Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1120439

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: Ted Jochems, Jr
Purchaser: NCRA

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 #:

11/24/2012	12/7/2012	1/22/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22411-00-00
Spot Description:
NE - NW - SE - SW Sec. 23 Twp. 16 S. R. 29 ☐ East ☑ West
1301 Feet from ☐ North / ☑ South Line of Section
1857 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: Dowell Well #: 1-23
Field Name:
Producing Formation: Cherokee, L-KC
Elevation: Ground: 2794 Kelly Bushing: 2801
Total Vertical Depth: 4603 Plug Back Total Depth: 4557
Amount of Surface Pipe Set and Cemented at: 281 Feet
Multiple Stage Cementing Collar Used? ☑ Yes ☐ No
If yes, show depth set: 2167 Feet
If Alternate II completion, cement circulated from: 2167
feet depth to: 0 w/ 195 sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 15000 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: 03/07/2013
☑ **Confidential Release Date:** 03/07/2015
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 03/12/2013

1120439

Operator Name: Larson Engineering, Inc. dba Larson Operating Company Lease Name: Dowell Well #: 1-23

Sec. 23 Twp. 16 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	1.25	8.625	20	281	Class A	175	2% gel, 3% CC
Production	7.875	5.5	15.5	4602	EA-2	125	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	0-2167	SMD	195	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	4531-38, 4264-72, 4254-58	250 gal 15% NEFe	4531-38
		250 gal 15% MCA	4264-72, 4254-58

TUBING RECORD: Size: 2.375 Set At: 4550 Packer At: Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 1/22/2013

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: 4254 - 4538

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	Dowell 1-23
Doc ID	1120439

Tops

Name	Top	Datum
Heebner	3927	-1126
Lansing	3966	-1165
Stark	4216	-1415
Marmaton	4318	-1517
Pawnee	4406	-1605
Fort Scott	4458	-1657
Cherokee Sh	4484	-1683
Mississippi	4546	-1745

SWIFT Services, Inc.

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

TICKET Nº 23723

PAGE 1 OF

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS.		DOWELL 1-23	LANE	KS.	HEALEY, KS	13 DEC 12	
2.	TICKET TYPE ☐ SERVICE ☐ SALES — CONTRACTOR: FRITZLER TRUCKING	RIG NAME/NO.	SHIPPED VIA	DELIVERED TO		ORDER NO.	
3.	WELL TYPE: OIL	WELL CATEGORY: DEVELOPMENT	JOB PURPOSE: CEMENT PORT COLLAR	WELL PERMIT NO.		WELL LOCATION: 6E, 2N, 4E, NINTO	
4. 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	50	MIL			6 00	300 00
576D					Pump CHARGE	1	JOB			1250 00	1250 00
276					FLOCELE	49	lbs			2 00	98 00
290					D-AIR	2	gal			35 00	70 00
330					SWIFT MULTI DENSITY	195	SK			16 50	3217 50
581					CEMENT SERVICE CHARGE	235	SK			2 00	470 00
583					DRAYAGE.	23319	lbs	582.97	TM	1 00	582 97

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: 13 DEC 12 | TIME SIGNED: 1200 ☐ 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	5988 47
Lane TAX 6.3%	213 29
TOTAL	6201 76

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

SWIFT OPERATOR | APPROVAL

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 13 DEC 12 PAGE NO.

CUSTOMER LARSON ENGINEERING | WELL NO. | LEASE DOWELL 1-23 | JOB TYPE CEMENT PORT COLLAR | TICKET NO. 23723

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	1000							ON LOCATION
								PORT COLLAR @ 2169
	1044				↘		1000	TEST - HELD
	1047							OPEN PORT COLLAR
	1051	4½	108	↘		900		MIX 195 SX SMD
		3	7½	↘		500		DISPLACE CEMENT
								CIRCULATE 20 SX TO PIT
	1117			↘		1000		CLOSE PORT COLLAR - TEST - HELD
								RUN 5 JTS.
	1128	4	18		↘		350	REVERSE CEMENT OUT OF TUBING
	1140							WASH TRUCK
	1200							JOB COMPLETE
								THANKS #115
								JASON JEFF JEREMY

SWIFT Services, Inc.

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

TICKET Nº 23717

PAGE 1 OF 2

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. NESS CITY, KS.		DOWELL 1-23	LANE	KS	HEALEY, KS.	7 DEC 12	
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	5½ LONGSTRING			6E, 2N, ½ 26, N 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	50	MIL			6 00	300 00
578					PUMP CHARGE	1	JOB			1500 00	1500 00
290					D-AIR	1½	GAL			35 00	52 50
419					ROTATING HEAD RENTAL	1	JOB			200 00	200 00
280					FLOCHECK 21	500	GAL			2 50	1250 00
221					LIQUID KCL	2	GAL			25 00	50 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

DATE SIGNED 7 Dec 12 | TIME SIGNED 2200 ☐ 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	3352 50
2	5166 83
Subtotal	8519 33
Lane TAX 6.3%	377 97
TOTAL	8897 29

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

SWIFT OPERATOR J. Eberhardt | APPROVAL Barbara Thomas

Thank You!

SWIFT Services, Inc.

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

TICKET CONTINUATION

TICKET No. 23717

CUSTOMER LARSON ENGINEERING | WELL DOWELL 1-23 | DATE 7 DEC 12 | PAGE 2 | OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCOUNTING ACCT #	ACCOUNTING DF	TIME	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
276						FLOCELE	38	lbs			2 00	76 00
283						SALT	755	lbs			20	151 00
284						CALSEAL	7	sx			35 00	245 00
277						GILSONITE	1050	lbs.			75	787 50
292						HALAD 322	150	lbs.			7 75	1162 50
325						STANDARD CEMENT EA2	150	sx			13 50	2025 00
581						SERVICE CHARGE	CUBIC FEET	150 sx			2 00	300 00
583						MILEAGE CHARGE TOTAL WEIGHT 10793 LOADED MILES 50	TON MILES	419.82			1 00	419 82

CONTINUATION TOTAL 5166 82

JOB LOG

SWIFT Services, Inc.

DATE 7 DEC 12 | PAGE NO.

CUSTOMER	WELL NO.	LEASE	JOB TYPE	TICKET NO.
LARSON ENGINEERING		DOWELL 1-23	5½ LONGSTRING	23717

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	1830							ON LOCATION
								5½ - 15.5 LB
								RTD @ 4600 HTD @ 4603
								SHOE JT. 42.15'
								PORT COLLAR @ 2169'
	2001				7			DROP BALL CIRCULATE
	2045	6½	15		7		300	Pump 15 Bbl KCL FLUSH
		6½	12		7		300	Pump 500 gal FLOCHECK 21
		6½	5		7		300	Pump 5 Bbl KCL FLUSH
	2054		7					PLUG RH (30 sx)
	2058	4½	30		7			MIX 125 sx EA2
	2108							WASH OUT PUMP & LINES.
	2111	6½			7			START DISPLACING PLUG
	2125	Ø	108		7		1500	PLUG DOWN PSI up LATCH PLUG IN
	2127							RELEASE PSI - DRY
	2130							WASH TRUCK
	2200							JOB COMPLETE
								THANKS #715
								JASON JEFF JEREMY

CONSOLIDATED
Oil Well Services, LLC

TICKET NUMBER 39150
LOCATION Oakley
FOREMAN Fuzzy

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

FIELD TICKET & TREATMENT REPORT
CEMENT

KS

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-24-12	4802	Dowell 1-23	23	16	29w	Lane

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

4 + 23 Jct 2 N 1/2 E N in

TRUCK #	DRIVER	TRUCK #	DRIVER
463	Corey D		
693	Tim W		

JOB TYPE surface HOLE SIZE 12 1/4 HOLE DEPTH 284' CASING SIZE & WEIGHT 8 5/8
CASING DEPTH 284' DRILL PIPE TUBING OTHER
SLURRY WEIGHT 14.7 SLURRY VOL 1.36 WATER gal/sk 6.5 CEMENT LEFT in CASING 20'
DISPLACEMENT 16.8 DISPLACEMENT PSI MIX PSI RATE

REMARKS: Safety meeting on H.D #3. Rig up and circulate mix 175sks Class 'A' 3% cc 2% gel Displace 16 3/4 BBL water and shut in. Cement did circulate approx 5 BBLS to pit.

Thanks Fuzzy & Crew

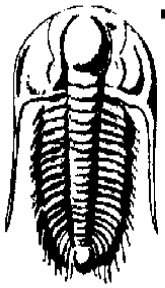
ACCOUNT CODE	QUANITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
5401 S	1	PUMP CHARGE	1085.00	1085.00
5406	44	MILEAGE	5.00	220.00
5407A	8.2 ton	Ton mileage Delivery	1.67	602.36
1104 S	175sks	Class 'A' cement	17.63	3088.25
1102	494#	Calcium chloride	.89	439.66
1118 B	329#	Bentonite	.25	82.25
		Subtotal		5518.02
		less 10%		551.81
		Subtotal		4966.21
			SALES TAX	204.72
			ESTIMATED TOTAL	5170.93

Ravin 3737

AUTHORIZTION Barbara Travis TITLE Cashier DATE 11-24-12

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.

254821



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.11.30 @ 21:07:00

End Date: 2012.12.01 @ 02:21:30

Job Ticket #: 51376 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:31:41

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51376 **DST#: 1**

Test Start: 2012.11.30 @ 21:07:00

GENERAL INFORMATION:

Formation: **LKC " I "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:09:15
Time Test Ended: 02:21:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Ryan Nichols
Unit No: 53

Interval: 4156.00 ft (KB) To 4185.00 ft (KB) (TVD)
Total Depth: 4156.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

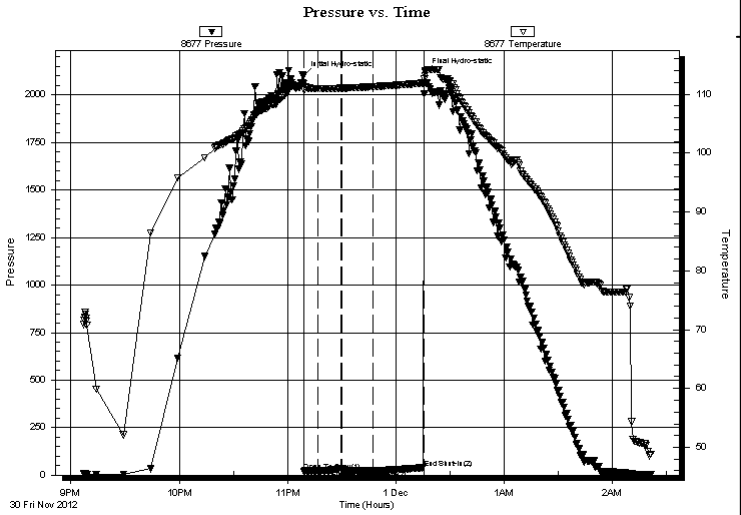
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: 22.65 psig @ 4157.00 ft (KB)
Start Date: 2012.11.30 End Date: 2012.12.01
Start Time: 21:07:05 End Time: 02:21:29

Capacity: 8000.00 psig
Last Calib.: 2012.12.01
Time On Btm: 2012.11.30 @ 23:09:00
Time Off Btm: 2012.12.01 @ 00:16:00

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	2101.55	111.81	Initial Hydro-static
1	21.50	110.72	Open To Flow (1)
8	22.98	110.93	Shut-In(1)
21	34.98	111.03	End Shut-In(1)
22	22.45	111.03	Open To Flow (2)
38	22.65	111.29	Shut-In(2)
67	38.35	111.90	End Shut-In(2)
67	2120.06	113.18	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	Mud	0.00

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51376 **DST#: 1**

Test Start: 2012.11.30 @ 21:07:00

GENERAL INFORMATION:

Formation: **LKC " I "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:09:15
Time Test Ended: 02:21:30

Test Type: Conventional Bottom Hole (Initial)
Tester: Ryan Nichols
Unit No: 53

Interval: 4156.00 ft (KB) To 4185.00 ft (KB) (TVD)
Total Depth: 4156.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

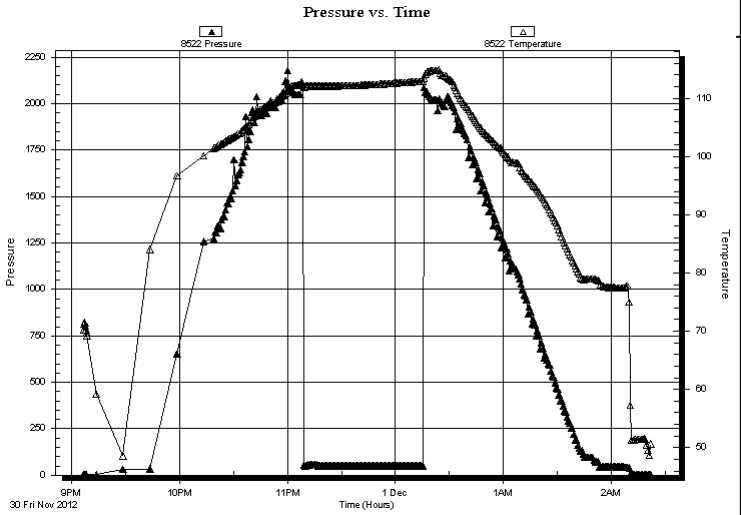
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: psig @ 4157.00 ft (KB)
Start Date: 2012.11.30 End Date: 2012.12.01
Start Time: 21:06:35 End Time: 02:21:59

Capacity: 8000.00 psig
Last Calib.: 2012.12.01
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)
1.00	Mud	0.00

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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51376 **DST#: 1**

Test Start: 2012.11.30 @ 21:07:00

Tool Information

Drill Pipe:	Length:	3983.00 ft	Diameter:	3.80 inches	Volume:	55.87 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:		25000.00 lb
Drill Collar:	Length:	177.00 ft	Diameter:	2.25 inches	Volume:	0.87 bbl	Weight to Pull Loose:		70000.00 lb
					Total Volume:	56.74 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		31.00 ft					String Weight:	Initial	64000.00 lb
Depth to Top Packer:		4156.00 ft						Final	64000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		29.00 ft							
Tool Length:		56.00 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			4130.00		
Shut In Tool	5.00			4135.00		
Hydraulic tool	5.00			4140.00		
Jars	5.00			4145.00		
Safety Joint	2.00			4147.00		
Packer	5.00			4152.00	27.00	Bottom Of Top Packer
Packer	4.00			4156.00		
Stubb	1.00			4157.00		
Recorder	0.00	8677	Inside	4157.00		
Recorder	0.00	8522	Outside	4157.00		
Perforations	25.00			4182.00		
Bullnose	3.00			4185.00	29.00	Bottom Packers & Anchor
Total Tool Length:	**56.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51376 **DST#: 1**

Test Start: 2012.11.30 @ 21:07:00

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:	7.17 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2900.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

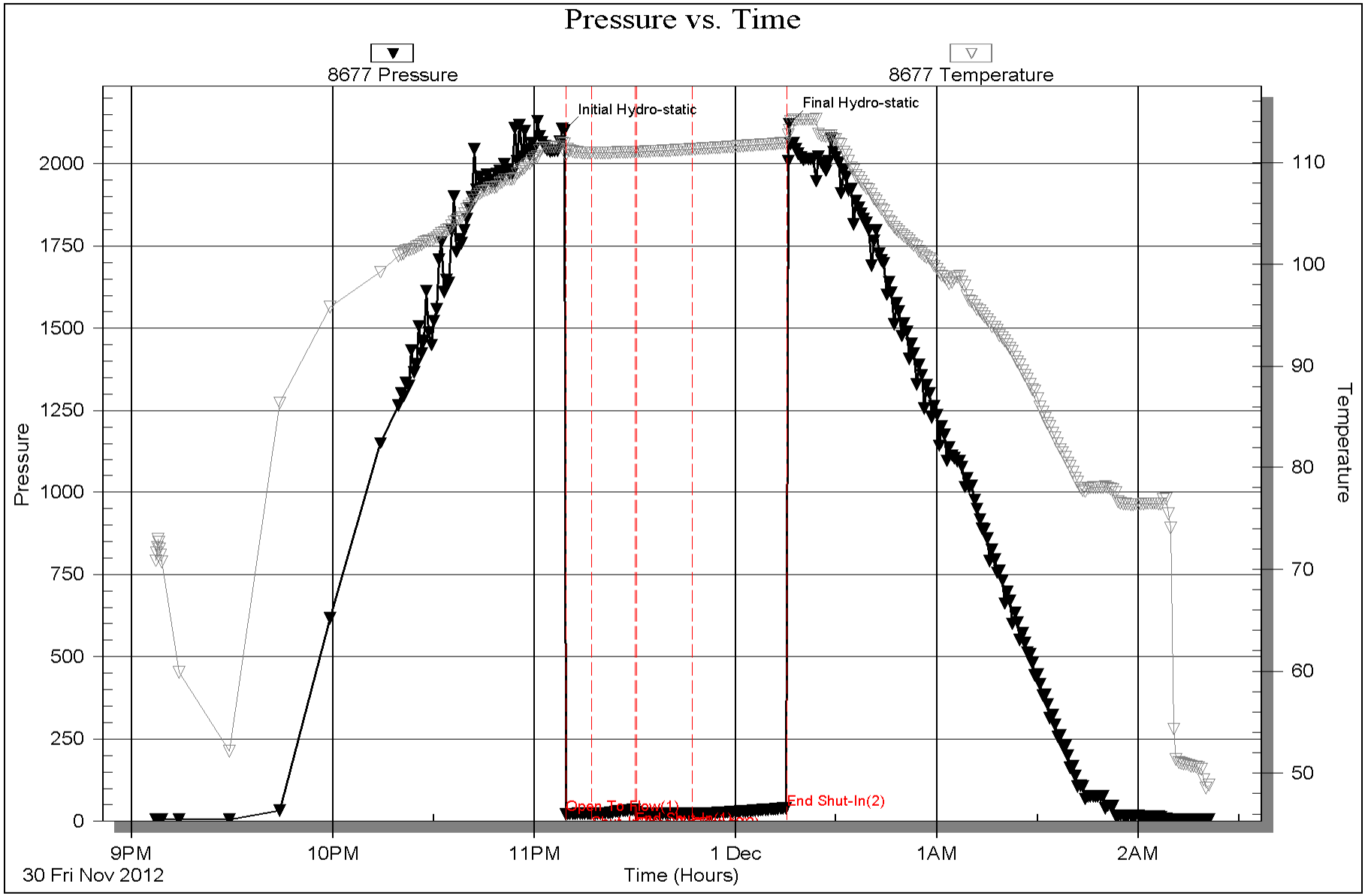
Recovery Table

Length ft	Description	Volume bbl
1.00	Mud	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

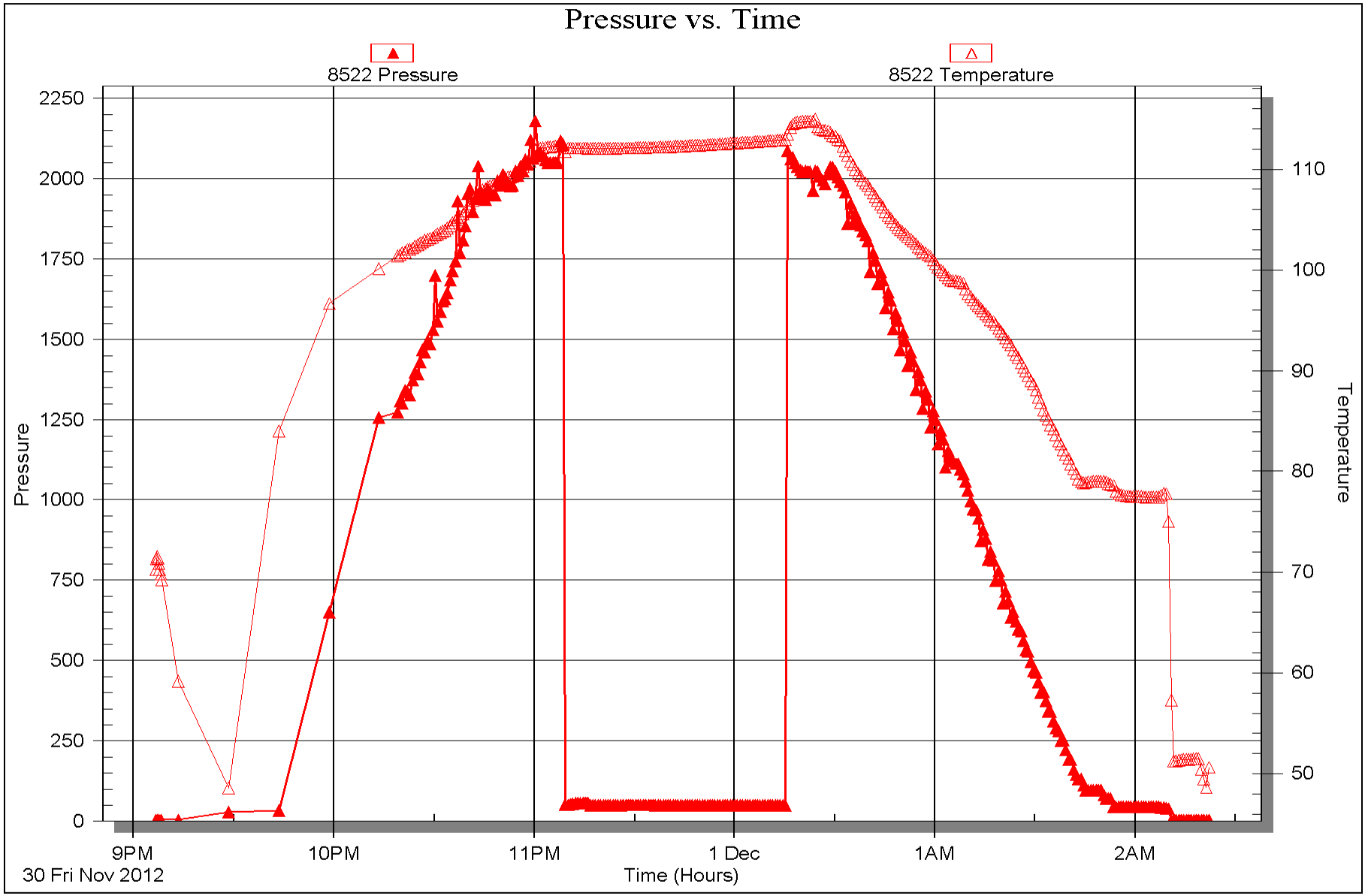
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 51376 Printed: 2012.12.07 @ 11:31:45

