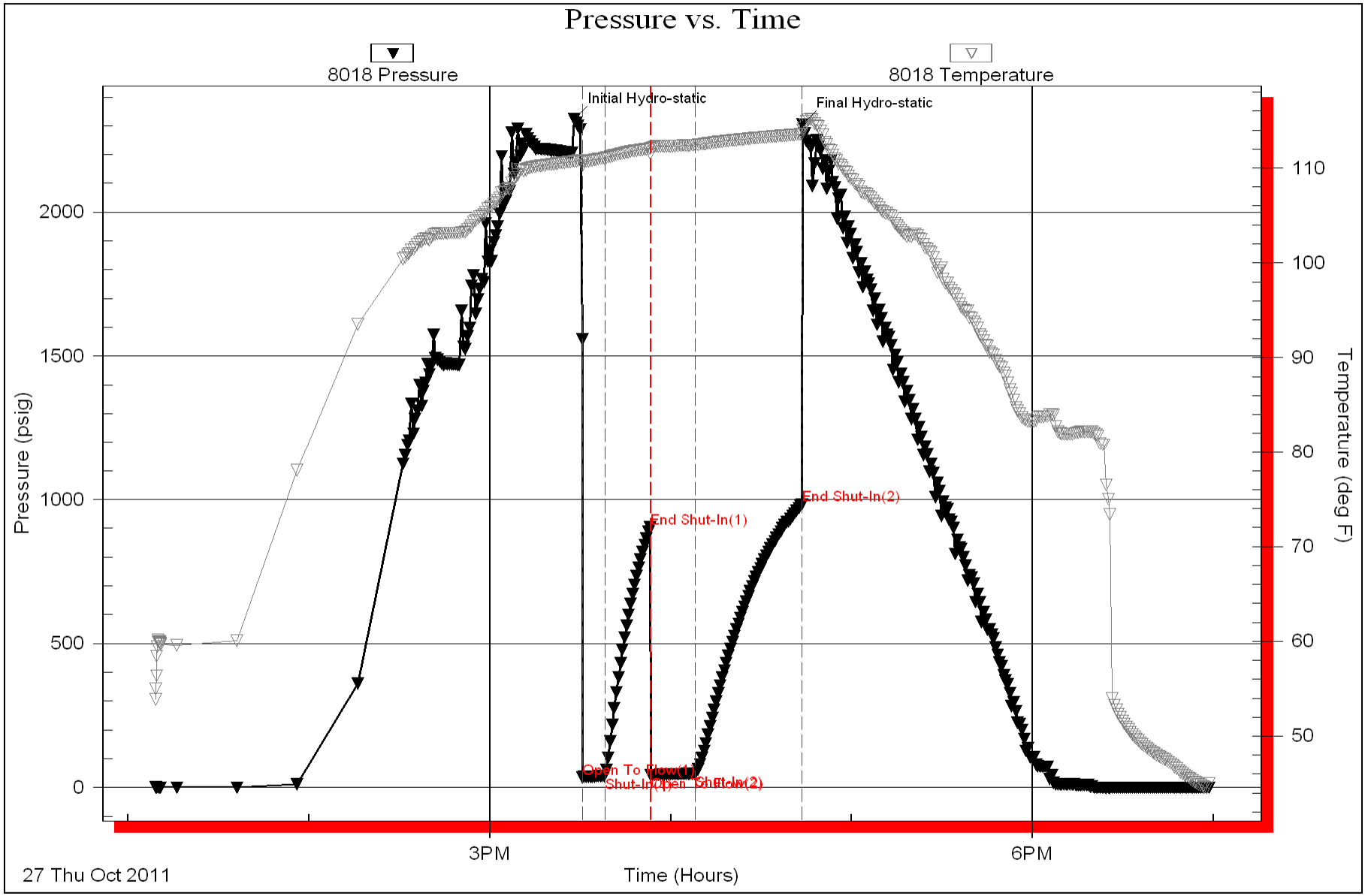
Recovery Table

Length ft	Description	Volume bbl
30.00	M 100m	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 #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 8



Trilobite Testing, Inc Ref. No: 44465 Printed: 2011.10.28 @ 08:36:55

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lew ellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44466 **DST#: 9**

