Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1152893

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

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

4/6/2013	4/16/2013	5/8/2013
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-101-22432-00-00
Spot Description:
NE - NW - NE - NW Sec. 22 Twp. 18 S. R. 29 ☐ East ☑ West
224 Feet from ☑ North / ☐ South Line of Section
1916 Feet from ☐ East / ☑ West Line of Section

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

GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Lane
Lease Name: Harper-James Well #: 1-22
Field Name:
Producing Formation: Cherokee, Marmaton
Elevation: Ground: 2796 Kelly Bushing: 2803
Total Vertical Depth: 4632 Plug Back Total Depth: 4583
Amount of Surface Pipe Set and Cemented at: 283 Feet
Multiple Stage Cementing Collar Used? ☑ Yes ☐ No
If yes, show depth set: 2109 Feet
If Alternate II completion, cement circulated from: 2109
feet depth to: 0 w/ 270 sx cmt.

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

Chloride content: 16000 ppm Fluid volume: 1400 bbls
Dewatering method used: Evaporated

Location of fluid disposal if hauled offsite:

Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 08/01/2013
☑ **Confidential Release Date:** 08/01/2015
☑ **Wireline Log Received**
☑ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** NAOMI JAMES **Date:** 08/01/2013

1152893

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

Sec. 22 Twp. 18 S. R. 29 ☐ East ☑ West County: Lane

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☐ Yes ☑ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Dual Induction
Dual Comp Porosiity
Microresistivity

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

Name Attached Top Attached Datum Attached

CASING RECORD ☑ New ☐ Used
Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.25	8.625	20	283	Class A	175	2% gel, 3% CC
Production	7.875	4.5	11.6	4631	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	0-2109	SMD	270	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	4550-54, 4388-91	250 gal 15% NEFe	4550-54
		400 gal !5% NEFe	4550-54
		250 gal 15% RWR-1	4388-91

TUBING RECORD: Size: 2.375 Set At: 4576 Packer At: Liner Run: ☐ Yes ☑ No

Date of First, Resumed Production, SWD or ENHR. 5/8/2013

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	65				37

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: 4388 - 4554

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

Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Harper-James 1-22
Doc ID	1152893

Tops

Name	Top	Datum
Anhydrite	2145	+658
Base Anhydrite	2167	+636
Heebner Sh	3918	-1115
Lansing	3962	-1159
Stark Sh	4236	-1433
Pawnee	4430	-1627
Ft. Scott	4480	-1677
Cherokee	4505	-1702
Mississippi	4566	-1763

SWIFT Services, Inc.

CHARGE TO: Larson Engineering
ADDRESS
CITY, STATE, ZIP CODE

TICKET Nº 24269

PAGE 1 OF 1

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. Ness City KS	1-22	Harper James	Lane	KS	Dighton	25 APR 13	
2.	TICKET TYPE ☐ SERVICE ☐ SALES / CONTRACTOR: WILD WEST	RIG NAME/NO.	SHIPPED VIA CT	DELIVERED TO: location	ORDER NO.		
3.	WELL TYPE: oil	WELL CATEGORY: Development	JOB PURPOSE: cement port collar	WELL PERMIT NO.	WELL LOCATION: 22-18-29		
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		1			MILEAGE TRK 110	40	mi			6 00	240 00
576D		1			Pump Charge	1	ea			1250 00	1250 00
330		1			SMD cement	210	sk			16 50	3465 00
276		1			Flocele	50	sk			2 00	100 00
290		1			D-AIR	2	gal			35 00	70 00
583		1			Drayage	30848	lb	616.96	TM	1 00	616 96
581		1			Service charge	310	sk			2 00	620 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 | TIME SIGNED ☑ A.M. ☐ P.M. 415

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	6361 96
Lane TAX 7.3%	265 36
TOTAL	6627 32

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

SWIFT OPERATOR: ABL bM | APPROVAL

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 25 APR 13 | PAGE NO. 1

CUSTOMER	WELL NO.	LEASE	JOB TYPE	TICKET NO.
Larson Engineering	1-22	Harper - James	cement port collar	24269