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 51376 Printed: 2012.12.07 @ 11:31:45

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.01 @ 15:40:00
End Date: 2012.12.01 @ 21:42:45
Job Ticket #: 51377 DST #: 2

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

Printed: 2012.12.07 @ 11:30:51

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51377 **DST#: 2**

Test Start: 2012.12.01 @ 15:40:00

GENERAL INFORMATION:

Formation: **LKC "K"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:57:15
Time Test Ended: 21:42:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4215.00 ft (KB) To 4229.00 ft (KB) (TVD)
Total Depth: 4156.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

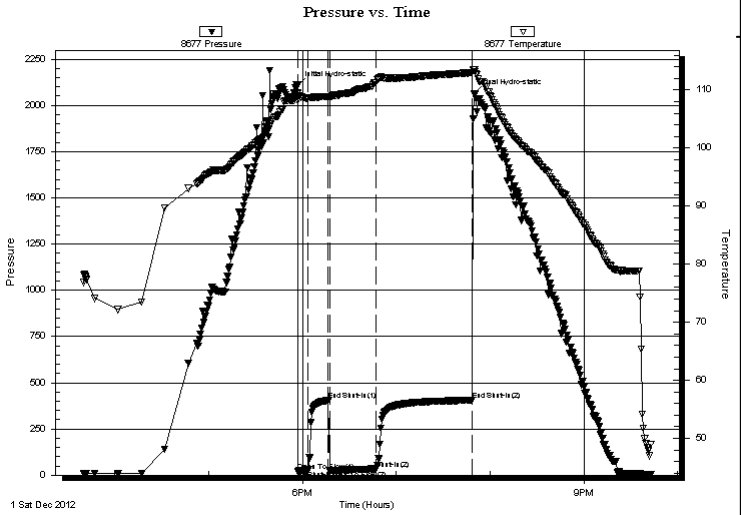
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: 34.22 psig @ 4216.00 ft (KB)
Start Date: 2012.12.01 End Date: 2012.12.01
Start Time: 15:40:05 End Time: 21:42:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.01
Time On Btm: 2012.12.01 @ 17:57:00
Time Off Btm: 2012.12.01 @ 19:50:00

TEST COMMENT: 5 IF - Surface blow built to 1/8"
15 ISI - No return
30 FF - Surface blow built to 1/8"
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2108.99	109.44	Initial Hydro-static
1	21.02	108.18	Open To Flow (1)
7	24.12	108.55	Shut-In(1)
20	404.87	108.89	End Shut-In(1)
21	24.92	108.80	Open To Flow (2)
50	34.22	111.23	Shut-In(2)
112	405.34	113.00	End Shut-In(2)
113	2062.35	113.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w / oil spots	0.07

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51377 **DST#: 2**

Test Start: 2012.12.01 @ 15:40:00

GENERAL INFORMATION:

Formation: **LKC "K"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:57:15
Time Test Ended: 21:42:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4215.00 ft (KB) To 4229.00 ft (KB) (TVD)
Total Depth: 4156.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

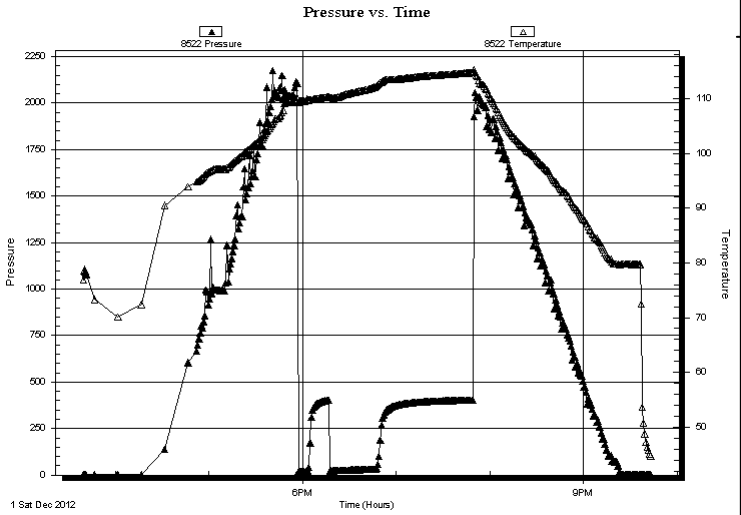
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: psig @ 4216.00 ft (KB)
Start Date: 2012.12.01 End Date: 2012.12.01
Start Time: 15:39:35 End Time: 21:43:14

Capacity: 8000.00 psig
Last Calib.: 2012.12.01
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 1/8"
15 ISI - No return
30 FF - Surface blow built to 1/8"
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
15.00	Mud w / oil spots	0.07

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51377 **DST#: 2**

Test Start: 2012.12.01 @ 15:40:00

Tool Information

Drill Pipe:	Length:	4016.00 ft	Diameter:	3.80	inches	Volume:	56.33	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	177.00 ft	Diameter:	2.25	inches	Volume:	0.87	bbl	
						Total Volume:	57.20	bbl	

Drill Pipe Above KB:	5.00 ft
Depth to Top Packer:	4215.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	14.00 ft
Tool Length:	41.00 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	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			4189.00		
Shut In Tool	5.00			4194.00		
Hydraulic tool	5.00			4199.00		
Jars	5.00			4204.00		
Safety Joint	2.00			4206.00		
Packer	5.00			4211.00	27.00	Bottom Of Top Packer
Packer	4.00			4215.00		
Stubb	1.00			4216.00		
Recorder	0.00	8677	Inside	4216.00		
Recorder	0.00	8522	Outside	4216.00		
Perforations	10.00			4226.00		
Bullnose	3.00			4229.00	14.00	Bottom Packers & Anchor
Total Tool Length:	**41.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51377 **DST#: 2**

Test Start: 2012.12.01 @ 15:40:00

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:	52.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.16 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2900.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

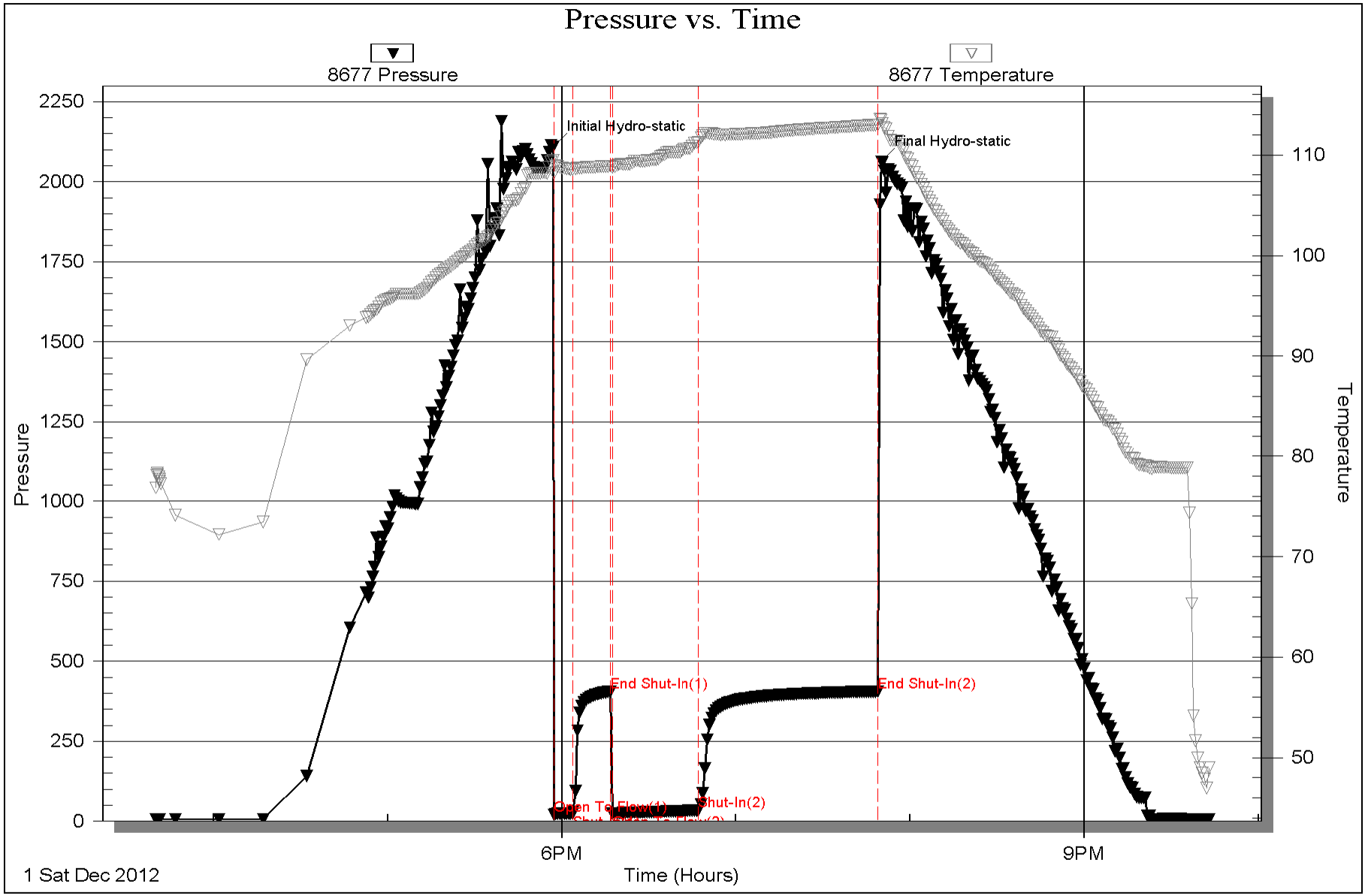
Recovery Table

Length ft	Description	Volume bbl
15.00	Mud w / oil spots	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

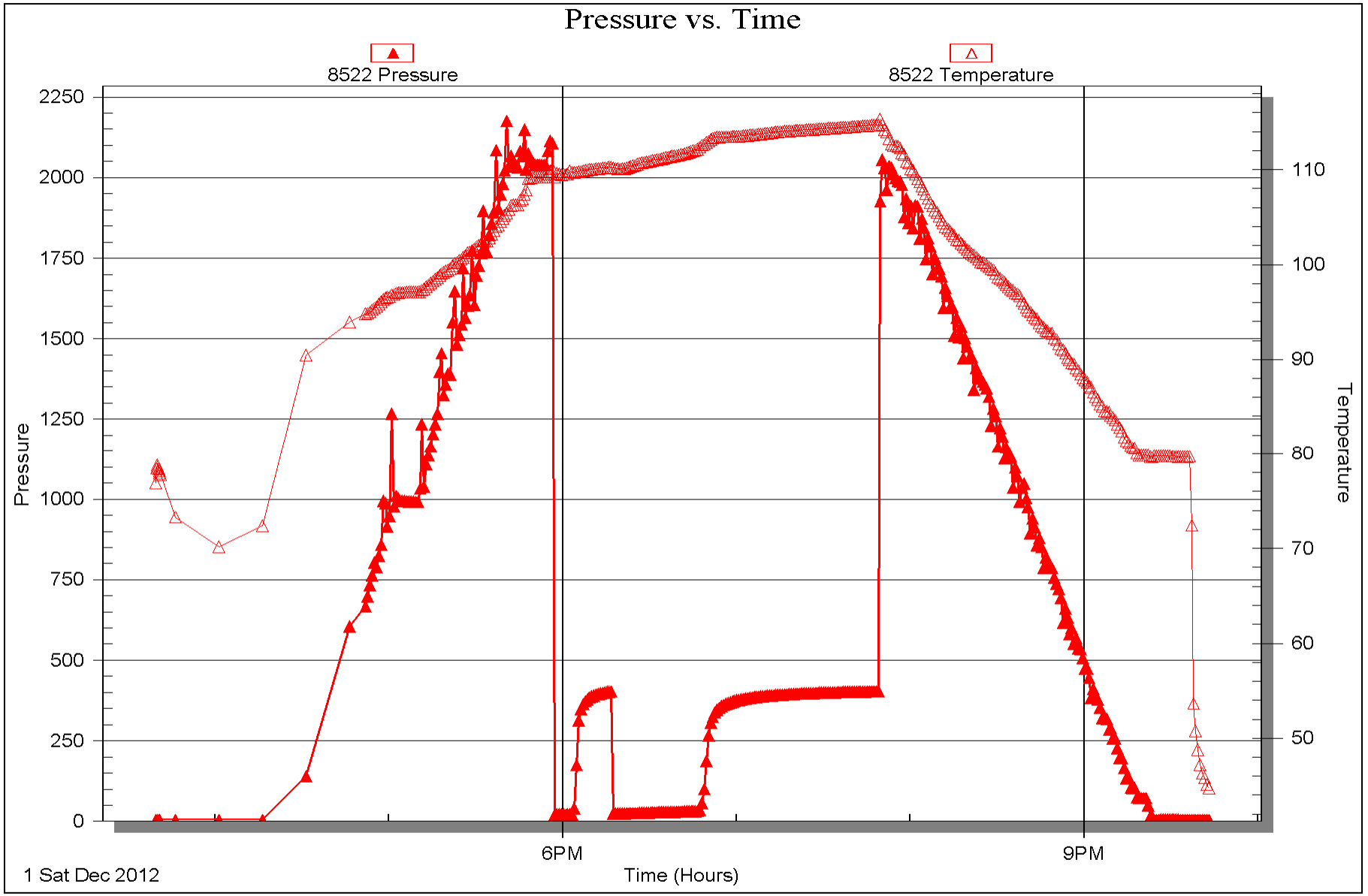
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 51377 Printed: 2012.12.07 @ 11:30:55

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 51377 Printed: 2012.12.07 @ 11:30:56

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.02 @ 07:54:00
End Date: 2012.12.02 @ 13:33:00
Job Ticket #: 51378 DST #: 3

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

Printed: 2012.12.07 @ 11:29:49

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51378 **DST#: 3**

Test Start: 2012.12.02 @ 07:54:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:00:30
Time Test Ended: 13:33:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Ryan Nichols
Unit No: 53

Interval: 4242.00 ft (KB) To 4255.00 ft (KB) (TVD)
Total Depth: 4255.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

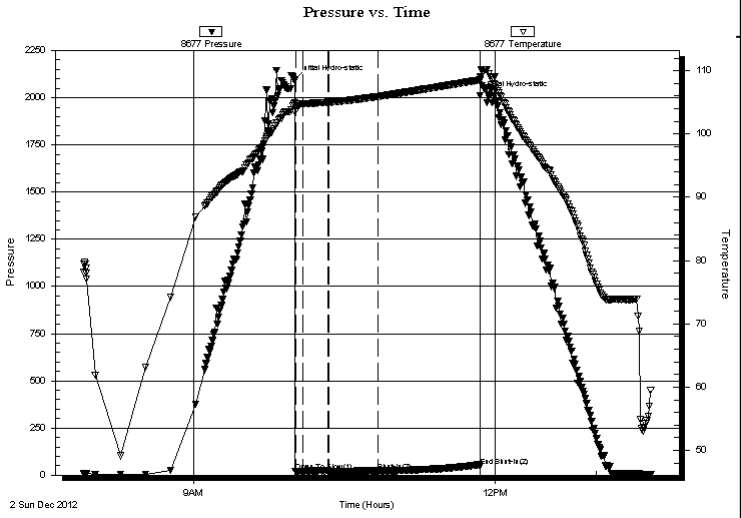
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: 22.00 psig @ 4243.00 ft (KB)
Start Date: 2012.12.02 End Date: 2012.12.02
Start Time: 07:54:05 End Time: 13:32:59

Capacity: 8000.00 psig
Last Calib.: 2012.12.02
Time On Btm: 2012.12.02 @ 10:00:15
Time Off Btm: 2012.12.02 @ 11:51:00

TEST COMMENT: 5 IF - Surface blow built to 1/8"
15 ISI - No return
30 FF - Surface blow built to 1/8"
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2094.14	104.87	Initial Hydro-static
1	19.95	103.53	Open To Flow (1)
5	20.79	104.78	Shut-In(1)
20	26.15	105.02	End Shut-In(1)
20	20.68	105.02	Open To Flow (2)
50	22.00	105.93	Shut-In(2)
111	48.47	108.53	End Shut-In(2)
111	2013.29	109.12	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	Mud	0.00

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51378 **DST#: 3**

Test Start: 2012.12.02 @ 07:54:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:00:30
Time Test Ended: 13:33:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Ryan Nichols
Unit No: 53

Interval: 4242.00 ft (KB) To 4255.00 ft (KB) (TVD)
Total Depth: 4255.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

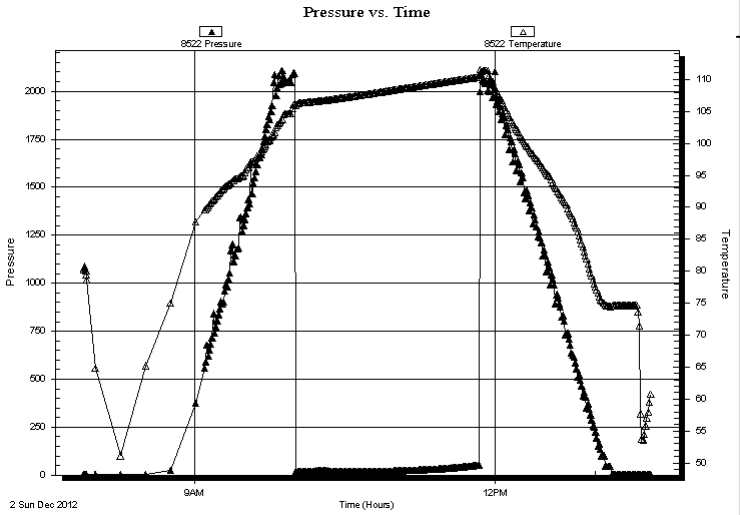
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: psig @ 4243.00 ft (KB)
Start Date: 2012.12.02 End Date: 2012.12.02
Start Time: 07:53:35 End Time: 13:33:29

Capacity: 8000.00 psig
Last Calib.: 2012.12.02
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 1/8"
15 ISI - No return
30 FF - Surface blow built to 1/8"
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	Mud	0.00

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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51378 **DST#: 3**

Test Start: 2012.12.02 @ 07:54:00

Tool Information

Drill Pipe:	Length:	4044.00 ft	Diameter:	3.80 inches	Volume:	56.73 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:		25000.00 lb
Drill Collar:	Length:	177.00 ft	Diameter:	2.25 inches	Volume:	0.87 bbl	Weight to Pull Loose:		68000.00 lb
					Total Volume:	57.60 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		6.00 ft					String Weight:	Initial	62000.00 lb
Depth to Top Packer:		4242.00 ft						Final	62000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		13.00 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			4216.00		
Shut In Tool	5.00			4221.00		
Hydraulic tool	5.00			4226.00		
Jars	5.00			4231.00		
Safety Joint	2.00			4233.00		
Packer	5.00			4238.00	27.00	Bottom Of Top Packer
Packer	4.00			4242.00		
Stubb	1.00			4243.00		
Recorder	0.00	8677	Inside	4243.00		
Recorder	0.00	8522	Outside	4243.00		
Perforations	9.00			4252.00		
Bullnose	3.00			4255.00	13.00	Bottom Packers & Anchor
Total Tool Length:	**40.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51378 **DST#: 3**