Test Start: 2011.10.28 @ 13:00:00

GENERAL INFORMATION:

Formation: **LKC 'L'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:57:10
Time Test Ended: 17:19:09

Test Type: Conventional Straddle (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4265.00 ft (KB) To 4300.00 ft (KB) (TVD)
Total Depth: 4660.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

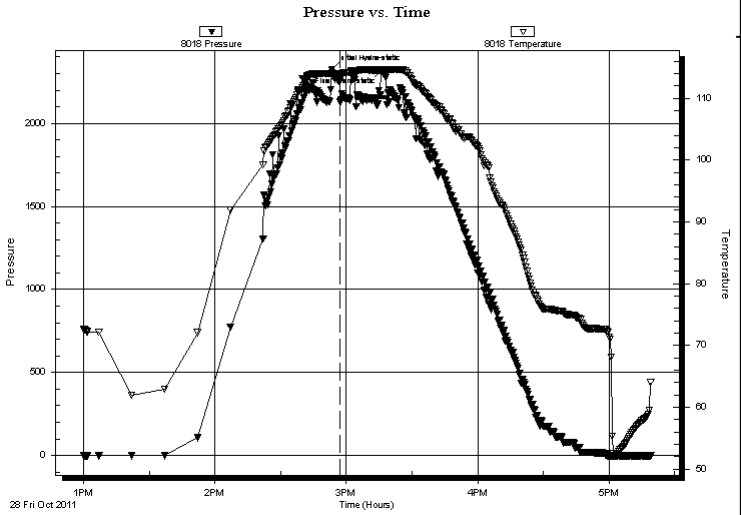
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8018 **Inside**

Press@RunDepth: psig @ 4266.00 ft (KB)
Start Date: 2011.10.28 End Date: 2011.10.28
Start Time: 13:00:02 End Time: 17:19:10

Capacity: 8000.00 psig
Last Calib.: 2011.10.28
Time On Btm: 2011.10.28 @ 14:53:20
Time Off Btm: 2011.10.28 @ 15:16:30

TEST COMMENT: Packer seat failed, tried tw o more attempts, pulled tool.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2323.47	114.04	Initial Hydro-static
4	2128.39	113.91	Open To Flow (1)
24	2325.09	114.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
340.00	M 100m	3.40

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44466 **DST#: 9**

Test Start: 2011.10.28 @ 13:00:00

GENERAL INFORMATION:

Formation: **LKC 'L'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:57:10
Time Test Ended: 17:19:09

Test Type: Conventional Straddle (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4265.00 ft (KB) To 4300.00 ft (KB) (TVD)
Total Depth: 4660.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

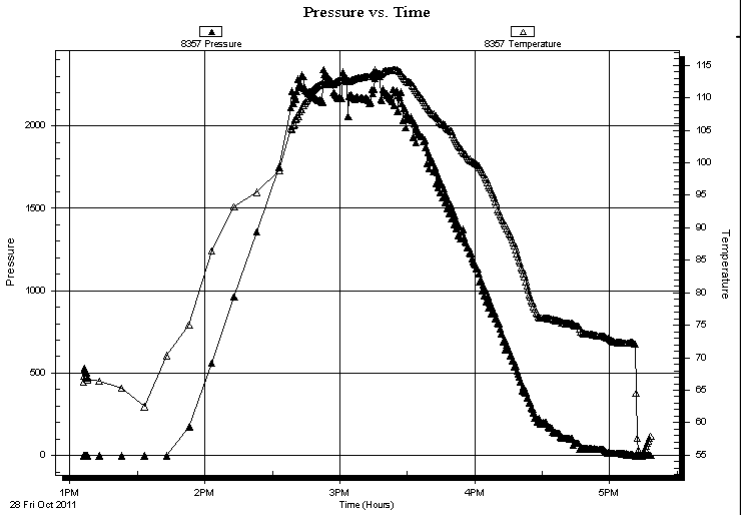
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8357 **Below (Straddle)**

Press@RunDepth: psig @ 4313.00 ft (KB)
Start Date: 2011.10.28 End Date: 2011.10.28
Start Time: 13:06:05 End Time: 17:18:30