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
								310sk SMD w/ ¼# flocele
								2 3/8 x 4½ port collar - 2110'
	0900							on loc TRK 110
	0920					1000	1000	test to 1000 psi - hold
								open port collar
	0925	3	2			300		inj RATE 3 bpm @ 300 psi
	0930	3				300		mix SMD cement @ 11.2 ppg
		3	30			300		- fluid to surface -
	1005	3	119			450		- cement to surface -
								(210sk mixed 20 to pit)
		3	7			450		Displace H_2O
								close port collar
	1014					1000	1000	test to 1000 psi - hold
								Run 5 joints - cinco mas -
	1025		20					Reverse hole clean
								- 2 cement flags -
								wash truck
								RACK up
								job complete
								Thanks
								Flint, Blaine Dave, & John

SWIFT Services, Inc.

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

TICKET Nº 24751

PAGE 1 OF 2

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

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

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

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

X [signature]

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

REMIT PAYMENT TO:

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

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

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

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

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

SWIFT OPERATOR [signature] | APPROVAL

Thank You!

SWIFT Services, Inc.

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

TICKET CONTINUATION

TICKET No. 24751

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

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

JOB LOG

SWIFT Services, Inc.

DATE 30 APR 13 | PAGE NO.

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

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

ALLIED OIL & GAS SERVICES, LLC 060406

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:
Great Bend, KS

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

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

OWNER Larson Engineering

CEMENT

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

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

EQUIPMENT

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

REMARKS:

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

SERVICE

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

CHARGE TO: Larson Engineering
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

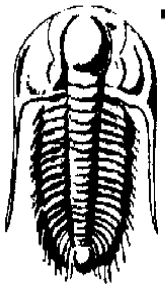
	@	
	@	
	@	
	@	
	@	
	TOTAL	

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

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

PRINTED NAME LEWAYNE FREESNER

SIGNATURE



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harper-James #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.13 @ 06:44:00

End Date: 2013.04.13 @ 11:36:00

Job Ticket #: 53113 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.22 @ 11:54:27

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53113 **DST#: 1**

Test Start: 2013.04.13 @ 06:44:00

GENERAL INFORMATION:

Formation: **" L "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:54:15
Time Test Ended: 11:36:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Sam Esparza
Unit No: 64

Interval: 4274.00 ft (KB) To 4305.00 ft (KB) (TVD)
Total Depth: 4305.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

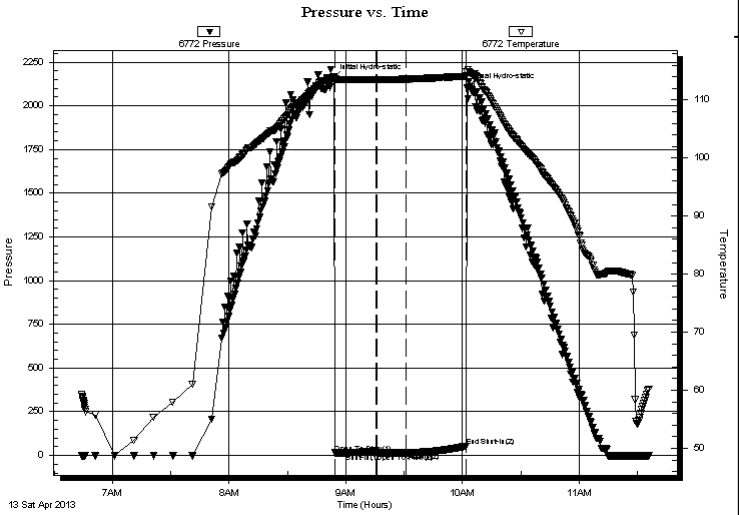
Reference Elevations: 2803.00 ft (KB)
2796.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6772 **Outside**

Press@RunDepth: 15.76 psig @ 4275.00 ft (KB)
Start Date: 2013.04.13 End Date: 2013.04.13
Start Time: 06:44:05 End Time: 11:35:59