Test Start: 2012.12.02 @ 07:54:00

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

Recovery Information

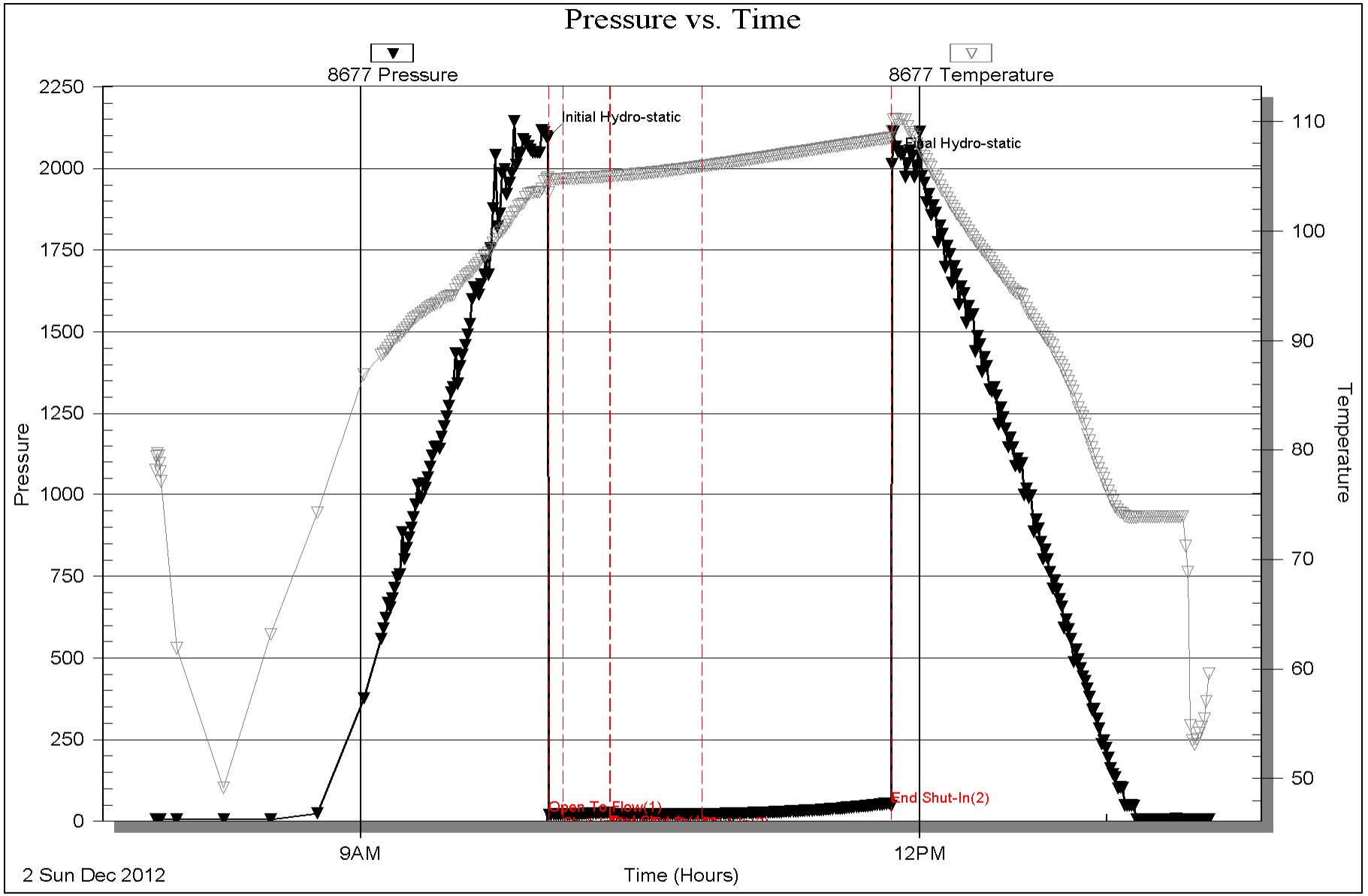
Recovery Table

Length ft	Description	Volume bbl
1.00	Mud	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl

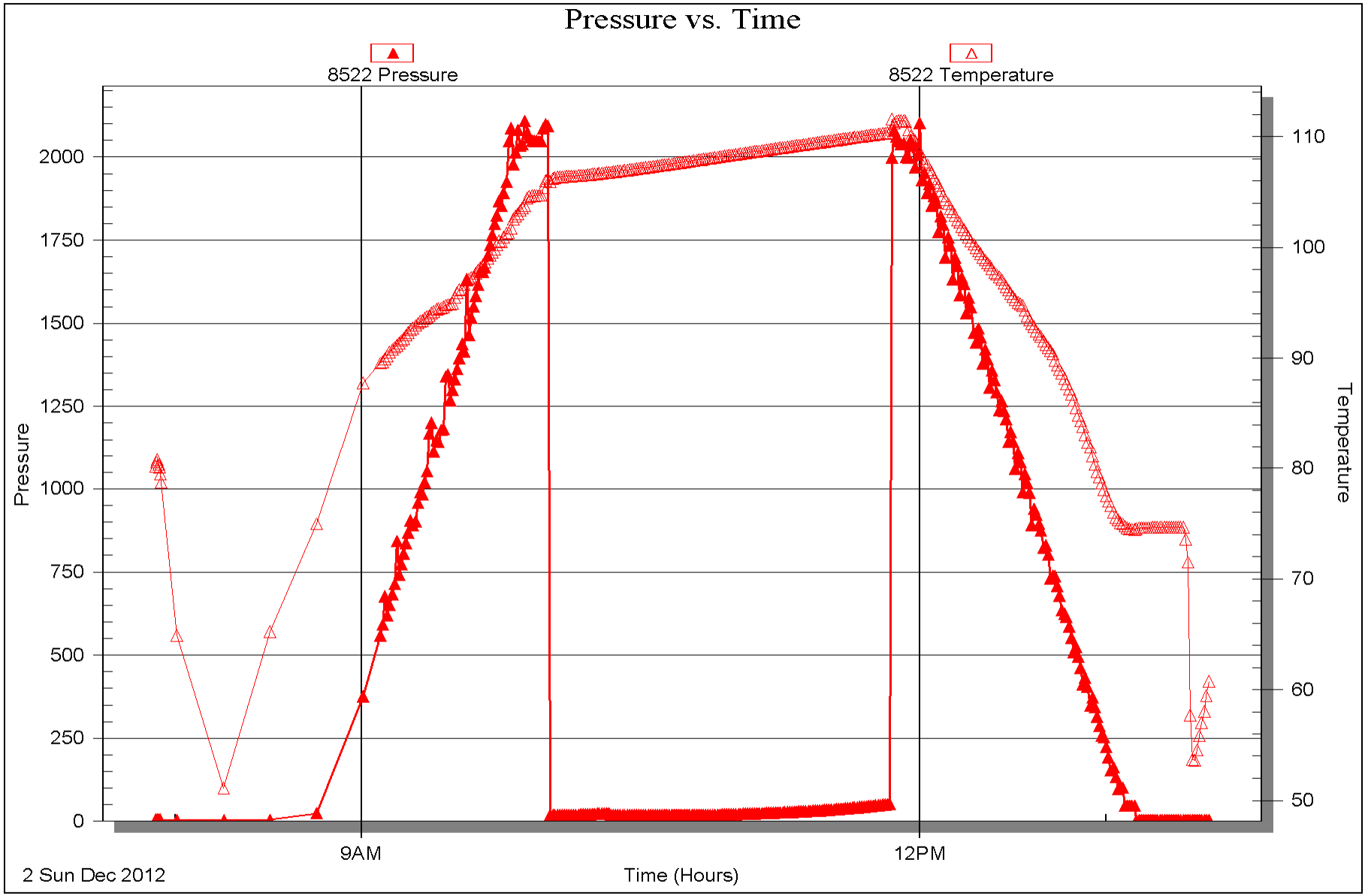
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 51378 Printed: 2012.12.07 @ 11:29:53

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 3



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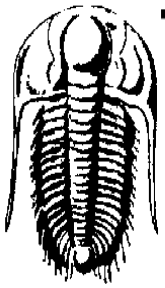


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.02 @ 23:17:00

End Date: 2012.12.03 @ 05:27:45

Job Ticket #: 51379 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:29:11

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51379 **DST#: 4**

Test Start: 2012.12.02 @ 23:17:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:37:15
Time Test Ended: 05:27:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4241.00 ft (KB) To 4264.00 ft (KB) (TVD)
Total Depth: 4264.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

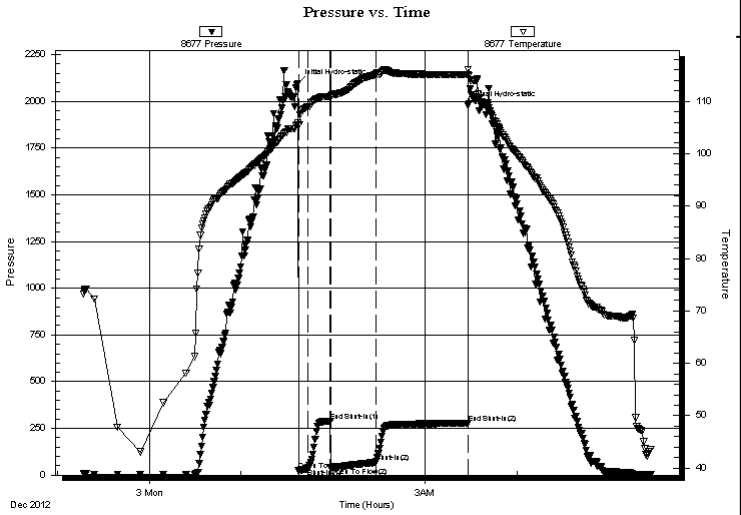
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: 67.97 psig @ 4242.00 ft (KB)
Start Date: 2012.12.02 End Date: 2012.12.03
Start Time: 23:17:05 End Time: 05:27:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.03
Time On Btm: 2012.12.03 @ 01:37:00
Time Off Btm: 2012.12.03 @ 03:28:00

TEST COMMENT: 5 IF - Surface blow built to 2 1/8"
15 ISI - Surface blow
30 FF - Surface blow built to BoB in 30 mins
60 FSI - Surface blow died @ 40 mins



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2094.08	105.78	Initial Hydro-static
1	23.59	105.29	Open To Flow (1)
7	34.65	109.02	Shut-In(1)
21	288.22	110.85	End Shut-In(1)
22	43.70	110.71	Open To Flow (2)
51	67.97	115.17	Shut-In(2)
111	277.65	115.06	End Shut-In(2)
111	1978.57	116.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 20%G - 40%o - 40%M	0.30
10.00	GOCM - 3% G - 32%o - 65%M	0.05

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51379 **DST#: 4**

Test Start: 2012.12.02 @ 23:17:00

GENERAL INFORMATION:

Formation: **Middle Creek**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:37:15
Time Test Ended: 05:27:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4241.00 ft (KB) To 4264.00 ft (KB) (TVD)
Total Depth: 4264.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

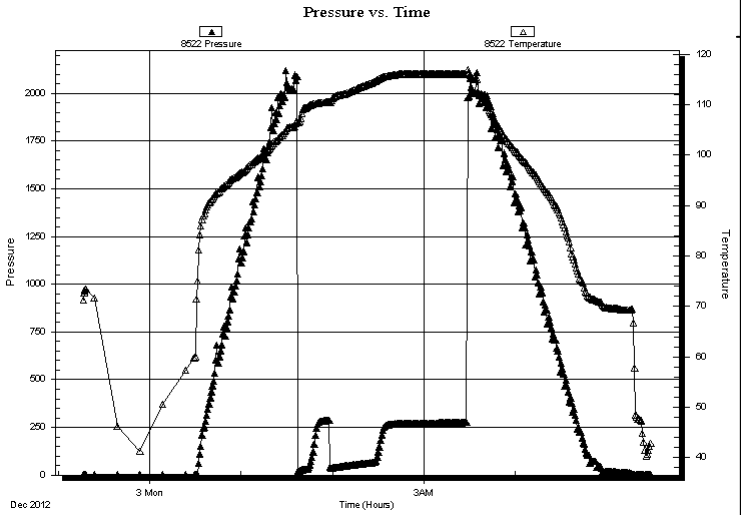
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: psig @ 4242.00 ft (KB)
Start Date: 2012.12.02 End Date: 2012.12.03
Start Time: 23:16:50 End Time: 05:28:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.03
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - Surface blow built to 2 1/8"
15 ISI - Surface blow
30 FF - Surface blow built to BoB in 30 mins
60 FSI - Surface blow died @ 40 mins



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 20%G - 40%o - 40%M	0.30
10.00	GOCM - 3% G - 32%o - 65%M	0.05

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51379 **DST#: 4**

Test Start: 2012.12.02 @ 23:17:00

Tool Information

Drill Pipe:	Length:	4044.00 ft	Diameter:	3.80 inches	Volume:	56.73 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:		25000.00 lb
Drill Collar:	Length:	177.00 ft	Diameter:	2.25 inches	Volume:	0.87 bbl	Weight to Pull Loose:		66000.00 lb
					Total Volume:	57.60 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		7.00 ft					String Weight:	Initial	64000.00 lb
Depth to Top Packer:		4241.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		23.00 ft							
Tool Length:		50.00 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			4215.00		
Shut In Tool	5.00			4220.00		
Hydraulic tool	5.00			4225.00		
Jars	5.00			4230.00		
Safety Joint	2.00			4232.00		
Packer	5.00			4237.00	27.00	Bottom Of Top Packer
Packer	4.00			4241.00		
Stubb	1.00			4242.00		
Recorder	0.00	8677	Inside	4242.00		
Recorder	0.00	8522	Outside	4242.00		
Perforations	19.00			4261.00		
Bullnose	3.00			4264.00	23.00	Bottom Packers & Anchor
Total Tool Length:	**50.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51379 **DST#: 4**

Test Start: 2012.12.02 @ 23:17:00

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:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.16 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3000.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

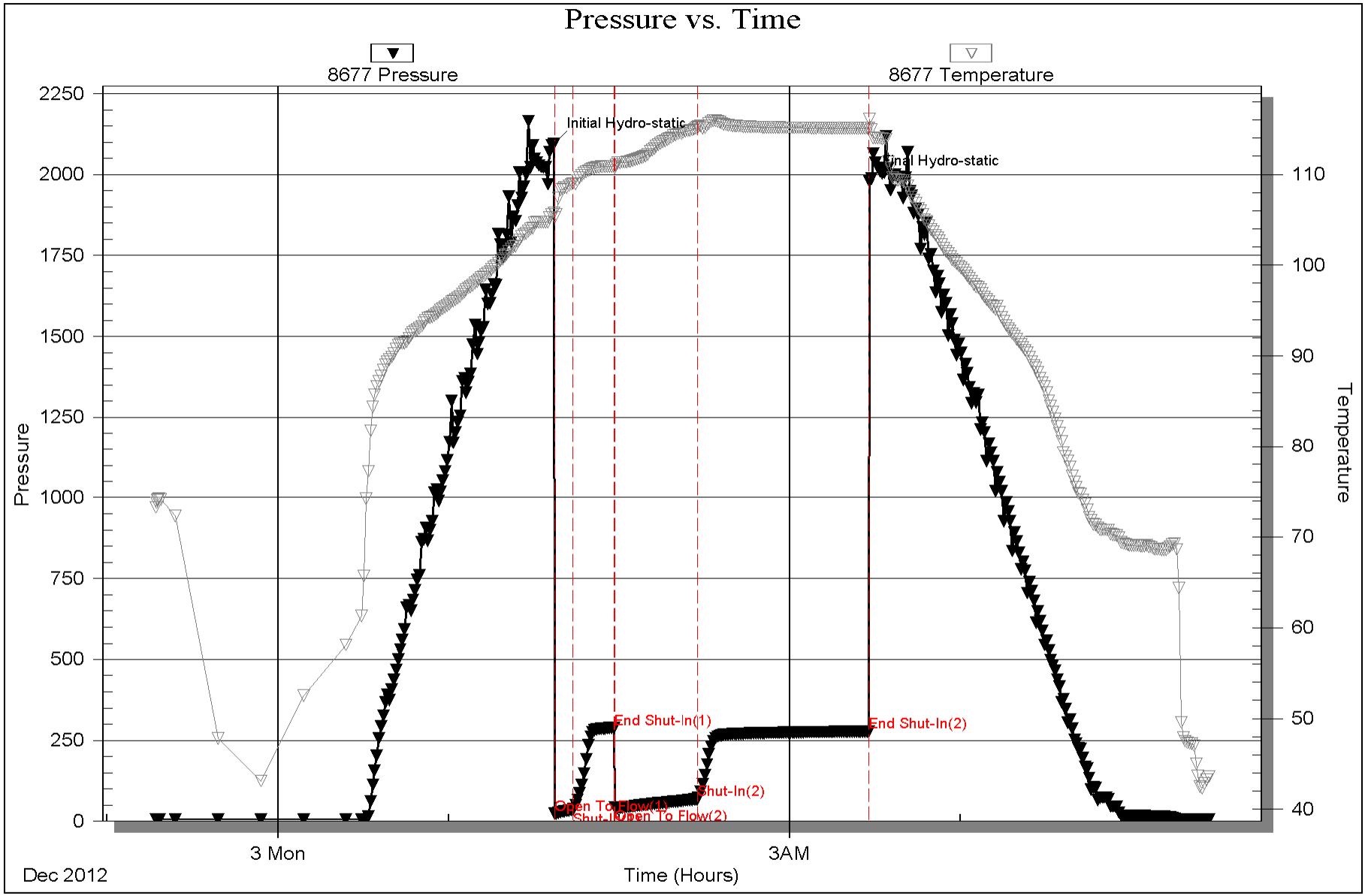
Recovery Table

Length ft	Description	Volume bbl
60.00	GOCM - 20%G - 40%o - 40%M	0.295
10.00	GOCM - 3% G - 32%o - 65%M	0.049

Total Length: 70.00 ft Total Volume: 0.344 bbl

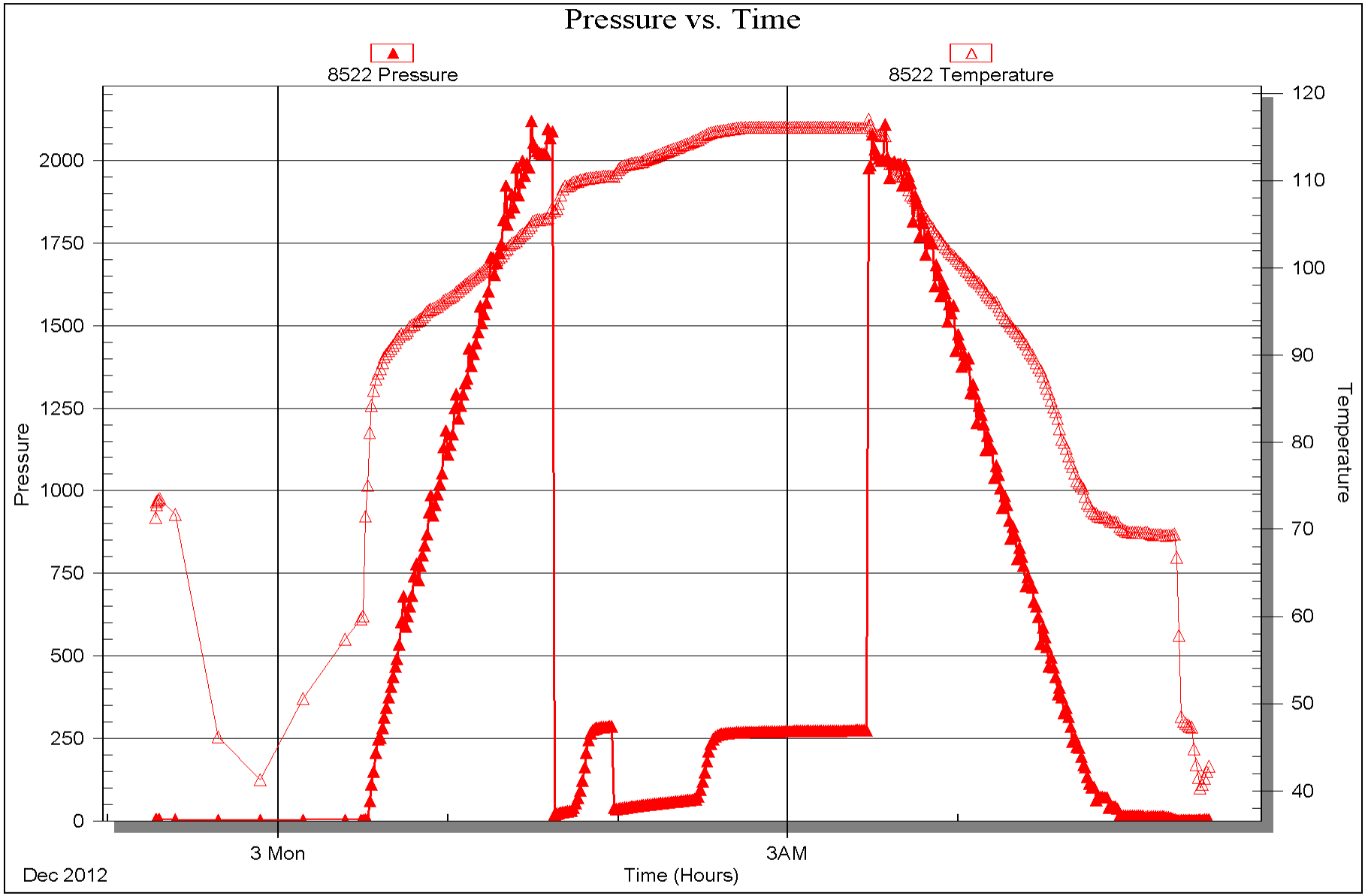
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 51379 Printed: 2012.12.07 @ 11:29:15

