Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1149349

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: Vernon Schrag
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 #:

3/5/2013	3/17/2013	3/17/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22426-00-00
Spot Description:
NW NE SW NW Sec. 20 Twp. 19 S. R. 28 ☐ East ☑ West
1442 Feet from ☑ North / ☐ South Line of Section
731 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: Lenore Well #: 3-20
Field Name:
Producing Formation: N/A
Elevation: Ground: 2787 Kelly Bushing: 2794
Total Vertical Depth: 4709 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 264 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: 16000 ppm Fluid volume: 1400 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: 07/02/2013
☑ **Confidential Release Date:** 07/02/2015
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 07/02/2013

1149349

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Lenore Well #: 3-20

Sec. 20 Twp. 19 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	264	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	Lenore 3-20
Doc ID	1149349

Tops

Name	Top	Datum
Anhydrite	2126	+668
Base Anhydrite	2154	+640
Heebner	3965	-1171
Lansing	4007	-1213
Stark Sh	4287	-1493
Marmaton	4401	-1607
Pawnee	4487	-1693
Ft Scott	4534	-1740
Cherokee	4561	-1767
Mississippi	4647	-1853

CONSOLIDATED
Oil Well Services, LLC

257212

TICKET NUMBER 39479
LOCATION Oakley
FOREMAN Walt Dinkel

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

FIELD TICKET & TREATMENT REPORT
CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-5-13	4802	Lenore 3-20	20	19S	28W	Lane

CUSTOMER: Larson Engineering
MAILING ADDRESS:
CITY | STATE | ZIP CODE:

Right to 65 to 90 Rd 1E 1/4S &S

TRUCK #	DRIVER	TRUCK #	DRIVER
463	Damon Miller		
460	Phillip Kieffer		
	Travis Williams	Rds	

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 265' CASING SIZE & WEIGHT 8 5/8 - 20#
CASING DEPTH 262' DRILL PIPE TUBING OTHER
SLURRY WEIGHT SLURRY VOL WATER gal/sk CEMENT LEFT in CASING 20'
DISPLACEMENT 15.1/4 DISPLACEMENT PSI MIX PSI RATE 5 BPM

REMARKS: Safety Meeting, Rig up on HD #3, circ on bottom. mix 175 SKs Com, 3% CC, 2% Gel, Displace 15 1/4 BBL H2O, Shut in Cement Did Circ Approx 4 BBL to Pit

Thank You
Walt & Crew

ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401S	1	PUMP CHARGE	1,085.00	1,085.00
5406	35	MILEAGE	5.00	175.00
1104S	175 SKs	Class A Cement	17.65	3,088.75
1102	495 #	Calcium Chloride	.89	440.55
1118B	330 #	Gel	.25	82.50
5407A	8.23	Ton Mileage Delivery	1.62	481.35
1111	100#	Salt	.45	N/C
				5,353.05
		Less 10% Disc		-535.31
				4,817.74
			SALES TAX	204.79
			ESTIMATED TOTAL	5022.53

Ravin 3737

AUTHORIZTION [signature] TITLE Owner DATE 3-5-13

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.

ALLIED OIL & GAS SERVICES, LLC 059369

Federal Tax I.D.# 20-5975804

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

SERVICE POINT: Great Bend, KS

DATE 3-17-13	SEC 20	TWP 19S	RANGE 25W	CALLED OUT	ON LOCATION 6:00 AM	JOB START 9:30 AM	JOB FINISH 10:00 AM
LEASE Lenore	WELL # 3-20		LOCATION Dighton 6S 1E 1/2E S into			COUNTY Lane	STATE KS
OLD OR (NEW) (Circle one)							

CONTRACTOR ~~Reception~~ HD Drilling #3 OWNER

TYPE OF JOB Rotary Plug
HOLE SIZE 12 1/4 T.D.
CASING SIZE 8 5/8 DEPTH
TUBING SIZE DEPTH
DRILL PIPE 4 1/2 DEPTH 2200
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. All
PERFS.
DISPLACEMENT Freshwater

EQUIPMENT

PUMP TRUCK # 366 CEMENTER Dustin Chambers
HELPER Charles Kinyon
BULK TRUCK # 341 DRIVER Joel Maghan
BULK TRUCK # DRIVER

REMARKS:

Fill Hole w/ Big mud
1. 2200 - 50 sks
2. 1290 - 80 sks
3. 300 - 50 sks
4. 60 - 20 sks
5. RH - 30 sks
Plug Down 9:45 AM

CEMENT

AMOUNT ORDERED 230 sks 60/40 Class A 4% gel 1/4 flo

COMMON	138	@ 17.90	2,470.20
POZMIX	92	@ 9.35	860.20
GEL	8	@ 23.40	187.20
CHLORIDE		@	
ASC		@	
Flo Seal	58	@ 2.97	172.26
HANDLING	247.17	@ 2.48	613.03
MILEAGE	10.31 X 30 X	2.60	804.88
		TOTAL	5,107.77

SERVICE

DEPTH OF JOB	2200		
PUMP TRUCK CHARGE			2249.84
EXTRA FOOTAGE		@	
MILEAGE	Hum 30	@ 7.70	231.00
MANIFOLD		@	
	hum 30	@ 4.40	132.00
		@	
		TOTAL	2,612.84

PLUG & FLOAT EQUIPMENT

		@	
		@	
		@	
		@	
		@	
		TOTAL	

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

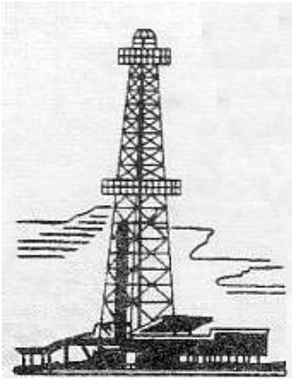
To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL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

PRINTED NAME X LeWayne Tresner

SIGNATURE X LeWayne Tresner

Thank You!!

SALES TAX (If Any)
TOTAL CHARGES 7,720.61
DISCOUNT 1,930.15 IF PAID IN 30 DAYS
5,790.45



WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST

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

Well Name:	**Lenore #3-20**		
Location:	**NW NE SW NW Sec. 20-19s-28w**		
Licence Number:	**API: 15-101-22426**	**Region:**	**Lane Co., KS**
Spud Date:	**March 5, 2013**	**Drilling Completed:**	**March 16, 2013**
Surface Coordinates:	**1442' FNL & 731' FWL**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**2787'**	**K.B. Elevation (ft):**	**2794'**
Logged Interval (ft):	**3800' To: RTD**	**Total Depth (ft):**	**4709'**
Formation:	**D&A, Mississippi**		
Type of Drilling Fluid:	**Chemical Premix (Displaced)**		

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR:

Company: Larson Engineering Inc.
Address: 562 West State Road 4
Olmitz, KS 67564-8561

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3 (Co. Tools)

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 560', Kelly 40.30', Tool Joint 5.5" ; Bit: JZ-21 down to 4117', JZ-20 to RTD, 7-7/8", jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

CASING:

Set 8-5/8" (20#) casing at 264'

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3359 to 3370'; earth pits, Morgan Mud, Inc., David Lines, Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to suface casing; LogTech-Pioneer Wireline, Hays, KS, Dan Schmidt, Log total depth (4709') was equal to rotary total depth (4709').

DRILL STEM TEST #1:

LKC "H": Interval: 4188-4212 (24'): Blow: weak surf IFP, no RB, no blow 2nd open; Times: 5-15-15-30: Recovery: 5' mud w/oil spots (100%M); Pressures: HP: 2109-2006; SIP: 859-888; FP: 16-18, 15-18; BHT: 107 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #2:

LKC "K": Interval: 4286-4298 (12'): Blow: weak incr 1/2" IFP, no RB, weak incr 1" FFP, no RB; Times: 5-15-30-60; Recovery: 90' TF: 30' WCM w/few oil spots (5%W, 95%M), 60' WCM (14%W, 86%M, Rw 0.492 at 48 F, chlorides 19k); Pressures: HP: 2140-1949, SIP: 733-737; FP: 16-22, 24-62; BHT: 114 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #3:

LKC Lower K thru L: Interval: 4311-4335 (24'): Blow: weak incr 1" IFP, no RB, weak incr 4" FFP, no RB; Times: 5-15-30-60; Recovery: 80' TF: 20' GMCW (7%G, 73%W, 20%M), 60' GMCW (5%G, 77%W, 18%M, Rw 0.217 @ 53 F, chlorides 3900); Pressures: HP: 2163-2139, SIP: 717-709; FP: 15-24, 26-57; BHT: 115 F; Trilobite Testing, Inc., Scott City, KS, Ryan Nichols.

DRILL STEM TEST #4:

Pleasanton, Marmaton: Interval: 4360-4467 (107'): Blow: weak incr to 1/2" IFP, no RB, weak incr to 3" FFP, no RB; Times: 5-15-30-60; Recovery: 60' GOCM (10%G, 22%O, 68%M); Pressures: HP: 2158-2150, SIP: 868-938; FP: 22-23, 26-39; BHT: 114 F; Trilobite Testing, Inc., Scott City, KS, Ryan Nichols.

DRILL STEM TEST #5:

Pawnee thru Ft. Scott: Interval: 4482-4562 (80'): Blow: weak incr 1" IFP, surf RB, only surf blow FFP, no RB FSIP; Times: 5-15-30-60; Recovery: 5' mud w/oil spots (100%M); Pressures: HP: 2281-2259; SIP: 176-199; FP: 18-19, 21-25; BHT: 116 F; Trilobite Testing, Inc., Scott City, KS, Ryan Nichols.

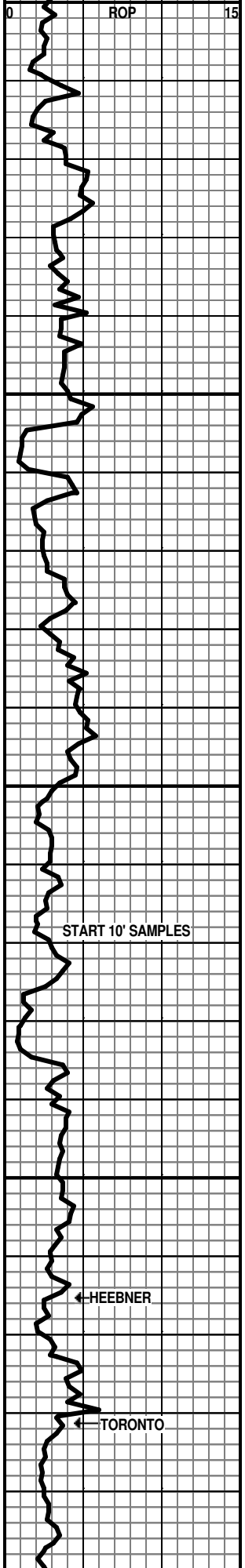
DRILL STEM TEST #6:

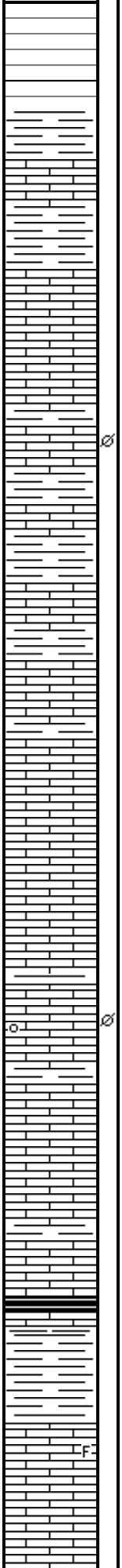
Cherokee: Interval: 4560-4615 (55'): Blow: surf blow IFP, no RB, no blow 2nd open; Times: 5-15-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2344-2288; SIP: 22-26, FP: 17-17, 17-16; BHT: 118 F; Trilobite Testing, Inc., Scott City, KS, Ryan Nichols.

DRILL STEM TEST #7:

Cherokee Sand: Stradle Test Interval: 4604-4649 (45'): Blow: weak died 4 min IFP, no RB, no blow 2nd open; Times: 5-15-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2391-2303; SIP: 50-51; FP: 34-33, 34-35; BHT: 124 F; Trilobite Testing, Inc., Scott City, KS, Brandon Turley.

ROP ROP (min/ft) Five Ten	DST	Lithology	Porosity and Show	Depth	Geological Descriptions	Total Gas TG (units) Fifty One
0 ROP 15 START DIGITAL ROP 03/10-1:33 am START 20' SAMPLES				200		0 Hot-Wire 100 CALL GEO 3406' AT 7:20 am, 03/9/2013. ANHYDRITE 2126 (+668) B/ANHY 2154 (+640)





3850

3900

3950

0 Hot-Wire 100

HIGH WINDS, BLOWING & DRIFTING SNOW, WHITE-OUT CONDITIONS.

LS: grayish brown; vf-xtal; dense; granular in part; poor porosity; N.S.

LS: md-dk grayish brown; vf-xtal; sli fos; trace spar; poor porosity; N.S.

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

Ls: grayish brown; vf-xtal; poor porosity; N.S.

LS: lt-grayish brown; vf-xtal; trc chert; rough; poor porosity; N.S.

LS: gray, grayish brown; vf-xtal; poor porosity; N.S.

LS: lt-md brown; vf-xtal; fair-good vugular & med oomoldic porosity; N.S., 3950, 3960.

LS: mottled lt to md brown w/scattered dk brown shale inclusions; vf-xtal; dense; poor porosity; N.S.

HEEBNER 3965 (-1171)

Shale: black; carbon; trace 3980.

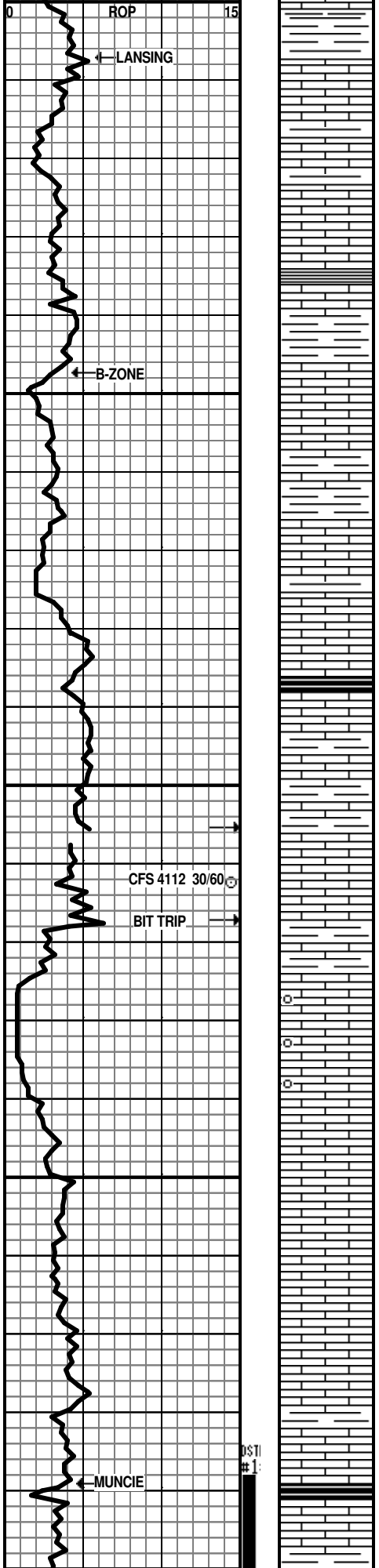
Shale: lt-green, green, gray; calcareous in part; poorly represented;

MORGAN MUD: 3981: 03/10-2pm: VIS 62, WT 9.0, FIL 6.8, CHL 1600, LCM 1#.

LS: white; mic-xtal; chalky; even yel matrix fluor; poor porosity; N.S., starts 4000, incr 4010.

WEATHER CONDITIONS IMPROVED ABOUT 3990.

LS: white to lt brown; mic-vf xtal; chalky to dense; poor porosity; N.S.



4000

LANSING 4007 (-1213)

LS: lt grayish-brown; vf-xtal; dense; sli granular in part; v-poor porosity; N.S.

LS: white to lt gray-brown; mic-vf xtal; chalky; poor porosity; N.S.

LS: lt grayish brown; vf-xtal; dense; trc pin- point porosity; N.S.

Shale: dk grayish-brown; limey; sli fos; trc chert;

4050

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

LS: white to lt grayish-brown; mic-vf xtal; chalky; poor porosity; N.S.

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

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

4100

LS: lt brown; vf-xtal; dense; poor porosity; N.S.

LS: white to lt brown; mic-vf xtal; soft chalk in part, otherwise dense; no visible porosity; N.S.

LS: lt-md grayish-brown; vf-xtal; med-crs ool to oomoldic; fair-good oomoldic porosity; N.S., 4150.

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

4150

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

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

LS: as above: some lt-md gray;

MUNCIE CREEK 4189 (-1395)

Shale: black; carbon; 4200.

LS: md-dk grayish brown; vf-xtal; trc smokey chert; dense; sli fos; no visible porosity; N.S.

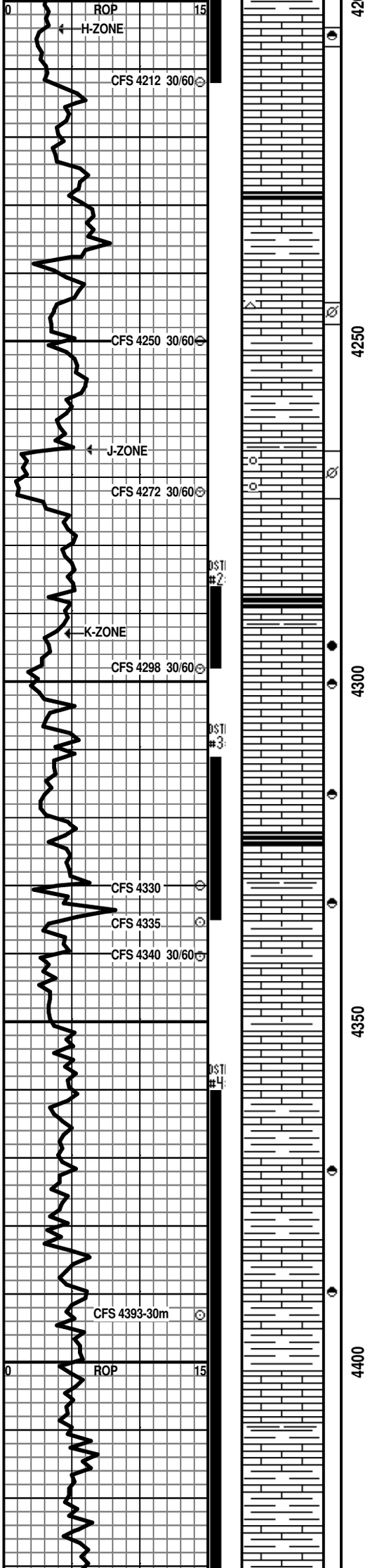
4200

0 Hot-Wire 100

STOP BRIEFLY 4105 TO CLEAN SCREEN.

