Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1155341

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 #:

4/21/2013	5/1/2013	5/13/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22435-00-00
Spot Description:
SE - SW - SE - NE Sec. 22 Twp. 18 S. R. 29 ☐ East ☑ West
2483 Feet from ☑ North / ☐ South Line of Section
926 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: Harper-Taldo Well #: 1-22
Field Name:
Producing Formation: n/a
Elevation: Ground: 2798 Kelly Bushing: 2805
Total Vertical Depth: 4678 Plug Back Total Depth: 4632
Amount of Surface Pipe Set and Cemented at: 270 Feet
Multiple Stage Cementing Collar Used? ☑ Yes ☐ No
If yes, show depth set: 2129 Feet
If Alternate II completion, cement circulated from: 2129
feet depth to: 0 w/ 205 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: 08/15/2013
☑ **Confidential Release Date:** 08/15/2015
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 08/16/2013

1155341

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Harper-Taldo Well #: 1-22

Sec. 22 Twp. 18 S. R. 29 ☐ 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	270	Class A	175	2%gel, 3% CC
Production	7.875	4.5	11.6	4677	EA-2	145	7#/sk gilsonite, 1/4#/sk flocele

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	0-2129	SMD	205	1/4#/sk flocele
	-			

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
4	4567-71, 4562-64, 4401-04	250 Gal 15% NEFe	2567-71, 2562-64
		250 Gal 15% MCA	4401-04

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)* _____

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	Harper-Taldo 1-22
Doc ID	1155341

Tops

Name	Top	Datum
Anhydrite	2153	+652
Base Anhydrite	2181	+624
Heebner	3929	-1124
Lansing	3973	-1168
Stark	4245	-1440
Pawnee	4442	-1637
Ft Scott	4494	-1689
Cherokee	4519	-1714
Mississippi	4609	-1804

WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST

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

Well Name: Harper-Taldo #1-22
Location: SE SW SE NE SEC. 22-18s-29w
Licence Number: API: 15-101-22435
Region: Lane Co., KS
Spud Date: April 21, 2013
Drilling Completed: April 30, 2013
Surface Coordinates: 2483' FNL & 926' FEL

Bottom Hole Coordinates:
Ground Elevation (ft): 2798'
K.B. Elevation (ft): 2805'
Logged Interval (ft): 3800' To: RTD
Total Depth (ft): 4676'
Formation: Mississippi
Type of Drilling Fluid: Chemical Premix (Displaced)

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

OPERATOR:

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

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 560', Kelly 40.30', Tool Joint 5.5" ; Bit: MD-23M 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" casing at 270'

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3357 to 3371"; 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, Chris Desaire, Log total depth (4678') was two feet long to rotary total depth (4676').

DRILL STEM TEST #1:

LKC: Lower K & Middle Creek: Interval: 4277-4292 (15'): Blow: weak surf IFP, no RB, no blow FFP; Times: 5-15-15-30; Recovery: 5' mud w/oil spots (100%M); Pressures: HP: 2163-2135; SIP: 264-723; FP: 19-19, 19-20; BHT: 112 F; Trilobite Testing, Inc., Scott City, KS, Jace McKinney.

DRILL STEM TEST #2:

Marmaton: Interval: 4328-4424 (96'): Blow weak incr to 3/4" IFP, no RB, weak incr to 3/4" FFP, no RB; Times: 5-15-30-60; Recovery: 30' mud w/oil spots in tool (100%M); Pressures: HP: 2193-2173; SIP: 273-250; FP: 24-29, 28-49, BHT: 114 F; Trilobite Testing, Inc., Scott City, KS, Jace McKinney.

DRILL STEM TEST #3:

Ft. Scott thru Cherokee: Interval: 4488-4580 (92'): Blow: weak incr to 1" IFP, no RB, weak incr to 3.5" FFP, no RB; Times: 5-15-30-60; Recovery: 120' TF, no GIP; 60' mud (100%M), 60' muddy water w/oil spots in tool (50%W, 50%M, Rw 0.25 at 70 F, chlorides 30k); Pressures: HP: 2294-2229, SIP: 1230-1215; FP: 23-35, 37-81; BHT: 114 F; Trilobite Testing, Inc., Scott City, KS, Jace McKinney.

Geological Descriptions

Shale: black; carbon; 3820.

LS: lt -md grayish brown; vf-xtal; tiny streaks & specks brown sh; rough textured; poor porosity; N.S.

LS: as abv, chalky in part;

LS: lt-md grayish brown; vf-xtal; sli fos (fusulinids); poor porosity; N.S.

LS: lt-md grayish brown; mic-vf xtal; chalky in part; poor vug & tight int xtal porosity; N.S.

LS: poor porosity as abv;

Shale: black; carbon; 3880.

LS: grayish brown; mic-vf xtal; chalky in part; poor vug & int xtal porosity; N.S.

LS: as above;

LS: lt gray to grayish brown; mic-vf xtal; very chalky in part, soft; scattered vugular & tight int xtal porosity; N.S.

LS: as above;

LS: grayish-brown; vf-xtal; much sh contact;

HEEBNER 3929 (-1124)
Shale: black; carbon; trc 3940, incr 3950.
LS: grayish brown; vf-xtal; tiny shale inclusions; N.S.

Shale: green; soft & mushy to silty in part;

LS: white, lt gray; mic-xtal; chalky to dense; even dull yel mineral fluor here and below; no visible porosity; N.S.; 3970.

LS: lt-gray; vf-xtal; vugular porosity in part; N.S.

LS: lt gray; vf-xtal; dense; N.S.

Shale: gray to green;

LANSING 3973 (-1168)
LS: white, lt gray; mic-vf xtal; poorly defined chalky oolite; dull fluor as abv; poor int ool porosity; N.S.

LS: lt gray; vf-xtal; dense; N.S.

Shale: gray, green, maroon; 4020.

LS: white to lt gray; vf-xtal; med oolite; tight int ool porosity; dull fluor; N.S.

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

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

LS: white, lt-md brown; vf-xtal; trc fine glauc; finely granular; v-tight int gran porosity; N.S.

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

LS: white to lt gray; vf-f xtal; trc fine glauc; tight int xtal porosity; N.S.

LS: lt gray; vf-xtal; dense oolite; chalky in part; poor int ool porosity; trc fos-moldic; dull mineral fluor; N.S.

LS: lt brown; f-xtal; dolomitic; tight int xtal porosity; N.S.

LS: md brown; vf-xtal; coarsely oomoldic; tight int xtal & fair oomoldic porosity; breaks up; N.S. 4110.

LS: lt brown; vf-f xtal; dolomitic; trc trans chert; v-tight int xtal porosity; N.S.

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

LS: lt brown; vf-f xtal; dolomitic; tight int xtal porosity; N.S.

LS/Dol as above;

LS: grayish brown; vf-xtal; scattered coarse dk gray pellets; N.S.

MUNCIE CREEK 4147 (-1342)
Shale: black; carbon; 4160.
LS: brown to grayish brown, mottled in part; ; tight int gran porosity at best; dull fluor; N.S.
Shale: green, gray; trc SiltSt.

LS: lt-md grayish brown; vf-xtal; oolitic in part; various grains; scattered vug porosity; N.S.

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

Shale: dk gray; poorly expressed;

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

Shale: gray, green;

LS: white to lt gray; mic-vf xtal; dense oolite alternating w/soft chalk; washes white; poor porosity; N.S.

LS: white to lt gray; mic-vf xtal; oolitic; white, fos, opaq chert; chalky in part; poor porosity; N.S.

Shale: dk gray;

LS: lt gray; vf-xtal; coarse oomoldic to oolitic; fair-good oomoldic porosity; N.S., 30 min.

STARK 4245 (-1440)
Shale: black; carbon; 4260.

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

LS: lt-md grayish brown; vf-xtal; poor oom porosity; N.S.

LS: lt-md grayish brown; vf-xtal; dense; minor vug porosity; N.S.

HUSHPUCKNEY 4285 (-1480)
Shale: black; carbon; 4292-30m;
LS: md grayish brown; vf-xtal; pyritic; dense; trc druse & md calcite; trc pin-pt fluor does cut; no visible oil or stain; N.S.
Shale: green, gray; pyritic; silty in part;
LS: gray; vf-xtal; trc shells; scattered vug porosity; dull fluor; no show; 4303-30 & 60m.
LS: as above.

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

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

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

Shale: green, gray; minor SiltSt;

LS: lt gray to lt brown; vf-xtal; trc orange & smokey chert; no visible porosity; N.S.

Shale: green, gray; silty;

LS: lt to md brown; vf-xtal; dense; no visible porosity; only v-dull fluor; N.S.

LS: as above;

LS: lt to md brown; vf-xtal; trc med glauc; trc green sh contacts; dense; no visible porosity; N.S.

LS: white; vf-xtal; chalky in part; fair vugular porosity, trc fine to medium oom; only v-dull fluor; no shows; 4410, 4410-30m.