Capacity: 8000.00 psig
Last Calib.: 2013.04.13
Time On Btm: 2013.04.13 @ 08:53:30
Time Off Btm: 2013.04.13 @ 10:02:15

TEST COMMENT: IF: 1/4" Blow .
ISI: No return.
FF: No blow .
FSI: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2155.58	114.07	Initial Hydro-static
1	14.44	113.61	Open To Flow (1)
7	15.25	113.54	Shut-In(1)
22	27.51	113.52	End Shut-In(1)
23	13.54	113.52	Open To Flow (2)
38	15.76	113.62	Shut-In(2)
69	54.34	114.11	End Shut-In(2)
69	2102.50	114.79	Final Hydro-static

Recovery

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

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53113 **DST#: 1**

Test Start: 2013.04.13 @ 06:44:00

Tool Information

Drill Pipe:	Length:	4107.00 ft	Diameter:	3.80 inches	Volume:	57.61 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		80000.00 lb
					Total Volume:	58.33 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		8.00 ft					String Weight:	Initial	63000.00 lb
Depth to Top Packer:		4274.00 ft						Final	63000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		31.00 ft							
Tool Length:		59.00 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			4247.00		
Shut In Tool	5.00			4252.00		
Hydraulic tool	5.00			4257.00		
Jars	5.00			4262.00		
Safety Joint	3.00			4265.00		
Packer	5.00			4270.00	28.00	Bottom Of Top Packer
Packer	4.00			4274.00		
Stubb	1.00			4275.00		
Recorder	0.00	6772	Outside	4275.00		
Recorder	0.00	8845	Outside	4275.00		
Perforations	25.00			4300.00		
Bullnose	5.00			4305.00	31.00	Bottom Packers & Anchor
Total Tool Length:	**59.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53113 **DST#: 1**

Test Start: 2013.04.13 @ 06:44:00

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:	54.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.97 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3100.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

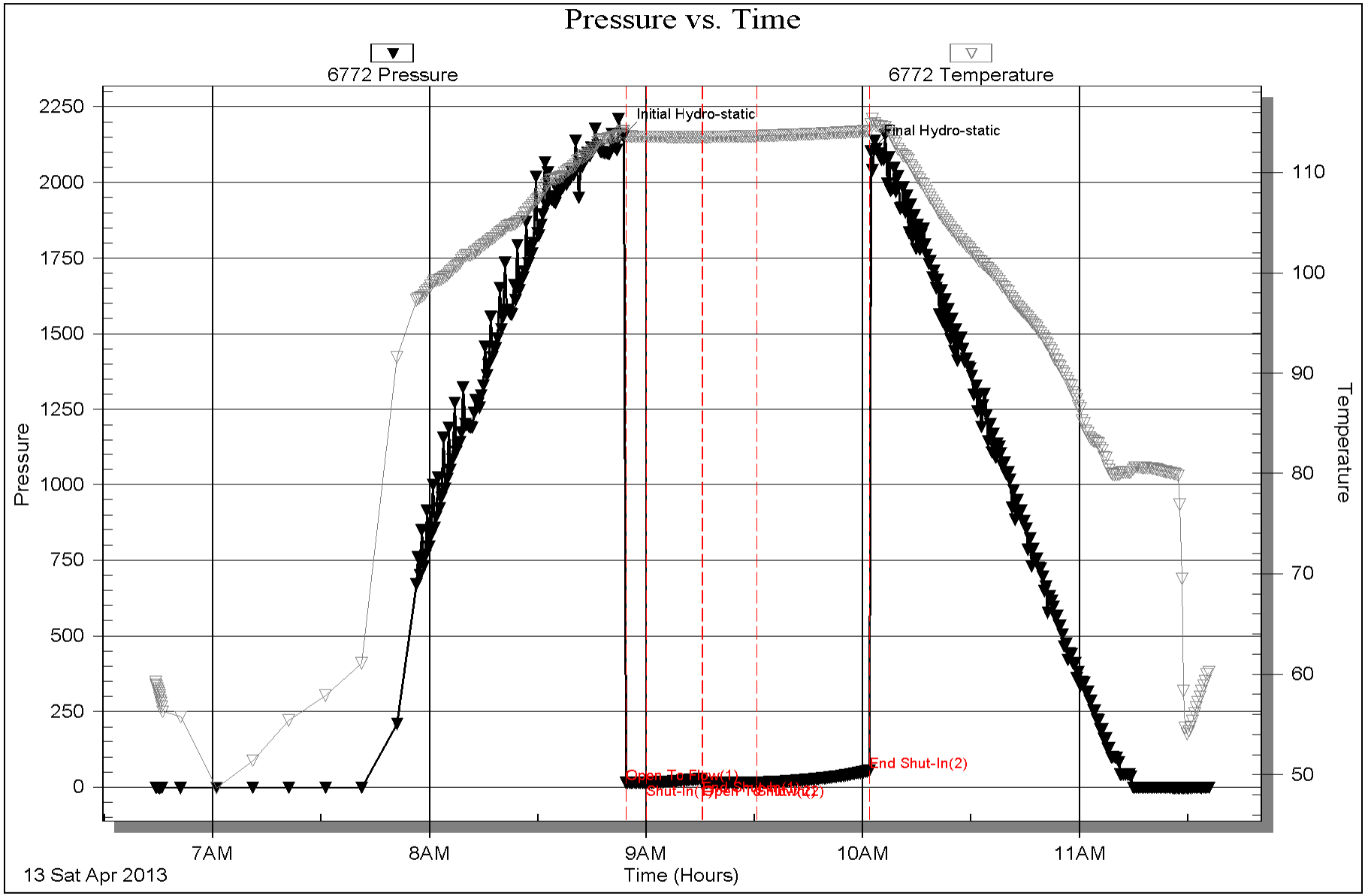
Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