BIT TRIP 4117' TO EXCHANGE JZ21 FOR JZ20.

DST #1: H-ZONE: 4188-4212: SURF BLOW; 5-15-15-30; 5' MUD; SIP: 859-888, FP: 16-18, 15-18.



4250

4300

4350

4400

LS: lt-grayish brown; vf-f xtal; trc oom; tight int xtal porosity; trc drab dry stain w/poor cut; no wet show; no fluor; 4212-60 min.

LS: white to lt gray; mic-vf xtal; sli chalky to dense; poor porosity; N.S.

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

LS: lt gray to lt brown; vf-xtal; v-finely granular; dull fluor; v-tight int gran porosity; N.S.

LS: lt-md gray; vf-xtal; sli chalky; fos; cherty; scattered vug porosity; N.S.

LS: md-dk grayish brown; vf-xtal; sli oolitic in part; dense; no visible porosity; N.S.

LS: lt-brown to gray; vf-xtal; oolitic- oomoldic; fair-good oomoldic porosity; N.S., 4272-60 min.

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

STARK SH 4287 (-1493)

Shale: black; carbon; 4298 stop.

LS: dk brown to gray-brown; vf-xtal; dnse; N.S.

LS: lt grayish brown; vf-xtal; scattered fine vug & trc int gran porosity; spotted dry stain; sli show oil; no fluor; minor chalk; 4298-30 & 60.

LS: continued trc dry stain 4310.

LS: lt grayish brown; vf-xtal; scattered vug porosity w/spotted dk brown, dry stain; 4320, 4330.

HUSHPUCKNEY 4322 (-1528)

Shale: black; few chips 4330-30m.

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

LS: lt grayish brown; vf-xtal; few vugs w/dk brown dry stain; no wet show; no fluor; 4335 circ(s).

LS: lt grayish brown; mic-vf xtal; trc fluor chalk; mostly dense; no visible porosity; N.S.

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

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

LS: as above w/trc smokey chert; coarse pytires;

LS: lt-md grayish brown; mic-vf xtal; dense to chalky in part; no visible porosity; N.S.

MARMATON 4401 (-1607)

LS: md brown; vf-f xtal; dense; trc shell impressions; no visible porosity; N.S.

LS: white to brown; mic-vf xtal; chalky in part; no visible porosity; N.S.

LS: white to lt grayish brown; mic-vf xtal; chalky in part; no visible porosity; N.S.

0 Hot-Wire 100

CIRC 60 MIN AFTER DST

DST #2: K-ZONE: 4286-4298: WEAK INCR BLOW 1/2"; 5-15-30-60; 90' WCM; SIP: 733-737; FP: 16-22, 24-62.

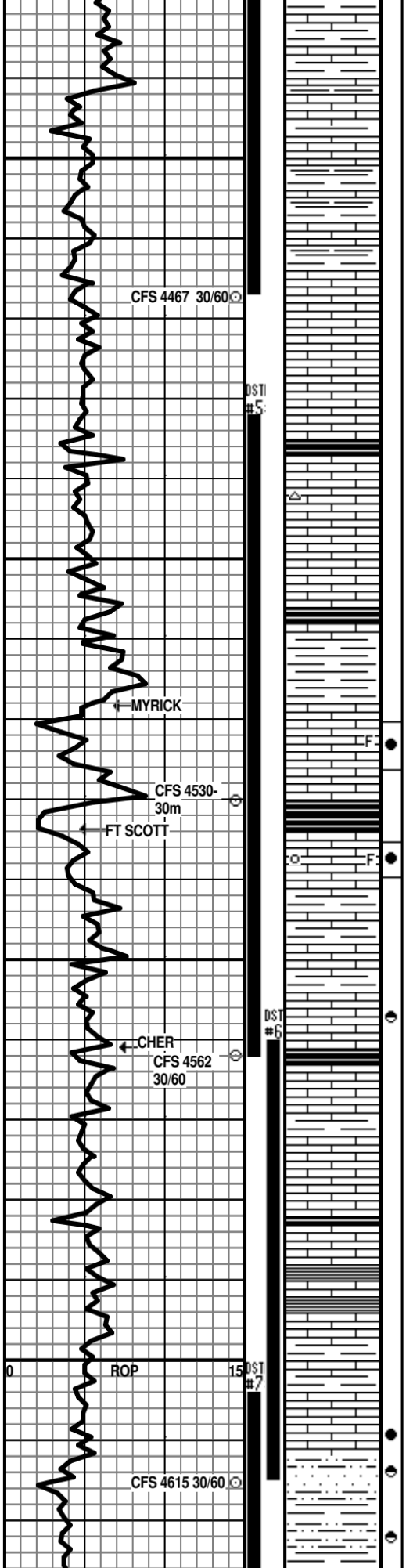
MORGAN MUD: 4298: 03/12-1pm: VIS 59, WT 9.2, FIL 6.0, CHL 2400, LCM 1#.

DST #3: LOWER K THRU UPPER L: 4311-4335: 1" BLOW IFP, 4" FFP; 5-15-30-60; 80' GMCW; SIP: 717-709, FP: 15-24, 26-57.

CIRC 60 MIN AFTER DST.

MORGAN MUD: 4335: 03/13-2pm: VIS 57; WT 9.2, FIL 6.8, CHL 2100, LCM 1#

0 Hot-Wire 100



DST #4: PLEAS., MARM.: 4360-4467: BLOW 3" FFP; 5-15-30-60; 60' GOCM (22%O); SIP: 868-938; FP: 22-23, 26-39.

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

CIRC 30 MIN AFTER DST.

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

MORGAN MUD: 4467: 03/14-12pm: VIS 48, WT 9.3, FIL 8.0, CHL 2300, LCM 1#.

LS: white to lt gray, minor dk brown; ; mic-vf xtal; dense to chalky in part; no visible porosity; N.S.

PAWNEE 4487 (-1693)

LS: white to lt gray; vf-xtal; dense; minor semi-opaq chert; trc yel mineral fluor; no visible porosity; N.S., 4500.

LS: white, lt gray, minor md brown; vf-xtal; chalky to dense; trc yel mineral fluor; poor porosity; N.S.

LS: md grayish brown; vf-xtal; trc smokey chert; dense; no visible porosity; N.S.

Shale: green, gray

LS: white to lt gray; mic-vf xtal; scattered fine vug porosity w/spotted stain 4530-stop; trc coarse vug w/spotted stain & sli show oil 30 min; spotted yel-white fluor; no odor;

DST #5: PAW ~ FT SCOTT: 4482-4562: BLOW 1" IFP, WEAK FFP; 5-15-30-60; 5' MUD; SIP: 176-199, FP: 18-19, 21-25.

Shale: black; carbon; 4540.

FT SCOTT 4534 (-1740)

CIRC 30 MIN AFTER DST.

LS: brown; vf-xtal; oolitic; speckled to spotted fluor; fair int ool porosity w/dk brown stain & show oil; no odor; 4550.

LS: lt-md gray w/dark brown or gray oolites; vf xtal; siliceous in part; dense; poor por; N.S.

LS: lt-md gray; vf-xtal; trc vug porosity w/sptd stains; oolite show is possible float; 60 min.

MORGAN MUD: 4562: 03/13-12pm: VIS 63, WT 9.4, FIL 8.4, CHL 2500, LCM 1#.

CHEROKEE 4561 (-1767)

LS: lt-gray; mic-vf xtal; dense to chalky; no apparent porosity; N.S.

LS: lt grayish brown; vf-xtal; dense; sli chalky; no apparent porosity; N.S.

LS: lt-gray to lt grayish brown; vf-xtal; trc chert; dense; no visible porosity; N.S.

DST #6: CHER: 4560-4615: SURF BLOW; 5-15-15-30; 5' MUD; SIP: 22-26, FP: 17- 17, 17-16;

LS: as above;

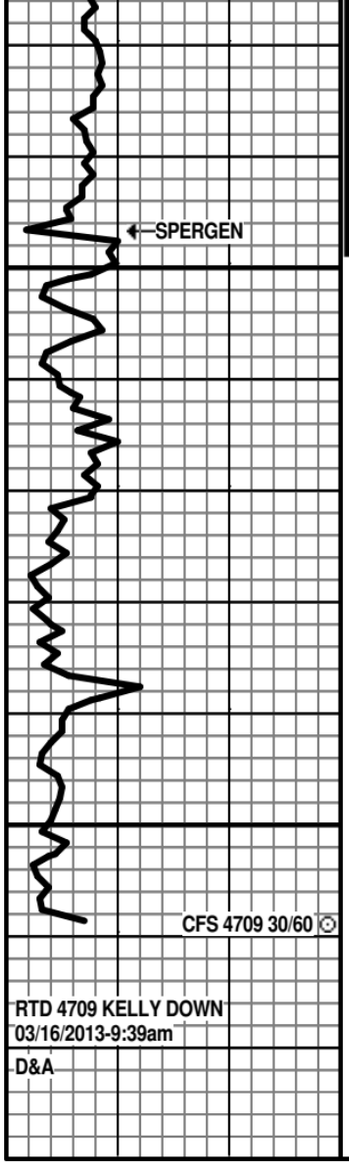
0 Hot-Wire 100

LS: lt-gray; vf-xtal; fine vugular porosity w/spotted stain, fluor & sli show oil; no odor; 4615-30 min;

CIRC 30 MIN AFTER DST

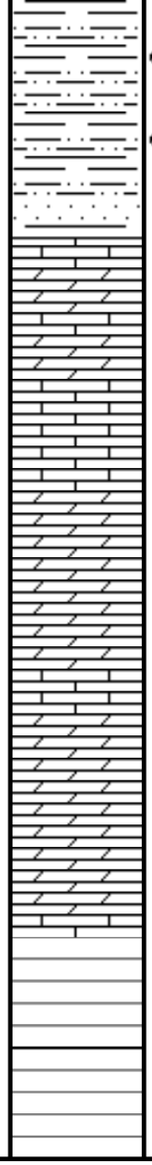
SandSt/SiltSt: very fine quartz; white to brown stain; no acid react; mod-cement; tight int grain porosity w/sli show oil; trace 4615-60 min., continued 4620 .. 4640.

DST #7: STRADDLE TEST CHEROKEE SAND: 4604-4649: WEAK BLOW DIED:



RTD 4709 KELLY DOWN
03/16/2013-9:39am

D&A



4650

4700

SiltSt: as above.

SiltSt: white w/brown spots & streaks indicating oil stain; no oil show or fluor; no odor;

MISSISSIPPI 4647 (-1853)

DOL: md-dk brown; vf-f xtal; sli sucrosic; tight int xtal porosity; N.S., starts 4660.

LS: dolomitic; md brown, mottled dk gray; vf xtal; trc white chert; pyritic; scattered vugular porosity; N.S.

DOL: lt -md brown; vf-f xtal; trc chert; tight int xtal porosity; N.S.

DOL & LS: as above;

DOL: lt-brown; vf-f xtal, sucrosic; tight int xtal porosity; N.S.

ROTARY TOTAL DEPTH 4709 (-1915)

5-15-15-30; 5' MUD; SIP: 50-51; FP: 34-33, 34-35.

MORGAN MUD: 4709: 03/16-12pm: VIS 55, WT 9.3, FIL 8.0, CHL 2300, LCM 1#.

PIONEER ENERGY SERVICES LTD 4709'

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.11 @ 16:12:00
End Date: 2013.03.11 @ 22:07:24
Job Ticket #: 49791 DST #: 1

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

Printed: 2013.03.21 @ 09:06:09

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49791 **DST#: 1**

Test Start: 2013.03.11 @ 16:12:00

GENERAL INFORMATION:

Formation: **LKC " H "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:50:40
Time Test Ended: 22:07:24

Test Type: Conventional Bottom Hole (Initial)
Tester: Will MacLean
Unit No: 58

Interval: 4188.00 ft (KB) To 4212.00 ft (KB) (TVD)
Total Depth: 4212.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

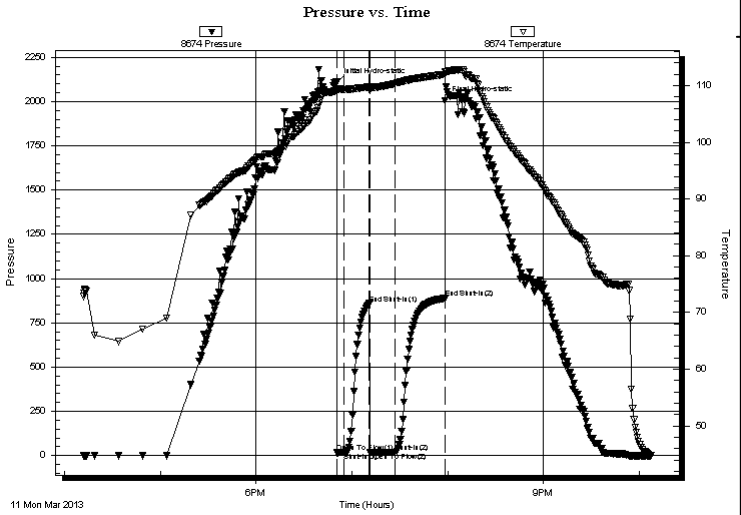
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 18.57 psig @ 4189.00 ft (KB)
Start Date: 2013.03.11 End Date: 2013.03.11
Start Time: 16:12:00 End Time: 22:07:24

Capacity: 8000.00 psig
Last Calib.: 2013.03.11
Time On Btm: 2013.03.11 @ 18:50:25
Time Off Btm: 2013.03.11 @ 19:58:25

TEST COMMENT: IF- Weak Surface Blow 1/4"
ISI- No Blow
FF- No Blow
FSI- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2109.18	109.47	Initial Hydro-static
1	16.22	108.94	Open To Flow (1)
5	18.84	109.31	Shut-In(1)
21	859.24	109.77	End Shut-In(1)
21	15.99	109.16	Open To Flow (2)
37	18.57	110.38	Shut-In(2)
68	888.16	111.99	End Shut-In(2)
68	2006.84	112.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%m with Skim of Oil on Top	0.02

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49791 **DST#: 1**

Test Start: 2013.03.11 @ 16:12:00

GENERAL INFORMATION:

Formation: **LKC " H "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:50:40
Time Test Ended: 22:07:24

Test Type: Conventional Bottom Hole (Initial)
Tester: Will MacLean
Unit No: 58

Interval: 4188.00 ft (KB) To 4212.00 ft (KB) (TVD)
Total Depth: 4212.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

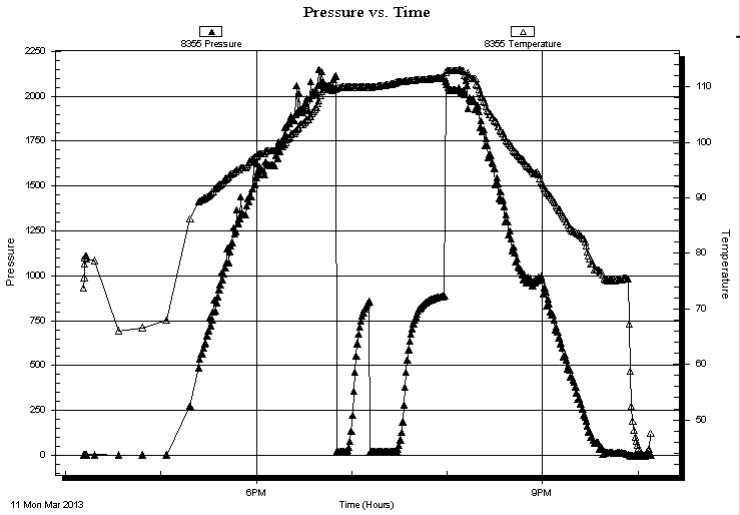
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4189.00 ft (KB)
Start Date: 2013.03.11 End Date: 2013.03.11
Start Time: 16:11:15 End Time: 22:07:54

Capacity: 8000.00 psig
Last Calib.: 2013.03.11
Time On Btm:
Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow 1/4"
ISI- No Blow
FF- No Blow
FSI- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100%m with Skim of Oil on Top	0.02

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49791 **DST#: 1**

Test Start: 2013.03.11 @ 16:12:00

Tool Information

Drill Pipe:	Length:	4043.00 ft	Diameter:	3.80	inches	Volume:	56.71	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25	inches	Volume:	0.72	bbl	
						Total Volume:	57.43	bbl	

Drill Pipe Above KB:	30.00 ft
Depth to Top Packer:	4188.00 ft
Depth to Bottom Packer:	ft
Interval betw een Packers:	24.00 ft
Tool Length:	52.00 ft
Number of Packers:	2
Diameter:	6.75 inches

Tool Weight:		2000.00 lb
Weight set on Packer:		24000.00 lb
Weight to Pull Loose:		6000.00 lb
Tool Chased		ft
String Weight:	Initial	62000.00 lb
	Final	62000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4161.00		
Shut In Tool	5.00			4166.00		
Hydraulic tool	5.00			4171.00		
Jars	5.00			4176.00		
Safety Joint	3.00			4179.00		
Packer	5.00			4184.00	28.00	Bottom Of Top Packer
Packer	4.00			4188.00		
Stubb	1.00			4189.00		
Recorder	0.00	8355	Outside	4189.00		
Recorder	0.00	8674	Inside	4189.00		
Perforations	20.00			4209.00		
Bullnose	3.00			4212.00	24.00	Bottom Packers & Anchor
Total Tool Length:	**52.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49791 **DST#: 1**