Shale: gray, green;

LS: white, lt brown; mic-vf xtal; dense to chalky in part; trc orange chert; poor porosity; only dull lfuor; N.S.

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

Shale: dk gray, green;

PAWNEE 4442 (-1637)
LS: white, lt brown; mic-vf xtal; dense to chalky in part; white to lt gray, opaq chert; only trc mineral fluor; poor porosity; N.S., 4460.

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

Shale: black; carbon; 4480.
LS: dk brown; vf-xtal; smokey chert; dense, blocky; N.S.

LS: white to lt brown; mic-vf xtal; chalky; few chips yel fluor; trc vug & pin-point porosity; no visible shows wet or dry;

Shale: black; carbon; 4500, incr 4510.

FT. SCOTT 4494 (-1689)
LS: lt brn matrix w/dk brn or dk gray, coarse, scattered oolites; trc sptd fluor that seems lessened when dry; v-tight int ool, trc vug & fos-moldic porosity; v-light, sptd stain at best; no visible oil; 4510.

LS: md-dk grayish brown; vf-xtal; smokey chert; dense; N.S.

CHEROKEE 4519 (-1714)
LS: lt-md brown; mic-vf xtal; dense to chalky in part; poor porosity; N.S.

LS: lt brown; mic-vf xtal; chalky in part; poor vugular & oomoldic porosity; N.S.

LS: lt-dk gray; vf-xtal; dense to sli chalky; no visible porosity; N.S., w/dk gray & minor green shales;

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

Shale: gray, green, green/maroon mottled;

SiltSt: white, lt brown; no acid react; dirty; v-poor int grain porosity; N.S.

MISSISSIPPI 4609 (-1804)
(Corrected Top)
LS: lt-md brown; vf-xtal; dense oolite in part; trc semi-trans chert; poor porosity; N.S.

DOL: lt brown, tan; limey in part; vf-f xtal; good int xtal & vug porosity; dull fluor; N.S.

DOL & Dolomitic Lime: dk brown, mottled dk gray; vf-f xtal; tight int xtal porosity; N.S.

Dol/Dolomitic LS: dk brown, coarsely mottled & spotted dk gray; vf-f xtal; fair int xtaline & vugular porosity; N.S.

Dol & Dolomitic Lime as above; pyritic;

Dol: dk brown, mottled dk gray; f-xtal; fair int xtal & vug porosity; N.S.

ROTARY TOTAL DEPTH 4676 (-1871)

Total Gas
TG (units)
Fifty
One

Hot-Wire 0–100

CALL GEO 11pm, 04/25/2013, 3400'

SAMPLES FOR THIS WELL WERE REQUESTED BY STATE SURVEY, SUPERVISED BY GEO TO INSURE ACCURATE LABELING AND PROVIDED.

ANHYDRITE 2153 (+652)
B/ANHY 2181 (+624)

STARTING ABOUT 4090 SAMPLES BECOME 50% LT-DK GRAY, FISSILE SHALE WHICH MAY WELL BE SLOUGH ? AT THE SAME TIME SAMPLE CATCHERS INDICATE POOR RETURNS.

CIRC 15 MIN & PERFORM 15 STAND SHORT TRIP AT 4142, CIRC 30 MIN BEFORE DRILLING.

MORGAN MUD: 4147: 04/26-3pm: VIS 58, WT 8.9, FIL 8.0, CHL 3200, LCM 1#.

SAMPLES IMPROVED AT 4190. NO FURTHER PROBLEMS.

PULLED TIGHT ON T.O.H. FOR DST #1, SHORT TRIP 15 STANDS; CIRC 60 MIN; AGAIN PULLED TIGHT ON T.O.H., SHORT TRIP 7 STANDS; CIRC 90 MIN, THEN T.O.H. OKAY.

DST #1: LOWER K & MIDDLE CREEK: 4277-4292: WEAK BLOW DIED FFP; 5-15-15-30; 5' MUD; SIP: 264-723; FP: 19-19, 19-20.

PULLED TOOL OFF BOTTOM OKAY.

CIRC 60 MIN AFTER DST.

MORGAN MUD: 4292: 04/27-12pm: VIS 50, WT 9.3, FIL 8.0, CHL 2200, LCM 1#.

DST #2: MARMATON: 4328-4424: 3/4" BLOW THRU; 5-15-30-60; 30' MUD; SIP: 273-250; FP: 24-29, 28-49.

CIRC 30 MIN AFTER DST.

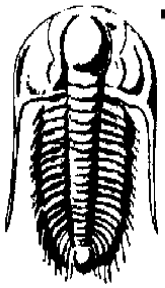
MORGAN MUD: 4419: 04/28-2pm: VIS 55, WT 9.2, FIL 8.0, CHL 2500, LCM 1#.

DST #3: FT SCOTT, CHEROKEE: 4488- 4580: WEAK INCR BLOW 1" IFP; 5-15- 30-60; 60' MUD, 60' MW; SIP: 1230-1215; FP: 23-35, 37-81.

CIRC 30 MIN AFTER DST.

MORGAN MUD: 4580: 04/29-2pm: VIS 58, WT 9.3, FIL 8.0, CHL 1800, LCM 1#

PIONEER ENERGY SERVICES LTD 4678



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

Harper-Taldo #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.27 @ 14:00:00
End Date: 2013.04.27 @ 19:56:30
Job Ticket #: 53057 DST #: 1

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

Printed: 2013.04.30 @ 09:38:33

DRILL STEM TEST REPORT

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53057 **DST#: 1**

Test Start: 2013.04.27 @ 14:00:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:55:15
Time Test Ended: 19:56:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Jace McKinney
Unit No: 46

Interval: 4277.00 ft (KB) To 4292.00 ft (KB) (TVD)
Total Depth: 4292.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

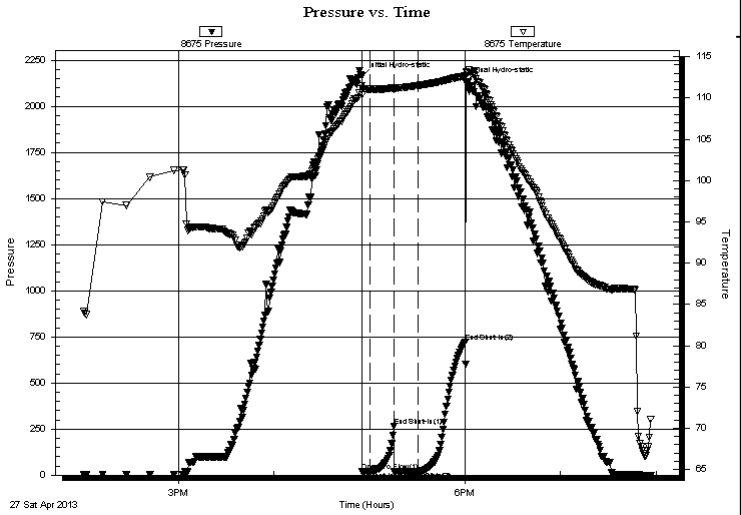
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 20.17 psig @ 4278.00 ft (KB)
Start Date: 2013.04.27 End Date: 2013.04.27
Start Time: 14:00:15 End Time: 19:56:30

Capacity: 8000.00 psig
Last Calib.: 2013.04.27
Time On Btm: 2013.04.27 @ 16:55:00
Time Off Btm: 2013.04.27 @ 18:00:30

TEST COMMENT: Weak surface blow
No return blow
No blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2163.10	111.53	Initial Hydro-static
1	18.90	110.39	Open To Flow (1)
6	19.41	111.06	Shut-In(1)
21	264.36	111.25	End Shut-In(1)
21	19.42	111.04	Open To Flow (2)
36	20.17	111.50	Shut-In(2)
65	722.86	112.67	End Shut-In(2)
66	2134.92	113.12	Final Hydro-static

Recovery

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

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53057 **DST#: 1**

Test Start: 2013.04.27 @ 14:00:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:55:15
Time Test Ended: 19:56:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Jace McKinney
Unit No: 46

Interval: 4277.00 ft (KB) To 4292.00 ft (KB) (TVD)
Total Depth: 4292.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

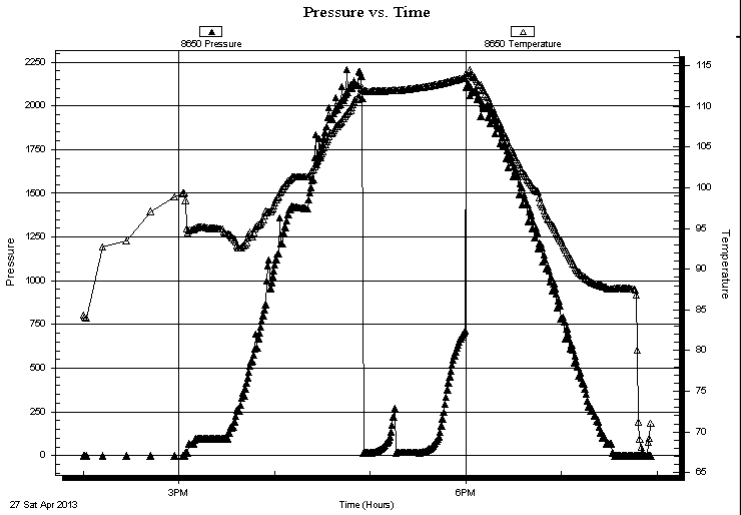
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4278.00 ft (KB)
Start Date: 2013.04.27 End Date: 2013.04.27
Start Time: 14:00:15 End Time: 19:56:15