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

Serial #: 6772 **Outside** Larson Engineering, Inc. Harper-James #1-22 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 53113 Printed: 2013.04.22 @ 11:54:30

DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harper-James #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.14 @ 02:37:00
End Date: 2013.04.14 @ 08:51:30
Job Ticket #: 53114 DST #: 2

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

Printed: 2013.04.22 @ 11:53:49

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53114 **DST#: 2**

Test Start: 2013.04.14 @ 02:37:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:52:45
Time Test Ended: 08:51:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Sam Esparza
Unit No: 64

Interval: 4319.00 ft (KB) To 4400.00 ft (KB) (TVD)
Total Depth: 4400.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

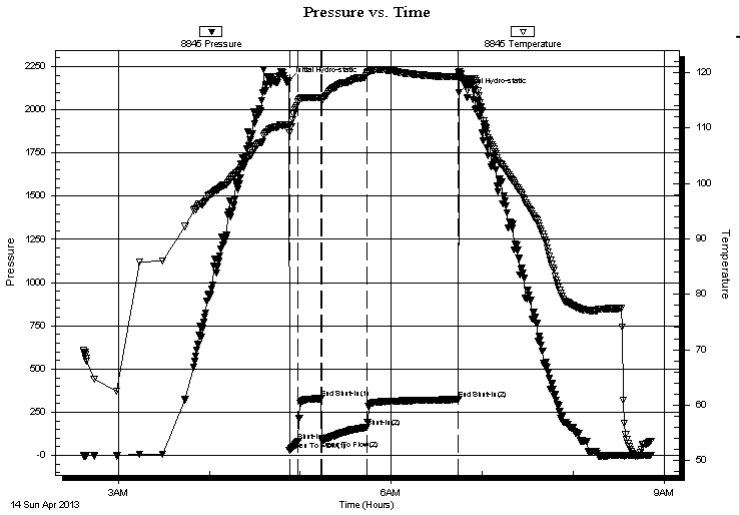
Reference Elevations: 2803.00 ft (KB)
2796.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8845 **Outside**

Press@RunDepth: 163.06 psig @ 4320.00 ft (KB)
Start Date: 2013.04.14 End Date: 2013.04.14
Start Time: 02:37:05 End Time: 08:51:29

Capacity: 8000.00 psig
Last Calib.: 2013.04.14
Time On Btm: 2013.04.14 @ 04:52:30
Time Off Btm: 2013.04.14 @ 06:44:30