Capacity: 8000.00 psig
Last Calib.: 2011.10.28
Time On Btm:
Time Off Btm:

TEST COMMENT: Packer seat failed, tried two more attempts, pulled tool.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
340.00	M 100m	3.40

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44466 **DST#: 9**

Test Start: 2011.10.28 @ 13:00:00

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:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
340.00	M 100m	3.403

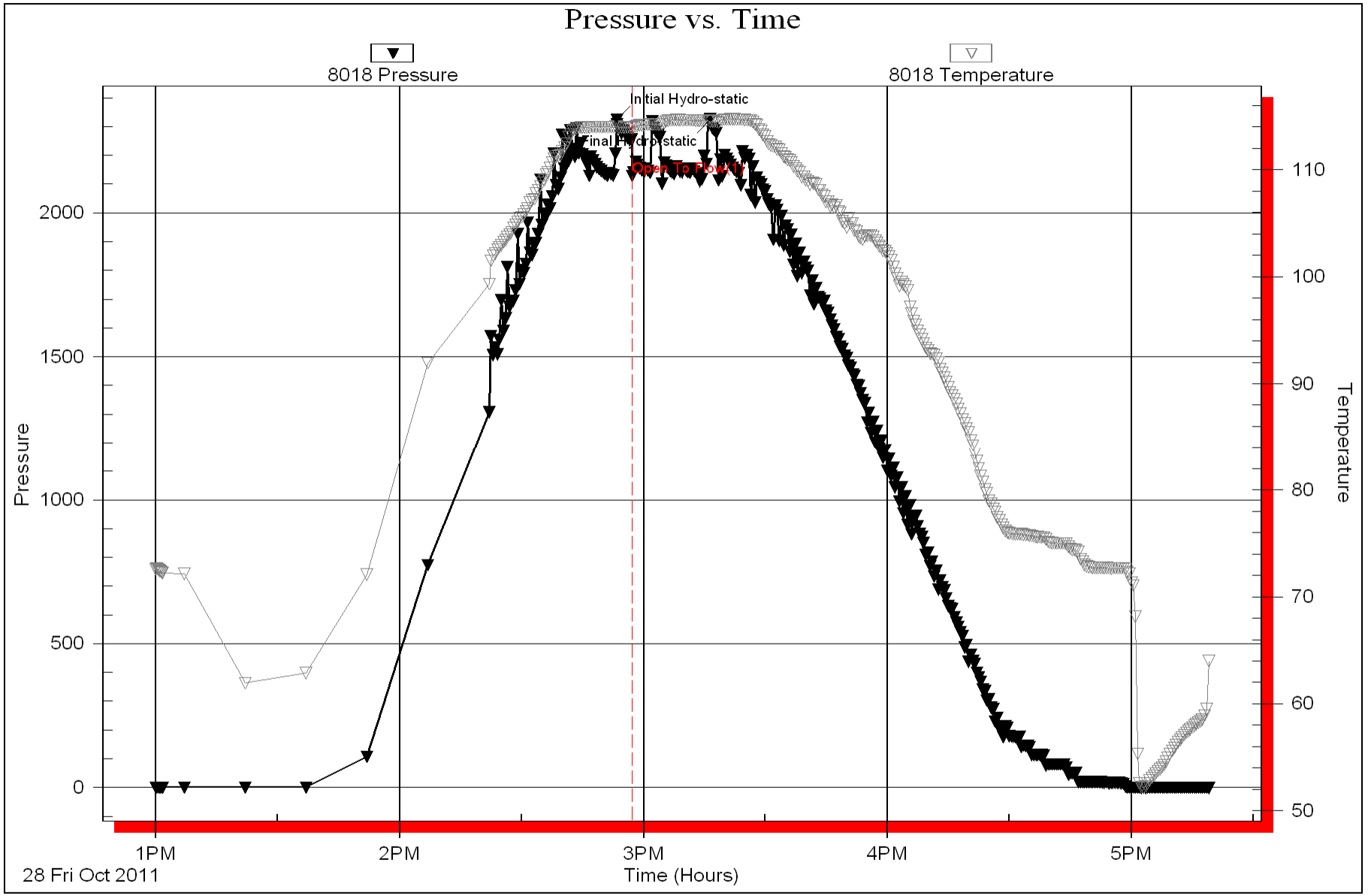
Total Length: 340.00 ft Total Volume: 3.403 bbl