Capacity: 8000.00 psig
Last Calib.: 2013.04.27
Time On Btm:
Time Off Btm:

TEST COMMENT: Weak surface blow
No return blow
No blow
No return blow



PRESSURE SUMMARY

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

Recovery

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

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53057 **DST#: 1**

Test Start: 2013.04.27 @ 14:00:00

Tool Information

Drill Pipe:	Length:	4106.02 ft	Diameter:	3.80 inches	Volume:	57.60 bbl	Tool Weight:		2500.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		30000.00 lb
Drill Collar:	Length:	147.46 ft	Diameter:	2.25 inches	Volume:	0.73 bbl	Weight to Pull Loose:		72000.00 lb
					Total Volume:	58.33 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		3.98 ft					String Weight:	Initial	62000.00 lb
Depth to Top Packer:		4277.00 ft						Final	62000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		15.00 ft							
Tool Length:		42.50 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			4250.50		
Shut In Tool	5.00			4255.50		
Hydraulic tool	5.00			4260.50		
Jars	5.00			4265.50		
Safety Joint	2.50			4268.00		
Packer	5.00			4273.00	27.50	Bottom Of Top Packer
Packer	4.00			4277.00		
Stubb	1.00			4278.00		
Recorder	0.00	8675	Inside	4278.00		
Recorder	0.00	8650	Outside	4278.00		
Perforations	11.00			4289.00		
Change Over Sub	0.00			4289.00		
Drill Pipe	0.00			4289.00		
Change Over Sub	0.00			4289.00		
Bullnose	3.00			4292.00	15.00	Bottom Packers & Anchor
Total Tool Length:	**42.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53057 **DST#: 1**

Test Start: 2013.04.27 @ 14:00:00

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:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3200.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

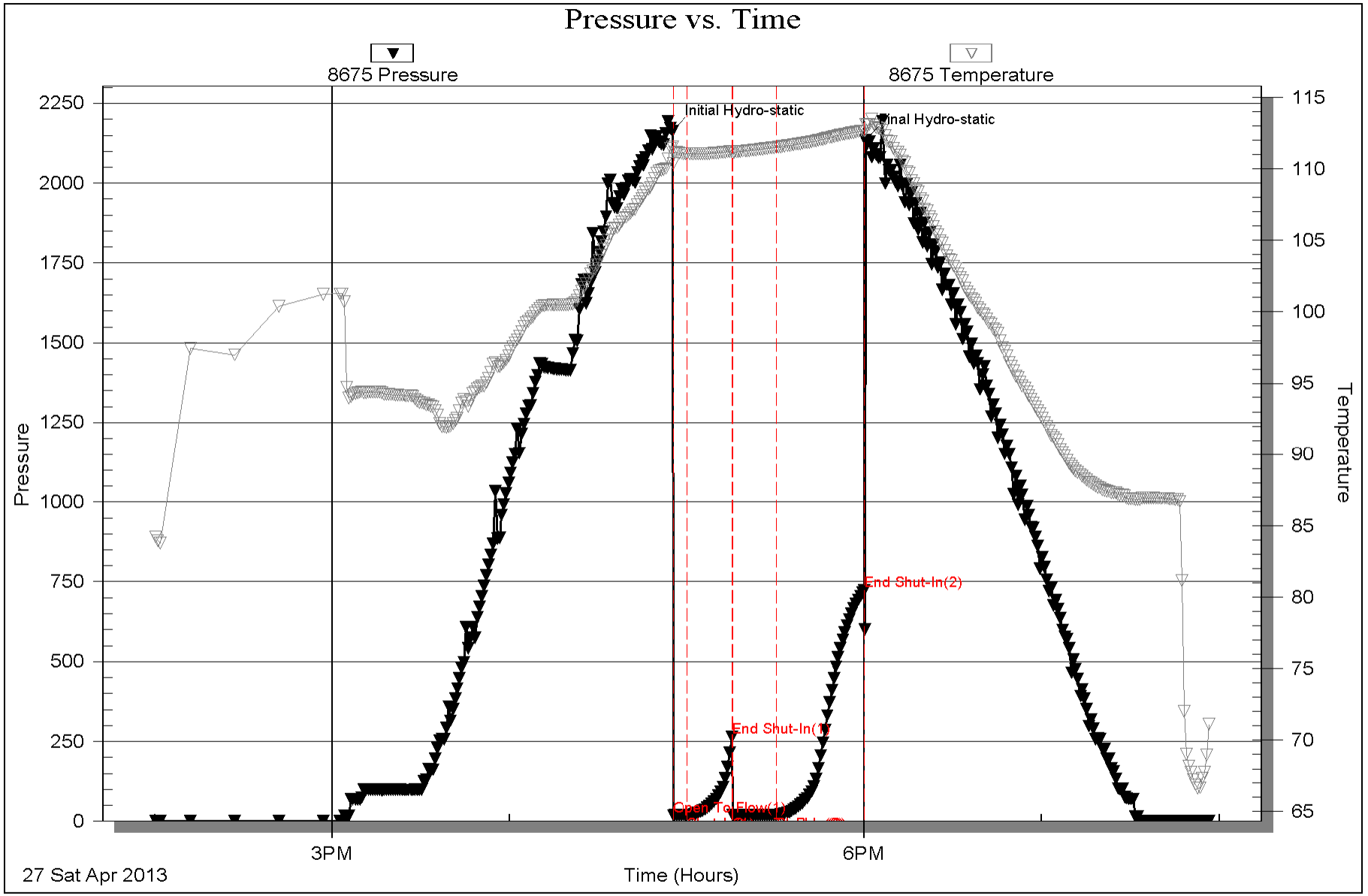
Recovery Table

Length ft	Description	Volume bbl
5.00	100% Mud with oil spots	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

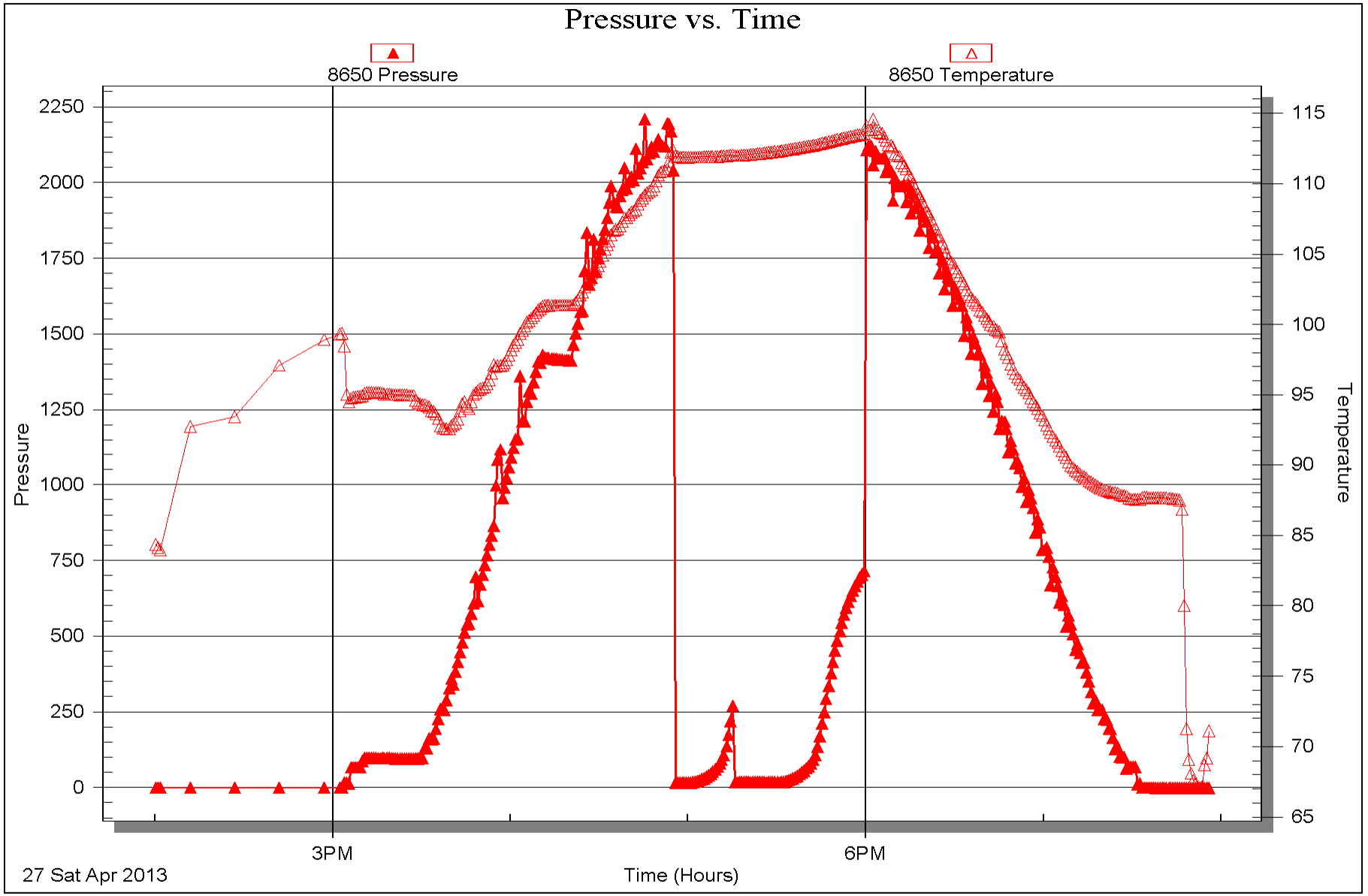
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 53057 Printed: 2013.04.30 @ 09:38:36