Test Start: 2013.03.11 @ 16:12:00

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:	7.15 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2700.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

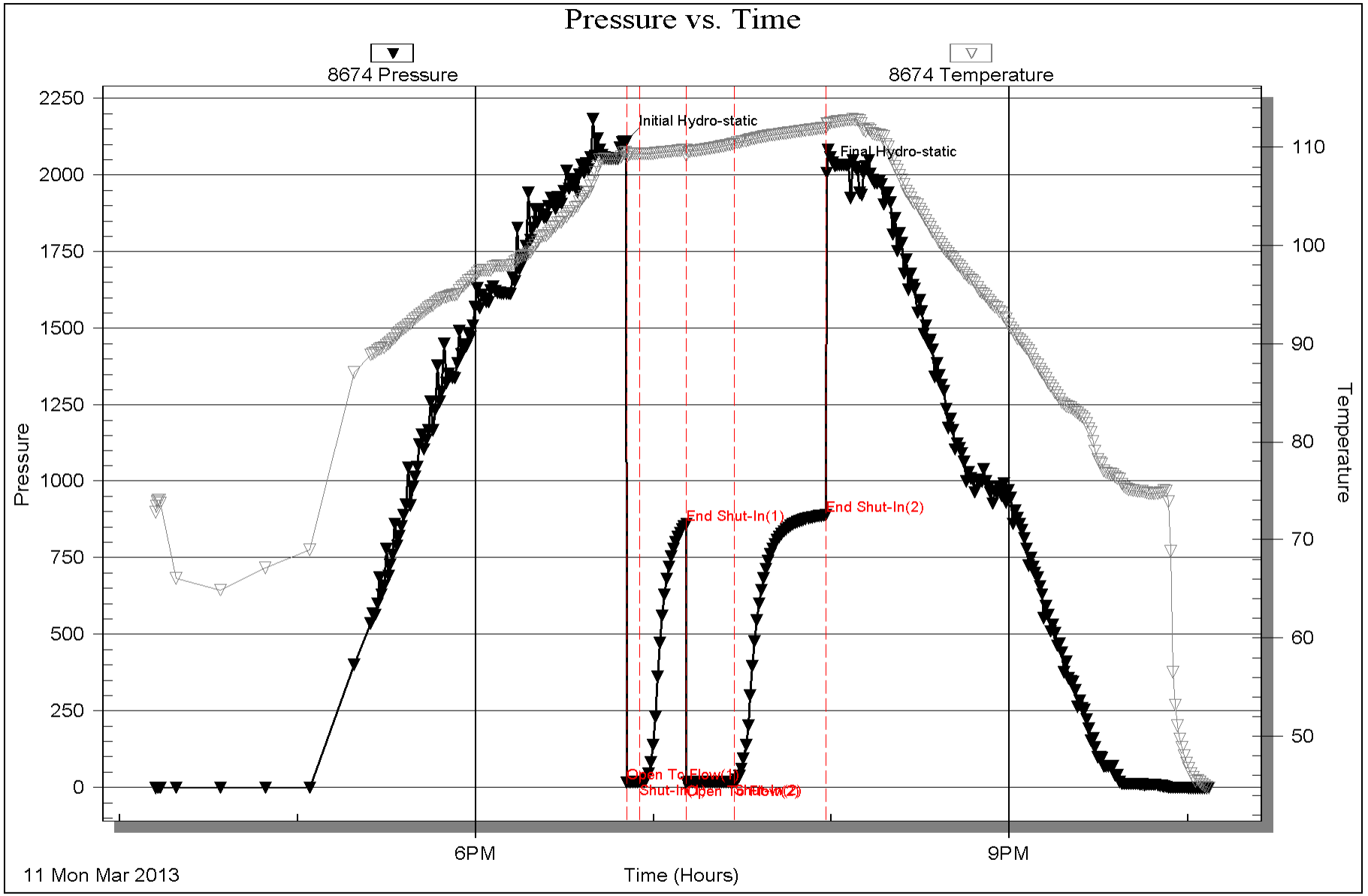
Recovery Table

Length ft	Description	Volume bbl
5.00	100%m with Skim of Oil on Top	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

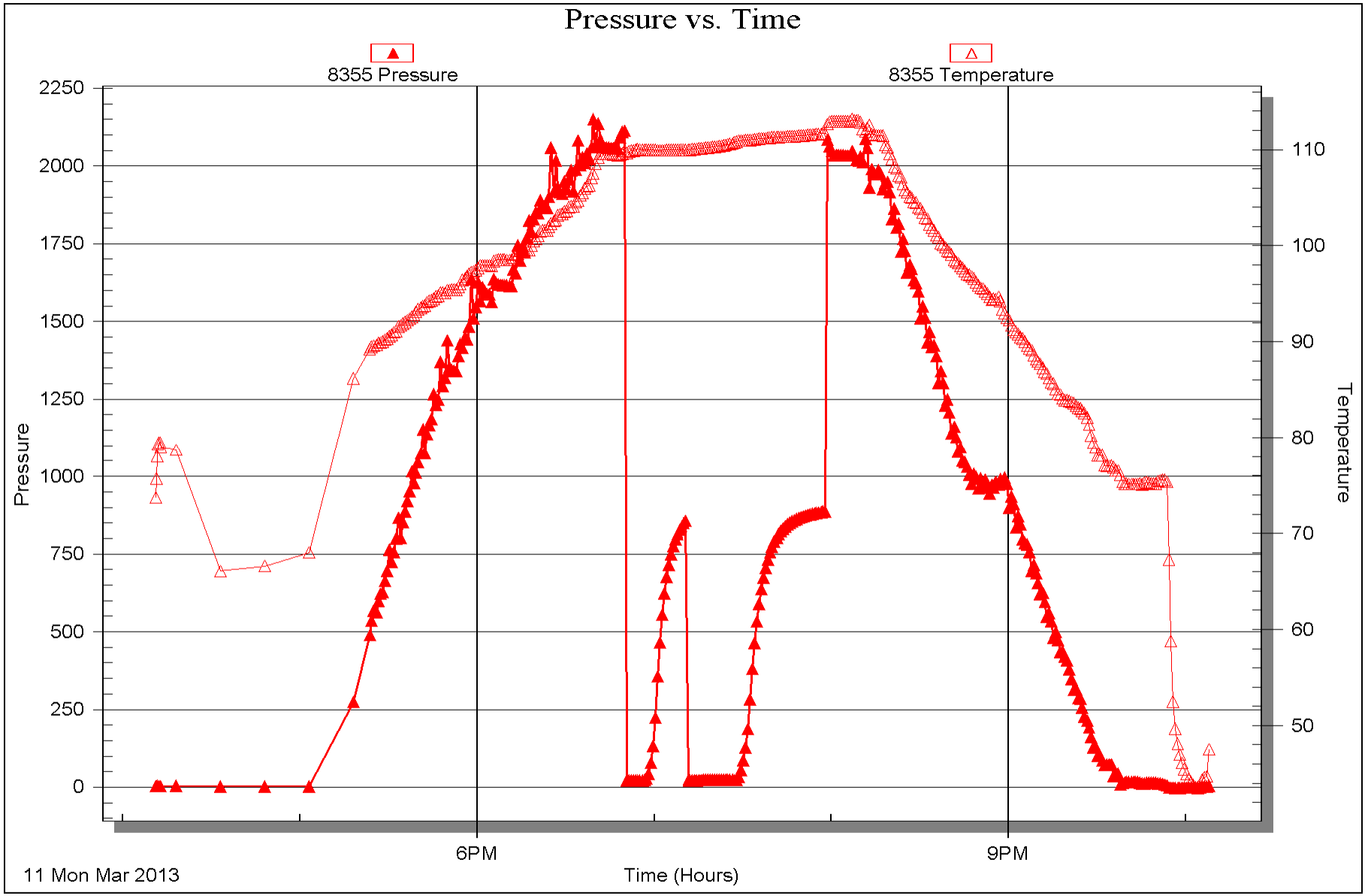
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8674 **Inside** Larson Engineering Inc Lenore #3-20 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 49791 Printed: 2013.03.21 @ 09:06:12

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 49791 Printed: 2013.03.21 @ 09:06:12

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.12 @ 13:34:00
End Date: 2013.03.12 @ 19:32:24
Job Ticket #: 49792 DST #: 2

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

Printed: 2013.03.21 @ 09:05:17

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49792 **DST#: 2**

Test Start: 2013.03.12 @ 13:34:00

GENERAL INFORMATION:

Formation: **LKC " K "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:24:10
Time Test Ended: 19:32:24

Test Type: Conventional Bottom Hole (Reset)
Tester: Will MacLean
Unit No: 58

Interval: 4286.00 ft (KB) To 4298.00 ft (KB) (TVD)
Total Depth: 4298.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

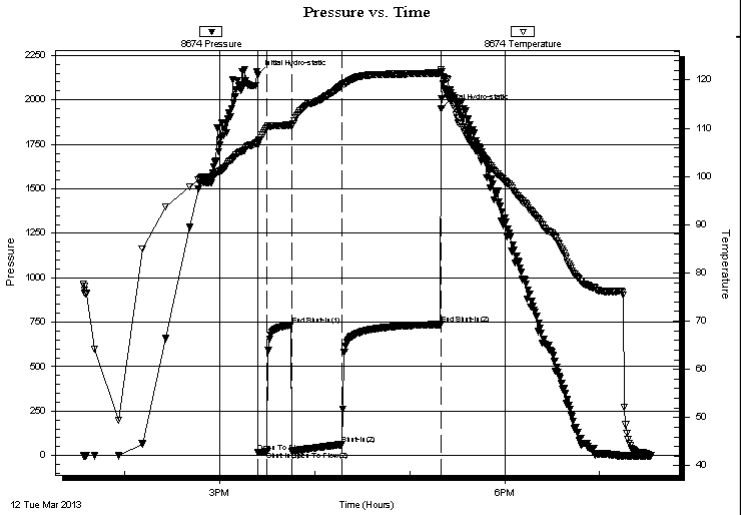
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 62.34 psig @ 4287.00 ft (KB)
Start Date: 2013.03.12 End Date: 2013.03.12
Start Time: 13:34:00 End Time: 19:32:24

Capacity: 8000.00 psig
Last Calib.: 2013.03.12
Time On Btm: 2013.03.12 @ 15:23:55
Time Off Btm: 2013.03.12 @ 17:19:55

TEST COMMENT: IF- Weak Surface Blow Built to 1/2"
ISI- No Blow
FF- Weak Surface Blow Built to 1"
FSI- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2140.14	107.18	Initial Hydro-static
1	16.63	106.50	Open To Flow (1)
6	22.94	110.04	Shut-In(1)
22	733.77	110.73	End Shut-In(1)
22	24.19	110.27	Open To Flow (2)
54	62.34	118.98	Shut-In(2)
116	737.63	121.49	End Shut-In(2)
116	1949.80	122.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	WCM 14%w 86%m	0.30
30.00	5%w 95%m with a Few Oil Spots	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49792 **DST#: 2**

Test Start: 2013.03.12 @ 13:34:00

GENERAL INFORMATION:

Formation: **LKC " K "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:24:10
Time Test Ended: 19:32:24

Test Type: Conventional Bottom Hole (Reset)
Tester: Will MacLean
Unit No: 58

Interval: 4286.00 ft (KB) To 4298.00 ft (KB) (TVD)
Total Depth: 4298.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

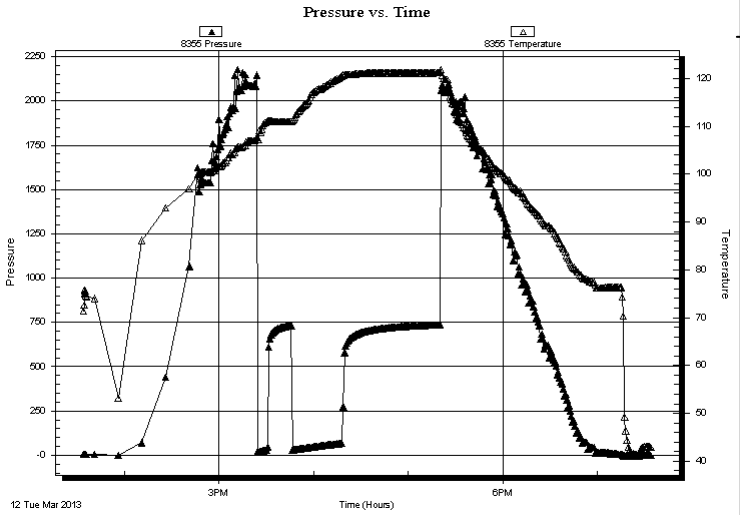
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4287.00 ft (KB)
Start Date: 2013.03.12 End Date: 2013.03.12
Start Time: 13:34:05 End Time: 19:33:44

Capacity: 8000.00 psig
Last Calib.: 2013.03.12
Time On Btm:
Time Off Btm:

TEST COMMENT: IF- Weak Surface Blow Built to 1/2"
ISI- No Blow
FF- Weak Surface Blow Built to 1"
FSI- No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	WCM 14%w 86%m	0.30
30.00	5%w 95%m with a Few Oil Spots	0.15

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49792 **DST#: 2**

Test Start: 2013.03.12 @ 13:34:00

Tool Information

Drill Pipe:	Length:	4137.00 ft	Diameter:	3.80 inches	Volume:	58.03 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		24000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		4000.00 lb
					Total Volume:	58.75 bbl	Tool Chased		ft
Drill Pipe Above KB:		26.00 ft					String Weight:	Initial	62000.00 lb
Depth to Top Packer:		4286.00 ft						Final	62000.00 lb
Depth to Bottom Packer:		ft							
Interval betw een Packers:		12.00 ft							
Tool Length:		40.00 ft							
Number of Packers:		2	Diameter:	6.75 inches					

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4259.00		
Shut In Tool	5.00			4264.00		
Hydraulic tool	5.00			4269.00		
Jars	5.00			4274.00		
Safety Joint	3.00			4277.00		
Packer	5.00			4282.00	28.00	Bottom Of Top Packer
Packer	4.00			4286.00		
Stubb	1.00			4287.00		
Recorder	0.00	8355	Outside	4287.00		
Recorder	0.00	8674	Inside	4287.00		
Perforations	8.00			4295.00		
Bullnose	3.00			4298.00	12.00	Bottom Packers & Anchor
Total Tool Length:	**40.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 49792 **DST#: 2**

Test Start: 2013.03.12 @ 13:34:00

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:	19000 ppm
Viscosity:	59.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	5.96 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2400.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	WCM 14%w 86%m	0.295
30.00	5%w 95%m with a Few Oil Spots	0.148

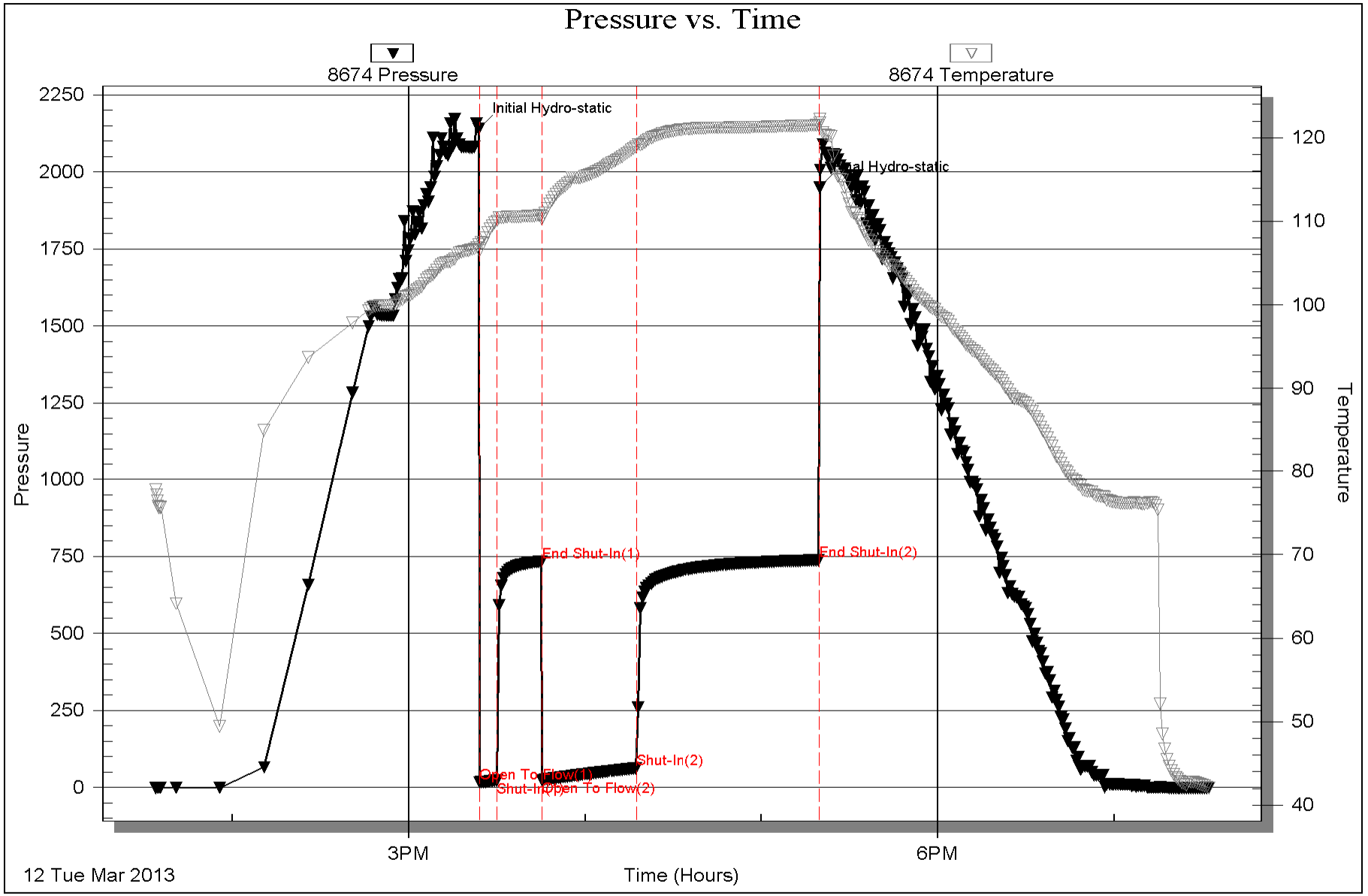
Total Length: 90.00 ft Total Volume: 0.443 bbl