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 4



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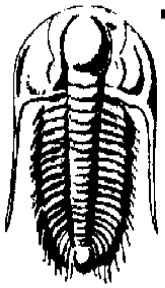


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.03 @ 15:15:00

End Date: 2012.12.03 @ 20:32:45

Job Ticket #: 51380 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:28:19

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51380 **DST#: 5**

Test Start: 2012.12.03 @ 15:15:00

GENERAL INFORMATION:

Formation: **LKC "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:07:00
Time Test Ended: 20:32:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4265.00 ft (KB) To 4274.00 ft (KB) (TVD)
Total Depth: 4274.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

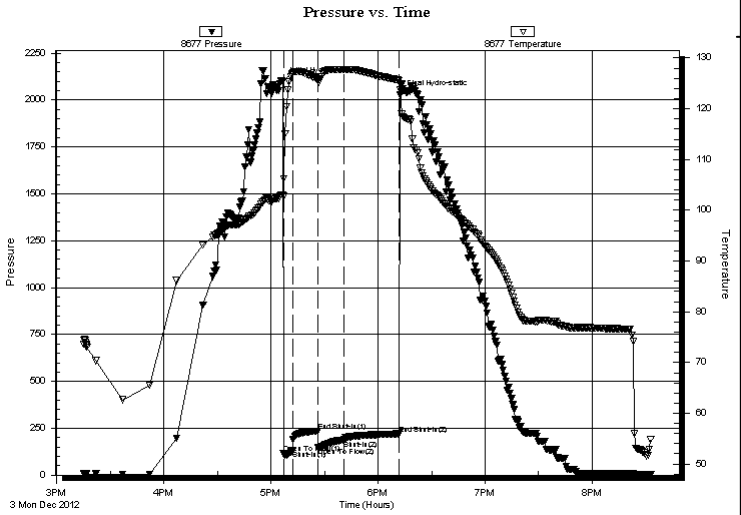
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: 188.45 psig @ 4266.00 ft (KB)
Start Date: 2012.12.03 End Date: 2012.12.03
Start Time: 15:15:05 End Time: 20:32:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.03
Time On Btm: 2012.12.03 @ 17:06:45
Time Off Btm: 2012.12.03 @ 18:12:30

TEST COMMENT: 5 IF - BoB in 1 min
15 ISI - Surface blow built to 7 1/2"
15 FF - BoB in 3 mins
30 FSI - Surface blow died @ 25 mins



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2099.04	103.01	Initial Hydro-static
1	117.64	102.74	Open To Flow (1)
6	129.84	126.93	Shut-In(1)
20	235.86	125.87	End Shut-In(1)
20	149.60	125.76	Open To Flow (2)
35	188.45	127.69	Shut-In(2)
66	220.11	125.61	End Shut-In(2)
66	2028.27	123.82	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 40%G - 30%o - 30 %M	0.30
60.00	GOCM - 40%G - 30%o - 30%M	0.30
350.00	GO - 15%G - 85%o	4.39
1116.00	GIP	15.65

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51380 **DST#: 5**

Test Start: 2012.12.03 @ 15:15:00

GENERAL INFORMATION:

Formation: **LKC "L"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:07:00
Time Test Ended: 20:32:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 53

Interval: 4265.00 ft (KB) To 4274.00 ft (KB) (TVD)
Total Depth: 4274.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

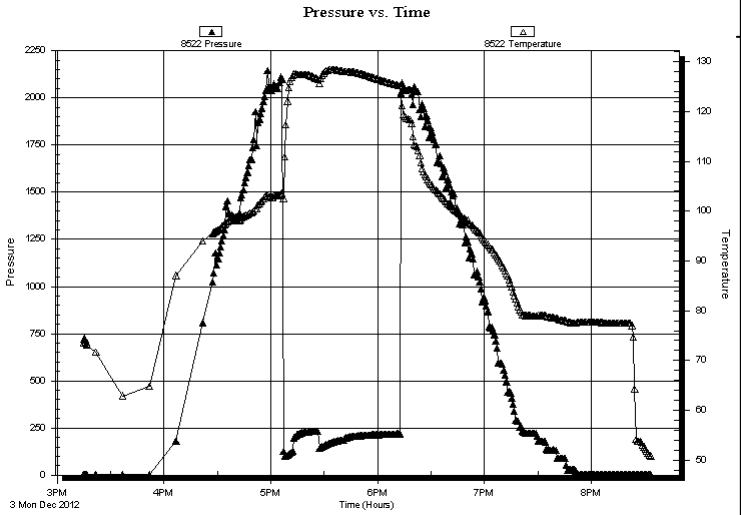
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: psig @ 4266.00 ft (KB)
Start Date: 2012.12.03 End Date: 2012.12.03
Start Time: 15:14:50 End Time: 20:33:29

Capacity: 8000.00 psig
Last Calib.: 2012.12.03
Time On Btm:
Time Off Btm:

TEST COMMENT: 5 IF - BoB in 1 min
15 ISI - Surface blow built to 7 1/2"
15 FF - BoB in 3 mins
30 FSI - Surface blow died @ 25 mins



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 40%G - 30%o - 30 %M	0.30
60.00	GOCM - 40%G - 30%o - 30%M	0.30
350.00	GO - 15%G - 85%o	4.39
1116.00	GIP	15.65

* 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 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51380 **DST#: 5**

Test Start: 2012.12.03 @ 15:15:00

Tool Information

Drill Pipe:	Length:	4075.00 ft	Diameter:	3.80	inches	Volume:	57.16	bbl	
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00	inches	Volume:	0.00	bbl	
Drill Collar:	Length:	177.00 ft	Diameter:	2.25	inches	Volume:	0.87	bbl	
						Total Volume:	58.03	bbl	

Drill Pipe Above KB:	14.00 ft
Depth to Top Packer:	4265.00 ft
Depth to Bottom Packer:	ft
Interval between Packers:	9.00 ft
Tool Length:	36.00 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:		68000.00 lb
Tool Chased		0.00 ft
String Weight:	Initial	64000.00 lb
	Final	66000.00 lb

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths	
Change Over Sub	1.00			4239.00		
Shut In Tool	5.00			4244.00		
Hydraulic tool	5.00			4249.00		
Jars	5.00			4254.00		
Safety Joint	2.00			4256.00		
Packer	5.00			4261.00	27.00	Bottom Of Top Packer
Packer	4.00			4265.00		
Stubb	1.00			4266.00		
Recorder	0.00	8677	Inside	4266.00		
Recorder	0.00	8522	Outside	4266.00		
Perforations	5.00			4271.00		
Bullnose	3.00			4274.00	9.00	Bottom Packers & Anchor
Total Tool Length:	**36.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 51380 **DST#: 5**

Test Start: 2012.12.03 @ 15:15:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	36 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	54.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 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
60.00	GOCM - 40%G - 30%o - 30 %M	0.295
60.00	GOCM - 40%G - 30%o - 30%M	0.295
350.00	GO - 15%G - 85%o	4.390
1116.00	GIP	15.655

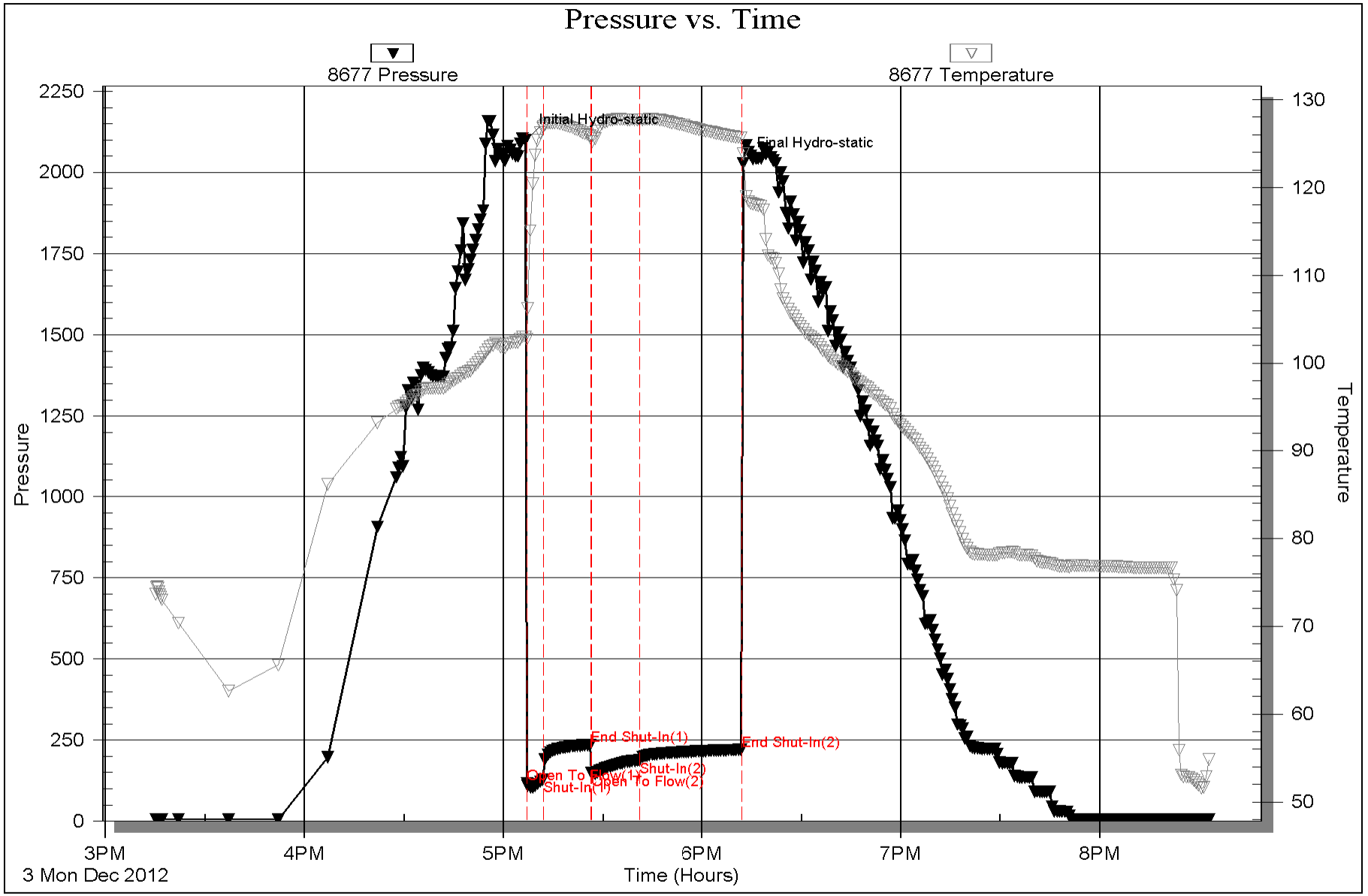
Total Length: 1586.00 ft Total Volume: 20.635 bbl

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

Laboratory Name: Laboratory Location:

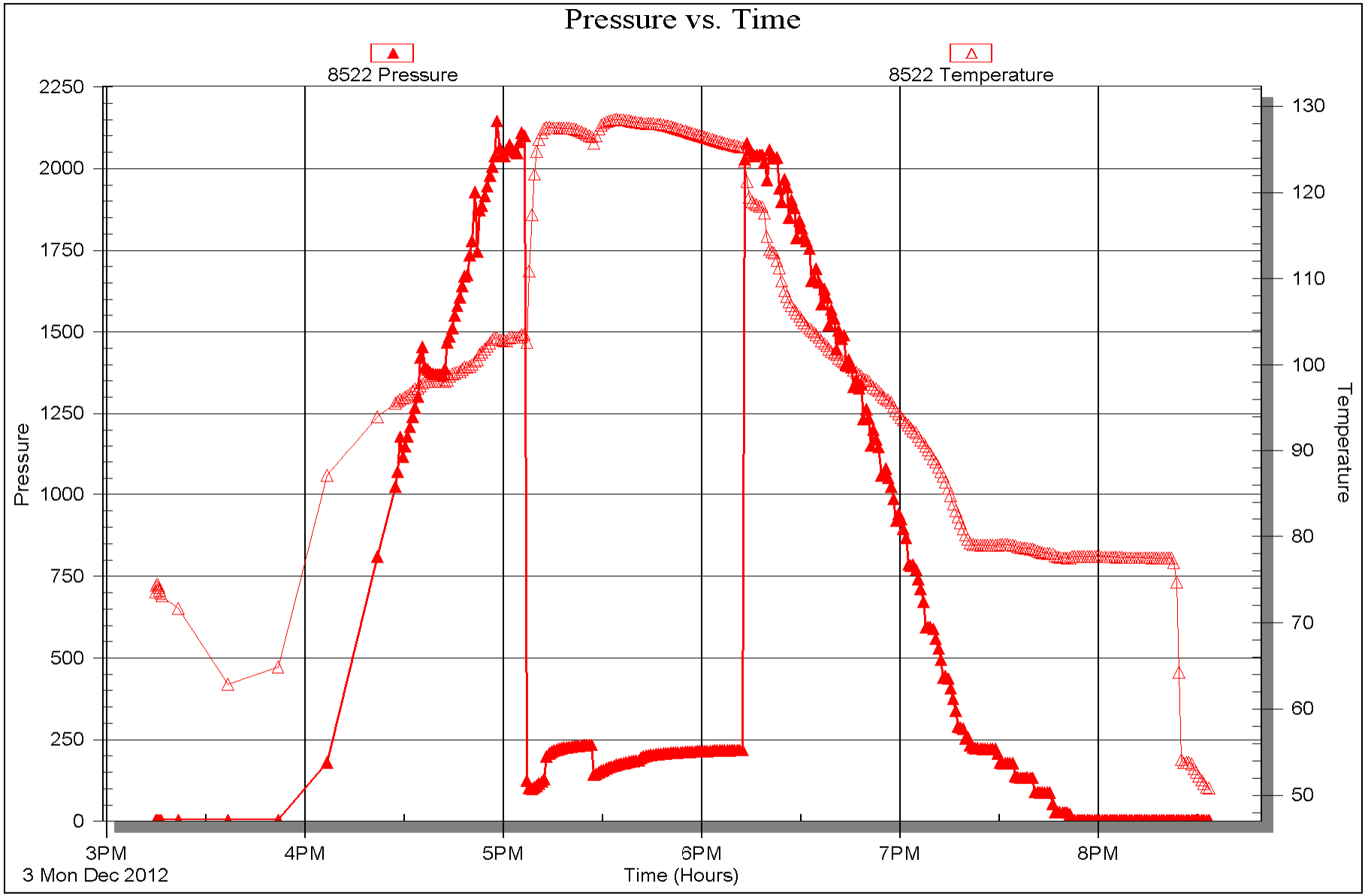
Recovery Comments: Oil API 38 @ 80 = 36 COR

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 5



Trilobite Testing, Inc Ref. No: 51380 Printed: 2012.12.07 @ 11:28:24

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 5



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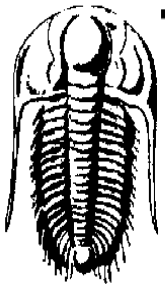


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.04 @ 14:23:00

End Date: 2012.12.04 @ 18:38:00

Job Ticket #: 042342 DST #: 6

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:27:32

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042342 **DST#: 6**

Test Start: 2012.12.04 @ 14:23:00

GENERAL INFORMATION:

Formation: **Pleasanton - Altamon**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:57:00
Time Test Ended: 18:38:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4285.00 ft (KB) To 4380.00 ft (KB) (TVD)
Total Depth: 4380.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

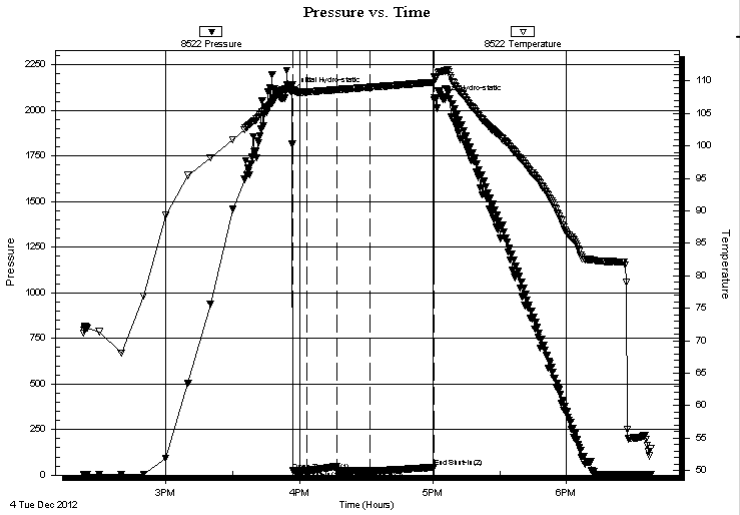
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: 23.09 psig @ 4296.00 ft (KB)
Start Date: 2012.12.04 End Date: 2012.12.04
Start Time: 14:23:05 End Time: 18:38:00

Capacity: 8000.00 psig
Last Calib.: 2012.12.04
Time On Btm: 2012.12.04 @ 15:56:30
Time Off Btm: 2012.12.04 @ 17:00:30

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: No blow .
FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2101.89	109.32	Initial Hydro-static
1	22.47	108.59	Open To Flow (1)
7	24.14	108.30	Shut-In(1)
21	48.67	108.65	End Shut-In(1)
21	22.52	108.65	Open To Flow (2)
36	23.09	109.03	Shut-In(2)
64	43.56	109.80	End Shut-In(2)
64	2060.65	110.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042342 **DST#: 6**

Test Start: 2012.12.04 @ 14:23:00

GENERAL INFORMATION:

Formation: **Pleasanton - Altamon**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:57:00
Time Test Ended: 18:38:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4285.00 ft (KB) To 4380.00 ft (KB) (TVD)
Total Depth: 4380.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

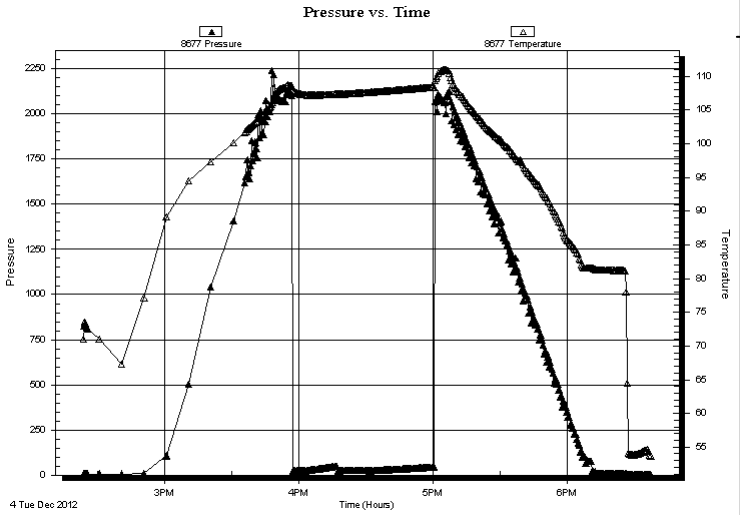
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: psig @ 4296.00 ft (KB)
Start Date: 2012.12.04 End Date: 2012.12.04
Start Time: 14:23:35 End Time: 18:37:30

Capacity: 8000.00 psig
Last Calib.: 2012.12.04
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: No blow .
FSI: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042342 **DST#: 6**

Test Start: 2012.12.04 @ 14:23:00

Tool Information

Drill Pipe:	Length:	4146.00 ft	Diameter:	3.80 inches	Volume:	58.16 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:		25000.00 lb
Drill Collar:	Length:	141.00 ft	Diameter:	2.25 inches	Volume:	0.69 bbl	Weight to Pull Loose:		75000.00 lb
					Total Volume:	58.85 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		19.00 ft					String Weight:	Initial	65000.00 lb
Depth to Top Packer:		4295.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		85.00 ft							
Tool Length:		112.00 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			4269.00		
Shut In Tool	5.00			4274.00		
Hydraulic tool	5.00			4279.00		
Jars	5.00			4284.00		
Safety Joint	2.00			4286.00		
Packer	5.00			4291.00	27.00	Bottom Of Top Packer
Packer	4.00			4295.00		
Stubb	1.00			4296.00		
Recorder	0.00	8677	Inside	4296.00		
Recorder	0.00	8522	Outside	4296.00		
Perforations	16.00			4312.00		
Change Over Sub	1.00			4313.00		
Drill Pipe	63.00			4376.00		
Change Over Sub	1.00			4377.00		
Bullnose	3.00			4380.00	85.00	Bottom Packers & Anchor
Total Tool Length:	**112.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042342 **DST#: 6**

Test Start: 2012.12.04 @ 14:23:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	0 ppm
Viscosity:	52.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2400.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