TEST COMMENT: IF: 4 1/4" Blow .
ISI: Bled off for 2 min. No Return.
FF: BOB @ 10 min.
FSI: Bled off for 3 min. 1/4" Return died @ 40 min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2165.98	110.61	Initial Hydro-static
1	28.40	109.19	Open To Flow (1)
6	81.42	114.66	Shut-In(1)
21	328.44	115.49	End Shut-In(1)
22	87.97	115.40	Open To Flow (2)
52	163.06	119.80	Shut-In(2)
112	324.76	119.22	End Shut-In(2)
112	2099.84	120.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
240.00	GMCO 20g 20m 60o	2.03
120.00	GOCM 10g 30o 60m	1.68
0.00	300' GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53114 **DST#: 2**

Test Start: 2013.04.14 @ 02:37:00

GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:52:45
Time Test Ended: 08:51:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Sam Esparza
Unit No: 64

Interval: 4319.00 ft (KB) To 4400.00 ft (KB) (TVD)
Total Depth: 4400.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

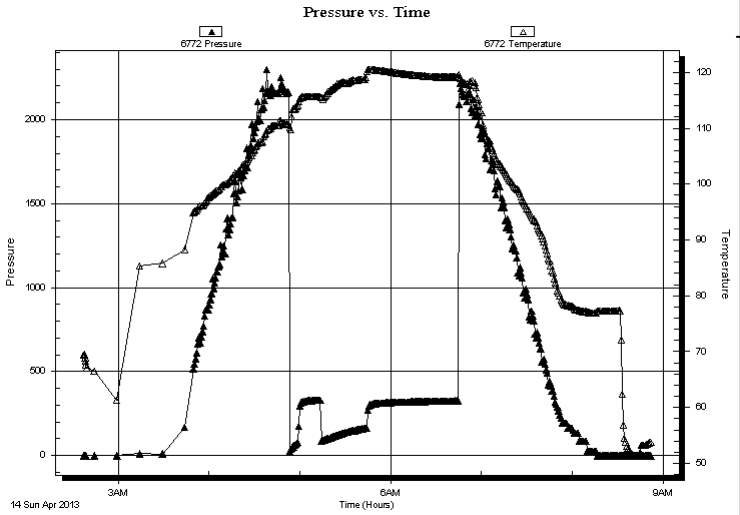
Reference Elevations: 2803.00 ft (KB)
2796.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6772 **Outside**

Press@RunDepth: psig @ 4320.00 ft (KB)
Start Date: 2013.04.14 End Date: 2013.04.14
Start Time: 02:37:05 End Time: 08:51:44

Capacity: 8000.00 psig
Last Calib.: 2013.04.14
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: 4 1/4" Blow .
ISI: Bled off for 2 min. No Return.
FF: BOB @ 10 min.
FSI: Bled off for 3 min. 1/4" Return died @ 40 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
240.00	GMCO 20g 20m 60o	2.03
120.00	GOCM 10g 30o 60m	1.68
0.00	300' GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53114 **DST#: 2**

Test Start: 2013.04.14 @ 02:37:00

Tool Information

Drill Pipe:	Length:	4169.00 ft	Diameter:	3.80 inches	Volume:	58.48 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		75000.00 lb
					Total Volume:	59.20 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		25.00 ft					String Weight:	Initial	65000.00 lb
Depth to Top Packer:		4319.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		81.00 ft							
Tool Length:		109.00 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			4292.00		
Shut In Tool	5.00			4297.00		
Hydraulic tool	5.00			4302.00		
Jars	5.00			4307.00		
Safety Joint	3.00			4310.00		
Packer	5.00			4315.00	28.00	Bottom Of Top Packer
Packer	4.00			4319.00		
Stubb	1.00			4320.00		
Recorder	0.00	6772	Outside	4320.00		
Recorder	0.00	8845	Outside	4320.00		
Perforations	10.00			4330.00		
Change Over Sub	1.00			4331.00		
Drill Pipe	63.00			4394.00		
Change Over Sub	1.00			4395.00		
Bullnose	5.00			4400.00	81.00	Bottom Packers & Anchor
Total Tool Length:	**109.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53114 **DST#: 2**