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

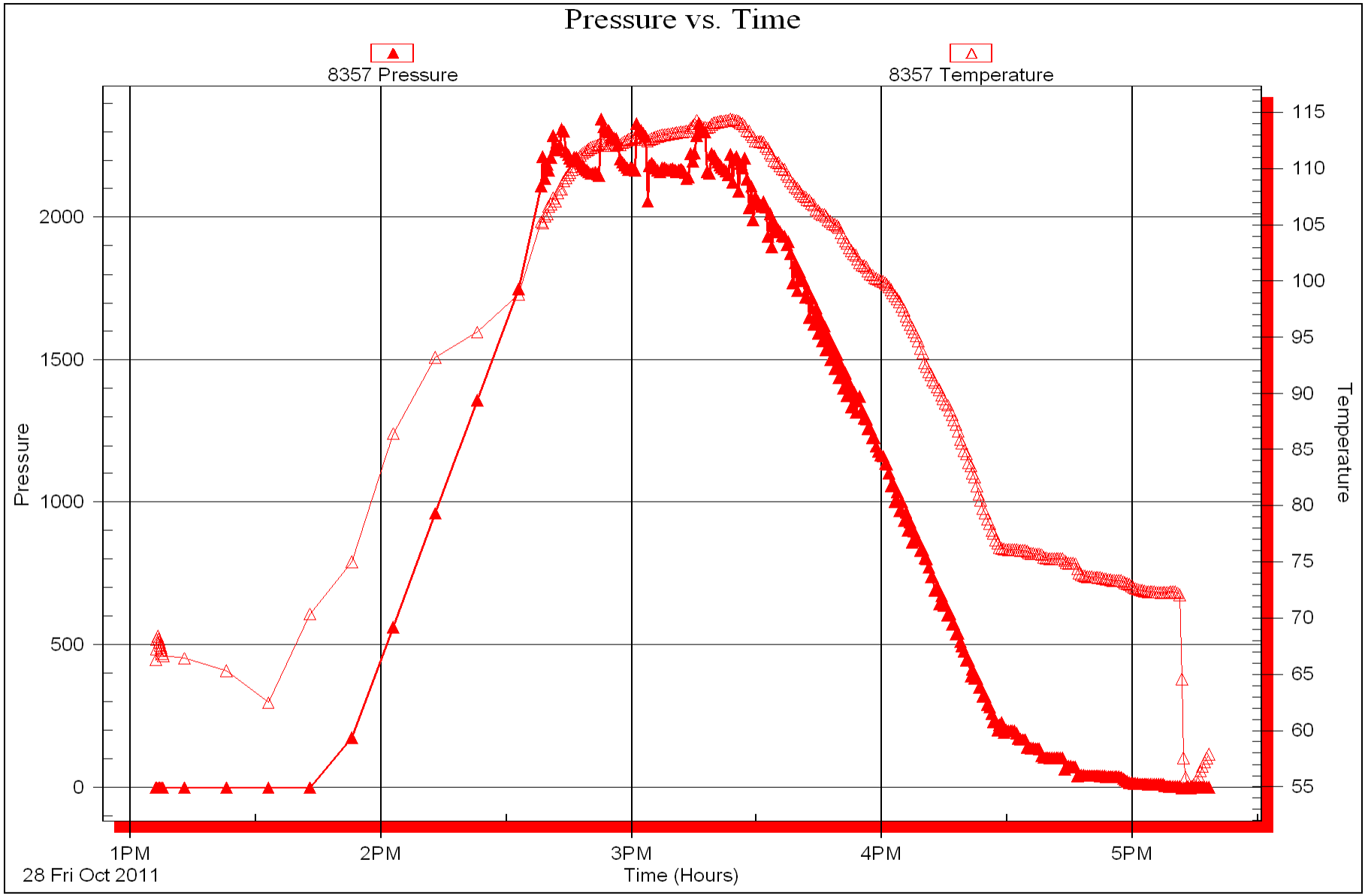
Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8018 **Inside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 9