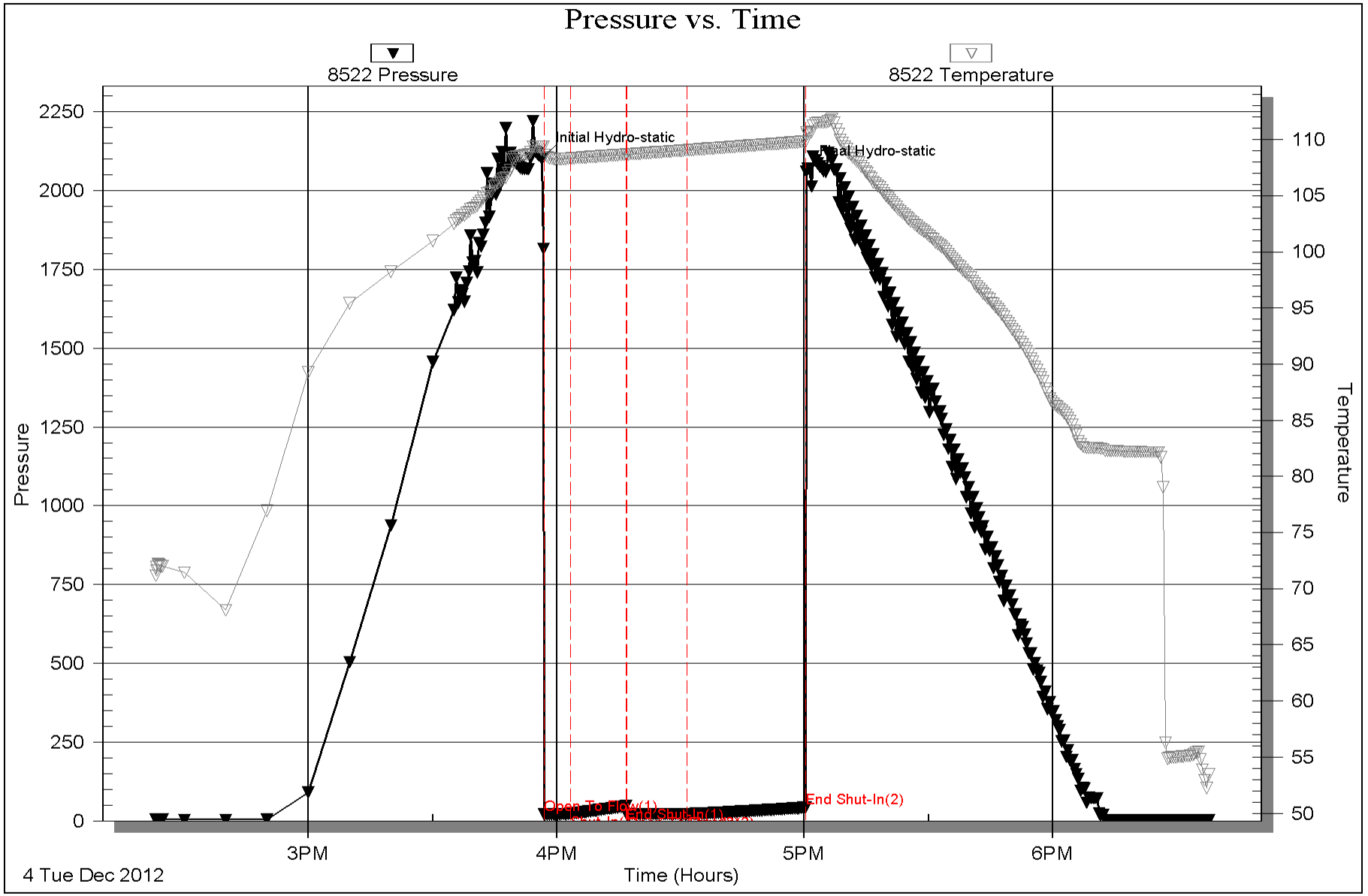
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m (oil spots)	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

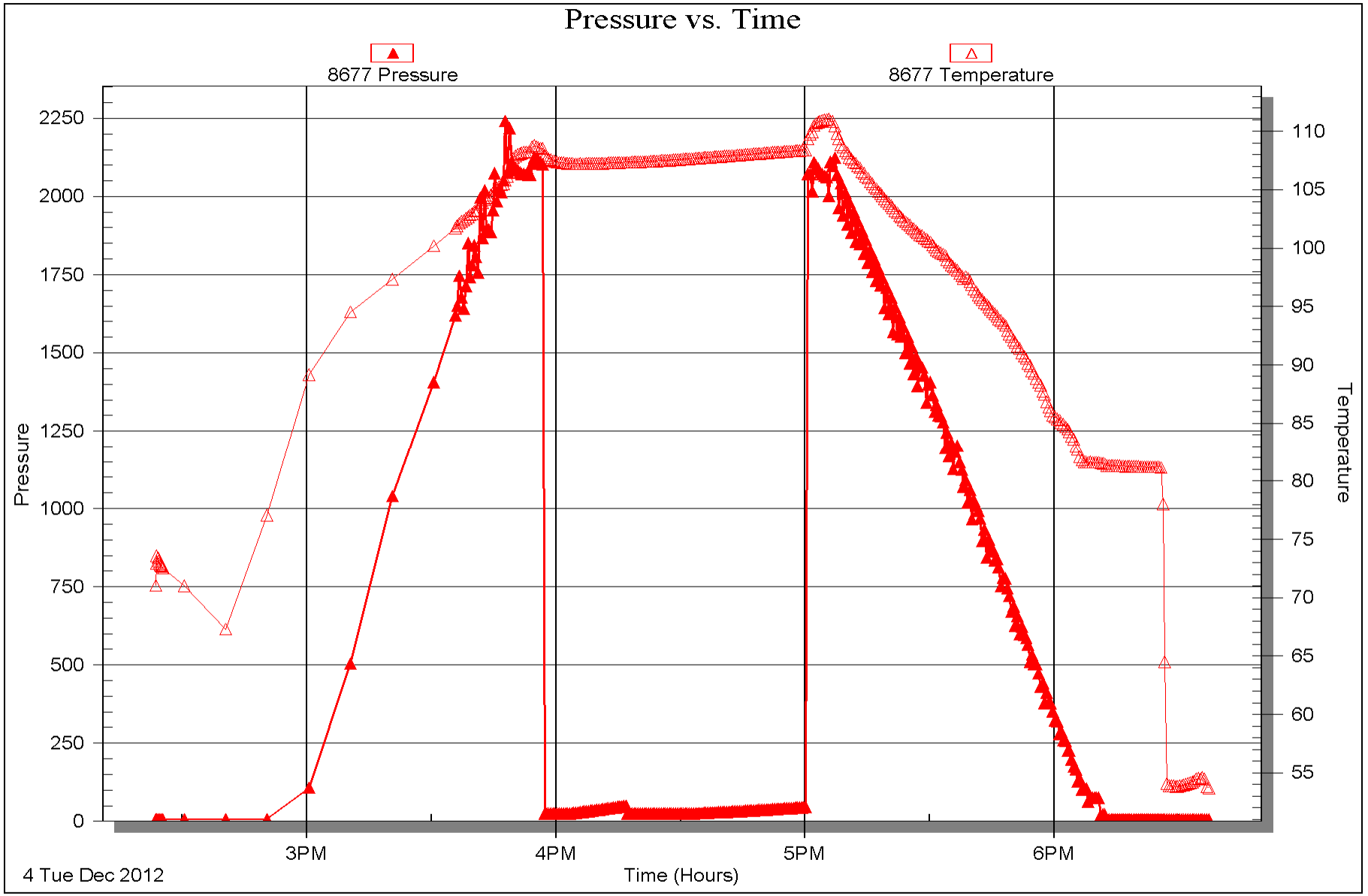
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 6



Trilobite Testing, Inc Ref. No: 042342 Printed: 2012.12.07 @ 11:27:37

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 6



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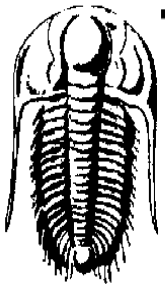


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.05 @ 11:22:00

End Date: 2012.12.05 @ 16:38:15

Job Ticket #: 042343 DST #: 7

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:24:45

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042343 **DST#: 7**

Test Start: 2012.12.05 @ 11:22:00

GENERAL INFORMATION:

Formation: **Pawnee - Ft Scott**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:28:45
Time Test Ended: 16:38:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4395.00 ft (KB) To 4482.00 ft (KB) (TVD)
Total Depth: 4482.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

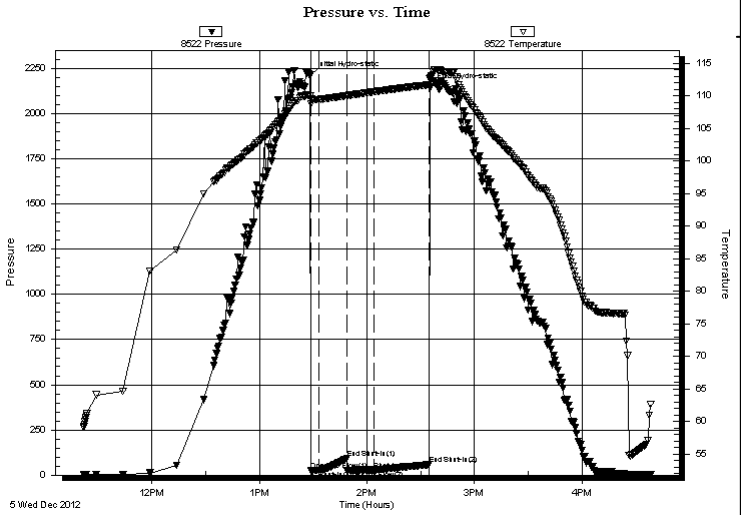
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: 28.75 psig @ 4396.00 ft (KB)
Start Date: 2012.12.05 End Date: 2012.12.05
Start Time: 11:22:05 End Time: 16:38:14

Capacity: 8000.00 psig
Last Calib.: 2012.12.05
Time On Btm: 2012.12.05 @ 13:28:30
Time Off Btm: 2012.12.05 @ 14:35:00

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: Weak Surface blow .
FSI: no return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2212.01	110.00	Initial Hydro-static
1	24.32	108.72	Open To Flow (1)
5	25.73	109.46	Shut-In(1)
21	91.81	110.03	End Shut-In(1)
21	26.98	110.02	Open To Flow (2)
36	28.75	110.63	Shut-In(2)
66	57.71	111.71	End Shut-In(2)
67	2146.31	112.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042343 **DST#: 7**

Test Start: 2012.12.05 @ 11:22:00

GENERAL INFORMATION:

Formation: **Pawnee - Ft Scott**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:28:45
Time Test Ended: 16:38:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4395.00 ft (KB) To 4482.00 ft (KB) (TVD)
Total Depth: 4482.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

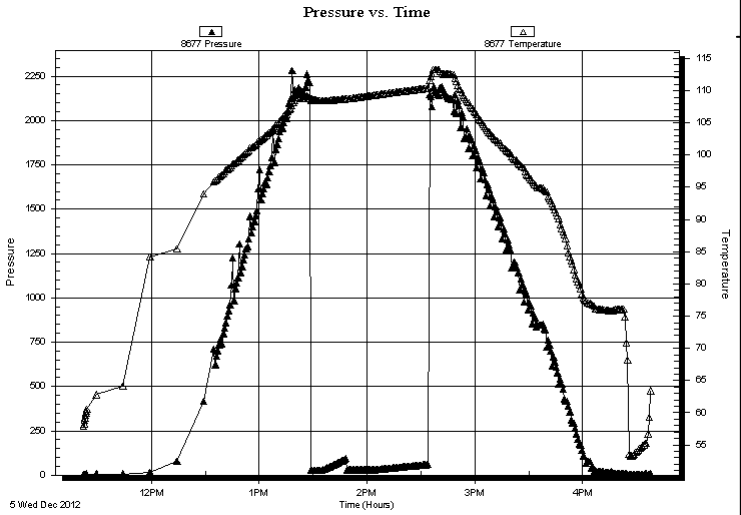
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: psig @ 4396.00 ft (KB)
Start Date: 2012.12.05 End Date: 2012.12.05
Start Time: 11:22:20 End Time: 16:37:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.05
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: Weak Surface blow .
FSI: no return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042343 **DST#: 7**

Test Start: 2012.12.05 @ 11:22:00

Tool Information

Drill Pipe:	Length:	4204.00 ft	Diameter:	3.80 inches	Volume:	58.97 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:		25000.00 lb
Drill Collar:	Length:	177.00 ft	Diameter:	2.25 inches	Volume:	0.87 bbl	Weight to Pull Loose:		81000.00 lb
					Total Volume:	59.84 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		13.00 ft					String Weight:	Initial	65000.00 lb
Depth to Top Packer:		4395.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		87.00 ft							
Tool Length:		114.00 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			4369.00		
Shut In Tool	5.00			4374.00		
Hydraulic tool	5.00			4379.00		
Jars	5.00			4384.00		
Safety Joint	2.00			4386.00		
Packer	5.00			4391.00	27.00	Bottom Of Top Packer
Packer	4.00			4395.00		
Stubb	1.00			4396.00		
Recorder	0.00	8677	Inside	4396.00		
Recorder	0.00	8522	Outside	4396.00		
Perforations	18.00			4414.00		
Change Over Sub	1.00			4415.00		
Drill Pipe	63.00			4478.00		
Change Over Sub	1.00			4479.00		
Bullnose	3.00			4482.00	87.00	Bottom Packers & Anchor
Total Tool Length:	**114.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042343 **DST#: 7**

Test Start: 2012.12.05 @ 11:22:00

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:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2500.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

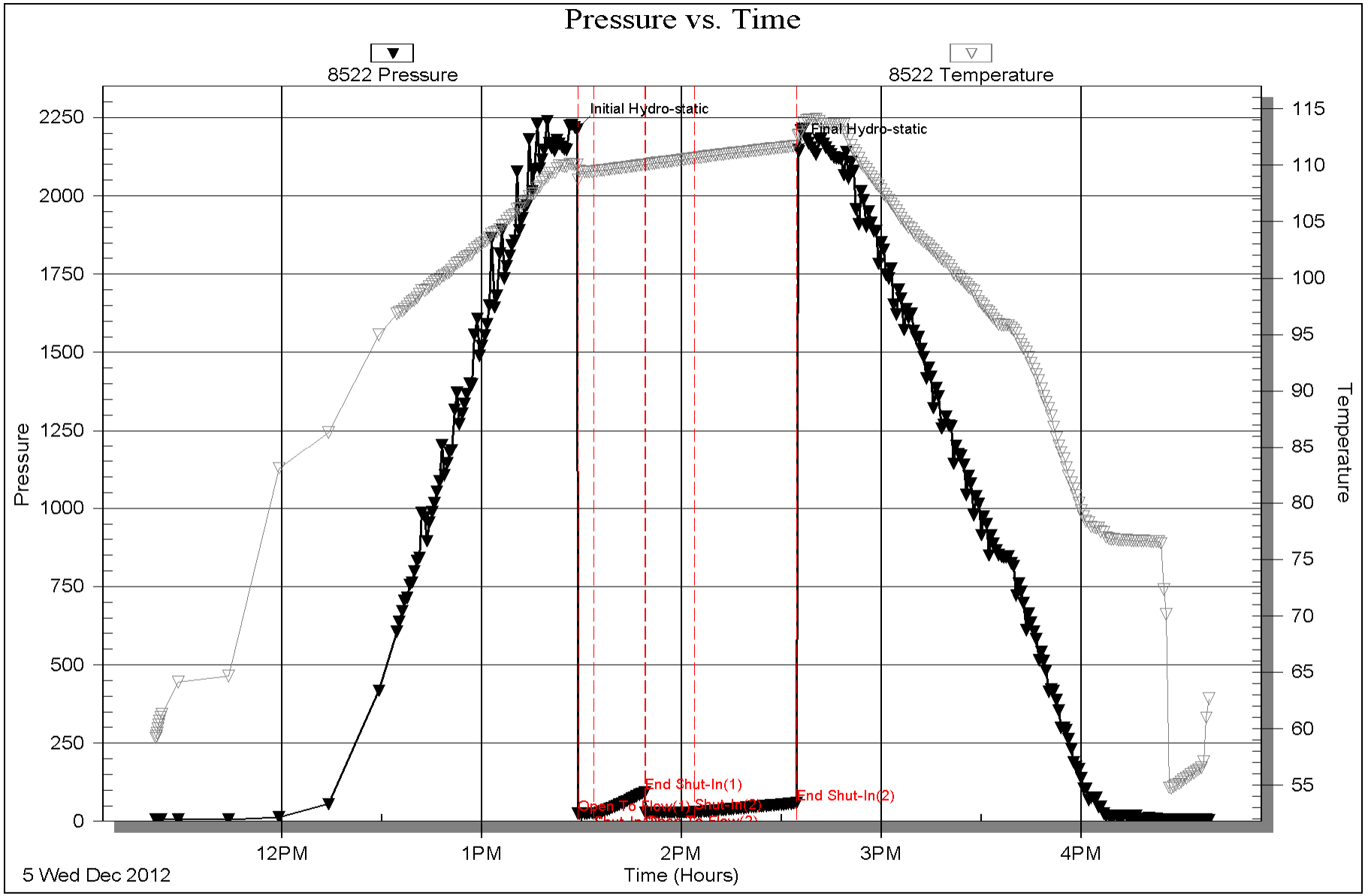
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m (oil spots)	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

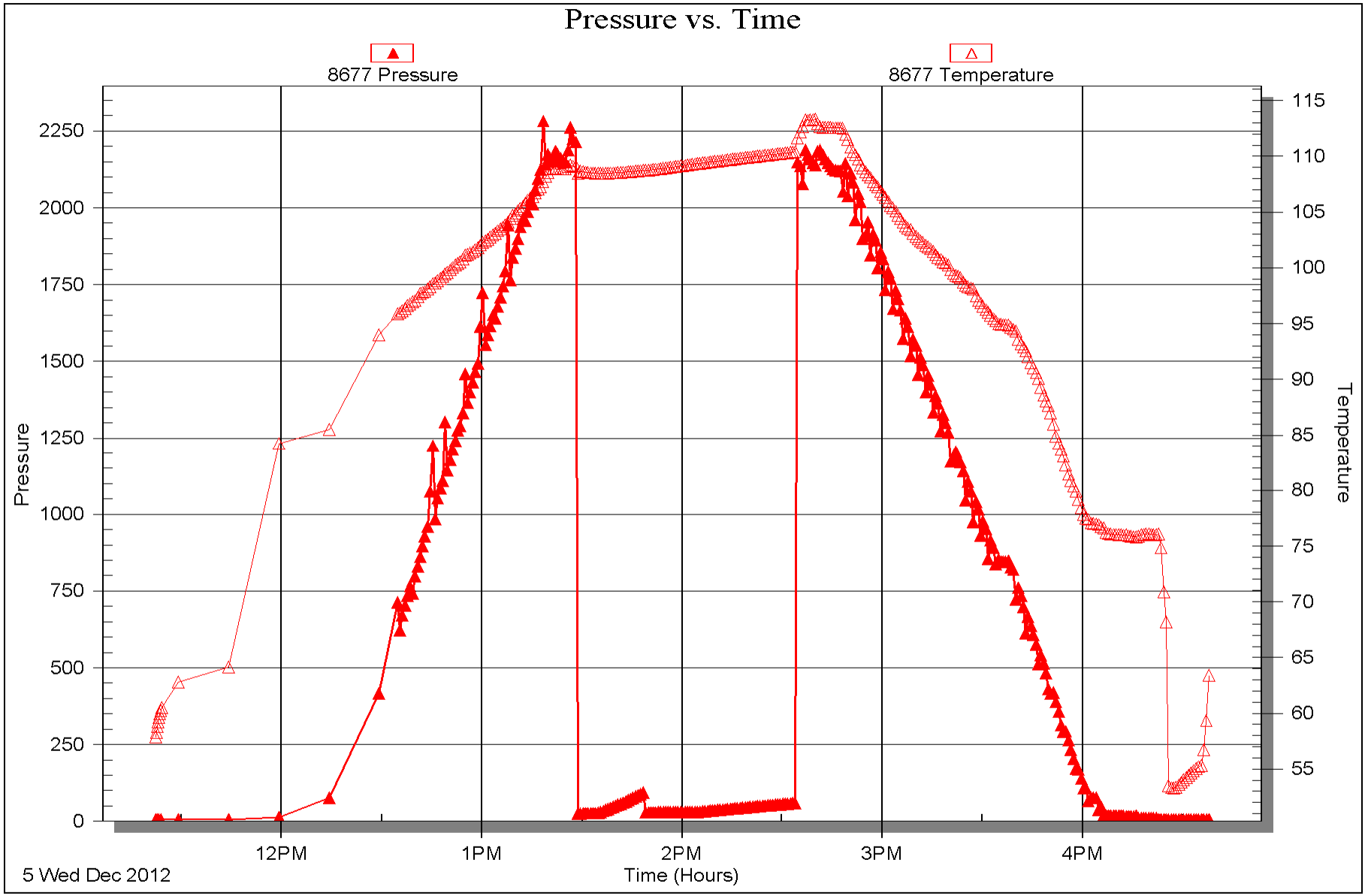
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 7



Trilobite Testing, Inc Ref. No: 042343 Printed: 2012.12.07 @ 11:24:49

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 7



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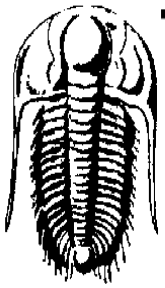


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **Larson Engineering, Inc.**

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

Dowell #1-23

23-16s-29w Lane,KS

Start Date: 2012.12.06 @ 07:35:00

End Date: 2012.12.06 @ 12:45:15

Job Ticket #: 042344 DST #: 8

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.12.07 @ 11:20:15

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042344 **DST#: 8**

Test Start: 2012.12.06 @ 07:35:00

GENERAL INFORMATION:

Formation: **Johnson & Cherokee L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:27:45
Time Test Ended: 12:45:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4477.00 ft (KB) To 4534.00 ft (KB) (TVD)
Total Depth: 4534.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

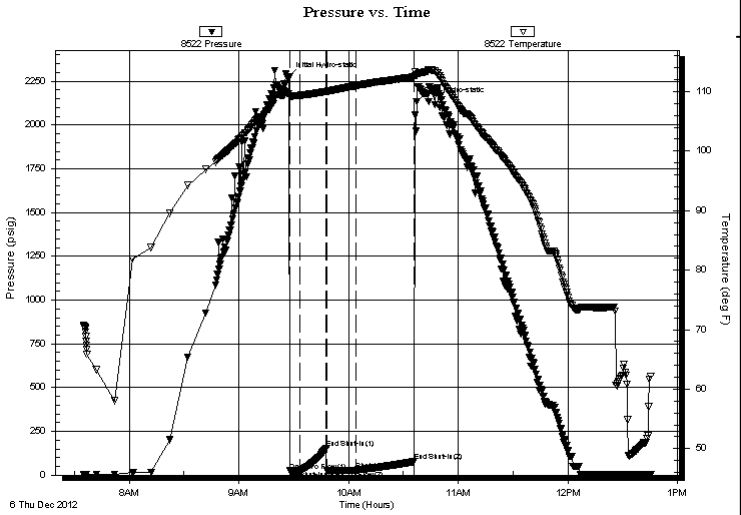
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8522 **Outside**

Press@RunDepth: 27.66 psig @ 4478.00 ft (KB)
Start Date: 2012.12.06 End Date: 2012.12.06
Start Time: 07:35:05 End Time: 12:45:14

Capacity: 8000.00 psig
Last Calib.: 2012.12.06
Time On Btm: 2012.12.06 @ 09:27:30
Time Off Btm: 2012.12.06 @ 10:37:15

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: No blow .
FSI: No return..