Test Start: 2013.04.14 @ 02:37:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.59 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2100.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

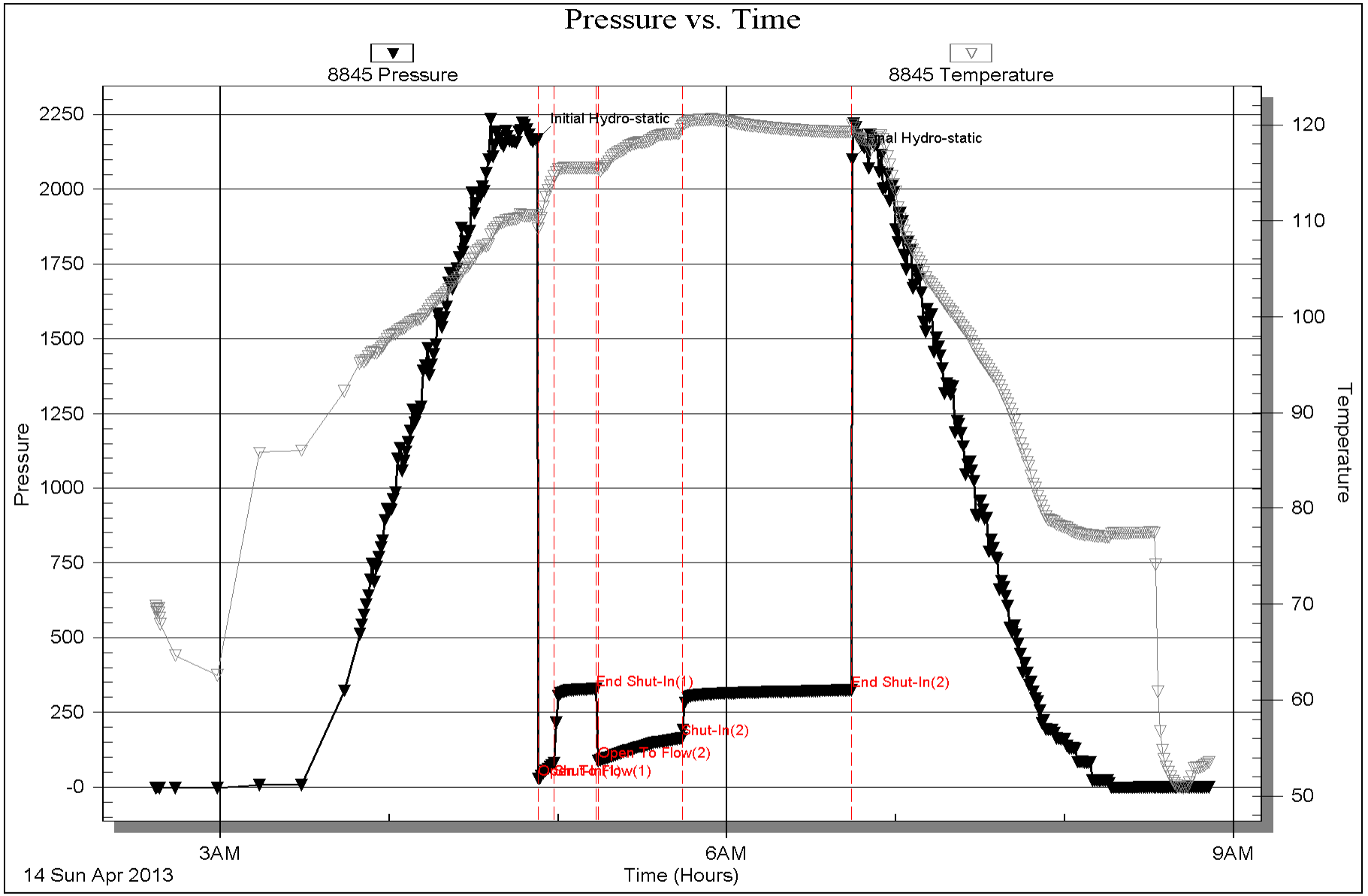
Recovery Table

Length ft	Description	Volume bbl
240.00	GMCO 20g 20m 60o	2.027
120.00	GOCM 10g 30o 60m	1.683
0.00	300' GIP	0.000