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

Laboratory Name: Laboratory Location:

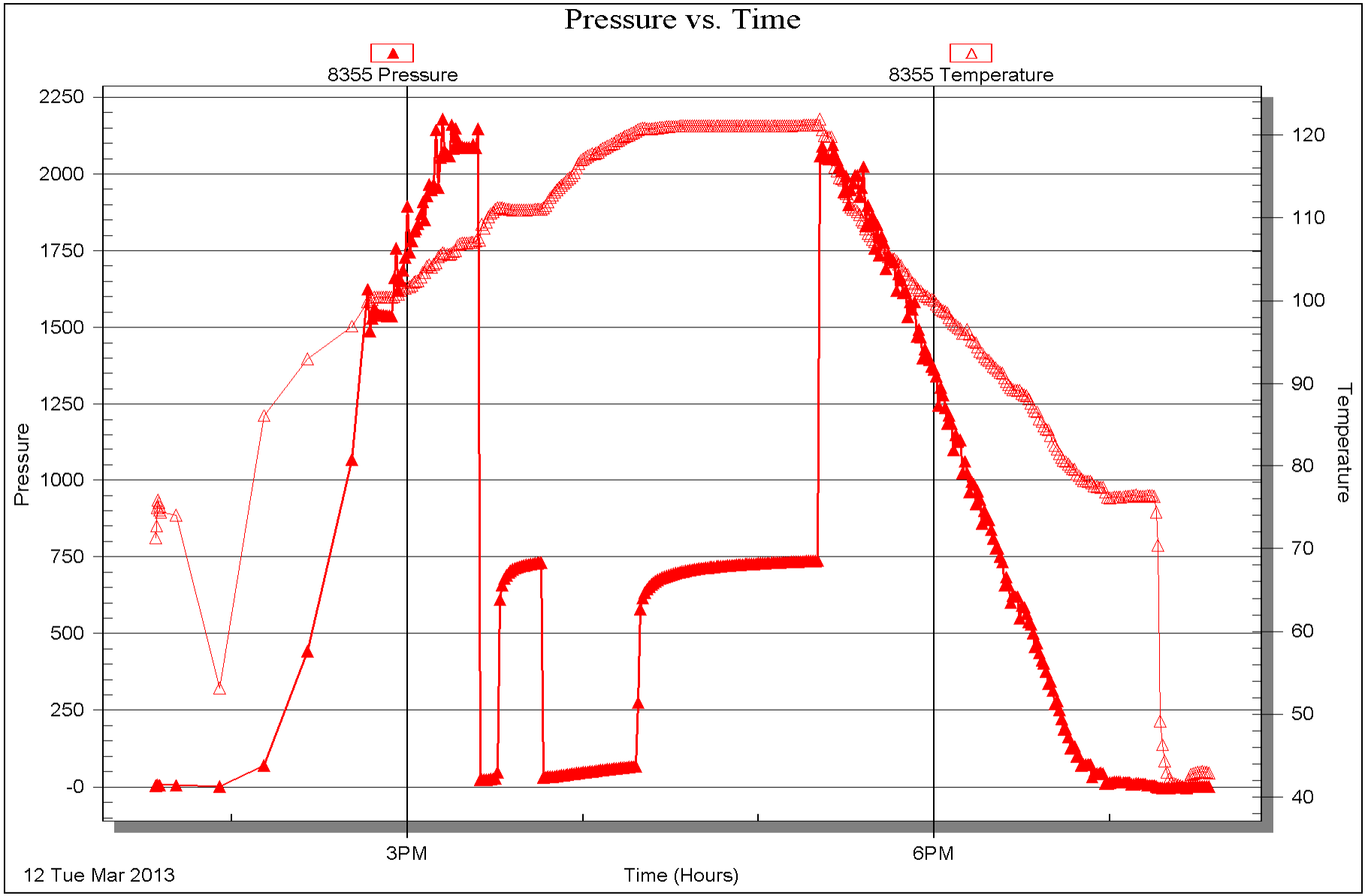
Recovery Comments: RW is .492 @ 48f = 19000

Serial #: 8674 **Inside** Larson Engineering Inc Lenore #3-20 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 49792 Printed: 2013.03.21 @ 09:05:20

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 2



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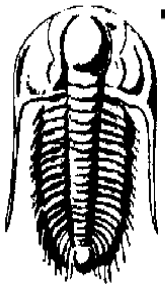


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.13 @ 05:53:00
End Date: 2013.03.13 @ 11:25:45
Job Ticket #: 50613 DST #: 3

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

Printed: 2013.03.21 @ 09:04:38

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50613 **DST#: 3**

Test Start: 2013.03.13 @ 05:53:00

GENERAL INFORMATION:

Formation: **LKC "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:48:00
Time Test Ended: 11:25:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4311.00 ft (KB) To 4335.00 ft (KB) (TVD)
Total Depth: 4335.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

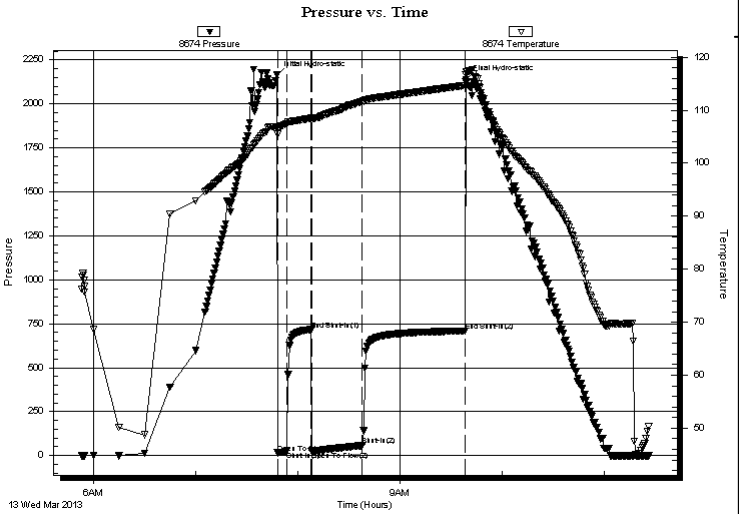
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 57.08 psig @ 4312.00 ft (KB)
Start Date: 2013.03.13 End Date: 2013.03.13
Start Time: 05:53:05 End Time: 11:25:44

Capacity: 8000.00 psig
Last Calib.: 2013.03.13
Time On Btm: 2013.03.13 @ 07:47:45
Time Off Btm: 2013.03.13 @ 09:38:45

TEST COMMENT: 5 IF - Surface blow built to 1" (in diesel)
15 ISI - No return
30 FF - Surface blow built to 4"
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.27	106.94	Initial Hydro-static
1	15.31	105.48	Open To Flow (1)
6	24.38	107.47	Shut-In(1)
20	716.86	108.49	End Shut-In(1)
21	25.60	108.12	Open To Flow (2)
50	57.08	111.61	Shut-In(2)
111	708.58	114.66	End Shut-In(2)
111	2139.42	117.22	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCW - 5%G - 18%M - 77%W	0.30
20.00	GMCW - 7%G - 20%M - 73%W	0.10

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50613 **DST#: 3**

Test Start: 2013.03.13 @ 05:53:00

GENERAL INFORMATION:

Formation: **LKC "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:48:00
Time Test Ended: 11:25:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4311.00 ft (KB) To 4335.00 ft (KB) (TVD)
Total Depth: 4335.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

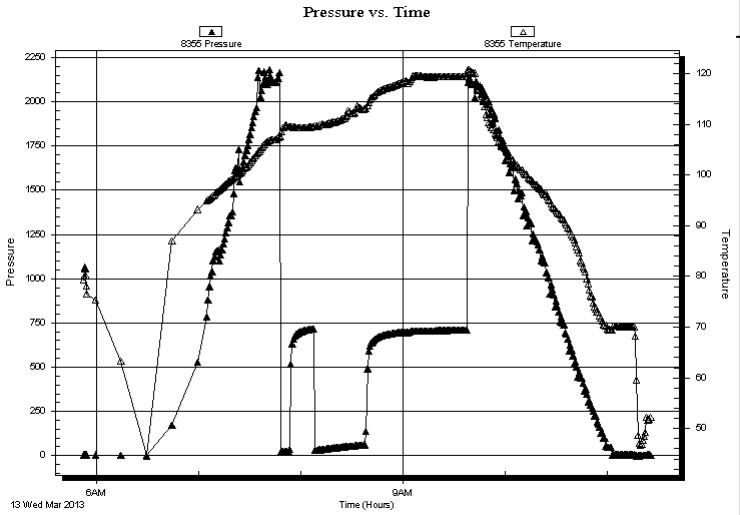
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4312.00 ft (KB)
Start Date: 2013.03.13 End Date: 2013.03.13
Start Time: 05:52:20 End Time: 11:26:14

Capacity: 8000.00 psig
Last Calib.: 2013.03.13
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 1" (in diesel)
15 ISI - No return
30 FF - Surface blow built to 4"
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCW - 5%G - 18%M - 77%W	0.30
20.00	GMCW - 7%G - 20%M - 73%W	0.10

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50613 **DST#: 3**

Test Start: 2013.03.13 @ 05:53:00

Tool Information

Drill Pipe:	Length:	4169.00 ft	Diameter:	3.80 inches	Volume:	58.48 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	59.20 bbl	

Drill Pipe Above KB:	33.00 ft
Depth to Top Packer:	4311.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	24.00 ft
Tool Length:	52.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2500.00 lb
Weight set on Packer:	25000.00 lb
Weight to Pull Loose:	70000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	60000.00 lb
Final	60000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4284.00		
Shut In Tool	5.00			4289.00		
Hydraulic tool	5.00			4294.00		
Jars	5.00			4299.00		
Safety Joint	3.00			4302.00		
Packer	5.00			4307.00	28.00	Bottom Of Top Packer
Packer	4.00			4311.00		
Stubb	1.00			4312.00		
Recorder	0.00	8355	Outside	4312.00		
Recorder	0.00	8674	Inside	4312.00		
Perforations	20.00			4332.00		
Bullnose	3.00			4335.00	24.00	Bottom Packers & Anchor
Total Tool Length:	**52.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50613 **DST#: 3**

Test Start: 2013.03.13 @ 05:53:00

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:	3900 ppm
Viscosity:	59.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	5.96 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2400.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

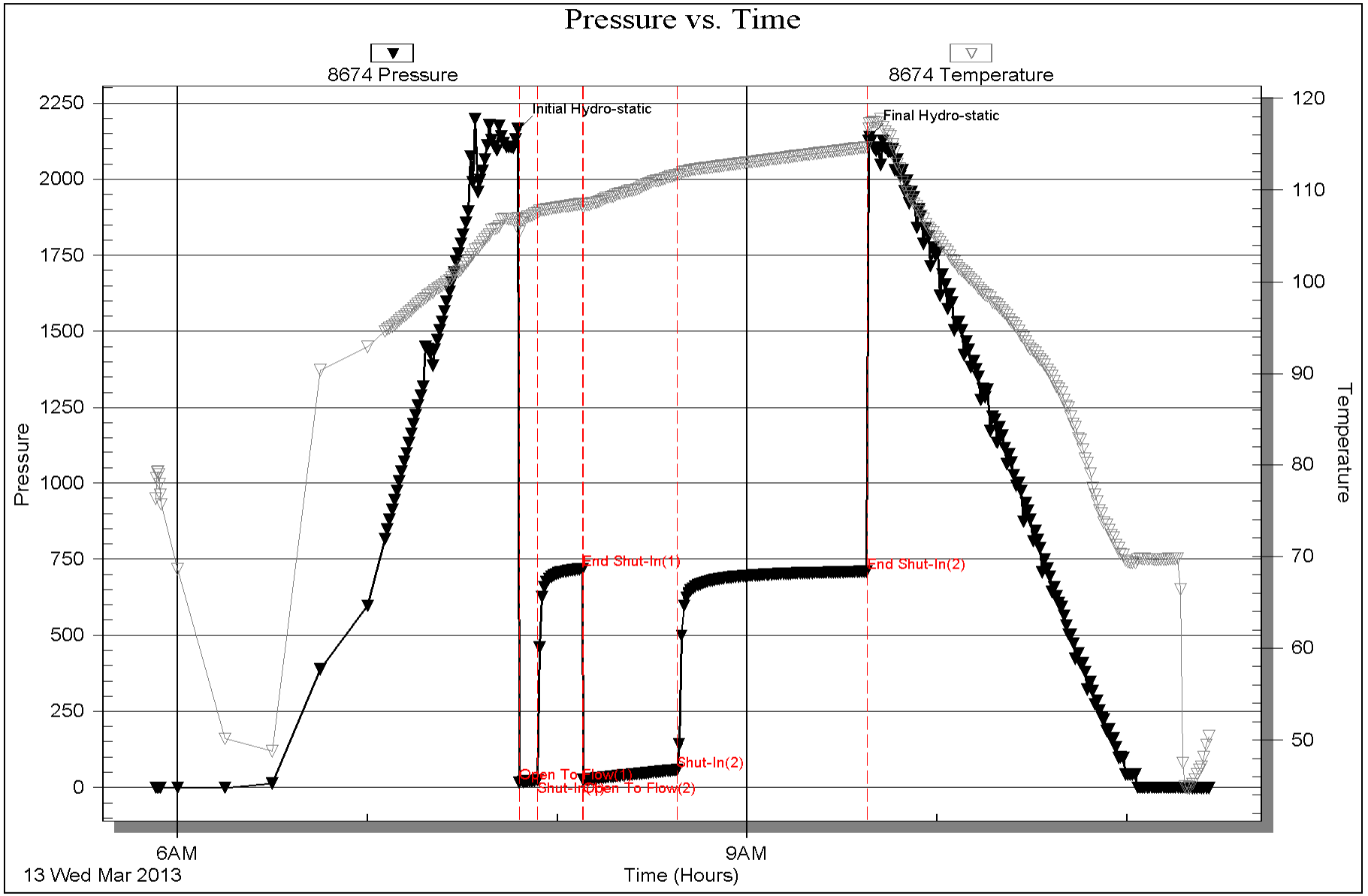
Length ft	Description	Volume bbl
60.00	GMCW - 5%G - 18%M - 77%W	0.295
20.00	GMCW - 7%G - 20%M - 73%W	0.098

Total Length: 80.00 ft Total Volume: 0.393 bbl

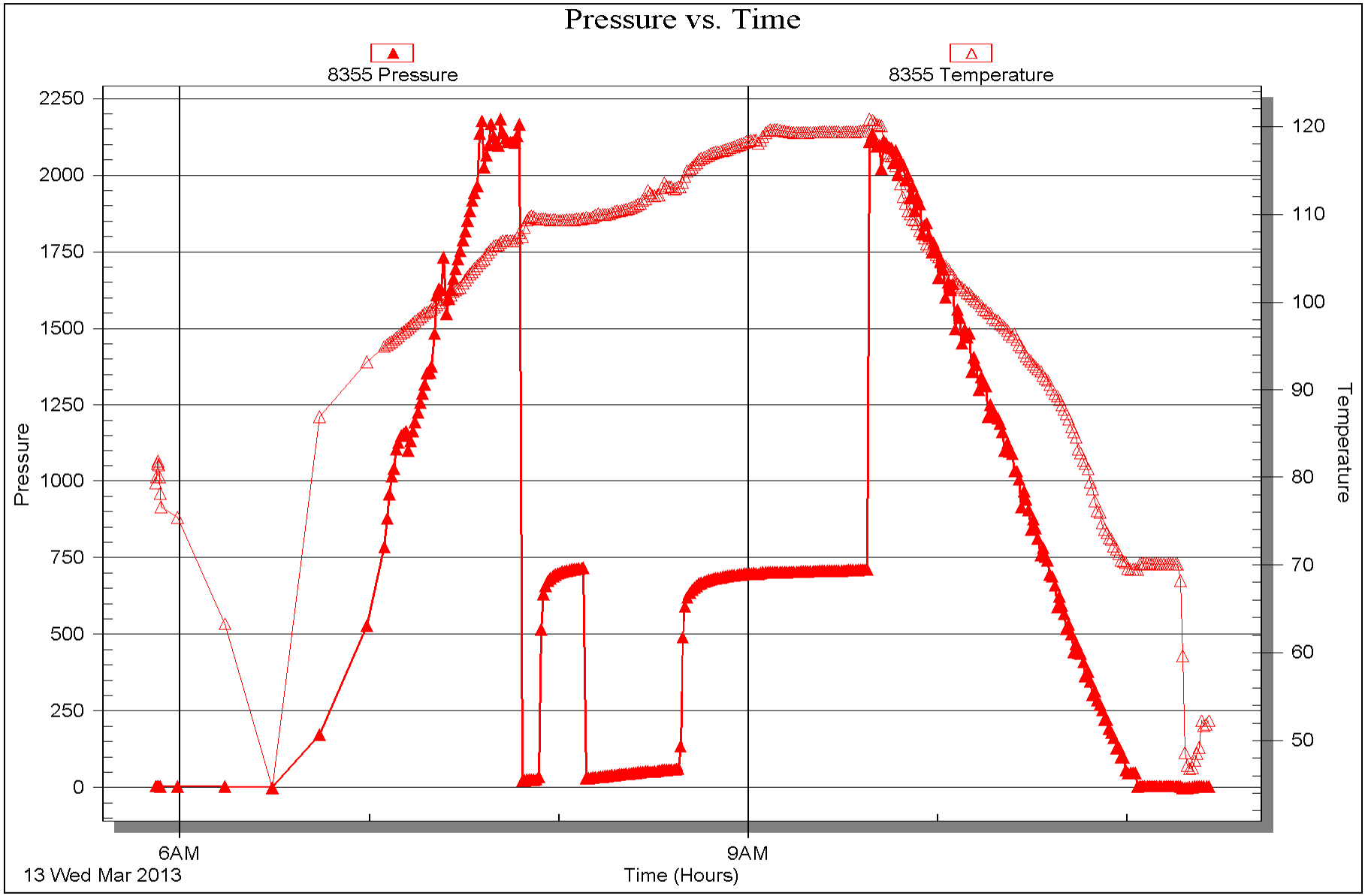
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