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2276.66	109.67	Initial Hydro-static
1	24.44	109.04	Open To Flow (1)
6	25.15	109.38	Shut-In(1)
21	154.34	110.03	End Shut-In(1)
21	26.58	110.02	Open To Flow (2)
37	27.66	110.98	Shut-In(2)
69	78.13	112.47	End Shut-In(2)
70	2132.79	112.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042344 **DST#: 8**

Test Start: 2012.12.06 @ 07:35:00

GENERAL INFORMATION:

Formation: **Johnson & Cherokee L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:27:45
Time Test Ended: 12:45:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Bradley Walter
Unit No: 53

Interval: 4477.00 ft (KB) To 4534.00 ft (KB) (TVD)
Total Depth: 4534.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

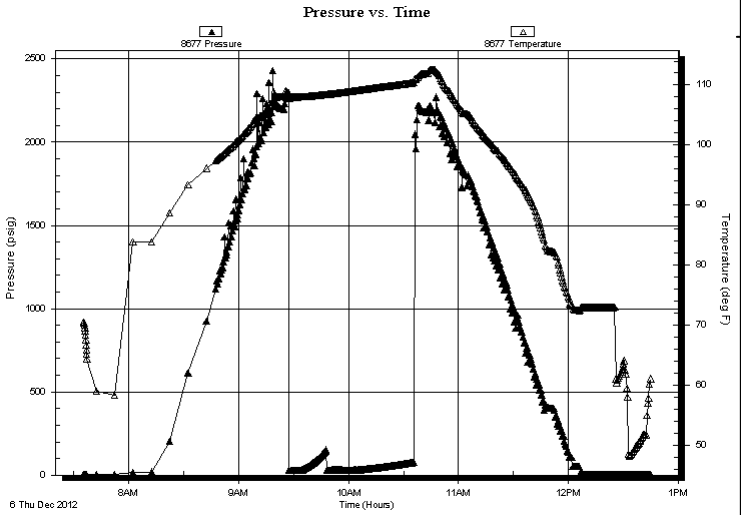
Reference Elevations: 2801.00 ft (KB)
2794.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8677 **Inside**

Press@RunDepth: psig @ 4478.00 ft (KB)
Start Date: 2012.12.06 End Date: 2012.12.06
Start Time: 07:35:35 End Time: 12:44:44

Capacity: 8000.00 psig
Last Calib.: 2012.12.06
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Surface blow .
ISI: No return.
FF: No blow .
FSI: No return..



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100m (oil spots)	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. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042344 **DST#: 8**

Test Start: 2012.12.06 @ 07:35:00

Tool Information

Drill Pipe:	Length:	4333.00 ft	Diameter:	3.80 inches	Volume:	60.78 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:		25000.00 lb
Drill Collar:	Length:	141.00 ft	Diameter:	2.25 inches	Volume:	0.69 bbl	Weight to Pull Loose:		77000.00 lb
					Total Volume:	61.47 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		24.00 ft					String Weight:	Initial	65000.00 lb
Depth to Top Packer:		4477.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		57.00 ft							
Tool Length:		84.00 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			4451.00		
Shut In Tool	5.00			4456.00		
Hydraulic tool	5.00			4461.00		
Jars	5.00			4466.00		
Safety Joint	2.00			4468.00		
Packer	5.00			4473.00	27.00	Bottom Of Top Packer
Packer	4.00			4477.00		
Stubb	1.00			4478.00		
Recorder	0.00	8677	Inside	4478.00		
Recorder	0.00	8522	Outside	4478.00		
Perforations	20.00			4498.00		
Change Over Sub	1.00			4499.00		
Drill Pipe	31.00			4530.00		
Change Over Sub	1.00			4531.00		
Bullnose	3.00			4534.00	57.00	Bottom Packers & Anchor
Total Tool Length:	**84.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 W. State Rd 4
Olmitz, KS 77564

ATTN: Ted Jochems

23-16s-29w Lane,KS

Dowell #1-23

Job Ticket: 042344 **DST#: 8**

Test Start: 2012.12.06 @ 07:35:00

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:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.59 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2500.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

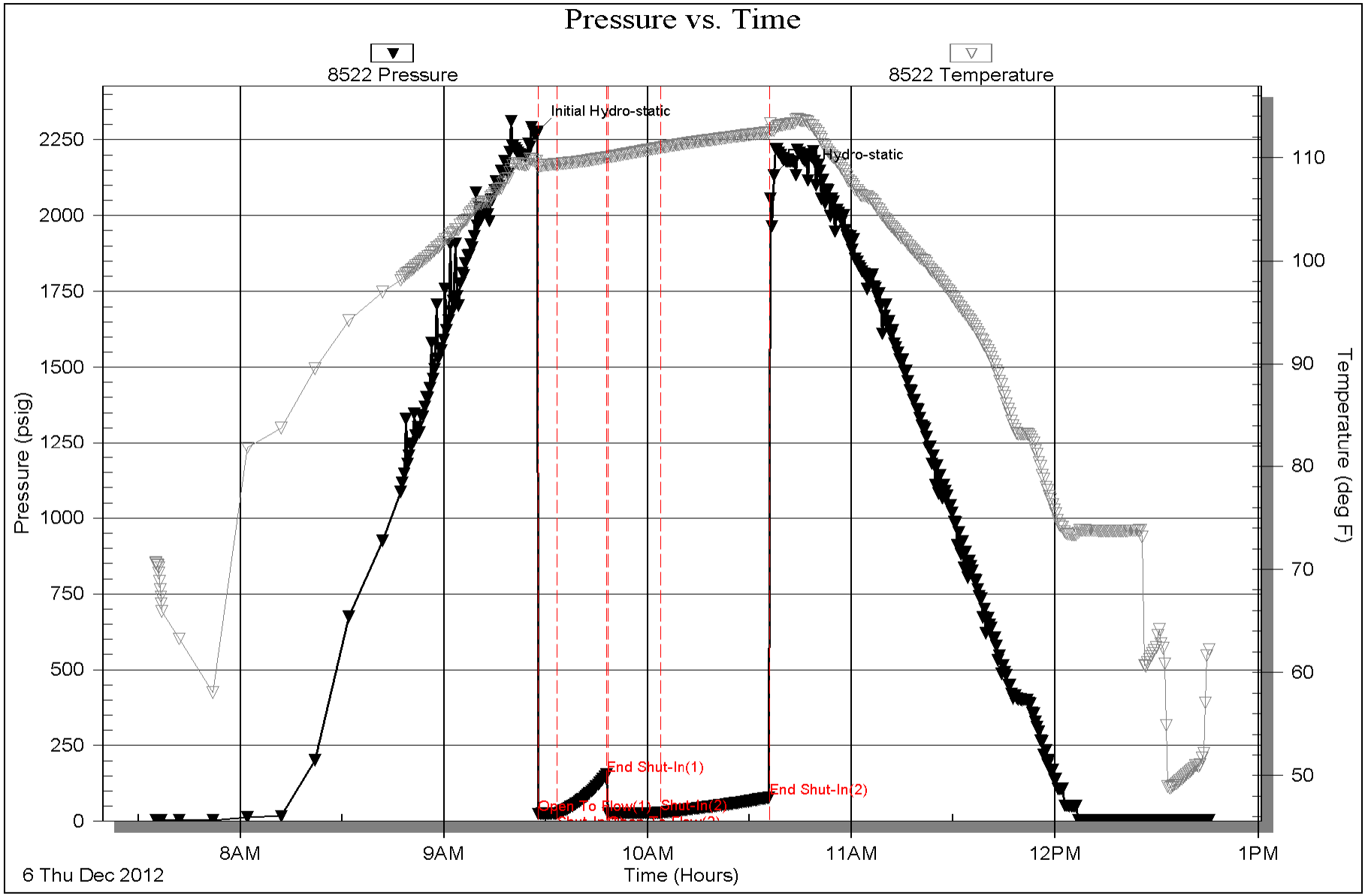
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m (oil spots)	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

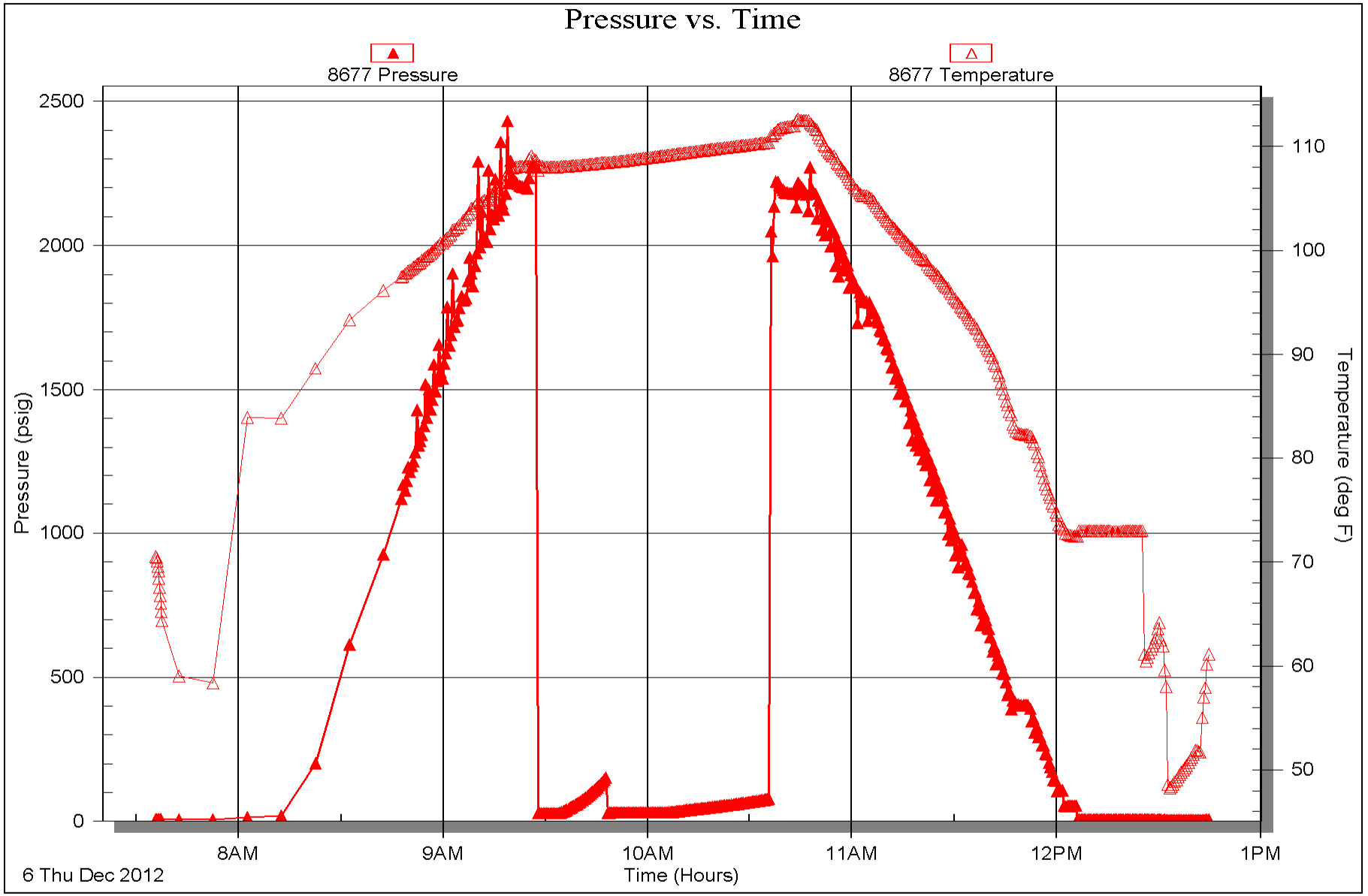
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8522 **Outside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 8



Trilobite Testing, Inc Ref. No: 042344 Printed: 2012.12.07 @ 11:20:19

Serial #: 8677 **Inside** Larson Engineering, Inc. Dow ell #1-23 DST Test Number: 8



Trilobite Testing, Inc Ref. No: 042344 Printed: 2012.12.07 @ 11:20:20

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51376

Well Name & No. Dowell #1-23 Test No. 1 Date 11/30/12

Company Larson Engineering, Inc Elevation 2800 KB 2795 GL

Address Larson Engineering, Inc 562 W State Rd 4 OLMITZ KS 67564

Co. Rep / Geo. Ted Jochems Rig #D3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested 4156 – 4185 Zone Tested LKC "I"

Anchor Length 29' Drill Pipe Run 3983 Mud Wt. 9.2

Top Packer Depth 4151 Drill Collars Run 177 Vis 52

Bottom Packer Depth 4185 Wt. Pipe Run 0 WL 7.2

Total Depth 4185 Chlorides 2900 ppm System LCM 2

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

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	Feet of	%gas	%oil	%water	%mud

Rec Total 0' BHT 112° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2102	☑ Test 1250	T-On Location 19:50
(B) First Initial Flow	22	☑ Jars 250	T-Started 21:07
(C) First Final Flow	23	☑ Safety Joint 75	T-Open 11:12
(D) Initial Shut-In	35	☑ Circ Sub NC	T-Pulled 00:17
(E) Second Initial Flow	22	☐ Hourly Standby	T-Out 02:25
(F) Second Final Flow	23	☑ Mileage x 66 RT 102.30	Comments
(G) Final Shut-In	38	☐ Sampler	
(H) Final Hydrostatic	2120	☐ 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 1677.30
Final Shut-In	30	☐ Accessibility	MP/DST Disc't
		Sub Total 1677.30	

Approved By Ted Jochems Our Representative Ryan Rhodes

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. 51377

Well Name & No. Dowell # 1-23 Test No. #2 Date 12/1/12

Company Larson Engineering, Inc. Elevation 2800 KB 2795 GL

Address Larson Engineering, Inc 562 W State Rd 4 Olmitz KS 67564

Co. Rep / Geo. Ted Jochems Rig #D #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested 4215 - 4229 Zone Tested LKC "K"

Anchor Length 14' Drill Pipe Run 4016 Mud Wt. 9.2

Top Packer Depth 4210 Drill Collars Run 177 Vis 57

Bottom Packer Depth 4215 Wt. Pipe Run 0 WL 7.2

Total Depth 4229 Chlorides 3000 ppm System LCM 1.5

Blow Description IF - Surface blow built to 1/8"

ISI - No return

FF - Surface blow built to 1/8"

FSI - No return

Rec 15'	Feet of Mud with oil spots	%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	Feet of	%gas	%oil	%water	%mud

Rec Total 15' BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2109	☑ Test 1250	T-On Location 15:30
(B) First Initial Flow 21	☑ Jars 250	T-Started 15:40
(C) First Final Flow 24	☑ Safety Joint 75	T-Open 18:01
(D) Initial Shut-In 405	☑ Circ Sub NC	T-Pulled 19:51
(E) Second Initial Flow 25	☐ Hourly Standby	T-Out 21:47
(F) Second Final Flow 34	☑ Mileage 66 RT 102.30	Comments
(G) Final Shut-In 405	☐ Sampler	
(H) Final Hydrostatic 2062	☐ 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 1677.30
Final Shut-In 60	☐ Accessibility	MP/DST Disc't
	Sub Total 1677.30	

Approved By Ted Jochems Our Representative Ryan Nixon

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51378

Well Name & No. Dowell # 1-23 Test No. 3 Date 12/2/12

Company Larson Engineering, Inc Elevation 2800 KB 2795 GL

Address Larson Engineering, Inc 562 W State Rd 4 Olmitz KS 67564

Co. Rep / Geo. Ted Jochems Rig HD #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested 4242-4255 Zone Tested Middle Creek

Anchor Length 13' Drill Pipe Run 4044 Mud Wt. 9.2

Top Packer Depth 4237 Drill Collars Run 177 Vis 57

Bottom Packer Depth 4242 Wt. Pipe Run 0 WL 7.2

Total Depth 4255 Chlorides 3,000 ppm System LCM 1.5

Blow Description IF - Surface blow built to 1/8"

ISI - No return

FF - Surface blow built to 1/8"

FSI - No return

Rec 1'	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 1' BHT 109 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2094	☑ Test 1250	T-On Location 07:00	
(B) First Initial Flow 20	☑ Jars 250	T-Started 07:54	
(C) First Final Flow 21	☑ Safety Joint 75	T-Open 10:02	
(D) Initial Shut-In 26	☑ Circ Sub NC	T-Pulled 11:52	
(E) Second Initial Flow 21	☐ Hourly Standby	T-Out 13:35	
(F) Second Final Flow 22	☑ Mileage 66 RT 102.30	Comments	
(G) Final Shut-In 48	☐ Sampler		
(H) Final Hydrostatic 2013	☐ 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 1677.30	
Final Shut-In 60	☐ Accessibility	MP/DST Disc't	
	Sub Total 1677.30		

Approved By Ted Jochems Our Representative Ryan Kinsler

Trilobite Testing Inc. shall not be liable for damages 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. 51379

Well Name & No. Dowell #1-23 Test No. 4 Date 12/2/12

Company Larson Engineering, Inc Elevation 2800 KB 2795 GL

Address Larson Engineering, Inc 562 W State Rd 4 Olmitz KS 67564

Co. Rep / Geo. Ted Jochems Rig 4D #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested 4241 – 4264 Zone Tested Middle Creek

Anchor Length 23' Drill Pipe Run 4044 Mud Wt. 9.1

Top Packer Depth 4236 Drill Collars Run 177 Vis 45

Bottom Packer Depth 4241 Wt. Pipe Run 0 WL 8.0

Total Depth 4264 Chlorides 2500 ppm System LCM 1

Blow Description IF- Surface blow built to 1/8"

ISI - Surface blow

FF- Surface blow built to BOB in 30 min

FSI - Surface blow died @ 40 mins

Rec 10'	Feet of GOCM	3 %gas	32 %oil	%water	65 %mud	
Rec 60'	Feet of GOCM	20 %gas	40 %oil	%water	40 %mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 70' BHT 115 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2094

(B) First Initial Flow 24

(C) First Final Flow 35

(D) Initial Shut-In 288

(E) Second Initial Flow 44

(F) Second Final Flow 68

(G) Final Shut-In 278

(H) Final Hydrostatic 1979

Initial Open 5

Initial Shut-In 15

Final Flow 30

Final Shut-In 60

- ☑ Test 1250
- ☑ Jars 250
- ☑ Safety Joint 75
- ☑ Circ Sub NC
- ☐ Hourly Standby
- ☑ Mileage 66 RT 102.30
- ☐ Sampler
- ☐ Straddle
- ☐ Shale Packer
- ☐ Extra Packer
- ☐ Extra Recorder
- ☐ Day Standby
- ☐ Accessibility 1677.30

Sub Total

T-On Location 22:45

T-Started 23:17

T-Open 01:38

T-Pulled 03:28

T-Out 05:29

Comments

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

Sub Total 0

Total 1677.30

MP/DST Disc't

Approved By Ted Jochems Our Representative Ryan Nichols

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 51380

Well Name & No. Dowell #1-23 Test No. 5 Date 12/3/12

Company Larson Engineering, Inc. Elevation 2800 KB 2795 GL

Address Larson Engineering, Inc. 562 W State Rd 4 Olmitz KS 67564

Co. Rep / Geo. Ted Jochems Rig HD #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested 4265 - 4274 Zone Tested LKC "L"

Anchor Length 9' Drill Pipe Run 4075 Mud Wt. 9.1

Top Packer Depth 4260 Drill Collars Run 177 Vis 54

Bottom Packer Depth 4265 Wt. Pipe Run 0 WL 8.0

Total Depth 4274 Chlorides 2500 ppm System LCM 1.5

Blow Description IF - BoB in 1 min
ISI - Surface blow built to 7½"
FF - BoB in 3 mins
FSI - Surface blow died @ 25 mins.