Serial #: 8650 **Outside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 53057 Printed: 2013.04.30 @ 09:38:37

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

Harper-Taldo #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.28 @ 18:21:00
End Date: 2013.04.28 @ 23:50:30
Job Ticket #: 53058 DST #: 2

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

Printed: 2013.04.30 @ 09:37:22

DRILL STEM TEST REPORT

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53058 **DST#: 2**

Test Start: 2013.04.28 @ 18:21:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:02:15
Time Test Ended: 23:50:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 46

Interval: 4328.00 ft (KB) To 4424.00 ft (KB) (TVD)
Total Depth: 4424.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

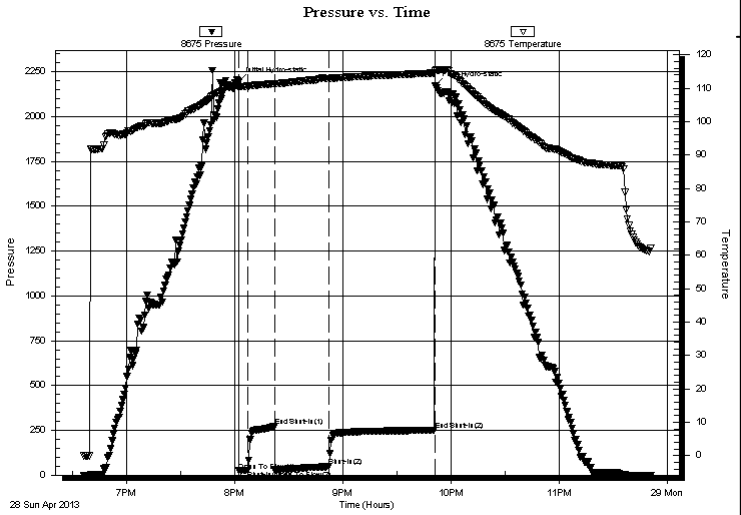
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 48.87 psig @ 4329.00 ft (KB)
Start Date: 2013.04.28 End Date: 2013.04.28
Start Time: 18:36:15 End Time: 23:50:30

Capacity: 8000.00 psig
Last Calib.: 2013.04.28
Time On Btm: 2013.04.28 @ 20:02:00
Time Off Btm: 2013.04.28 @ 21:51:15

TEST COMMENT: Built to 3/4" blow
No return blow
Built to 3/4" blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2193.14	110.93	Initial Hydro-static
1	23.80	110.23	Open To Flow (1)
6	28.68	110.61	Shut-In(1)
20	273.20	111.38	End Shut-In(1)
21	28.47	111.20	Open To Flow (2)
50	48.87	112.82	Shut-In(2)
109	249.73	114.54	End Shut-In(2)
110	2172.68	115.25	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% Mud with oil spots in tool	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 State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53058 **DST#: 2**

Test Start: 2013.04.28 @ 18:21:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:02:15
Time Test Ended: 23:50:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 46

Interval: 4328.00 ft (KB) To 4424.00 ft (KB) (TVD)
Total Depth: 4424.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

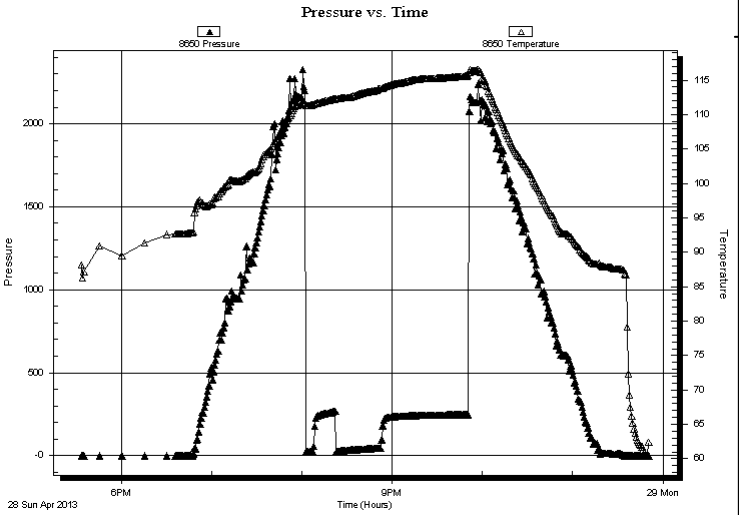
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4329.00 ft (KB)
Start Date: 2013.04.28 End Date: 2013.04.28
Start Time: 17:33:15 End Time: 23:50:30

Capacity: 8000.00 psig
Last Calib.: 2013.04.28
Time On Btm:
Time Off Btm:

TEST COMMENT: Built to 3/4" blow
No return blow
Built to 3/4" blow
No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	100% Mud with oil spots in tool	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 State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53058 **DST#: 2**

Test Start: 2013.04.28 @ 18:21:00

Tool Information

Drill Pipe:	Length:	4168.73 ft	Diameter:	3.80 inches	Volume:	58.48 bbl	Tool Weight:		2500.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		30000.00 lb
Drill Collar:	Length:	147.46 ft	Diameter:	2.25 inches	Volume:	0.73 bbl	Weight to Pull Loose:		74000.00 lb
					Total Volume:	59.21 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		15.69 ft					String Weight:	Initial	64000.00 lb
Depth to Top Packer:		4328.00 ft						Final	64000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		96.00 ft							
Tool Length:		123.50 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			4301.50		
Shut In Tool	5.00			4306.50		
Hydraulic tool	5.00			4311.50		
Jars	5.00			4316.50		
Safety Joint	2.50			4319.00		
Packer	5.00			4324.00	27.50	Bottom Of Top Packer
Packer	4.00			4328.00		
Stubb	1.00			4329.00		
Recorder	0.00	8675	Inside	4329.00		
Recorder	0.00	8650	Outside	4329.00		
Perforations	3.00			4332.00		
Change Over Sub	1.00			4333.00		
Drill Pipe	62.00			4395.00		
Change Over Sub	1.00			4396.00		
Bullnose	28.00			4424.00	96.00	Bottom Packers & Anchor
Total Tool Length:	**123.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53058 **DST#: 2**

Test Start: 2013.04.28 @ 18:21:00

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:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2500.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