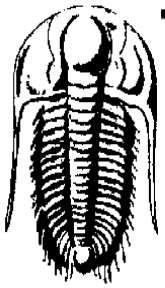
Recovery Comments: RW = .217 @ 53 DEG F


Pressure vs. Time
8674 Pressure
8674 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Shut-In(2)
Open To Flow(1)
Shut-In
Open To Flow(2)
Pressure
Temperature
2250
2000
1750
1500
1250
1000
750
500
250
0
120
110
100
90
80
70
60
50
6AM
9AM
13 Wed Mar 2013
Time (Hours)

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 50613 Printed: 2013.03.21 @ 09:04:41



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.14 @ 07:43:00
End Date: 2013.03.14 @ 13:31:00
Job Ticket #: 50614 DST #: 4

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

Printed: 2013.03.21 @ 09:03:17

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50614 **DST#: 4**

Test Start: 2013.03.14 @ 07:43:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:47:15
Time Test Ended: 13:31:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4360.00 ft (KB) To 4467.00 ft (KB) (TVD)
Total Depth: 4467.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

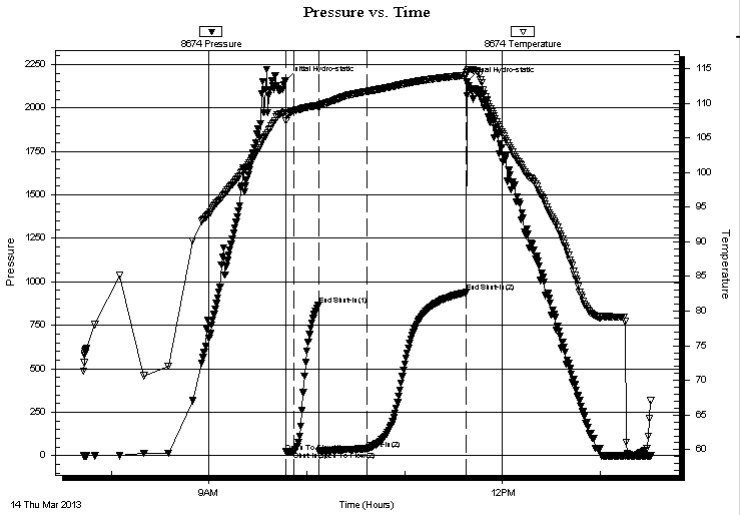
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 39.13 psig @ 4361.00 ft (KB)
Start Date: 2013.03.14 End Date: 2013.03.14
Start Time: 07:43:05 End Time: 13:30:59

Capacity: 8000.00 psig
Last Calib.: 2013.03.14
Time On Btm: 2013.03.14 @ 09:47:00
Time Off Btm: 2013.03.14 @ 11:38:00

TEST COMMENT: 5 IF - Surface blow built to 1/2" (in diesel)
15 ISI - No return
30 FF - Surface blow built to 3"
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2158.36	108.93	Initial Hydro-static
1	21.57	107.49	Open To Flow (1)
6	23.36	108.97	Shut-In(1)
20	867.63	109.69	End Shut-In(1)
21	26.31	109.28	Open To Flow (2)
50	39.13	111.68	Shut-In(2)
111	938.42	114.03	End Shut-In(2)
111	2149.92	114.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 10%G - 22%o - 68%M	0.30

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50614 **DST#: 4**

Test Start: 2013.03.14 @ 07:43:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:47:15
Time Test Ended: 13:31:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4360.00 ft (KB) To 4467.00 ft (KB) (TVD)
Total Depth: 4467.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

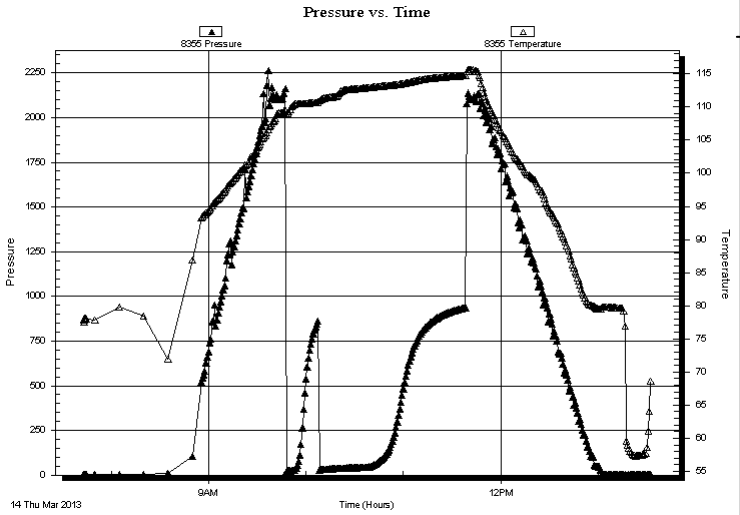
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4361.00 ft (KB)
Start Date: 2013.03.14 End Date: 2013.03.14
Start Time: 07:43:05 End Time: 13:32:14

Capacity: 8000.00 psig
Last Calib.: 2013.03.14
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 1/2" (in diesel)
15 ISI - No return
30 FF - Surface blow built to 3"
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 10%G - 22%o - 68%M	0.30

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50614 **DST#: 4**

Test Start: 2013.03.14 @ 07:43:00

Tool Information

Drill Pipe:	Length:	4200.00 ft	Diameter:	3.80 inches	Volume:	58.91 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	59.63 bbl	

Drill Pipe Above KB:	15.00 ft
Depth to Top Packer:	4360.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	107.00 ft
Tool Length:	135.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:		2500.00 lb
Weight set on Packer:		25000.00 lb
Weight to Pull Loose:		75000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	65000.00 lb
	Final	65000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4333.00		
Shut In Tool	5.00			4338.00		
Hydraulic tool	5.00			4343.00		
Jars	5.00			4348.00		
Safety Joint	3.00			4351.00		
Packer	5.00			4356.00	28.00	Bottom Of Top Packer
Packer	4.00			4360.00		
Stubb	1.00			4361.00		
Recorder	0.00	8355	Outside	4361.00		
Recorder	0.00	8674	Inside	4361.00		
Perforations	36.00			4397.00		
Change Over Sub	1.00			4398.00		
Blank Spacing	62.00			4460.00		
Change Over Sub	1.00			4461.00		
Perforations	3.00			4464.00		
Bullnose	3.00			4467.00	107.00	Bottom Packers & Anchor
Total Tool Length:	**135.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50614 **DST#: 4**

Test Start: 2013.03.14 @ 07:43:00

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:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.77 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2100.00 ppm				
Filter Cake:	2.00 inches				

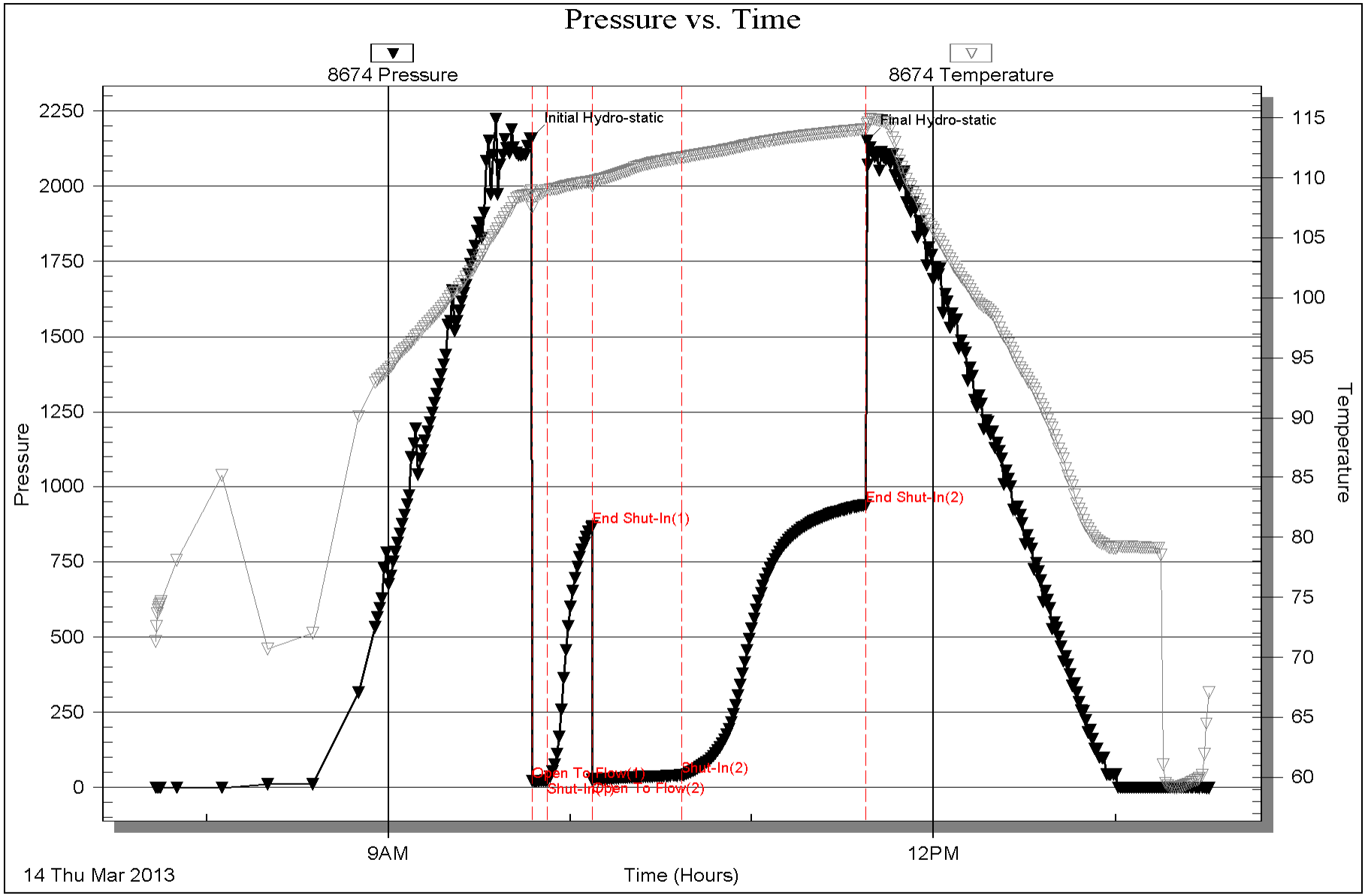
Recovery Information

Recovery Table

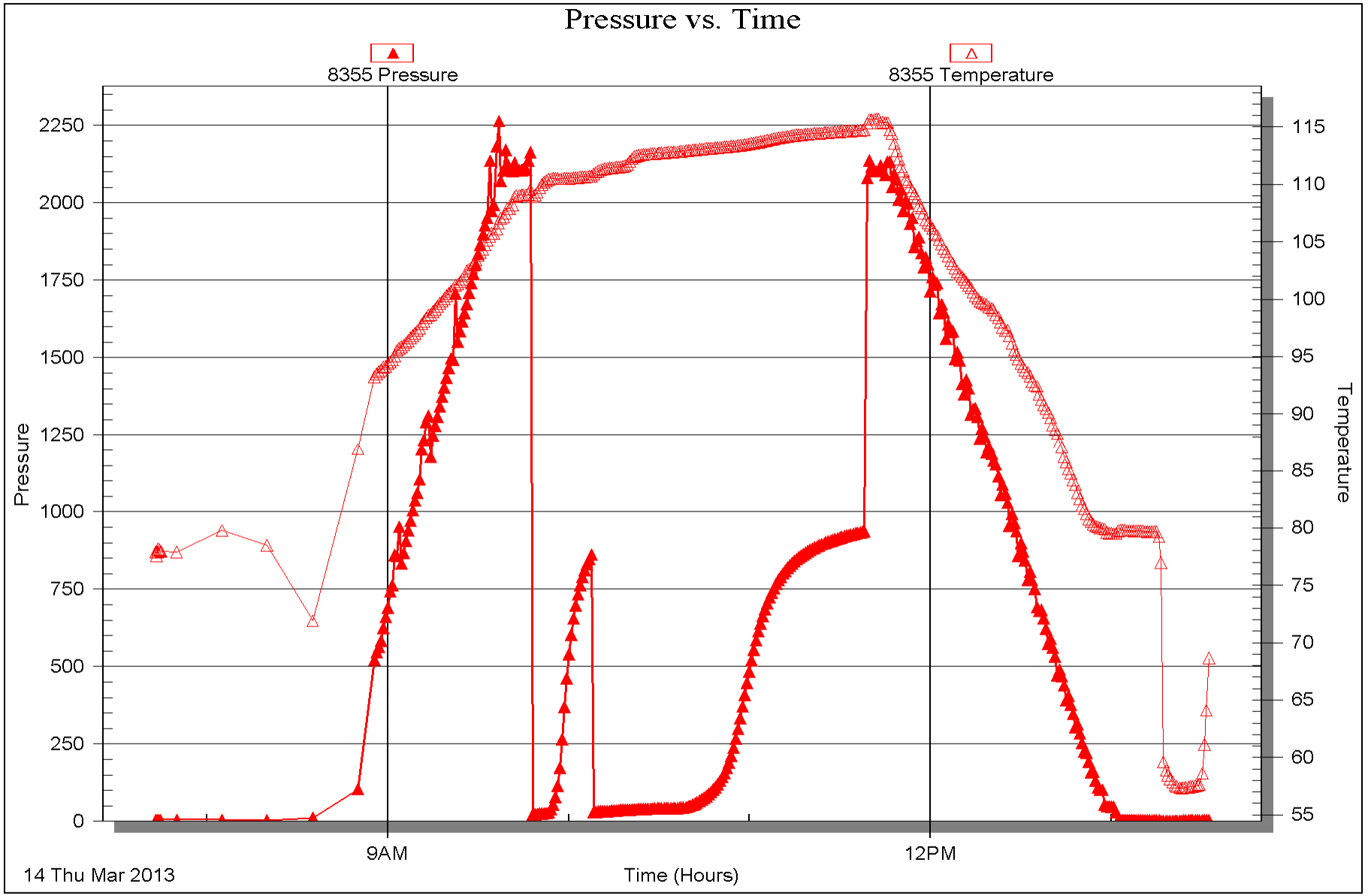
Length ft	Description	Volume bbl
60.00	GOCM - 10%G - 22%o - 68%M	0.295

Total Length: 60.00 ft Total Volume: 0.295 bbl

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


Pressure vs. Time
8674 Pressure
8674 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Open To Flow(1)
Shut-In(1)
Open To Flow(2)
Shut-In(2)
Pressure
Temperature
2250
2000
1750
1500
1250
1000
750
500
250
0
115
110
105
100
95
90
85
80
75
70
65
60
9AM
12PM
14 Thu Mar 2013
Time (Hours)

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 50614 Printed: 2013.03.21 @ 09:03:20

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.15 @ 03:57:00
End Date: 2013.03.15 @ 09:51:15
Job Ticket #: 50615 DST #: 5

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

Printed: 2013.03.21 @ 09:02:35

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50615 **DST#: 5**

Test Start: 2013.03.15 @ 03:57:00

GENERAL INFORMATION:

Formation: **Pawnee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:10:30
Time Test Ended: 09:51:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4482.00 ft (KB) To 4562.00 ft (KB) (TVD)
Total Depth: 4562.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

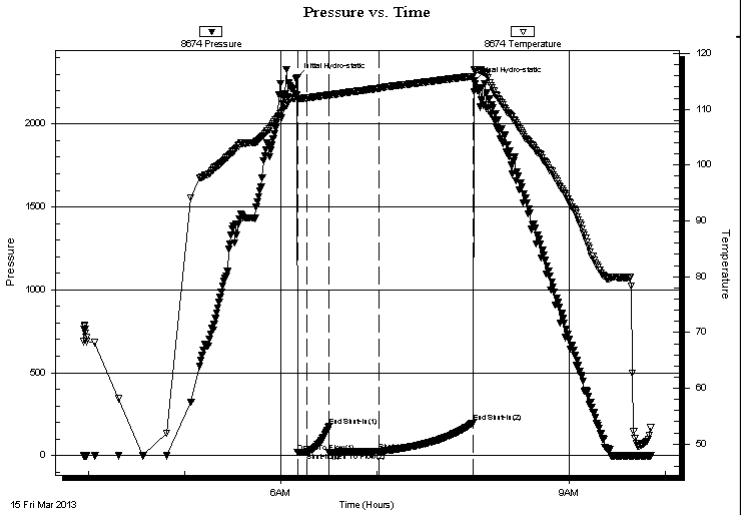
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 24.65 psig @ 4483.00 ft (KB)
Start Date: 2013.03.15 End Date: 2013.03.15
Start Time: 03:57:05 End Time: 09:51:14

Capacity: 8000.00 psig
Last Calib.: 2013.03.15
Time On Btm: 2013.03.15 @ 06:10:15
Time Off Btm: 2013.03.15 @ 08:00:45