Rec 350'	Feet of GO	15 %gas	85 %oil	%water	%mud	
Rec 60'	Feet of GOCM	40 %gas	30 %oil	%water 30	%mud	
Rec 60'	Feet of GOCM	40 %gas	30 %oil	%water 30	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	
Rec	Feet of	%gas	%oil	%water	%mud	

Rec Total 470' BHT 126 Gravity 36 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2099	☑ Test 1250	T-On Location 15:00	
(B) First Initial Flow 118	☑ Jars 250	T-Started 15:18	
(C) First Final Flow 130	☑ Safety Joint 75	T-Open 17:10	
(D) Initial Shut-In 236	☑ Circ Sub	T-Pulled 18:15	
(E) Second Initial Flow 150	☐ Hourly Standby	T-Out 20:37	
(F) Second Final Flow 188	☑ Mileage 66 RT 102.30	Comments 1116' GIP	
(G) Final Shut-In 220	☐ Sampler		
(H) Final Hydrostatic 2028	☐ 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 1677.30	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 1677.30		

Approved By Ted Jochems IV Our Representative

TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

4/10

Test Ticket

NO. 042342

Well Name & No. Powell # 1-23 Test No. 6 Date 12/04/12

Company Larson Engineering, Inc Elevation 2800 KB 2794 GL

Address 562 W State Rd 4 Olmitz, Ks 77564

Co. Rep / Geo. Ted Jochems Rig HD #3

Location: Sec. 23 Twp. 16s Rge. 29w Co. Lane State Ks

Interval Tested 4295 - 4380 Zone Tested Pleasanton - Altamont

Anchor Length 85' Drill Pipe Run 4146 Mud Wt. 9.1

Top Packer Depth 4290 Drill Collars Run 141 Vis 52

Bottom Packer Depth 4295 Wt. Pipe Run 0 WL 8.0

Total Depth 4380 Chlorides 2400 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 Oil spots	%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 111 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2102	☒ Test 1250	T-On Location 1400	
(B) First Initial Flow 22	☒ Jars 250	T-Started 1423	
(C) First Final Flow 24	☒ Safety Joint 75	T-Open 1558	
(D) Initial Shut-In 49	☒ Circ Sub N/C	T-Pulled 1702	
(E) Second Initial Flow 23	☐ Hourly Standby	T-Out 1837	
(F) Second Final Flow 23	☒ Mileage 68 mi 102.30	Comments	
(G) Final Shut-In 44	☐ Sampler	Shale Packer	
(H) Final Hydrostatic 2061	☐ Straddle	☐ 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 1927.30	
Final Shut-In 30	☐ Accessibility	MP/DST Disc't	
	Sub Total 1927.30		

Approved By _____ Our Representative _____

TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

4/10

Test Ticket

NO. 042343

Well Name & No. Powell #1-23 Test No. 7 Date 12/05/12

Company Larson Engineering, Inc Elevation 2801 KB 2794 GL

Address 562 W. State Rd #4 Olmitz, KS 77564

Co. Rep / Geo. Ted Jochems Rig HD #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State KS

Interval Tested ~~4295 - 4380~~ 4395 - 4482 Zone Tested Dawnee - Ft. Scott

Anchor Length 87' Drill Pipe Run 4204 Mud Wt. 9.3

Top Packer Depth 4390 Drill Collars Run 141 Vis 56

Bottom Packer Depth 4395 Wt. Pipe Run 0 WL 7.6

Total Depth 4482 Chlorides 2500 ppm System LCM 1#

Blow Description IF: Surface blow.

ISI: No return.

FF: Weak surface blow.

FSI: No return.

Rec 5	Feet of MUD	%gas	%oil	%water 100	%mud	
Rec	Feet of OIL SPOTS	%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 113 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2212	☒ Test 1250	T-On Location 1100
(B) First Initial Flow 24	☒ Jars 250	T-Started 1121
(C) First Final Flow 26	☒ Safety Joint 75	T-Open 1328
(D) Initial Shut-In 92	☒ Circ Sub N/C	T-Pulled 1433
(E) Second Initial Flow 27	☐ Hourly Standby	T-Out 1638
(F) Second Final Flow 29	☒ Mileage 68 R/T 102.30	Comments
(G) Final Shut-In 58	☐ Sampler	
(H) Final Hydrostatic 2146	☐ Straddle	☐ 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 1927.30
Final Shut-In 30	☐ Accessibility	MP/DST Disc't
	Sub Total 1927.30	

Approved By Our Representative

TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

4/10

Test Ticket

NO. 042344

Well Name & No. Powell #1-23 Test No. 8 Date 12/06/12

Company Larson Engineering, Inc ~~Olmitz,~~ Elevation 2801 KB 2794 GL

Address ~~O~~ 562 W. State Rd #4 Olmitz, Ks 77564

Co. Rep / Geo. Ted Jochems Rig HD #3

Location: Sec. 23 Twp. 16S Rge. 29W Co. Lane State Ks

Interval Tested 4477 4534 Zone Tested Johnson & Cherokee Lime

Anchor Length 57' Drill Pipe Run 4333 Mud Wt. 9.2

Top Packer Depth 4472 Drill Collars Run 141 Vis 57

Bottom Packer Depth 4477 Wt. Pipe Run 0 WL 7.6

Total Depth 4534 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	%mud
Rec	Feet of (OIL SPOTS)	%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 113 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2277	☒ Test 1250	T-On Location 0715
(B) First Initial Flow	24	☒ Jars 250	T-Started 0735
(C) First Final Flow	25	☒ Safety Joint 75	T-Open 0928
(D) Initial Shut-In	154	☒ Circ Sub N/C	T-Pulled 1033
(E) Second Initial Flow	27	☐ Hourly Standby	T-Out 1245
(F) Second Final Flow	28	☒ Mileage 68 R/T 102.30	Comments
(G) Final Shut-In	78	☐ Sampler	
(H) Final Hydrostatic	2133	☐ Straddle	☐ 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 1927.30
Final Shut-In	30	☐ Accessibility	MP/DST Disc't
		Sub Total 1927.30	

Approved By Our Representative

HEADER

WellSight Systems

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

Well Name:	DOWELL #1-23
Location:	sec 23 - twp 16S - rge 29W LANE COUNTY
License Number:	API #15-101-22,411 Region: KANSAS
Spud Date:	24 NOV 2012 Drilling Completed: 06 DEC 2012
Surface Coordinates:	1,301' FSL & 1,857' FWL apprx. NE - NW - SE - SW
Bottom Hole Coordinates:	DEVIATION SURVEYS: 0.75 degree @ 2,840, 0.5 degree @ 3,878, 0.5 degree @ 4,600
Ground Elevation (ft):	2,794 K.B. Elevation (ft): 2,801
Logged Interval (ft):	3,600 To: 4,600 Total Depth (ft): 4,600
Formation:	mid WABAUNSEE to MISSISSIPPIAN
Type of Drilling Fluid:	CHEMICAL: displace @ 3,400

OPERATOR

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

GEOLOGIST

Name: Ted Jochems, Jr.
Company: Consulting Geologist
Address: 212 North Market ste 517
Wichita, Kansas 67202

COMMENTS

CONTRACTOR: HD Drilling rig #3 (Lew Tresner, toolpusher)
MUD: Morgan Mud Inc. (Cade Lines)
DRILL STEM TESTS: Trilobite Testing
(Ryan Nichols, Walt Walter)
ELECTRIC LOGS: Pioneer Energy Services (Dan Martin)
(density-neutron, dual induction, micro)
SURFACE CASING: 8.625" @ 284
PRODUCTION CASING: 5.5" to Mississippian

DRILL STEM TEST #1

DRILL STEM TEST #1

4,156 - 4,185 5 - 15 - 15 - 30 LKC I zone
COMMENT: 177' (sic) of drill collars in drill string.
IFP: weak surface blow
ISIP: no blowback
FFP: no blow
FSIP: no blowback
REC: 1' DM (100% M)
1' total recovery
FP: 22 - 23# / 22 - 23#
SIP: 35 - 38#
HP: 2,102 - 2,120#
BHT: 112 degrees F

DRILL STEM TEST #2

4,215 - 4,229 5 - 15 - 30 - 60 CANVILLE & LKC K zone
COMMENT: 177' (sic) of drill collars in drill string.
IFP: surface blow built to 0.125"
ISIP: no blowback
FFP: surface blow built to 0.25"
FSIP: no blowback
REC: 15' DM w/ oil spots
15' total fluid
FP: 21 - 24# / 25 - 34#
SIP: 405 - 405#
HP: 2,109 - 2,062#
BHT: 113 degrees F
COMMENT: shut-in curves indicate good permiability.

DRILL STEM TEST #3

4,242 - 4,255 5 - 15 - 30 - 60 upper MIDDLE CREEK
COMMENT: 177' (sic) of drill collars in drill string.
IFP: surface blow built to 0.125"
ISIP: no blowback
FFP: surface blow built to 0.125"
FSIP: no blowback
REC: 1' DM (100% M)
1' total fluid
FP: 20 - 21 / 21 - 22#
SIP: 26 - 48#
HP: 2,094 - 2,013#
BHT: 109 degrees F

DRILL STEM TEST #4

4,241 - 4,264 5 - 15 - 30 - 60 MIDDLE CREEK
COMMENT: 177' (sic) of drill collars in drill string.
IFP: surface blow built to 1.125"
ISIP: surface blowback
FFP: surface blow built to BOB / 29.5 min
FSIP: surface blowback died / 40 min
REC: 10' GOCM (3% G, 32% O, 65% M)
60' GOCM (20% G, 40% O, 40% M)
70' total fluid
FP: 24 - 35# / 44 - 68#
SIP: 288 - 278#
HP: 2,094 - 1,979#
BHT: 115 degrees F
COMMENT: shut-in curves indicate good permiablity

DRILL STEM TEST #5

4,265 - 4,274 5 - 15 - 15 - 30 LKC L zone
COMMENT: 177' (sic) of drill collars in drill string.
IFP: BOB / 1 min
ISIP: surface blowback built to 7.5"
FFP: BOB / 3 min
FSIP: surface blowback died / 25 min
REC: 350' GO (15% G, 85% O)
60' GOCM (40% G, 30% O, 30% M)
60' GOCM (40% G, 30% O, 30% M)
470' total fluid
GRAVITY: 36 degrees API
FP: 118 - 130# / 150 - 188#
SIP: 236 - 220#
HP: 2,099 - 2,028#
BHT: 126 degrees F
COMMENT: initial shut-in curve indicates very good permiability

DRILL STEM TEST #6

4,345 - 4,380 5 - 15 - 15 - 30
PLEASANTON - MARMATON - LENAPAH - ALTAMONT
COMMENT: 141' (sic) of drill collars in drill string.
IFP: surface blow
ISIP: no blowback
FFP: no blow
FSIP: no blowback
REC: 5' DM w/ oil spots (100% DM)
5' total fluid
FP: 22 - 24# / 23 - 23#
SIP: 49 - 44#
HP: 2,102 - 2,061#
BHT: 111 degrees F

DRILL STEM TEST #7

DRILL STEM TEST #7

4,395 - 4,482 5 - 15 - 15 - 30
PAWNEE - MYRICK STATION - FORT SCOTT
COMMENT: 141' (sic) of drill collars in drill string
IFP: surface blow
ISIP: no blowback
FFP: weak surface blow
FSIP: no blowback
REC: 5' DM w/ oil spots
5' total fluid
FP: 24 - 26# / 27 - 29#
SIP: 92 - 58#
HP: 2,212 - 2,146#
BHT: 113 degrees F

DRILL STEM TEST #8

4,477 - 4,534 5 - 15 - 15 - 30
CHEROKEE lime & JOHNSON zone
COMMENT: 141' (sic) of drill collars in drill string.
IFP: surface blow
ISIP: no blowback
FFP: no blow
FSIP: no blowback
REC: 5' DM w/ oil spots
5' total fluid
FP: 24 - 25# / 27 - 28#
SIP: 154 - 78#
HP: 2,277 - 2,133#
BHT: 113 degrees F

DAILY PENETRATION

DATE	DEPTH			
24 NOV 2012				SPUD
25 NOV	970	0700 hours		
26 NOV	2,419	"	"	
27 NOV	2,938	"	"	
28 NOV	3,454	"	"	
29 NOV	3,878	"	"	bit trip
30 NOV	4,112	"	"	
01 DEC	4,204	"	"	
02 DEC	4,255	"	"	DST #3
03 DEC	4,264	"	"	DST #4
04 DEC	4,350	"	"	
05 DEC	4,475	"	"	
06 DEC	4,534	"	"	DST #8
07 DEC	4,600	"	"	logging

MUD REPORT

Reports 1 - 3: drilling with water. displace @ ~3,400

MUD REPORT

Reports 1 - 3: drilling with water. displace @ ~3,400

RPT	DEPTH	WT	VIS	FIL	pH	PV	YP	GELS	CHLOR	SOLIDS	BTMS UP
4	3,616	8.6	48	8.0	10.5	16	12	6/23	2,900	2.2%	19 min
5	3,937	9.0	54	7.6	10.5	19	16	10/40	2,900	5.0%	21 min
6	4,148	9.2	52	7.2	10.0	19	15	11/31	2,900	6.4%	22 min
7	4,219	9.2	57	7.2	10.5	21	15	11/32	3,000	6.4%	22 min
8	4,255	9.1	45	8.0	10.5	15	10	8/23	2,500	5.7%	23 min
9	4,274	9.1	54	8.0	10.0	19	14	9/34	2,500	5.7%	23 min
10	4,380	9.1	53	8.0	10.5	17	15	11/41	2,400	5.7%	23 min
11	4,482	9.3	56	7.6	10.0	20	15	11/44	2,500	7.1%	24 min
12	4,534	9.3	51	8.0	10.0	17	14	9/32	2,900	7.1%	24 min

BIT RECORD

NR.	SIZE	MAKE	TYPE	DEPTH OUT	FEET	JETS
1	12.25"	JZ	retip	284	284	15 (3)
2	7.88"	"	HA 21-5	3,878	3,594	"
3	"	"	HA 20	4,229	351	"
4	"	"	HA 205	4,380	151	"
5	"	"	QX 20	4,600	220	"

ROCK TYPES

Anhy, Bent, Brec, Cht, Clyst, Coal, Congl, Dol, Gyp, Igne, Lmst, Meta, Mrlst, Salt, Shale, Shcol, Shgy, Sltst, Ss, Till

OTHER SYMBOLS

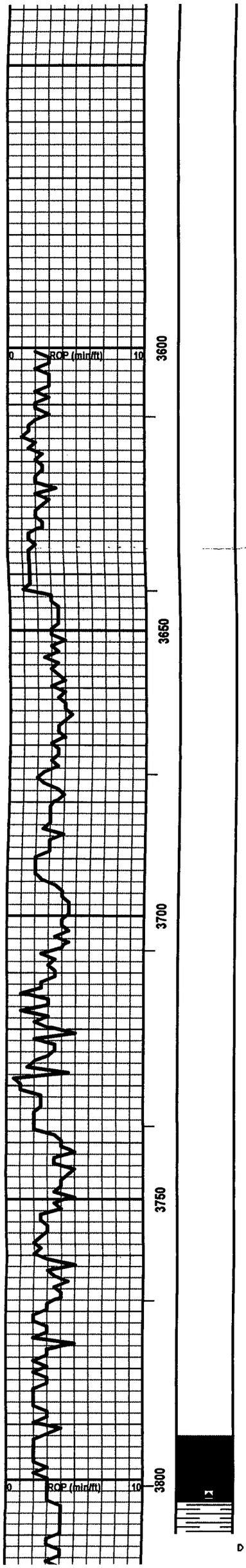
OIL SHOW: Even, Spotted, Ques

Dead, Gas

INTERVAL: Core, Dst

EVENT: Conn, Rft, Sidewall

Curve Track 1 ROP (min/ft)	Depth	Lithology	Oil Shows	Geological Descriptions	REMARKS
0 ROP (min/ft) 10				drilling with 19 drill collars (560.67'), 35,000# WOB.	
STONE CORRAL <======= 2,200(+601)				DEPTH 2,200	STONE CORRAL (e-log): 2,200 (+601)
				anhydrite top and base picked from drill time: no samples collected.	
BASE <======= 2,231(+570)					BASE (e-log): 2,231 (+570)
				examine samples wet for color, shows & description; dry for porosity & dry stain.	"cal floodd" is synonymous with "lithographic," "massive" or "dense," this is pervasive



examine samples wet for color, shows & description; dry for porosity & dry stain. descriptions are lagged up to true depth using mud engineer's calculation for bottoms up.

lost circulation @ 1,260

LS: crm, microxtln, rextlzd, chalky, relict fossils. poor vis por. tr tiny brn stns (no odor, no cut), NSO

SH: blk & dk brn, carb, micac, cal inclusions.

LS: gry, microxtln, loc rextlzd, cal crusts, tr py, loc silcfd to cht (gry, cryptxtln, fossl). poor por. NS

SH: gry, argil, loc sdy & glauc.

LS: tan, microxtln, chalky, loc sl cal floodd. poor vis por, brn ?dd oil? stns (no odor, no cut), NSO

"cal floodd" is synonymous with "lithographic," "massive" or "dense." this is pervasive replacement by calcite.

"cal overgrths" includes calcite crusts, druzy calcite, calcite veinlets and local recrystallization of larger fossils or clasts.

"rextlzd" = recrystallized.

"sil" = siliceous: introduction of moderate to abundant silica - original color and texture preserved.

"cht" describes very heavy silicification - original color and texture altered.

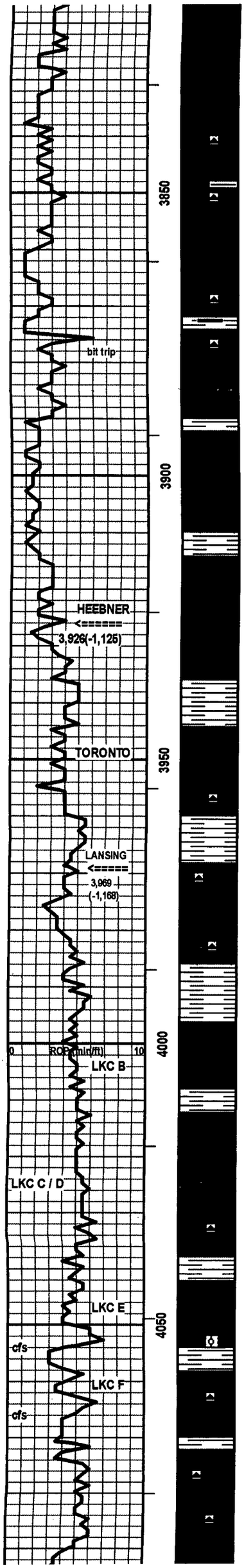
displace @ ~3,400

vis 49 wt 8.5 lcm 3#

vis 48 wt 8.6

vis 54 wt 8.7

vis 56 wt 8.8 lcm 2#



LS: brn, micro-vfgr xtln, wkly cal floodd, loc sdd, cal crusts & overgrths. poor por. brn stns (no odor, no cut), NSO

LS: gry to lt gry, micro-vfgr xtln, sl cal floodd, loc chalky. poor vis por. NS

LS: wht to crm, microxtln, chalky, relict bivalves, loc sil with fusulinids. poor vis por. NS

LS: brn, tan & gry, microxtln, loc silcfd to cht (gry & orange, cryptxtln, spicules, fusulinids). intbdd gry sh. no vis por. rare brn stns (no odor), NSO

vis 57 wt 8.9 lcm 2#

LS: gry, micro-vfgr xtln, sl earthy, fossl fragments, chalky. v poor vis por. NS

LS: wht, crypt-microxtln, v chalky (loc mushy). poor vis por. NS

LS: crm, tan & brn, microxtln, cal floodd, fossl, loc silcfd to cht (crm, cryptxtln, spicules). no vis por. NS

strap @ 3,878
strap 3,897.19
board 3,893.74
board did not include a 1' sub
board short 2.45'

SH: gry to blk, argil, loc carb.

LS: gry, microxtln, cal floodd, sil, relict fossls. NVP NS

LS: off wht to tan, microxtln, cal floodd, loc chalky, relict fossls. no intxtln por, minor poor ppt por. NS

LS: lt brn & lt gry, microxtln, cal floodd, cal crusts, minor druzy cal, relict fossls. no vis por. NS

SH: gry, argil, sl micac.