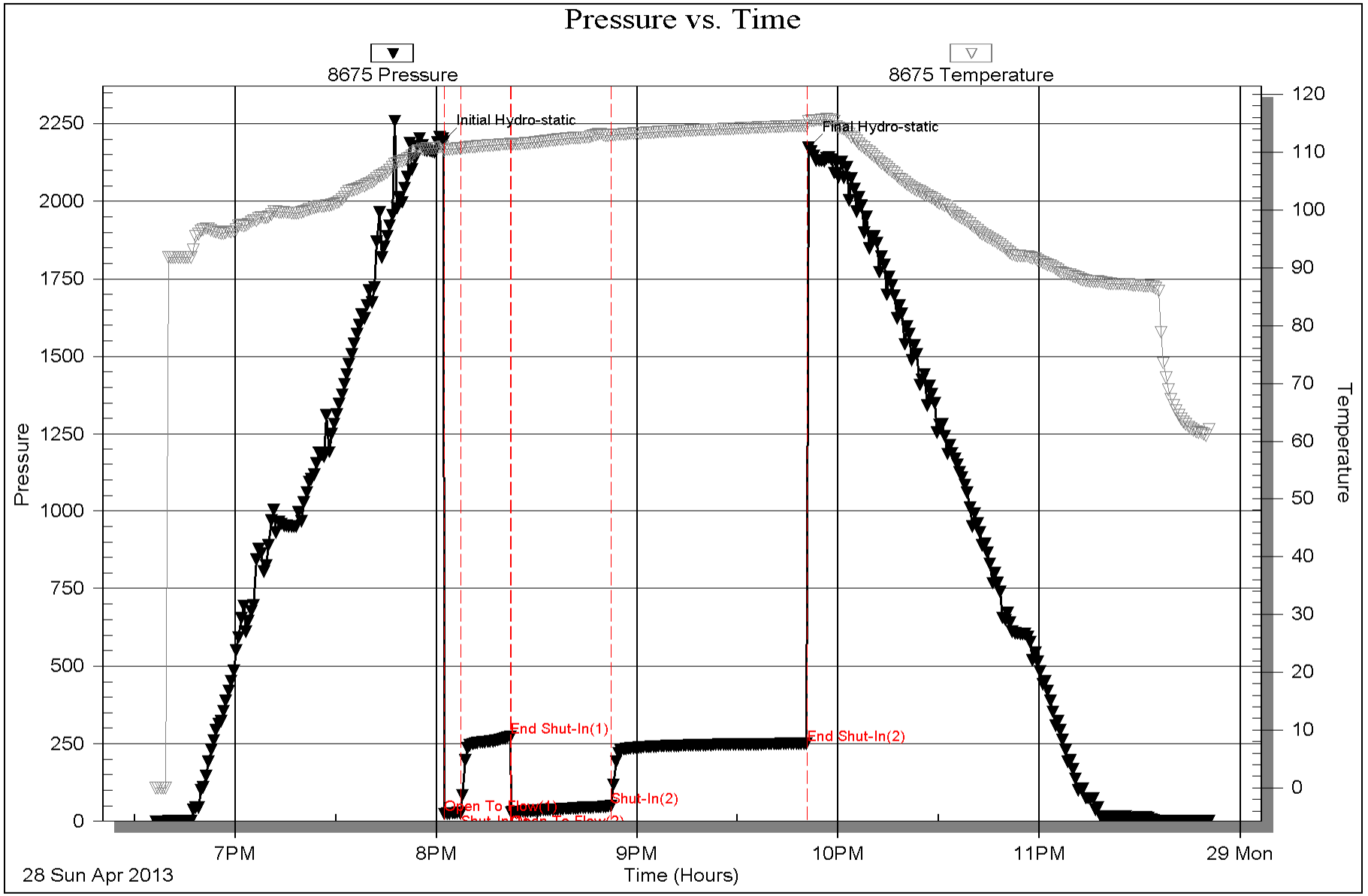
Recovery Table

Length ft	Description	Volume bbl
30.00	100% Mud with oil spots in tool	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

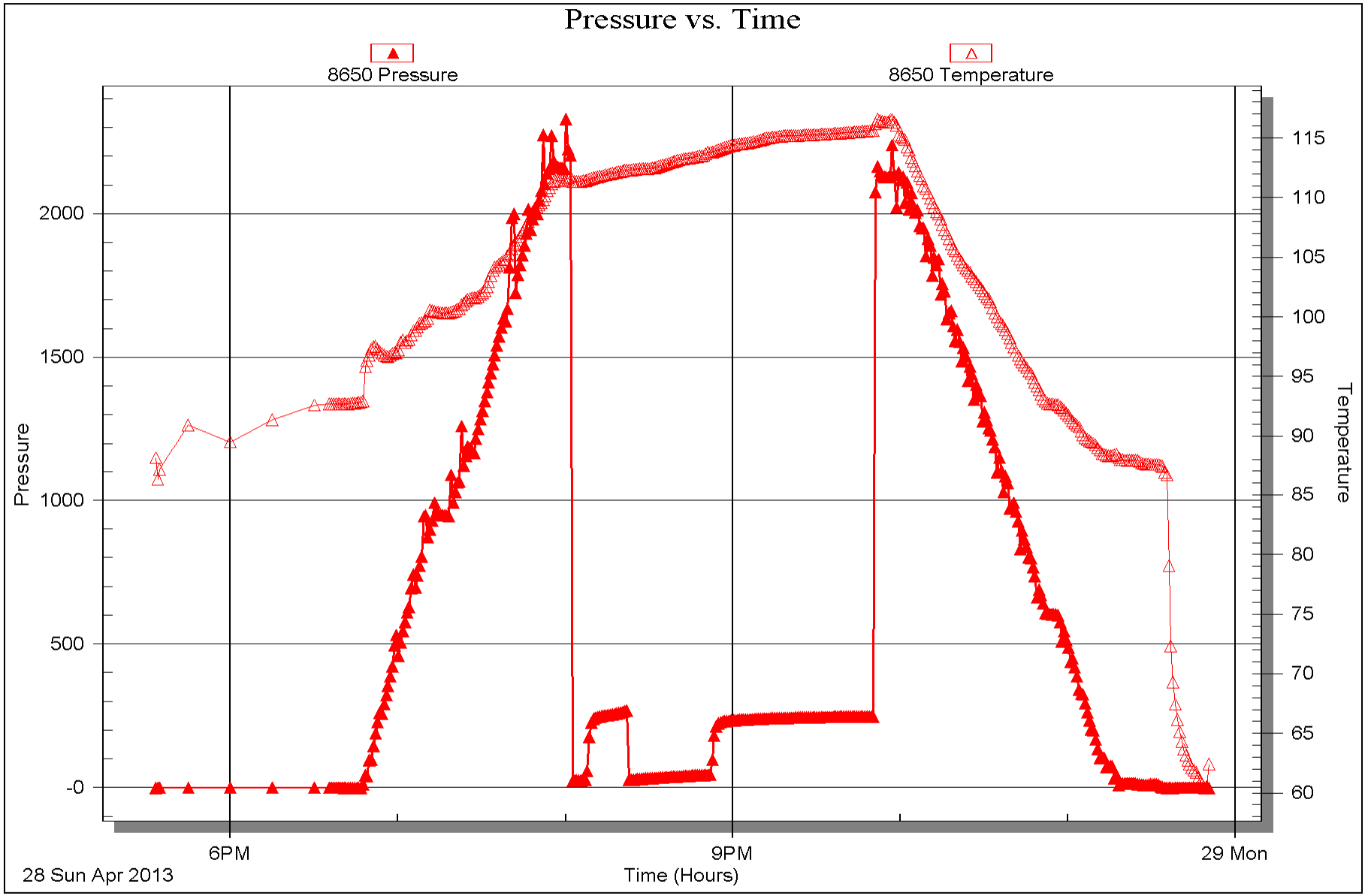
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8675 **Inside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 2

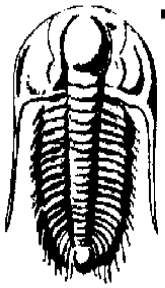


Trilobite Testing, Inc Ref. No: 53058 Printed: 2013.04.30 @ 09:37:25

Serial #: 8650 **Outside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 53058 Printed: 2013.04.30 @ 09:37:25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc**

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

Harper-Taldo #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.29 @ 16:40:00
End Date: 2013.04.29 @ 22:21:53
Job Ticket #: 53059 DST #: 3

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

Printed: 2013.04.30 @ 09:36:35

DRILL STEM TEST REPORT

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53059 **DST#: 3**

Test Start: 2013.04.29 @ 16:40:00

GENERAL INFORMATION:

Formation: **Fort Scott - Johnson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:37:00
Time Test Ended: 22:21:53

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 46

Interval: 4488.00 ft (KB) To 4580.00 ft (KB) (TVD)
Total Depth: 4580.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

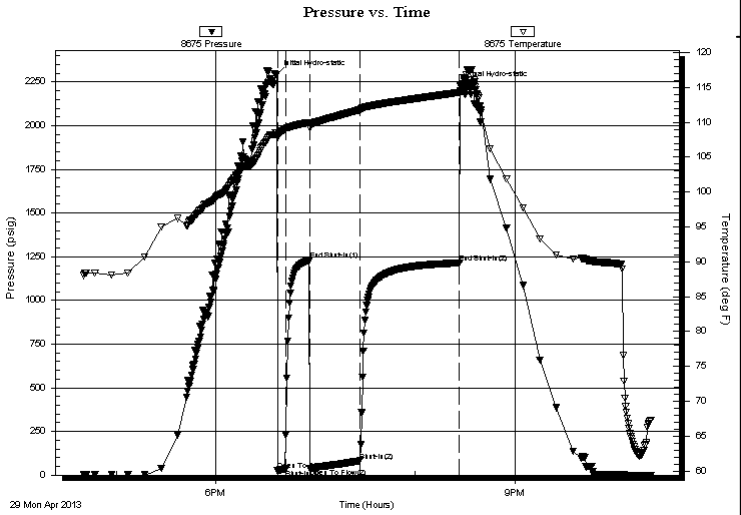
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8675 **Inside**

Press@RunDepth: 81.19 psig @ 4489.00 ft (KB)
Start Date: 2013.04.29 End Date: 2013.04.29
Start Time: 16:40:15 End Time: 22:21:53