TEST COMMENT: 5 IF - Surface blow built to 1" (in diesel)
15 ISI - Surface blow started @ 4 mins.
30 FF - Surface blow
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2281.00	112.55	Initial Hydro-static
1	17.91	111.68	Open To Flow (1)
6	18.65	112.03	Shut-In(1)
20	175.55	112.57	End Shut-In(1)
20	20.74	112.46	Open To Flow (2)
51	24.65	113.72	Shut-In(2)
110	198.53	115.93	End Shut-In(2)
111	2259.09	117.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w/oil spots - 100%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50615 **DST#: 5**

Test Start: 2013.03.15 @ 03:57:00

GENERAL INFORMATION:

Formation: **Pawnee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:10:30
Time Test Ended: 09:51:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4482.00 ft (KB) To 4562.00 ft (KB) (TVD)
Total Depth: 4562.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

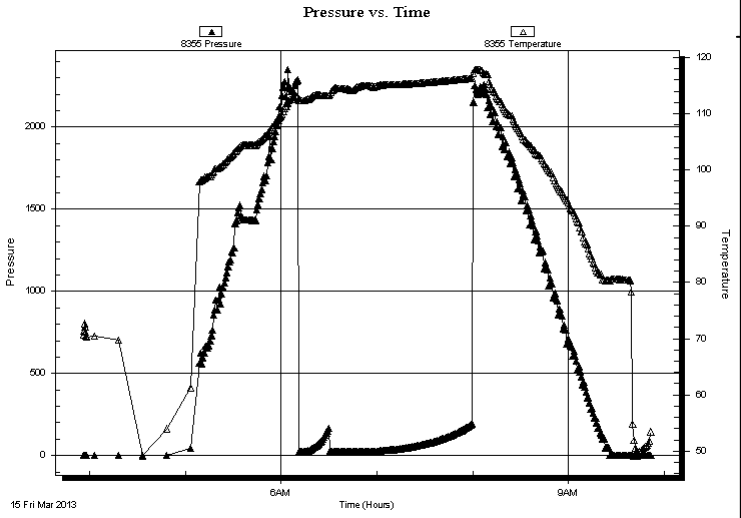
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4483.00 ft (KB)
Start Date: 2013.03.15 End Date: 2013.03.15
Start Time: 03:56:20 End Time: 09:51:44

Capacity: 8000.00 psig
Last Calib.: 2013.03.15
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 1" (in diesel)
15 ISI - Surface blow started @ 4 mins.
30 FF - Surface blow
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w/oil spots - 100%M	0.02

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50615 **DST#: 5**

Test Start: 2013.03.15 @ 03:57:00

Tool Information

Drill Pipe:	Length:	4328.00 ft	Diameter:	3.80 inches	Volume:	60.71 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	61.43 bbl	

Drill Pipe Above KB:	21.00 ft
Depth to Top Packer:	4482.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	80.00 ft
Tool Length:	108.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2500.00 lb
Weight set on Packer:	25000.00 lb
Weight to Pull Loose:	65000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	65000.00 lb
Final	65000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4455.00		
Shut In Tool	5.00			4460.00		
Hydraulic tool	5.00			4465.00		
Jars	5.00			4470.00		
Safety Joint	3.00			4473.00		
Packer	5.00			4478.00	28.00	Bottom Of Top Packer
Packer	4.00			4482.00		
Stubb	1.00			4483.00		
Recorder	0.00	8355	Outside	4483.00		
Recorder	0.00	8674	Inside	4483.00		
Perforations	38.00			4521.00		
Change Over Sub	1.00			4522.00		
Blank Spacing	32.00			4554.00		
Change Over Sub	1.00			4555.00		
Perforations	4.00			4559.00		
Bullnose	3.00			4562.00	80.00	Bottom Packers & Anchor
Total Tool Length:	**108.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 50615 **DST#: 5**

Test Start: 2013.03.15 @ 03:57:00

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:	48.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.96 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2300.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

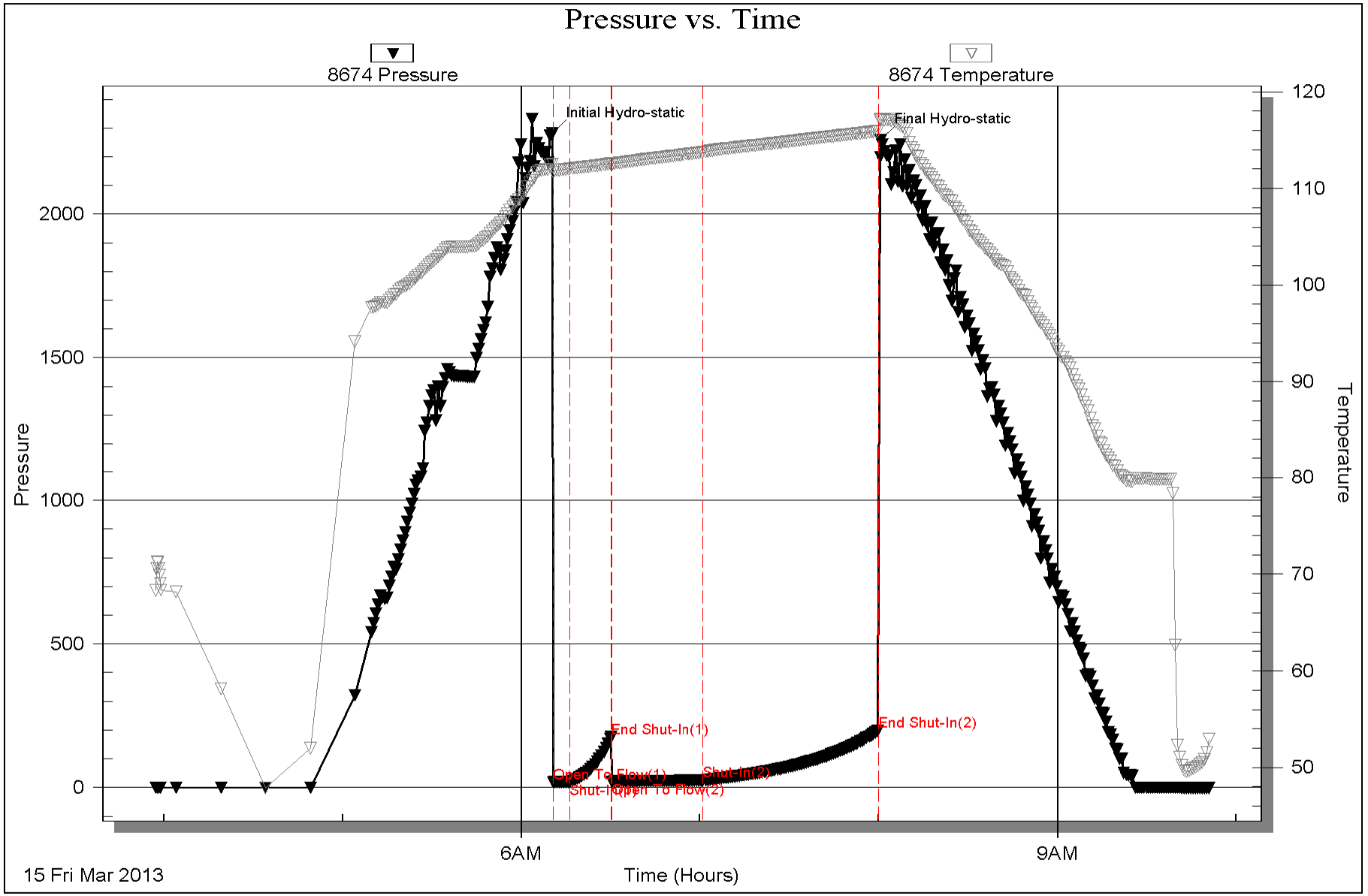
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud w/oil spots - 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

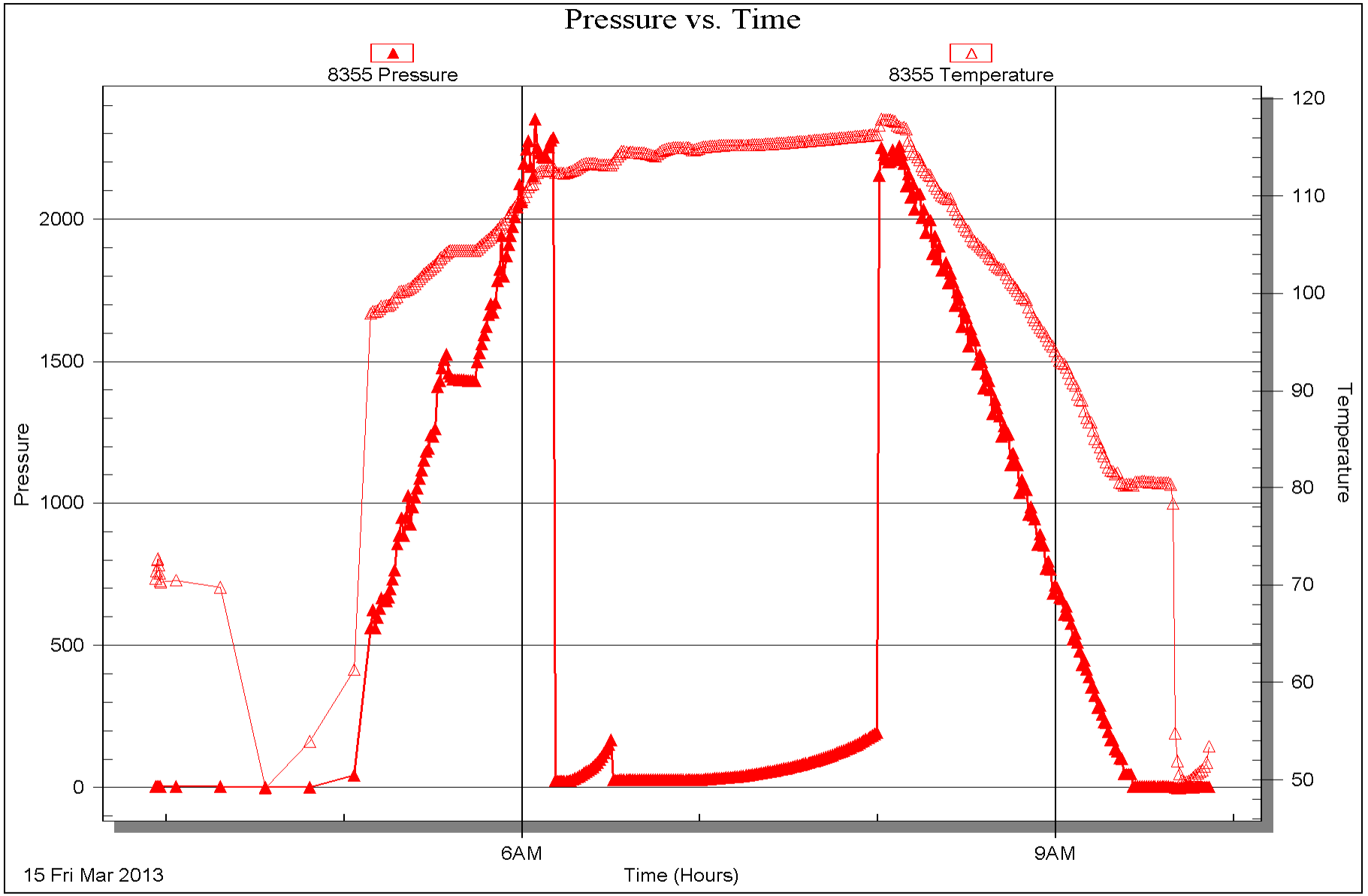
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8674 **Inside** Larson Engineering Inc Lenore #3-20 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 50615 Printed: 2013.03.21 @ 09:02:37

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 5



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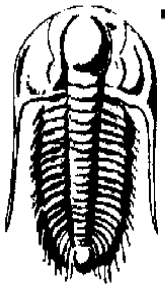


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.15 @ 20:17:00
End Date: 2013.03.16 @ 01:41:30
Job Ticket #: 60616 DST #: 6

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

Printed: 2013.03.21 @ 09:01:26

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 60616 **DST#: 6**

Test Start: 2013.03.15 @ 20:17:00

GENERAL INFORMATION:

Formation: **Cherokee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:47:15
Time Test Ended: 01:41:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4560.00 ft (KB) To 4615.00 ft (KB) (TVD)
Total Depth: 4615.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

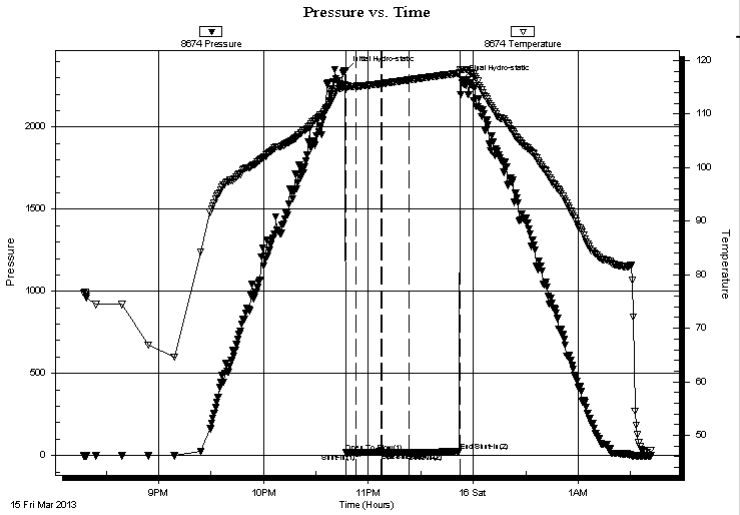
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8674 **Inside**

Press@RunDepth: 15.97 psig @ 4561.00 ft (KB)
Start Date: 2013.03.15 End Date: 2013.03.16
Start Time: 20:17:05 End Time: 01:41:29

Capacity: 8000.00 psig
Last Calib.: 2013.03.16
Time On Btm: 2013.03.15 @ 22:47:00
Time Off Btm: 2013.03.15 @ 23:53:45

TEST COMMENT: 5 IF - Surface blow
15 ISI - No return
15 FF - No blow
30 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2344.24	115.45	Initial Hydro-static
1	17.20	114.66	Open To Flow (1)
6	16.55	115.17	Shut-In(1)
21	22.41	115.65	End Shut-In(1)
21	17.38	115.65	Open To Flow (2)
36	15.97	116.35	Shut-In(2)
66	25.55	117.61	End Shut-In(2)
67	2287.50	118.24	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 60616 **DST#: 6**

Test Start: 2013.03.15 @ 20:17:00

GENERAL INFORMATION:

Formation: **Cherokee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:47:15
Time Test Ended: 01:41:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 58

Interval: 4560.00 ft (KB) To 4615.00 ft (KB) (TVD)
Total Depth: 4615.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

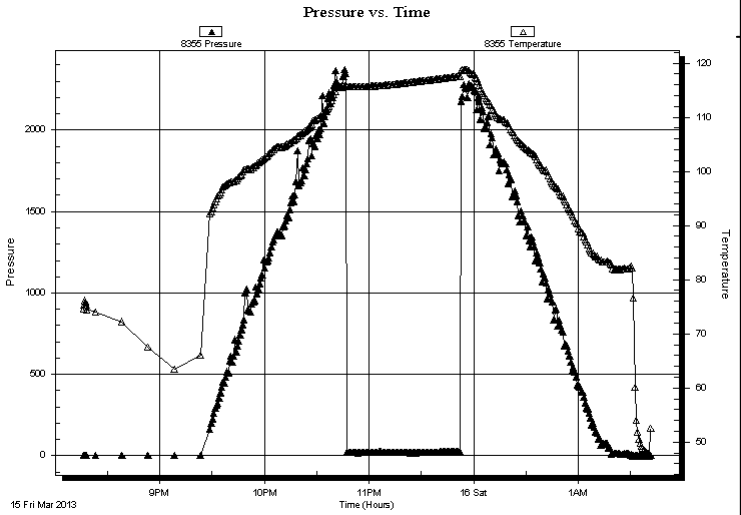
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8355 **Outside**

Press@RunDepth: psig @ 4561.00 ft (KB)
Start Date: 2013.03.15 End Date: 2013.03.16
Start Time: 20:16:20 End Time: 01:41:59

Capacity: 8000.00 psig
Last Calib.: 2013.03.16
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow
15 ISI - No return
15 FF - No blow
30 FSI - No return



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 60616 **DST#: 6**

Test Start: 2013.03.15 @ 20:17:00

Tool Information

Drill Pipe:	Length:	4391.00 ft	Diameter:	3.80 inches	Volume:	61.59 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	62.31 bbl	

Drill Pipe Above KB:	6.00 ft
Depth to Top Packer:	4560.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	55.00 ft
Tool Length:	83.00 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:		2500.00 lb
Weight set on Packer:		25000.00 lb
Weight to Pull Loose:		64000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	64000.00 lb
	Final	64000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4533.00		
Shut In Tool	5.00			4538.00		
Hydraulic tool	5.00			4543.00		
Jars	5.00			4548.00		
Safety Joint	3.00			4551.00		
Packer	5.00			4556.00	28.00	Bottom Of Top Packer
Packer	4.00			4560.00		
Stubb	1.00			4561.00		
Recorder	0.00	8355	Outside	4561.00		
Recorder	0.00	8674	Inside	4561.00		
Perforations	15.00			4576.00		
Change Over Sub	1.00			4577.00		
Blank Spacing	31.00			4608.00		
Change Over Sub	1.00			4609.00		
Perforations	3.00			4612.00		
Bullnose	3.00			4615.00	55.00	Bottom Packers & Anchor
Total Tool Length:	**83.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 60616 **DST#: 6**

Test Start: 2013.03.15 @ 20:17:00

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:	63.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.37 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2500.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