Total Length: 360.00 ft Total Volume: 3.710 bbl

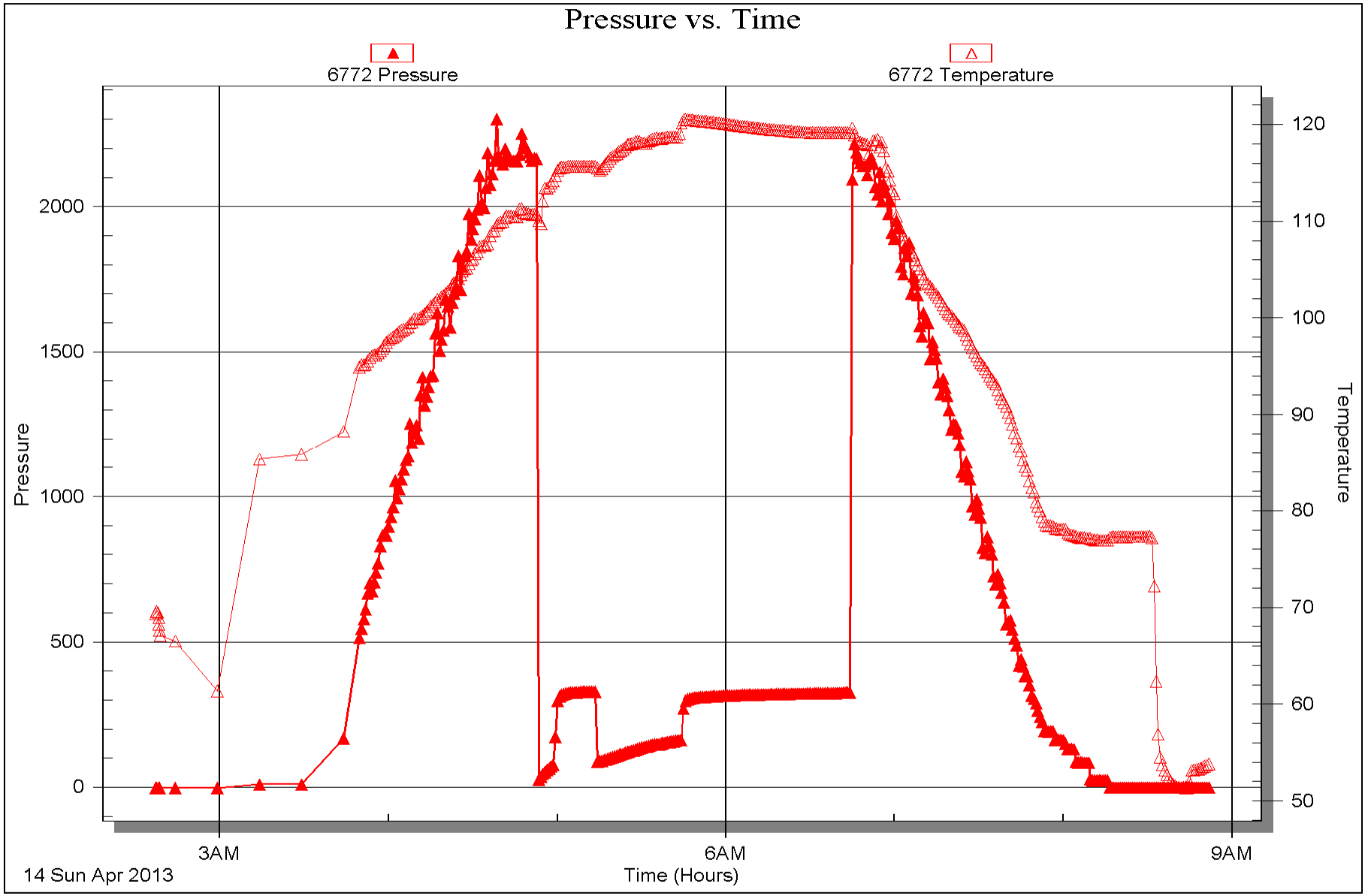
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8845 **Outside** Larson Engineering, Inc. Harper-James #1-22 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 53114 Printed: 2013.04.22 @ 11:53:52