Trilobite Testing, Inc Ref. No: 44466 Printed: 2011.11.01 @ 09:38:22


Pressure vs. Time
8357 Pressure
8357 Temperature
Pressure
Temperature
2000
1500
1000
500
0
115
110
105
100
95
90
85
80
75
70
65
60
55
1PM
2PM
3PM
4PM
5PM
28 Fri Oct 2011
Time (Hours)

DRILL STEM TEST REPORT

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lew ellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44467 **DST#: 10**

Test Start: 2011.10.28 @ 18:03:00

GENERAL INFORMATION:

Formation:
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:11:30
Time Test Ended: 01:24:39

Test Type: Conventional Straddle (Reset)
Tester: Chuck Smith
Unit No: 37

Interval: 4424.00 ft (KB) To 4444.00 ft (KB) (TVD)
Total Depth: 4660.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

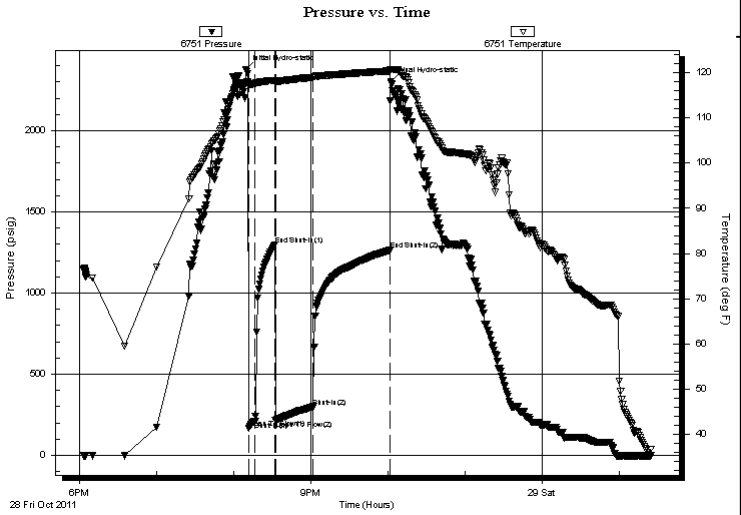
Reference Elevations: 2728.00 ft (KB)
2721.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6751 **Outside**

Press@RunDepth: 299.24 psig @ 4235.00 ft (KB)
Start Date: 2011.10.28 End Date: 2011.10.29
Start Time: 18:03:02 End Time: 01:24:40

Capacity: 8000.00 psig
Last Calib.: 2011.10.29
Time On Btm: 2011.10.28 @ 20:09:10
Time Off Btm: 2011.10.28 @ 22:02:20

TEST COMMENT: 9" Blow .
No return.
B.O.B. @ 13 min.
2 1/2" Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2377.41	117.88	Initial Hydro-static
3	168.78	117.24	Open To Flow (1)
8	209.41	117.49	Shut-In(1)
23	1297.25	118.33	End Shut-In(1)
23	217.67	117.87	Open To Flow (2)
53	299.24	119.00	Shut-In(2)
113	1264.06	120.39	End Shut-In(2)
114	2303.83	120.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
240.00	GOCM 20g 15o 65m	2.00
180.00	GOCM 10g 10o 80m	2.52
0.00	60 Feet w eak GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

562 W. State Rd. 4
Olmitz, KS

ATTN: Bob Lewellyn

S3-8s-28w Lane, KS

McWhirter "E" 1-3

Job Ticket: 44467 **DST#: 10**

Test Start: 2011.10.28 @ 18:03:00

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:	in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
240.00	GOCM 20g 15o 65m	2.000
180.00	GOCM 10g 10o 80m	2.525
0.00	60 Feet weak GIP	0.000