Capacity: 8000.00 psig
Last Calib.: 2013.04.29
Time On Btm: 2013.04.29 @ 18:36:45
Time Off Btm: 2013.04.29 @ 20:27:15

TEST COMMENT: Built to 1" blow
No return blow
Built to 3 1/2" blow
No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2294.36	108.54	Initial Hydro-static
1	25.03	107.74	Open To Flow (1)
5	35.48	108.95	Shut-In(1)
20	1230.14	110.00	End Shut-In(1)
20	37.05	109.18	Open To Flow (2)
50	81.19	111.78	Shut-In(2)
110	1214.71	114.28	End Shut-In(2)
111	2228.71	114.58	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	100% Mud	0.30
60.00	mcw 50%M 50%W w ith oil spots in too	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 State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53059 **DST#: 3**

Test Start: 2013.04.29 @ 16:40:00

GENERAL INFORMATION:

Formation: **Fort Scott - Johnson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:37:00
Time Test Ended: 22:21:53

Test Type: Conventional Bottom Hole (Reset)
Tester: Jace McKinney
Unit No: 46

Interval: 4488.00 ft (KB) To 4580.00 ft (KB) (TVD)
Total Depth: 4580.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

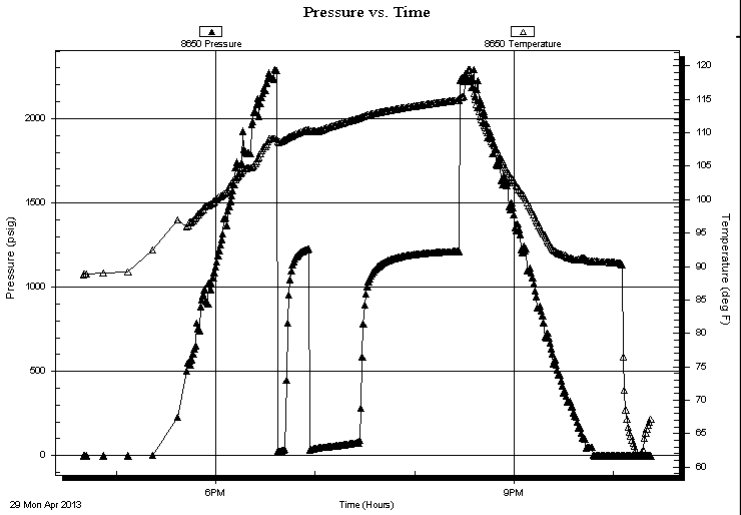
Reference Elevations: 2805.00 ft (KB)
2798.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8650 **Outside**

Press@RunDepth: psig @ 4489.00 ft (KB)
Start Date: 2013.04.29 End Date: 2013.04.29
Start Time: 16:40:15 End Time: 22:22:15

Capacity: 8000.00 psig
Last Calib.: 2013.04.29
Time On Btm:
Time Off Btm:

TEST COMMENT: Built to 1" blow
No return blow
Built to 3 1/2" blow
No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	100% Mud	0.30
60.00	mcw 50%M 50%W w ith oil spots in too	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 State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53059 **DST#: 3**

Test Start: 2013.04.29 @ 16:40:00

Tool Information

Drill Pipe:	Length:	4325.28 ft	Diameter:	3.80	inches	Volume:	60.67	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	147.46 ft	Diameter:	2.25	inches	Volume:	0.73	bbl	
						Total Volume:	61.40	bbl	

Drill Pipe Above KB:	12.24 ft
Depth to Top Packer:	4488.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	92.00 ft
Tool Length:	119.50 ft
Number of Packers:	2 Diameter: 6.75 inches

Tool Weight:	2500.00 lb
Weight set on Packer:	30000.00 lb
Weight to Pull Loose:	104000.0 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			4461.50		
Shut In Tool	5.00			4466.50		
Hydraulic tool	5.00			4471.50		
Jars	5.00			4476.50		
Safety Joint	2.50			4479.00		
Packer	5.00			4484.00	27.50	Bottom Of Top Packer
Packer	4.00			4488.00		
Stubb	1.00			4489.00		
Recorder	0.00	8675	Inside	4489.00		
Recorder	0.00	8650	Outside	4489.00		
Perforations	3.00			4492.00		
Change Over Sub	1.00			4493.00		
Drill Pipe	62.00			4555.00		
Change Over Sub	1.00			4556.00		
Bullnose	24.00			4580.00	92.00	Bottom Packers & Anchor
Total Tool Length:	**119.50**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc

562 W State Rd 4
Olmitz KS 67564-8561

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-Taldo #1-22

Job Ticket: 53059 **DST#: 3**

Test Start: 2013.04.29 @ 16:40:00

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:	7.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	1800.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	100% Mud	0.295
60.00	mcw 50%M 50%W with oil spots in tool	0.295

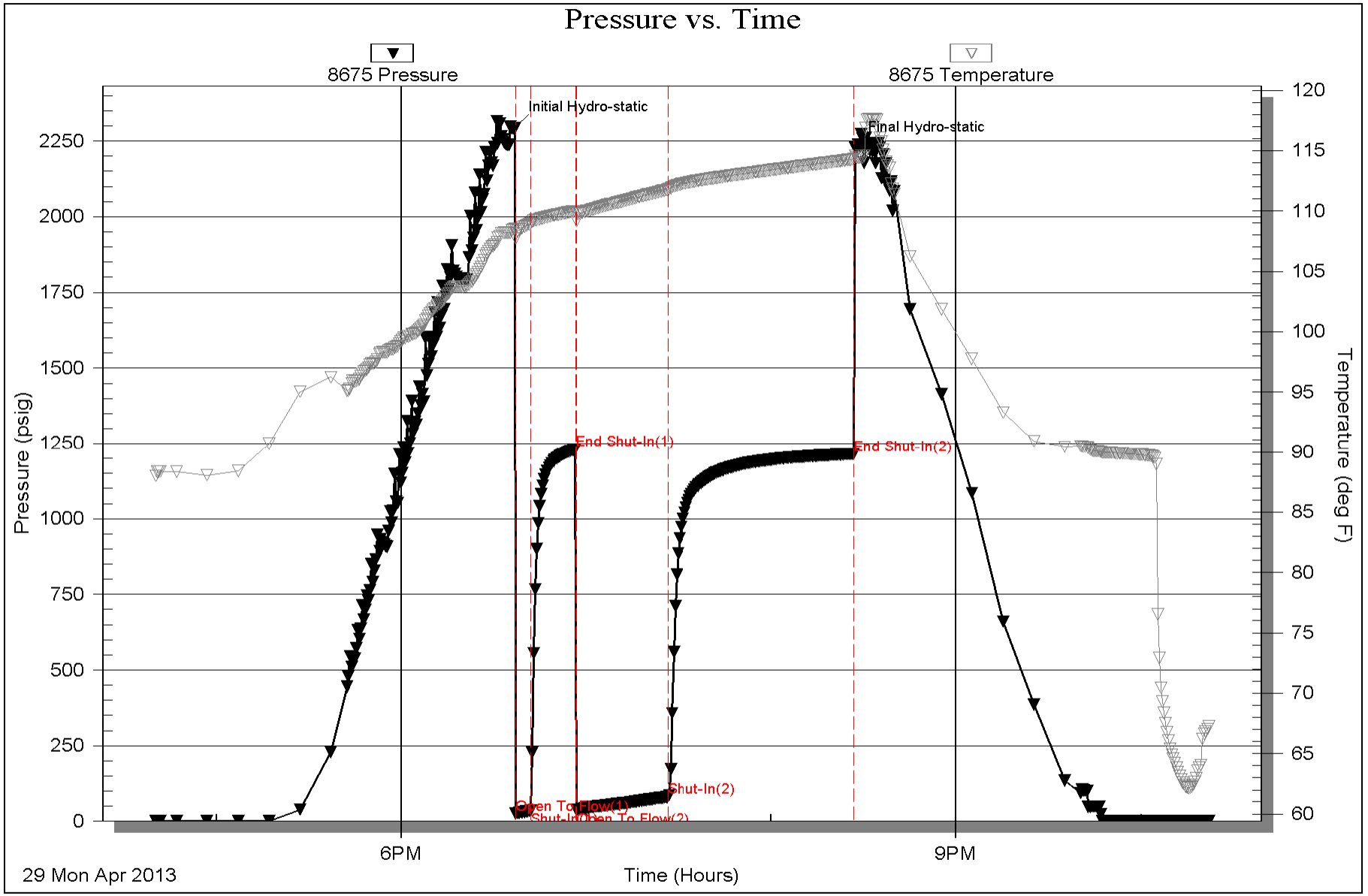
Total Length: 120.00 ft Total Volume: 0.590 bbl

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

Laboratory Name: Laboratory Location:

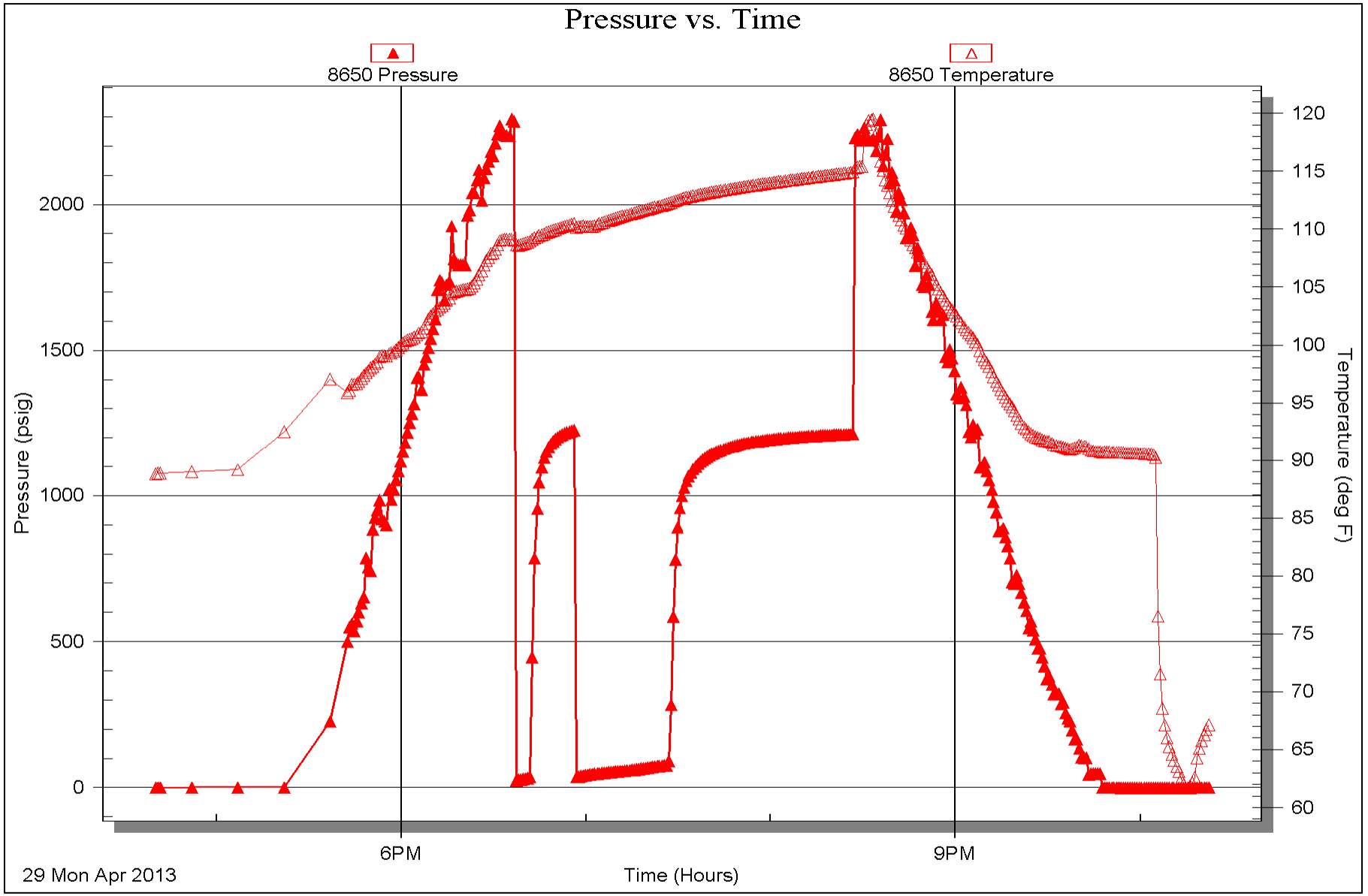
Recovery Comments: RW: .25 @ 70 F = 30,000

Serial #: 8675 **Inside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 53059 Printed: 2013.04.30 @ 09:36:38

Serial #: 8650 **Outside** Larson Engineering, Inc Harper-Taldo #1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 53059 Printed: 2013.04.30 @ 09:36:38

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53057

Well Name & No. Harper-Taldo #1-22 Test No. 1 Date 4/27/13

Company Larson Engineering, Inc Elevation 2805 KB 2798 GL

Address 562 W State Rd 4 Olmitz KS, 67564-8561

Co. Rep / Geo. Vern Schrag Rig HP Rig 3

Location: Sec. 22 Twp. 18S Rge. 29W Co. Lane Co. State KS

Interval Tested 4277 - 4292 Zone Tested Middle Creek

Anchor Length 15 Drill Pipe Run 4106.02 Mud Wt. 8.9

Top Packer Depth 4273 Drill Collars Run 147.46 Vis 58

Bottom Packer Depth 4277 Wt. Pipe Run — WL 8.0

Total Depth 4292 Chlorides 3,200 ppm System LCM 1 #

Blow Description Weak surface blow
No return blow
No blow
No return blow

Rec 5	Feet of Mud with oil spots	%gas	%oil	%water	5	%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 112 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2,163	☑ Test	1250	T-On Location	10:00
(B) First Initial Flow	19	☑ Jars	250	T-Started	14:00
(C) First Final Flow	19	☑ Safety Joint	75	T-Open	16:55
(D) Initial Shut-In	264	☑ Circ Sub	~~50 RT~~ N/C	T-Pulled	18:00
(E) Second Initial Flow	19	☑ Hourly Standby	~~2hrs~~ 2½ Have to short trip second time	T-Out	19:56
(F) Second Final Flow	20	☑ Mileage	50 RT 77.50	Comments	Standby Because two short trips & Locks locked they couldn't get them to turn.
(G) Final Shut-In	723	☐ Sampler			
(H) Final Hydrostatic	2,135	☐ 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	1652.50
Final Shut-In 30		☐ Accessibility		MP/DST Disc't	
		Sub Total	1652.50		

Approved By _____ Our Representative _____

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53058

Well Name & No. Harper-Taldo #1-22 Test No. 2 Date 4/28/13

Company Larson Engineering, Inc. Elevation 2805 KB 2798 GL

Address 562 W State Rd 4 Olmitz KS, 67564-8561

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

Location: Sec. 22 Twp. 18S Rge. 29W Co. Lane Co. State KS

Interval Tested 4328-4424 Zone Tested Marmaton

Anchor Length 96 Drill Pipe Run 4168.73 Mud Wt. 9.2

Top Packer Depth 4324 Drill Collars Run 147.46 Vis 55

Bottom Packer Depth 4328 Wt. Pipe Run ——— WL 8.0

Total Depth 4424 Chlorides 2,500 ppm System LCM 1.0#

Blow Description Built to 3/4" 1st Flow
No return 1st Flow
Built to 3/4" 2nd Flow
No return 2nd Flow

Rec 30	Feet of Mud with oil spots in tool	%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 30 BHT 114 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2,193	☑ Test	1250	T-On Location	16:45
(B) First Initial Flow	24	☑ Jars	250	T-Started	17:25
(C) First Final Flow	29	☑ Safety Joint	75	T-Open	20:00
(D) Initial Shut-In	273	☑ Circ Sub	W/C	T-Pulled	21:50
(E) Second Initial Flow	28	☐ Hourly Standby		T-Out	23:50
(F) Second Final Flow	49	☑ Mileage	50RT 77.50	Comments	
(G) Final Shut-In	250	☐ Sampler			
(H) Final Hydrostatic	2,173	☐ 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	1652.50
Final Shut-In	60	☐ Accessibility		MP/DST Disc't	
		Sub Total	1652.50		

Approved By _____ Our Representative _____

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53059

Well Name & No. Harper-Taldo # 1-22 Test No. 3 Date 4/29/13

Company Larson Engineering, Inc. Elevation 2805 KB 2798 GL

Address 562 W State Rd 4 Olmitz KS, 67564-8561

Co. Rep / Geo. Vern Schrag Rig Duke Rig 3

Location: Sec. 22 Twp. 18S Rge. 29W Co. Lane Co. State KS

Interval Tested 4488-4580 Zone Tested Fort Scott - Johnson

Anchor Length 92 Drill Pipe Run 4325.28 Mud Wt. 9.2

Top Packer Depth 4484 Drill Collars Run 147.46 Vis 58

Bottom Packer Depth 4488 Wt. Pipe Run — WL 8.0

Total Depth 4580 Chlorides 1,800 ppm System LCM 1.0 #

Blow Description Built to 1" below
No return below
Built to 3½" below
No return below

Rec 60	Feet of Mud	%gas	%oil	%water 100	%mud	
Rec 60	Feet of MCW oil spots in tool	%gas	%oil 50	%water 50	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 120 BHT 114 Gravity — API RW .25 @ 70 °F Chlorides 30,000 ppm