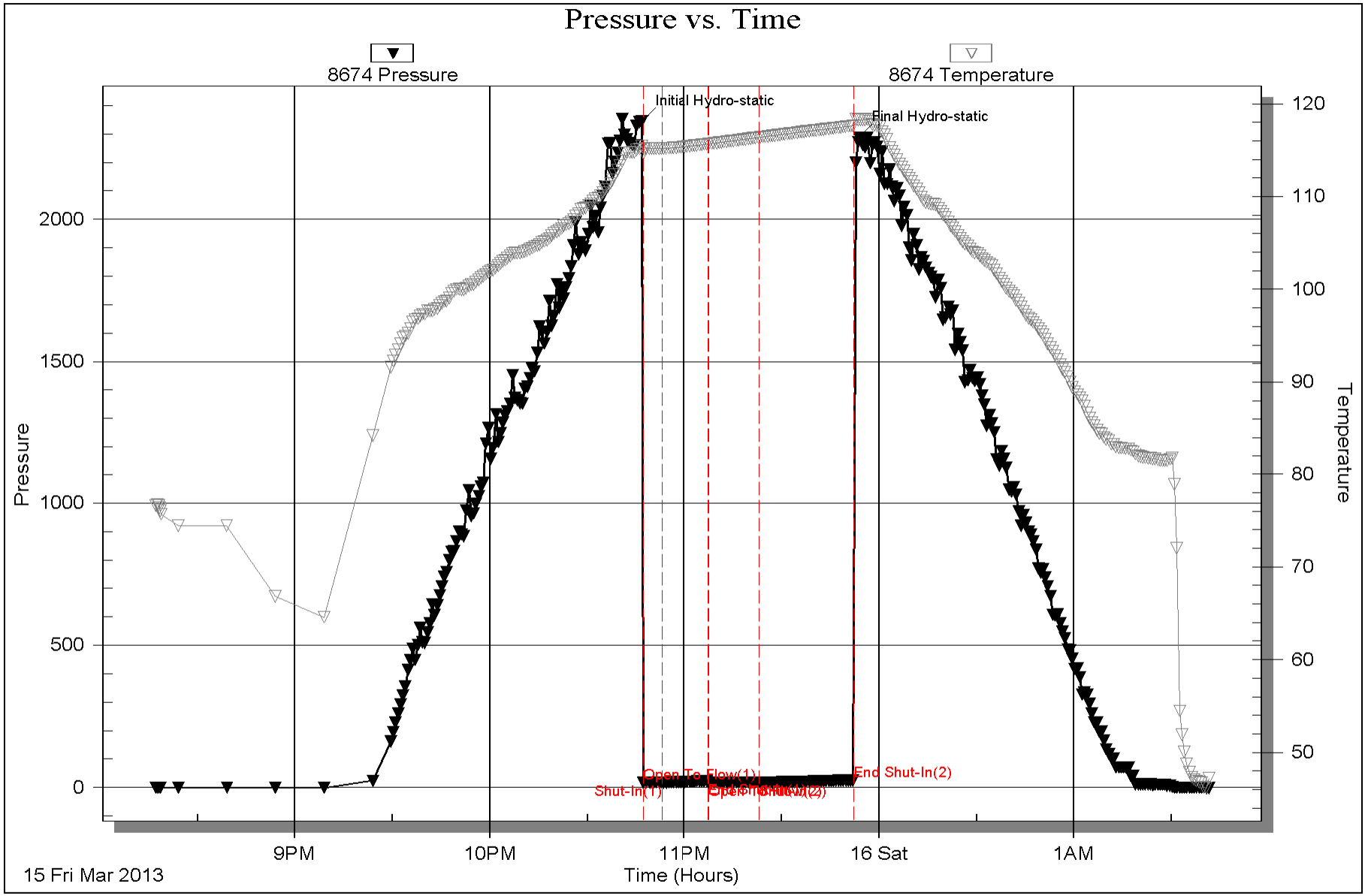
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud - 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

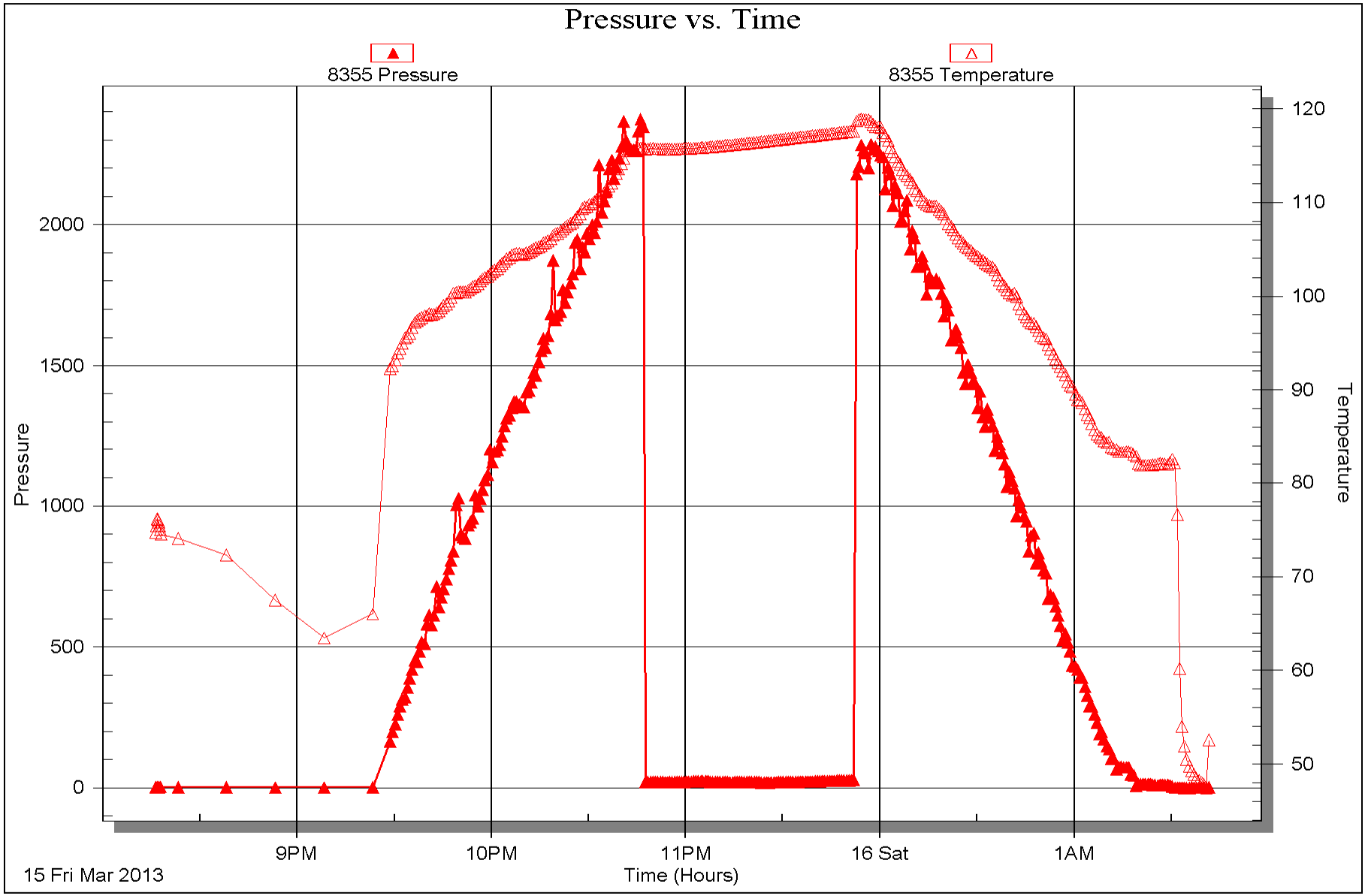
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8674 **Inside** Larson Engineering Inc Lenore #3-20 DST Test Number: 6



Trilobite Testing, Inc Ref. No: 60616 Printed: 2013.03.21 @ 09:01:29

Serial #: 8355 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 6



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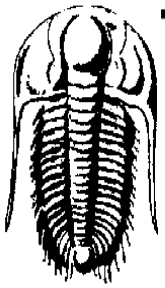


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

Lenore #3-20

20-19s-28w Lane,KS

Start Date: 2013.03.16 @ 19:16:35
End Date: 2013.03.17 @ 00:46:05
Job Ticket #: 51343 DST #: 7

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

Printed: 2013.03.22 @ 15:42:40

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 51343 **DST#: 7**

Test Start: 2013.03.16 @ 19:16:35

GENERAL INFORMATION:

Formation: **Cherokee Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:37:05
Time Test Ended: 00:46:05

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

Interval: 4604.00 ft (KB) To 4649.00 ft (KB) (TVD)
Total Depth: 4709.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

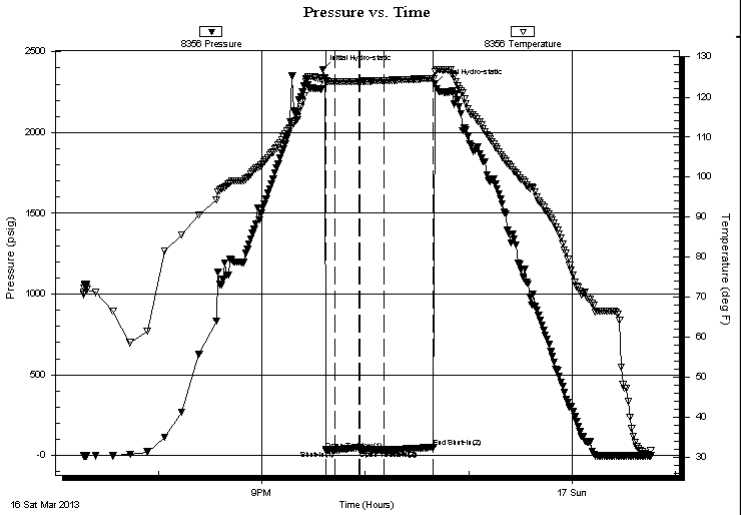
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8356 **Outside**

Press@RunDepth: 35.02 psig @ 4605.00 ft (KB)
Start Date: 2013.03.16 End Date: 2013.03.17
Start Time: 19:16:40 End Time: 00:46:04

Capacity: 8000.00 psig
Last Calib.: 2013.03.16
Time On Btm: 2013.03.16 @ 21:35:35
Time Off Btm: 2013.03.16 @ 22:40:35

TEST COMMENT: IF: Weak blow died in 4 min.
IS: No return.
FF: No blow .
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2391.15	124.50	Initial Hydro-static
2	34.35	124.04	Open To Flow (1)
7	33.88	123.83	Shut-In(1)
21	50.86	123.95	End Shut-In(1)
22	34.88	123.95	Open To Flow (2)
36	35.02	124.13	Shut-In(2)
64	51.79	124.69	End Shut-In(2)
65	2302.20	126.22	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 51343 **DST#: 7**

Test Start: 2013.03.16 @ 19:16:35

GENERAL INFORMATION:

Formation: **Cherokee Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:37:05
Time Test Ended: 00:46:05

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

Interval: 4604.00 ft (KB) To 4649.00 ft (KB) (TVD)
Total Depth: 4709.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

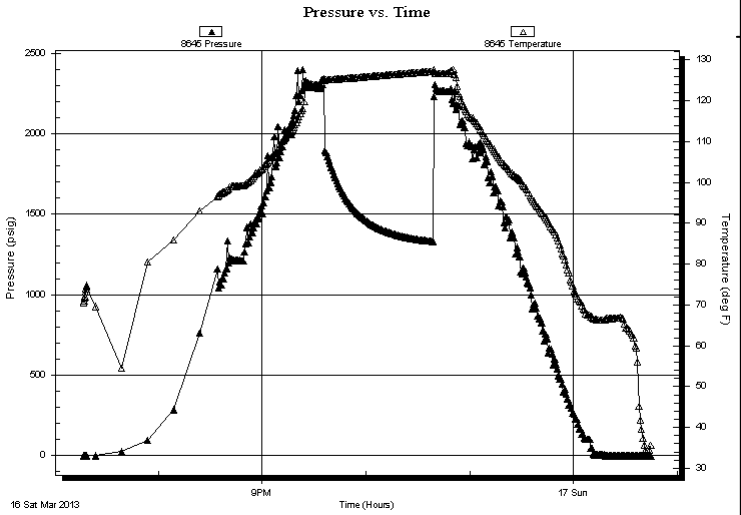
Reference Elevations: 2794.00 ft (KB)
2787.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8645 **Below (Straddle)**

Press@RunDepth: psig @ 4671.00 ft (KB)
Start Date: 2013.03.16 End Date: 2013.03.17
Start Time: 19:16:54 End Time: 00:44:48

Capacity: 8000.00 psig
Last Calib.: 2013.03.17
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Weak blow died in 4 min.
IS: No return.
FF: No blow .
FS: No return.



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 51343 **DST#: 7**

Test Start: 2013.03.16 @ 19:16:35

Tool Information

Drill Pipe:	Length:	4454.00 ft	Diameter:	3.80 inches	Volume:	62.48 bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	
					Total Volume:	63.20 bbl	

Drill Pipe Above KB:	25.00 ft
Depth to Top Packer:	4604.00 ft
Depth to Bottom Packer:	4645.00 ft
Interval between Packers:	41.00 ft
Tool Length:	133.00 ft
Number of Packers:	3 Diameter: 6.75 inches

Tool Weight:	2000.00 lb
Weight set on Packer:	30000.00 lb
Weight to Pull Loose:	80000.00 lb
Tool Chased	0.00 ft
String Weight: Initial	70000.00 lb
Final	70000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Stubb	1.00			4577.00		
Shut In Tool	5.00			4582.00		
Hydraulic tool	5.00			4587.00		
Jars	5.00			4592.00		
Safety Joint	3.00			4595.00		
Packer	5.00			4600.00	28.00	Bottom Of Top Packer
Packer	4.00			4604.00		
Stubb	1.00			4605.00		
Recorder	0.00	8373	Inside	4605.00		
Recorder	0.00	8356	Outside	4605.00		
Perforations	1.00			4606.00		
Change Over Sub	1.00			4607.00		
Drill Pipe	31.00			4638.00		
Change Over Sub	1.00			4639.00		
Perforations	5.00			4644.00		
Blank Off Sub	1.00			4645.00	41.00	Tool Interval
Packer	4.00			4649.00		
Stubb	1.00			4650.00		
Perforations	20.00			4670.00		
Change Over Sub	1.00			4671.00		
Recorder	0.00	8645	Below	4671.00		
Drill Pipe	32.00			4703.00		
Change Over Sub	1.00			4704.00		
Bullnose	5.00			4709.00	64.00	Bottom Packers & Anchor
Total Tool Length:	**133.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

562 W. St Rd 4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane,KS

Lenore #3-20

Job Ticket: 51343 **DST#: 7**

Test Start: 2013.03.16 @ 19:16:35

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	0 ppm
Viscosity:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2300.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

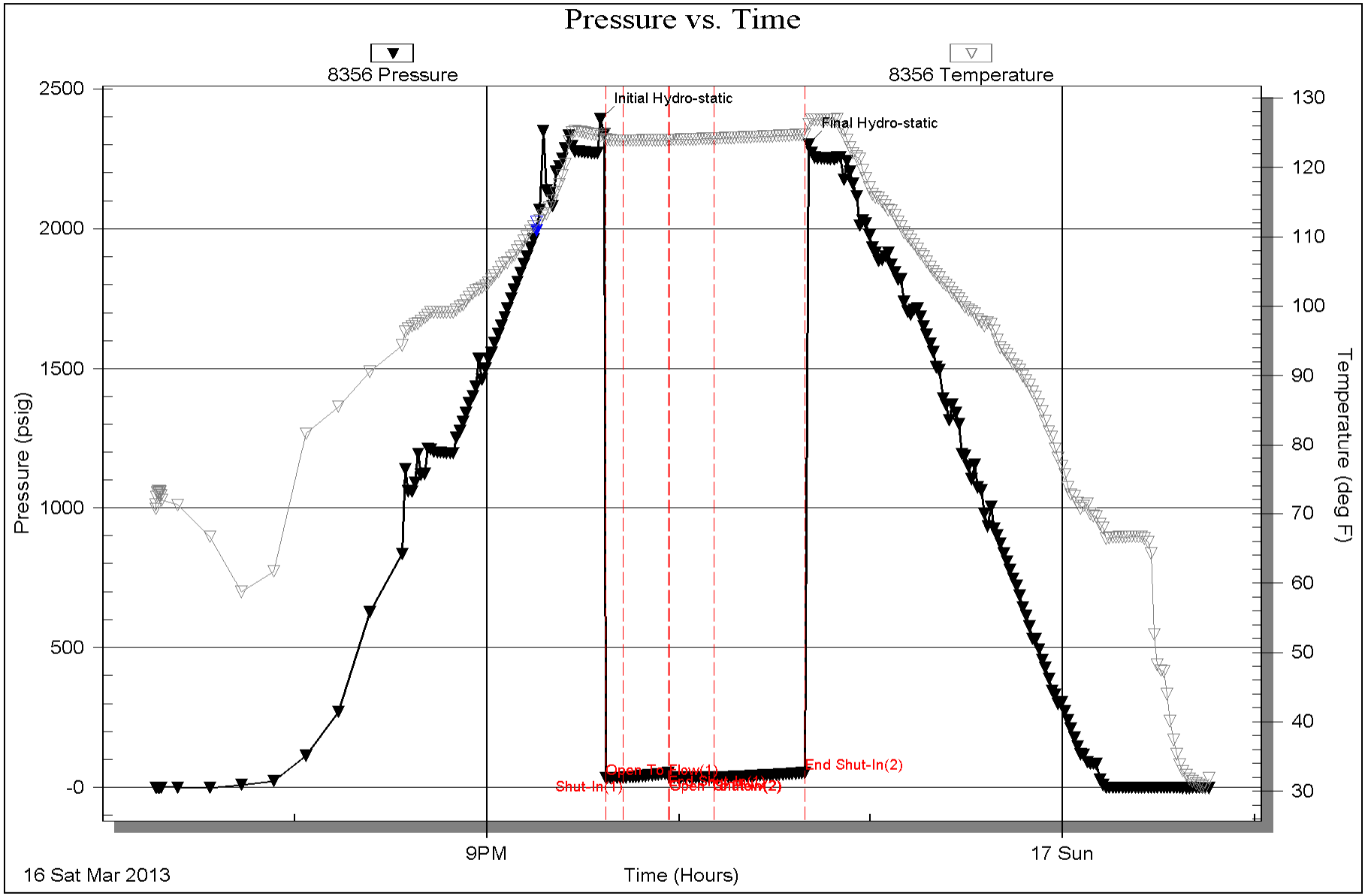
Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