LS: off wht to tan, microxtln, chalky (loc mushy, relict fossls (incl fusulinids, forams & bivalves)), loc wkly cal floodd w/ cal crusts, rare blk microxtln hematite. no / poor intxtln por, rare fossl chamber por. NS

SH: gry, maroon & red-brn, argil, silty, earthy hematite, minor granules of rock or fossl fragments.

LS: gry-brn & off wht, chalky, somewhat earthy, relict fossls (incl fusulinids). v poor vis por. loc abt brn stns (no odor, no cut), NSO

vis 54 wt 9.0 lcm 2#

SH: blk, carb, micac, wht cal inclusions along bdg.

HEEBNER (e-log): 3,927 (-1,126)

LS: tan to lt brn, microxtln, cal floodd, cal overgrths, sl chalky. no vis por. tiny brn stns (no odor, no cut), NSO

SLTST: gry, silt-vfgr qtz grns, rndd. poor vis por. NS

SH: gry, argil, silty, blk plant fragments.

LS: lt gry, microxtln, cal floodd, cal crusts (loc hematite stn), rarely sil. no vis por. NS

LS: crm, microxtln, cal floodd, loc v chalky, relict fossls, loc relict grainst, loc silcfd to cht (crm, cryptxtln, fossl), sil vnlts. no / poor vis por. NS

vis 52 wt 9.1

SH: grn, gry & dk brn, micac, pyr.

LANSING (e-log): 3,966 (-1,165)

LS: crm, microxtln, cal floodd, cal crusts, relict fossls, loc silcfd to cht (crm & lt orange, cryptxtln, spicules). no intxtln por, scarce poor ppt por. NS

LS: wht, microxtln, v chalky (mushy). poor vis por. VSSG on brk (no odor), NSO

LS: brn, microxtln, rextlzd, abt fusulinids & ?fish scales?. v poor por. NS

LS: crm, microxtln, cal floodd, fossl, loc ool, rare py, loc silcfd to cht (crm to pale gry, cryptxtln, fossl). no vis por. NS

SH: grn & red-brn, argil, loc micac, pyr, earthy hematite.

vis 53 wt 9.0

LS: crm, microxtln, cal floodd, loc sil, loc vfgr py. NVP NS +
gry, micro-vfgr xtln, cal floodd, abt fusulinids, rare glauc. NVP NS

SH: gry, grn & red-brn, argil, loc silty, minor earthy hmt.

LS: tan, crm & gry-brn, microxtln, cal floodd, minor cal crusts & druzy cal. no intxtln por, scarce poor ppt por. brn stns (no odor, no cut, prob hematite), NSO

LS: crm to tan, microxtln, cal floodd, minor cal crusts. no intxtln por, minor poorly developed vug / ppt por. NS

LS: crm to tan, microxtln, cal floodd, minor cal crusts & overgrths, brn hematite stn (no cut), loc sil. no intxtln por, scarce isolated vugs. NS

vis 53 wt 9.2

SH: gry & grn > red-brn, argil, micac, loc silty, earthy hematite, rare marcasitized bivalves.

LS: pale gry to gry-brn & tan, microxtln, cal floodd, cal crusts, druzy cal, minor microxtln py, loc ool. no vis por. minor brn stns (no odor, no cut), NSO

vis 53 wt 9.2

SH: gry & grn > red-brn, argil, micac, py, earthy hematite.

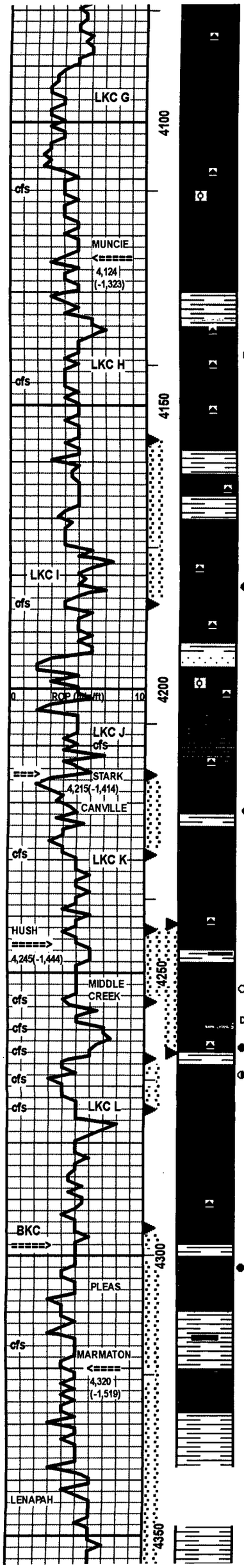
LS: crm, micro-vfgr xtln, rextlzd, chalky, loc sil, relict bivalves. poor vis por. VVSSG on brk (no odor), NSO

LS: crm, microxtln, cal floodd, loc silcfd to cht (crm & smoky, cryptxtln, druzy qtz, hematite crusts). NVP NS

abt steel shavings in 4,066 / 45 min spl.
vis 52 wt 9.2+

SH: grn, gry & red-brn, argil, earthy hematite.

LS: crm, tan & brn, microxtln, cal floodd, minor cal crusts & druzy cal, loc silcfd to cht (gry & orange, cryptxtln, qtz vnlts), poor / no vis por. loc rextlzd & chalky (VVSSG on brk, no odor). scarce brn & blk stns (no odor, no cut), NSO



cal, loc silcfd to cht (gry & orange, cryptxtln, qtz vnlts), poor / no vis por. loc rextlzd & chalky (VVSSG on brk, no odor). scarce brn & blk stns (no odor, no cut), NSO

LS: crm & lt gry, microxtln, cal floodd, loc rextlzed & chalky, minor cal crusts & cal overgrths. no / poor vis por. rare brn & blk stns (no odor), NSO

DOL: pale tan, vfgr xtln, rextlzd, sucr. poor-fair intxtln por. NS

LS: brn, microxtln, cal floodd, crusts, cht (tan, cryptxtln). NVP NS

LS: crm, microxtln, cal floodd, ool, chalky partings, druzy cal. no vis por. NS

LS: gry, microxtln, cal floodd, microxtln cal crusts, druzy cal, minor vfgr py, rare bivalves. no vis por. NS

vis 47 wt 9.2 lcm 2#

SH: blk & dk brn, carb, micac, cal inclusions, durable.

MUNCIE CREEK (e-log): 4,124 (-1,323)

LS: gry-brn, microxtln, cal floodd, forams, druzy cal, tr py. NVP NS

add premix

SH: grn & gry, argil, sl micac, rock granules.

LS: gry & brn, microxtln, cal floodd, chalky partings, microxtln cal crusts, forams, sil to chty (gry & dk brn, crypt - microxtln). no/poor por. abt brn & blk minute dd oil flakes (no odor, no cut), NSO + crm, microxtln, cal floodd, chalky partings, loc silcfd to cht (smoky, cryptxtln). no / poor vis por. NS

1 pc of crm ls carries abt blk & yel sphalerite (presumably a caving).

vis 53 wt 9.3 lcm 2# after cfs

LS: pale gry & crm, microxtln, cal floodd, chalky partings, vfgr - mgr druzy cal, microxtln crusts, loc silcfd to cht (smoky tan & gry, cryptxtln). NVP NS

SH: gry, argil, micac, rock granules.

LS: brn, microxtln, cal floodd, loc cht (brn, cryptxtln, spicules). NVP. rare brn stn (no odor), NSO

SH: gry & grn, silty, micac.

LS: gry & gry-brn, microxtln, cal floodd, minor cal crusts, loc chalky zones, relict fossils. no / poor vis por. scarce brn stns (no odor, no cut, prob hmt), NSO

DST #1
4,166 - 4,185
REC 1' DM
SIP 35 - 38#
details above

LS: gry & crm-tan, microxtln, cal floodd, chalky partings, microxtln cal crusts, vfgr druzy cal, loc silcfd to cht (pale gry & tan, cryptxtln). no intxtln por, fair por in druzy cal. brn stns, some w/ minute drplts of blk FO (no odor, fair cut, wk to str patchy dry stn).

LS: crm to tan, microxtln, cal floodd, loc chalky, abt forams (loc ool), loc silcfd to cht (wht & tan, cryptxtln, forams). no/poor vis por. NS

SH: gry & grn, argil. prob SS @ Base: gry, vfgr, subrndd, friable (only 1 cluster in spl), NS.

LS: brn, microxtln, cal floodd, abt forams, loc ool, minor cal crusts, loc silcfd to cht (brn & wht, ool). NVP NS

DST #2
4,215 - 4,229
REC 15' DM w/ oil spots
SIP 405 - 405#
details above

LS: wht, v chalky (mushy), silty, relict fossils. poor vis por. NS

LS: pale gry to gry, microxtln, cal floodd, chalky partings, loc abt forams, minor py, loc sil. no / poor vis por, rarely vuggy. minor brn & gry stns (no odor, no cut), NSO

vis 46 wt 9.2 lcm 1# before cfs

add premix

STARK (e-log): 4,216 (-1,415)

SH: blk & dk maroon, carb, micac, cal inclusions.

LS: dk brn, microxtln, hvyly cal floodd, microxtln cal crusts, ====>>

SH: grn & gry, argil, micac.

=====>>> druzy cal, minor py poor to fair intxtln por in druzy cal & crusts. VSSO: 1 pc w/ minute droplets seen in druzy cal spaces (fnt odor, slow fair - good cut, patchy dry stn on several pcs, VSSG)

LS: crm to off wht, microxtln, rextlzd, chalky, vfgr druzy cal, loc cal floodd w/ relict forams. poor vis por. VSSG on brk, NSO

DST #3
4,242 - 4,255
REC 1' DM
SIP 26 - 48#
details above

LS: lt gry, microxtln, somewhat cal floodd, chalky partings, minor druzy cal. no / poor vis por. NS

vis 60 wt 9.1 lcm 2#

LS: lt brn & lt gry, microxtln, cal floodd, chalky partings, minor hmt & py, loc silcfd to cht (brn & smoky, cryptxtln, forams). no / poor vis por. NS

DST #4
4,241 - 4,264
REC 70' GOCM
SIP 288 - 278#
details above

HUSHPUCKNEY (e-log): 4,246 (-1,445)

SH: gry & blk, argil, micac, loc carb.

LS: blue-gry & brn, microxtln, cal floodd, microxtln cal crusts, micro-vfgr druzy cal. no intxtln por, loc fair vug por. brn & blk stns (poss v wk spotty brn dry stn, wk odor, no cut), NSFO

====>>>(4,264 cfs): vfgr-mgr clr druzy cal, microxtln cal crusts, minor cht, rare py. good por in secondary cal. fair SFO (dk brn, fair-good odor, v good cut, few show pcs, patchy lt brn dry stn).

LS: brn & off wht, microxtln, cal floodd, loc rextlzd & chalky, cal crusts, vfgr druzy cal. no / poor vis por. abt dk brn dd oil stn (no odor, no cut, no dry stn), NSFO

LS: off wht, microxtln, cal floodd, loc rextlzd & sl chalky, =====>>>>

-------spls floodd w/ uphole sh cavings.-------

LS: gry, brn & off wht, microxtln, cal floodd, abt microxtln cal crusts, some vfgr-mgr druzy cal, loc chalky, relict forams, py & hmt. no intxtln por, loc fair vug por in secondary cal. ==========>>

====>>>(4,269 cfs): minor brn stns (wk-fair odor, 2-3 pcs slow fair cut, patchy lt brn dry stn), NSFO

LS: crm, microxtln, rextlzd, chalky, loc cal floodd, abt relict forams, rare cgr druzy cal. poor vis por. scarce brn stns (no odor), NSO

DST #5
4,265 - 4,274
REC 350' GO, 120' GOCM
SIP 236 - 220#
details above

LS: gry, crm & brn, microxtln, cal floodd, loc dns, chalky partings, microxtln cal crusts, minor druzy cal. no / poor vis por. no odor, NS

LS: gry, brn & off wht, microxtln, cal floodd, minor relict fossils, microxtln cal crusts, minor druzy cal, rare cht (tan, cryptxtln, fossil), hmt stns. no / poor vis por. NS

add premix

LS: brn, microxtln, hvyly cal floodd, microxtln cal crusts, micro-fgr druzy cal, minor py & hmt. no intxtln por, loc fair vug por. NS

SH: grn, argil silty.

LS: brn, microxtln, cal floodd, cal crusts & vnlts, scarce druzy cal. no intxtln por, rare vuggy por. 1 pc w/ SSFO (brn, no odor, satd brn stn, ?caving?)

SH: grn, gry, maroon & red-brn, argil, silty, micac, earthy hematite, rock granules. stringer(s) of SLTST: lt grn, argil, sl pyr. poor por, NS

vis 53 wt 9.1 lcm 1#

MARMATON (e-log): 4,318 (-1,517)

LS: crm to tan, brn, micro-vfgr xtln, rextlzd, chalky, loc cal floodd, microxtln cal crusts, minor vfgr druzy cal loc fossil (incl bryozoans). no / poor por. VSSG on brk (?v fnt odor?), NSO

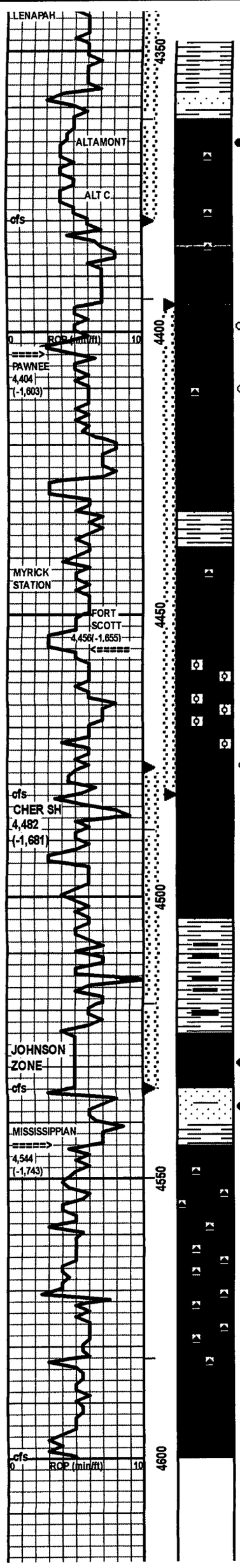
SH: gry, grn & red-brn, argil, loc silty, loc micac, earthy hematite, plant fragments

vis 57 wt 9.1 lcm 1#

LS: off wht to tan & brn, micro-vfgr xtln, cal floodd, chalky partings, minor cal crusts, vnlts & druzy cal. no / poor vis por. NS

DST #6
4,295 - 4,380
REC 5' DM W/ oil spots
SIP 49 - 44#
details above

SH: gry > grn, blk & red-brn, argil, silty, loc micac, earthy & specular hematite, loc mottled.



partings, minor cal crusts, vnlts & druzy cal. no / poor vis por. NS

SH: gry > grn, blk & red-brn, argil, silty, loc micac, earthy & specular hematite, loc mottled.

SS: gry, vfgr-fgr subrndd, argil, friable, glauc. poor por. NS

LS: crm & off wht, microxtln, rextlzd, chalky, loc cal floodd, relict forams. no / poor vis por. 2 pos w/ SO (blk or dk brn, tarry, no odor, patchy brn dry stn)

LS: brn, microxtln, cal floodd, chalky partings, microxtln cal crusts & vnlts, loc cht (orange, cryptxtln, bryozoans, vfgr hmt). NVP no odor, NS

LS: brn, off wht & crm, microxtln, cal floodd, chalky partings, minor microxtln cal crusts, rare py, loc silcfd to org cht. no / poor por. scarce tiny stns (no odor, no cut), NSO

LS: crm & tan, microxtln, cal floodd, chalky partings (relict bivalves), cal crusts, minor vfgr druzy cal), bryozoans (siliceous), rare py, rare secondary orange ?ankerite or siderite?. no / poor vis por. 1 pc w/ dk brn dd oil flakes (no odor, no dry stn, v slow & v wk cut), NSFO

SH: blk, carb, sl micac, cal inclusions, blk nodules.

LS: crm to pale gry, microxtln, cal floodd, minor fgr-vfgr druzy cal & microxtln cal crusts, minor py, loc silcfd to cht (smoky, wht & blue, microxtln, pyr). no vis por. 1-2 pcs w/ minute brn flecks (no odor, v slow wk cut, v wk brn dry stn), NSFO

LS: gry to brn & crm, microxtln, cal floodd, dns, chalky partings, microxtln cal crusts, scarce relict fossils (?crinoids?), rare py. no / poor vis por. NS

SH: blk, carb, micac, wht & pink cal inclusions.

LS: dk brn, microxtln, hvyly cal floodd, cal crusts, pyr loc chalky. NVP minor brn stns (no odor, no cut), NSO

SH: gry & blk, argil, loc silty, loc micac, rock granules.

LS: crm to lt gry & lt brn, microxtln, cal floodd, microxtln cal crusts (often chalky), chalky partings, minor py, fossl (incl crinoids), loc silcfd to cht (smoky gry, cryptxtln, pyr). no / poor por. NS

SH: blk, carb, micac, wht & pink cal inclusions.

LS: gry-brn, microxtn, cal floodd, mgr-cgr ool, chalky partings. no vis por. no / poor vis por. NS

LS: lt brn & crm. microxtln. cal floodd, mgr-cgr ool, microxtln cal crusts, fgr-mgr loc chalky. no / poor vis por. no odor, NS

LS: brn & tan, microxtln, rextlzd, chalky, vfgr druzy cal, loc relict ool. poor vis por. minor brn stns (no odor, no cut, patchy brn dry stn), NSFO

SH: blk, carb, micac, wht & pink cal inclusions (?rock fragments?).
LS:dk brn, microxtln, hvyly cal floodd, pyr. no vis por. NS
LS: lt brn, microxtln, cal floodd, scarce vfgr druzy cal, relict fossils. v poor por. NS

SLTST: gry-grn, silt-vfgr qtz, argil, pyr, friable. v poor por. NS

LS: lt gry & lt brn, microxtln, cal floodd, minor cal overgrths, loc chalky, py / blk hmt, loc relict forams (?ool?). no / poor vis por. NS

SH: grn, gry, blk & red-brn, argil, calc, widely carb, loc micac. stringers of LS: gry & brn, marly, rock fragments, no / poor por. NS

LS: pink-tan, brn & lt gry, microxtln, cal floodd, microxtln cal crusts, fgr druzy cal and cal vnlts, brn hmt scums, rare py. v poor por, loc isolated vugs. SFO (minute brn drpits, fnt odor, wk cut, patchy to satd brn dry stn) + minor blk, tarry SO ========>>>>>>

SS: wht & gry-brn, vfgr-fgr subrndd grns, sil cmt, competent clusters. coarser grnd & glauc @ base. poor por. SSO on brk (brn, no odor, slow wk cut, patchy brn dry stn, abt dd oil flakes).
SH: gry, grn, blk & yel, argil, relict bivalves & spines, rare py, limonite stn.

LS: brn to dk brn, microxtln, cal floodd, microxtln cal crusts, minor limonite stn, minor cht (brn & org, cryptxtln). no vis por. NS

LS: gry-brn & pale maroon, microxtln, cal floodd, chalky partings, relict forams, abt cht (org, cryptxtln, earthy hematite vnlts). no / poor vis por. NS
LS: gry-brn, tan & crm, crypt-microxtln, cal floodd, chalky partings, relict forams, brachiopods, minor limonite stn, abt cht (org, brn & red, cryptxtln, loc bndd). no / poor vis por. NS

LS: gry-brn & crm, microxtln, cal floodd, chalk partings, relict forams, abt cht (org, red & smoky, cryptxtln, loc xlscnt, sil vnlts). no / poor por. dk brn stns (no odor, no cut), NSO

LS: gry to brn & crm, microxtln, cal floodd, chalky partings, relict fossils, coatings of blk hmt. no / poor vis por. NS

LS: off wht, microxtln, v chalky, relict forams, poor vis por. NS

RTD 4,600
LTD 4,603

4,296 - 4,360
REC 5' DM W/ oil spots
SIP 49 - 44#
details above

vis 50+ wt 9.1 lcm 1.5#

PAWNEE (e-log): 4,406 (-1,605)

DST #7
4,395 - 4,482
REC 5' DM w/ oil spots
SIP 92 - 58#
details above

FORT SCOTT (e-log): 4,458 (-1,657)

CHEROKEE SHALE (e-log): 4,484 (-1,683)

DST #8
4,477 - 4,534
REC 5' DM w/ oil spots
SIP 154 - 78#
details above

====>>>4,534 cfs: bit cut a few inches into underlying SS: wht, vfgr-fgr, subrndd - rndd, sil cmt, 1% dk grns. poor por. SSO (brn, slow good cut, patchy to satd dry stn, abt dd oil flakes). Intv incld in DST #8.

vis 69 wt 9.3 after dst
MISSISSIPPIAN (e-log): 4,546 (-1,745)

vis 58 wt 9.3

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/

March 07, 2013

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

Re: ACO1
API 15-101-22411-00-00
Dowell 1-23
SW/4 Sec.23-16S-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