(A) Initial Hydrostatic	2,294	☑ Test	1250	T-On Location	16:20
(B) First Initial Flow	25	☑ Jars	250	T-Started	16:40
(C) First Final Flow	35	☑ Safety Joint	75	T-Open	18:36
(D) Initial Shut-In	1,230	☑ Circ Sub	N/C	T-Pulled	20:26
(E) Second Initial Flow	37	☐ Hourly Standby		T-Out	22:22
(F) Second Final Flow	81	☑ Mileage	50 AT 77.50	Comments	
(G) Final Shut-In	1,215	☐ Sampler			
(H) Final Hydrostatic	2,229	☐ 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	1652.50
Final Shut-In	60	☐ Accessibility		MP/DST Disc't	
		Sub Total	1652.50		

Approved By _____ Our Representative _____

ALLIED OIL & GAS SERVICES, LLC 060406

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:
Great Bend, KS

DATE 4-21-13	SEC. 22	TWP. 18S	RANGE 29W	CALLED OUT 8:47AM	ON LOCATION 12:00PM	JOB START 12:30PM	JOB FINISH 1:00PM
LEASE Harper-Taldo	WELL # 1-22		LOCATION Wayne Into location. Dilton: 2 west to Jagger rd. ½ mile south (10cm)			COUNTY Lane	STATE KS
OLD OR NEW (Circle one)							

CONTRACTOR HD #3
TYPE OF JOB Surface Casing
HOLE SIZE 12¼" T.D. 2735ft
CASING SIZE 8⅝" 20# DEPTH 261.06FT
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT 20 ft
CEMENT LEFT IN CSG. 20ft, 1.30 bbls, 5.5sx
PERFS.
DISPLACEMENT 16.5 bbls Fresh Water

OWNER Larson Engineering

CEMENT

AMOUNT ORDERED 175sx "A" + 3% CaCl + 2% Gel

COMMON	175	@ 17.90	3.132.50
POZMIX		@	
GEL	3	@ 23.40	70.20
CHLORIDE	6	@ 64.00	384.00
ASC		@	
HANDLING	188.2	@ 2.48	466.73
MILEAGE	8.63 x 30 x	2.60	673.60
		TOTAL	4.727.03

EQUIPMENT

PUMP TRUCK # 348	CEMENTER Charles Elkins
	HELPER Josh Isaac
BULK TRUCK # 341	DRIVER Dan Casper
BULK TRUCK #	DRIVER

REMARKS:

Pump 5 bbls Fresh Water
Mix & Pump 46.5 bbls Cement (175sx)
Displace with 16.5 bbls Fresh Water
Land 20ft, 1.3 bbls, 5.5sx Cement in Csg
Circulate 8 bbls, 33.5sx Cement to Surface

SERVICE

DEPTH OF JOB			
PUMP TRUCK CHARGE			1512.25
EXTRA FOOTAGE		@	
MILEAGE	Hum 30	@ 7.70	231.00
MANIFOLD		@	
	Lum 30	@ 4.40	132.00
		@	
		TOTAL	1.875.25

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	
	TOTAL	

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

SALES TAX (If Any)
TOTAL CHARGES 6.602.38
DISCOUNT 32% 2.112.72 IF PAID IN 30 DAYS
4.489.55

PRINTED NAME LEWAYNE FREESNER

SIGNATURE

SWIFT Services, Inc.

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

TICKET Nº 24751

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS	1-22	HARPER-TALDO	LANE	KS	DIGHTON, KS	30 APR 13	
2.	TICKET TYPE ☐ SERVICE ☐ SALES — CONTRACTOR: HD DRILLING. RIG #3		RIG NAME/NO.	SHIPPED VIA	DELIVERED TO	ORDER NO.	
3.	WELL TYPE	WELL CATEGORY	JOB PURPOSE		WELL PERMIT NO.	WELL LOCATION	
4.	OIL	DEVELOPMENT	4½ LONGSTRING			2W, S/W INTO	
REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575					MILEAGE # 115	40	MN			6 00	240 00
578					PUMP CHARGE	1	JOB			1500 00	1500 00
280					FLOCHECK 21	500	SAL			2 50	1250 00
221					LIQUID KCL	2	GAL			25 00	50 00
419					ROTATING HEAD RENTAL	1	JOB			200 00	200 00

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

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

X [signature]

DATE SIGNED 1 MAY 13 | TIME SIGNED 0130 ☒ A.M. ☐ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL 1 2	3240 00 / 6336 05
subtotal	9576 05
Lane TAX 7.3%	517 11
TOTAL	10,093 16

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR [signature] | APPROVAL

Thank You!

SWIFT Services, Inc.

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

TICKET CONTINUATION

TICKET No. 24751

CUSTOMER LARSON ENGINEERING | WELL G HARPER-TALOOT-22 | DATE 30 APR 13 | PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	TIME	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
276						FLOCELE	50	lbs			2 00	100 00
283						SALT	900	lbs			20	180 00
284						CALSEAL	8	Sx			35 00	280 00
277						GILSONITE	1750	lbs			75	1312 50
292						HALAD 322	165	lbs			7 75	1278 75
290						D-AIR	2	gal			35 00	70 00
325						STANDARD CEMENT EA2	175	sx			13 50	2362 50
581						SERVICE CHARGE	CUBIC FEET 175sx				2 00	350 00
583						MILEAGE CHARGE TOTAL WEIGHT 20115 LOADED MILES 40	TON MILES 402.30				1 00	402 30
											CONTINUATION TOTAL	6336 05

JOB LOG

SWIFT Services, Inc.

DATE 30 APR 13 | PAGE NO.

CUSTOMER	WELL NO.	LEASE	JOB TYPE	TICKET NO.
LARSON ENGINEERING	1-22	HARPER-TACOO	4½ LONGSTRING	24757

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	2200							ON LOCATION
								4½ - 11.6#
								RTD @ 4676 LTD @ 4678
								SHOE JT. 44.16 SET @ 4675
								PORT COLLAR @ 2128
	2315							CIRCULATE - DROP BALL
	0015	6	15		↘		300	Pump 15 BBL KCL
		6	12		↘		300	Pump 12 BBL FLOCHECK (500 gal)
		6	5		↘		300	Pump 5 BBL KCL
	0021		7					PLUG RH - 30 SX
	0028	4	35		↘		300	MIX 145 SX EA2
	0039							WASH OUT PUMP & LINES.
	0043	6			↘			START DISPLACING PLUG
	0055	0	72		↘		1500	PLUG DOWN PSI UP LATCH PLUG IN
	0058				↘			RELEASE PSI - DRY
	0100							WASH TRUCK
	0130							JOB COMPLETE
								THANKS # 115
								JASON JEFF ROB

SWIFT Services, Inc.

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

TICKET Nº 24754

PAGE 1 OF

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS	1-22	HARPER-TALDO	LANE	KS	DIGHTON, KS.	6 MAY 13	
2.	TICKET TYPE ☐ SERVICE ☐ SALES / CONTRACTOR: WILD WEST WELL SERV.		RIG NAME/NO.	SHIPPED VIA	DELIVERED TO	ORDER NO.	
3.	WELL TYPE	WELL CATEGORY	JOB PURPOSE		WELL PERMIT NO.	WELL LOCATION	
4.	OIL	DEVELOPMENT	CEMENT PORT COLLAR			2W, S/W INTO	
REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575					MILEAGE #115	40	MIL			6 00	240 00
~~276~~ 576D					Pump CHARGE	1	JOB			1500 00	1500 00
276					FLOCELE	55	lbs			2 00	110 00
290					D-AIR	2	gal			42 00	84 00
330					SMD CEMENT	205	SK			17 00	3485 00
581					CEMENT SERVICE CHARGE	275	SK			2 00	550 00
583					DRAYAGE	27320	lbs.	546.4	TM	1 00	546 40

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

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

X

DATE SIGNED: 6 MAY 13 | TIME SIGNED: 1230 ☐ A.M. ☒ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	6515 40
Lane TAX 7.3%	268 57
TOTAL	6783 97

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR: Jason E Ratcliff

APPROVAL

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 10 MAY 13 | PAGE NO.

CUSTOMER: LARSON ENGINEERING | WELL NO. | LEASE: HARPER-TALDO 1-22 | JOB TYPE: CEMENT PORT COLLAR | TICKET NO. 24754

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	1045							ON LOCATION
								PORT COLLAR @ 2129
	1115				↘		1000	TEST - HELD
	1117							OPEN PORT COLLAR
	1123	4	114	↘		600		MIX 205 SX SMD
		3½	7½	↘		300		DISPLACE CEMENT
								CIRCULATE CEMENT TO SURFACE
	1151			↘		1000		CLOSE PORT COLLAR - TEST - HELD
	1155							RUN 5 JTS.
	1200	4	20		↘		300	REVERSE CEMENT OUT OF TUBING
	1212							WASH TRUCK
	1230							JOB COMPLETE
								THANKS #115
								JASON JEFF ISAAC

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/

August 15, 2013

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

Re: ACO1
API 15-101-22435-00-00
Harper-Taldo 1-22
NE/4 Sec.22-18S-29W
Lane County, Kansas

Dear Production Department:

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

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

Respectfully,
Thomas Larson