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

Serial #: 8356 **Outside** Larson Engineering Inc Lenore #3-20 DST Test Number: 7



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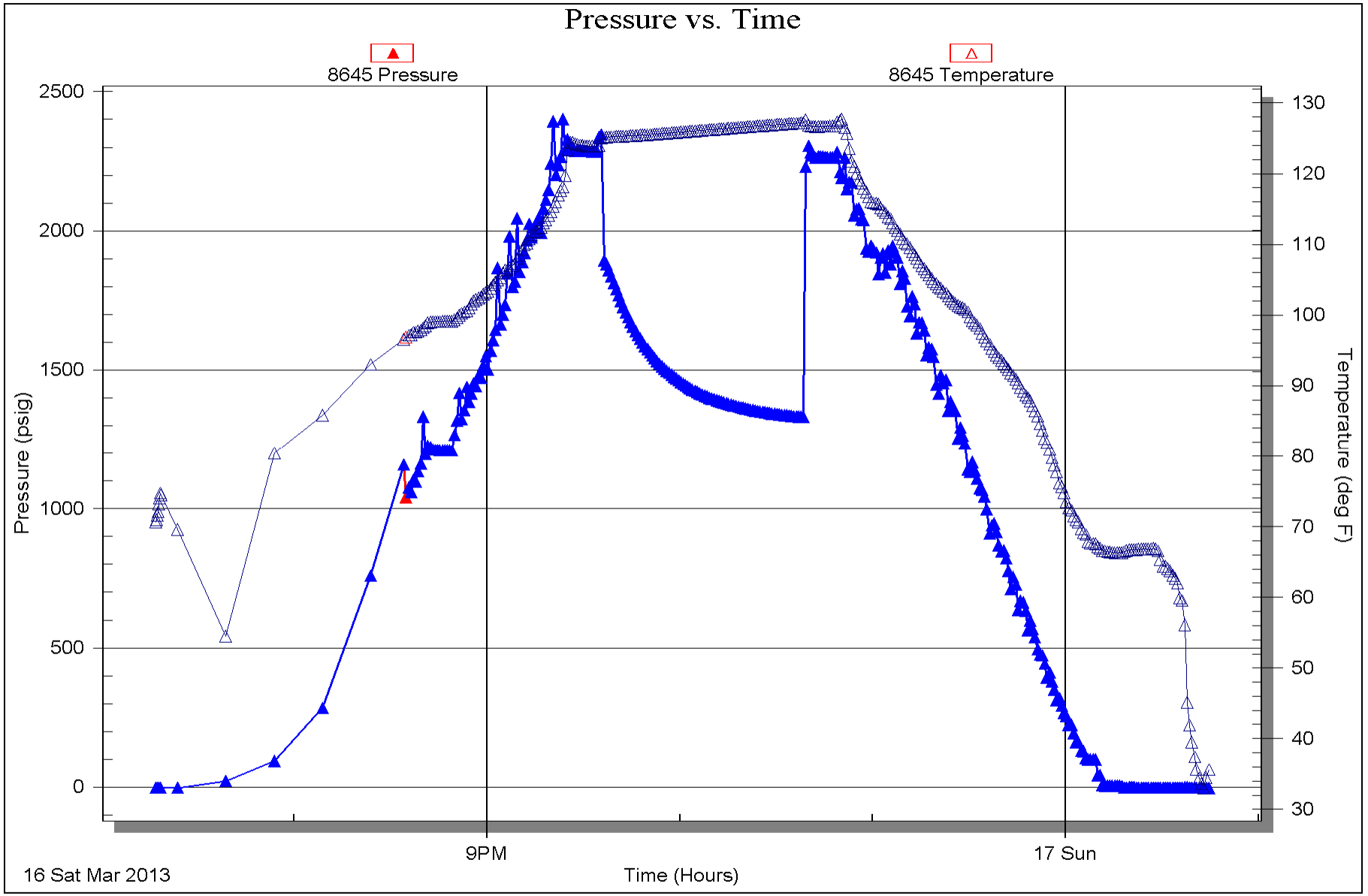
Pressure vs. Time
8645 Pressure
8645 Temperature
2500
2000
1500
1000
500
0
Pressure (psig)
130
120
110
100
90
80
70
60
50
40
30
Temperature (deg F)
9PM
17 Sun
16 Sat Mar 2013
Time (Hours)

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 49791

Well Name & No. Lenore #3-20 Test No. DST #1 Date 3-11-13

Company Larson Engineering Inc Elevation 2794 KB 2787 GL

Address 562 W. St. Rd 4 Olmitz KS 67564

Co. Rep / Geo. Vern Schrag Rig H-D Rig #3

Location: Sec. 20 Twp. 19s Rge. 28w Co. Lane State KS

Interval Tested 4188-4212 Zone Tested LKC "H"

Anchor Length 24 Drill Pipe Run 4043 Mud Wt. 9.3

Top Packer Depth 4184 Drill Collars Run 147 Vis 52

Bottom Packer Depth 4188 Wt. Pipe Run 0 WL 7.2

Total Depth 4212 Chlorides 2700 ppm System LCM 1lb

Blow Description IF - Weak Surface Blow
ISI - No Blow
FF - No Blow
FSI - No Blow

Rec 5	Feet of Mud with Skim of Oil on Top	%gas	%oil	%water	100 %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 107 Gravity ____ API RW ____ @ ____ °F Chlorides ____ ppm

(A) Initial Hydrostatic 2109	☑ Test 1250	T-On Location 14:54	
(B) First Initial Flow 16	☑ Jars 250	T-Started 16:12	
(C) First Final Flow 18	☑ Safety Joint 75	T-Open 18:50	
(D) Initial Shut-In 859	☑ Circ Sub N/C	T-Pulled 19:58	
(E) Second Initial Flow 15	☐ Hourly Standby	T-Out 22:07	
(F) Second Final Flow 18	☑ Mileage 62 R/T 96.10	Comments	
(G) Final Shut-In 888	☐ Sampler		
(H) Final Hydrostatic 2006	☐ Straddle	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 5	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0	
Final Flow 15	☐ Day Standby	Total 1671.10	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 1671.10		

Approved By Vernon Schrag Our Representative Kim Ma

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 49792

Well Name & No. Lenore #3-20 Test No. DST #2 Date 3-12-13

Company Larson Engineering Inc Elevation 2794 KB 2787 GL

Address 562 W. St. Rd 4 Olmitz KS 67564

Co. Rep / Geo. Vern Schrag Rig H-D Rig #3

Location: Sec. 20 Twp. 19s Rge. 28w Co. Lane State KS

Interval Tested 4286 - 4298 Zone Tested LKC "K"

Anchor Length 12 Drill Pipe Run 4137 Mud Wt. 9.2

Top Packer Depth 4282 Drill Collars Run 147 Vis 59

Bottom Packer Depth 4286 Wt. Pipe Run 0 WL 6.0

Total Depth 4298 Chlorides 2400 ppm System LCM 1lb

Blow Description IF- Weak Surface Blow Built to ½"

ISI- No Blow

FF- Weak Surface Blow Built to 1"

FSI- No Blow

Rec 30	Feet of WCM with a few Oil Spots	%gas	%oil 5	%water 95	%mud
Rec 60	Feet of WCM	%gas	%oil 14	%water 86	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 90 BHT 114 Gravity ____ API RW .492 @ 48 °F Chlorides 19000 ppm

(A) Initial Hydrostatic 2140

(B) First Initial Flow 16

(C) First Final Flow 22

(D) Initial Shut-In 733

(E) Second Initial Flow 24

(F) Second Final Flow 62

(G) Final Shut-In 737

(H) Final Hydrostatic 1949

Initial Open 5

Initial Shut-In 15

Final Flow 30

Final Shut-In 60

- ☑ Test 1250
- ☑ Jars 250
- ☑ Safety Joint 75
- ☑ Circ Sub
- ☐ Hourly Standby
- ☑ Mileage 62 R/T 96.10
- ☐ Sampler
- ☐ Straddle
- ☐ Shale Packer
- ☐ Extra Packer
- ☐ Extra Recorder
- ☐ Day Standby
- ☐ Accessibility

Sub Total 1671.10

T-On Location 13:04

T-Started 13:34

T-Open 15:24

T-Pulled 17:19

T-Out 19:32

Comments

- ☐ Ruined Shale Packer
- ☐ Ruined Packer
- ☐ Extra Copies

Sub Total 0

Total 1671.10

MP/DST Disc't

Approved By Vern C Schrag Our Representative Wm

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

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 50613

Well Name & No. Lenore #3-20 Test No. 3 Date 3/13/13

Company Larson Engineering, Inc. Elevation 2794 KB 2787 GL

Address 562 W. St. Rt 4 Almitz, KS 67564

Co. Rep / Geo. Vern Schrag Rig HD #3

Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4311-4335 Zone Tested LKC "L"

Anchor Length 24' Drill Pipe Run 4169' Mud Wt. 9.2

Top Packer Depth 4306 Drill Collars Run 147' Vis 59

Bottom Packer Depth 4311 Wt. Pipe Run 0' WL 5.99

Total Depth 4335 Chlorides 2400 ppm System LCM 1

Blow Description IF- Surface blow built to 1" (in diesel)
ISI- No return
FF- Surface blow built to 4"
FSI- No return

Rec 20'	Feet of GMCW	7 %gas	%oil	73 %water	20 %mud
Rec 60'	Feet of GMCW	5 %gas	%oil	77 %water	18 %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 80' BHT 115° Gravity — API RW .217 @ 53 °F Chlorides 3900 ppm

(A) Initial Hydrostatic 2163	☑ Test 1250	T-On Location 05:15
(B) First Initial Flow 15	☑ Jars 250	T-Started 05:53
(C) First Final Flow 24	☑ Safety Joint 75	T-Open 07:49
(D) Initial Shut-In 717	☑ Circ Sub NC	T-Pulled 09:39
(E) Second Initial Flow 26	☐ Hourly Standby	T-Out 11:27
(F) Second Final Flow 57	☑ Mileage 60 RT 96.10	Comments
(G) Final Shut-In 709	☐ Sampler	
(H) Final Hydrostatic 2139	☐ Straddle	☐ Ruined Shale Packer
	☐ Shale Packer	☐ Ruined Packer
Initial Open 5	☐ Extra Packer	☐ Extra Copies
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0
Final Flow 30	☐ Day Standby	Total 1671.10
Final Shut-In 60	☐ Accessibility	MP/DST Disc't
	Sub Total 1671.10	

Approved By Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 50614

Well Name & No. Lenore #3-20 Test No. 4 Date 3/14/13

Company Larson Engineering, INC. Elevation 2794 KB 2787 GL

Address 562 W. St. Rd 4 Olmitz, KS 67564

Co. Rep / Geo. Vern Schrag Rig HD #3

Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4360 - 4467 Zone Tested Marmaton

Anchor Length 107' Drill Pipe Run Mud Wt. 9.2

Top Packer Depth 4355 Drill Collars Run 147' Vis 57

Bottom Packer Depth 4360 Wt. Pipe Run 0' WL 6.8

Total Depth 4467 Chlorides 2100 ppm System LCM 1

Blow Description IF - Surface blow built to ½" (in diesel)

ISI - No return

FF - Surface blow built to 3"

FSI - No return

Rec 60'	Feet of GOCM	10 %gas	22 %oil	%water	68 %mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 60' BHT 114° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2158	☑ Test 1250	T-On Location 07:00	
(B) First Initial Flow 22	☑ Jars 250	T-Started 07:43	
(C) First Final Flow 23	☑ Safety Joint 75	T-Open 09:48	
(D) Initial Shut-In 868	☑ Circ Sub NC	T-Pulled 11:38	
(E) Second Initial Flow 26	☐ Hourly Standby	T-Out 13:32	
(F) Second Final Flow 39	☑ Mileage 60RT 96.10	Comments	
(G) Final Shut-In 938	☐ Sampler		
(H) Final Hydrostatic 2150	☐ Straddle	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 5	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0	
Final Flow 30	☐ Day Standby	Total 1671.10	
Final Shut-In 60	☐ Accessibility	MP/DST Disc't	
	Sub Total 1671.10		

Approved By Our Representative Ryan Nichols

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 50615

Well Name & No. Lenore #3-20 Test No. 5 Date 3/15/13

Company Larson Engineering, Inc. Elevation 2794 KB 2787 GL

Address 562 W. St. Rd 4 Olmitz, KS 67564

Co. Rep / Geo. Vern Schrag Rig HD #3

Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4482 - 4562 Zone Tested Paw

Anchor Length ~~4480~~ 80' Drill Pipe Run 4328' Mud Wt. 9.3

Top Packer Depth ~~4482~~ 4477 Drill Collars Run 147' Vis 48

Bottom Packer Depth 4482 Wt. Pipe Run 0' WL 8.0

Total Depth 4562 Chlorides 2300 ppm System LCM 1

Blow Description IF - Surface blow built to 1" (in diesel)

ISI - Surface blow started @ 4 mins

FF - Surface blow

FSI - No return

Rec 5'	Feet of Mud w/oil spots	%gas	%oil	%water 100	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 5' BHT 116° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2281	☑ Test 1250	T-On Location 03:15	
(B) First Initial Flow 18	☑ Jars 250	T-Started 03:57	
(C) First Final Flow 19	☑ Safety Joint 75	T-Open 06:11	
(D) Initial Shut-In 176	☑ Circ Sub NC	T-Pulled 08:01	
(E) Second Initial Flow 21	☐ Hourly Standby	T-Out 09:52	
(F) Second Final Flow 25	☑ Mileage 60 RT 96.10	Comments	
(G) Final Shut-In 199	☐ Sampler		
(H) Final Hydrostatic 2259	☐ Straddle	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 5	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0	
Final Flow 30	☐ Day Standby	Total 1671.10	
Final Shut-In 60	☐ Accessibility	MP/DST Disc't	
	Sub Total 1671.10		

Approved By _____ Our Representative Kyle Nicholas

4/10

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50616

Well Name & No. Lenore #3-20 Test No. 6 Date 3/15/13

Company Larson Engineering, Inc Elevation 2794 KB 2787 GL

Address 562 W. St. Rd. 4 Olmitz, KS 67564

Co. Rep / Geo. Vern Schrag Rig HD #3

Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4560 - 4615 Zone Tested Cherokee

Anchor Length 55' Drill Pipe Run 4391' Mud Wt. 9.4

Top Packer Depth 4555 Drill Collars Run 147' Vis 63

Bottom Packer Depth 4560 Wt. Pipe Run 0' WL 8.4

Total Depth 4615 Chlorides 2500 ppm System LCM 1

Blow Description IF - Surface blow
ISI - No return
FF - No blow
FSI - No return

Rec 5'	Feet of Mud	%gas	%oil	%water 100	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5' BHT 118° Gravity ____ API RW ____ @ ____ °F Chlorides ____ ppm

(A) Initial Hydrostatic 2344	☑ Test 1250	T-On Location [illegible] 19:15	
(B) First Initial Flow 17	☑ Jars 250	T-Started 20:17	
(C) First Final Flow 17	☑ Safety Joint 75	T-Open [illegible] 22:48	
(D) Initial Shut-In 22	☑ Circ Sub	T-Pulled 23:53	
(E) Second Initial Flow 17	☐ Hourly Standby	T-Out 01:43	
(F) Second Final Flow 16	☑ Mileage 60 RT 96.10	Comments	
(G) Final Shut-In 26	☐ Sampler		
(H) Final Hydrostatic 2288	☐ Straddle	☐ Ruined Shale Packer	
	☐ Shale Packer	☐ Ruined Packer	
Initial Open 5	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0	
Final Flow 15	☐ Day Standby	Total 1671.10	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 1671.10		

Approved By ____ Our Representative Ryan Nichols

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51343

Well Name & No. Lenore 3-20 Test No. 7 Date 3-16-13

Company Larson Engineering Inc Elevation 2794 KB 2787 GL

Address

Co. Rep / Geo. Vern Schrag Rig HD #3

Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4604 4649 Zone Tested Cherokee Sand

Anchor Length 45 Drill Pipe Run 4454 Mud Wt. 9.3

Top Packer Depth 4604 Drill Collars Run 148 Vis 55

Bottom Packer Depth 4649 Wt. Pipe Run — WL 8.0

Total Depth 4709 Chlorides 2300 ppm System LCM 1

Blow Description IF: Wk blow died in 4 min.
IS: No return.
FF: No blow.
FS: No return.

Rec 5	Feet of mud	%gas	%oil	%water	100 %mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 124 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2391	☑ Test 1250	T-On Location 18:00	
(B) First Initial Flow 34	☑ Jars 250	T-Started 19:16	
(C) First Final Flow 33	☑ Safety Joint 75	T-Open 21:36	
(D) Initial Shut-In 50	☑ Circ Sub N/C	T-Pulled 22:41	
(E) Second Initial Flow 34	☐ Hourly Standby	T-Out 00:50	
(F) Second Final Flow 35	☑ Mileage 60 - 96.10	Comments	
(G) Final Shut-In 51	☐ Sampler		
(H) Final Hydrostatic 2302	☑ Straddle 600	☐ Ruined Shale Packer	
	☑ Shale Packer 250	☐ Ruined Packer	
Initial Open 5	☐ Extra Packer	☐ Extra Copies	
Initial Shut-In 15	☐ Extra Recorder	Sub Total 0	
Final Flow 15	☐ Day Standby	Total 2521.10	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 2521.10		

Approved By Our Representative

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/

July 02, 2013

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

Re: ACO1
API 15-101-22426-00-00
Lenore 3-20
NW/4 Sec.20-19S-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