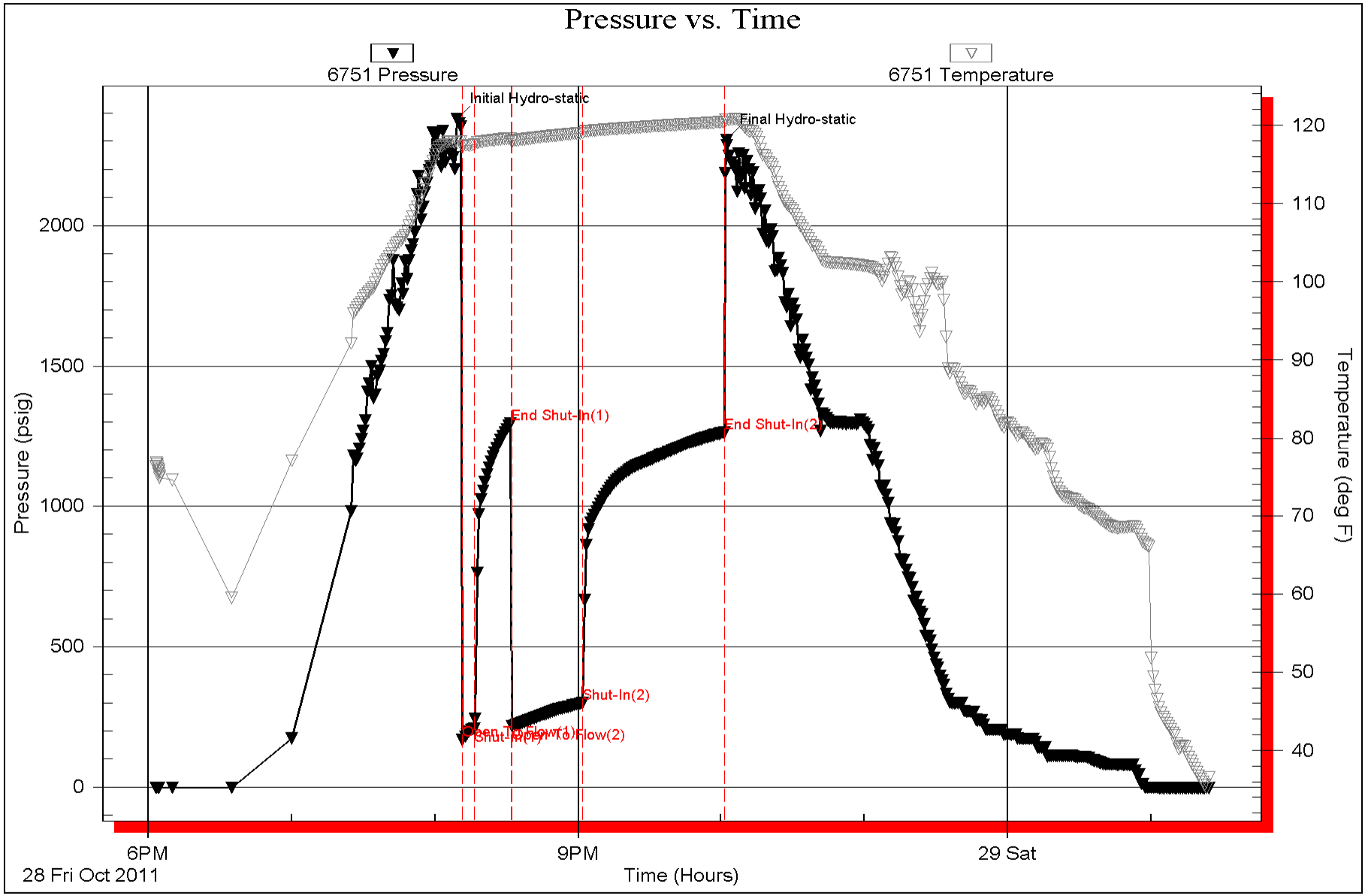
Total Length: 420.00 ft Total Volume: 4.525 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 6751 **Outside** Larson Engineering McWhirter "E" 1-3 DST Test Number: 10



Trilobite Testing, Inc Ref. No: 44467 Printed: 2011.10.29 @ 09:15:07

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

Kansas
Corporation Commission

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

February 10, 2012

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

Re: ACO1
API 15-101-22316-00-00
McWhirter 'E' 1-3
SE/4 Sec.03-18S-28W
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