Serial #: 6772 **Outside** Larson Engineering, Inc. Harper-James #1-22 DST Test Number: 2



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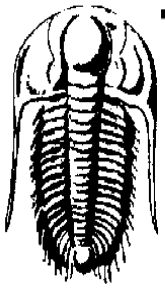


TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

Harper-James #1-22

22-18s-29w Lane,KS

Start Date: 2013.04.15 @ 04:08:00

End Date: 2013.04.15 @ 10:17:00

Job Ticket #: 53115 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.22 @ 11:53:03

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53115 **DST#: 3**

Test Start: 2013.04.15 @ 04:08:00

GENERAL INFORMATION:

Formation: **Pawnee- Ft. Scott**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:27:00
Time Test Ended: 10:17:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Sam Esparza
Unit No: 64

Interval: 4450.00 ft (KB) To 4565.00 ft (KB) (TVD)
Total Depth: 4565.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

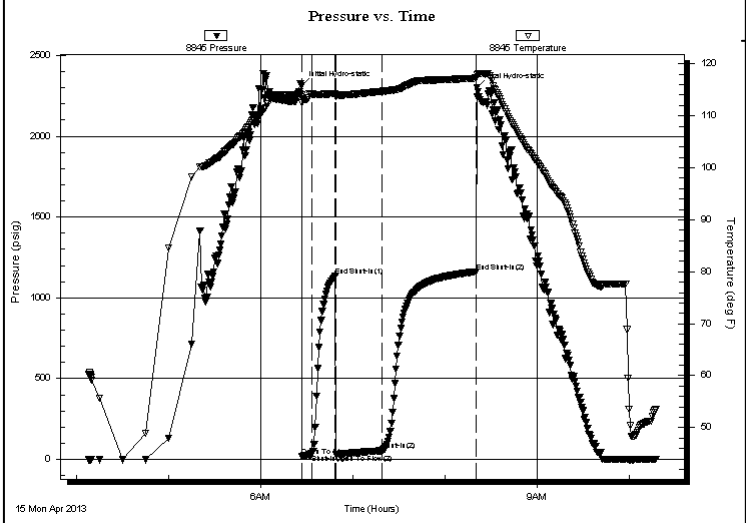
Reference Elevations: 2803.00 ft (KB)
2796.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8845 **Outside**

Press@RunDepth: 54.36 psig @ 4451.00 ft (KB)
Start Date: 2013.04.15 End Date: 2013.04.15
Start Time: 04:08:05 End Time: 10:16:59

Capacity: 8000.00 psig
Last Calib.: 2013.04.15
Time On Btm: 2013.04.15 @ 06:26:45
Time Off Btm: 2013.04.15 @ 08:20:45

TEST COMMENT: IF: 1/2" Blow .
ISI: No Return.
FF: 1" Blow .
FSI: No Return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2315.41	114.01	Initial Hydro-static
1	21.31	112.53	Open To Flow (1)
7	29.95	114.17	Shut-In(1)
22	1135.57	114.30	End Shut-In(1)
22	31.76	113.66	Open To Flow (2)
53	54.36	114.72	Shut-In(2)
113	1161.96	117.27	End Shut-In(2)
114	2300.66	118.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	OCM 15o 85m	0.34

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53115 **DST#: 3**

Test Start: 2013.04.15 @ 04:08:00

GENERAL INFORMATION:

Formation: **Pawnee- Ft. Scott**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:27:00
Time Test Ended: 10:17:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Sam Esparza
Unit No: 64

Interval: 4450.00 ft (KB) To 4565.00 ft (KB) (TVD)
Total Depth: 4565.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

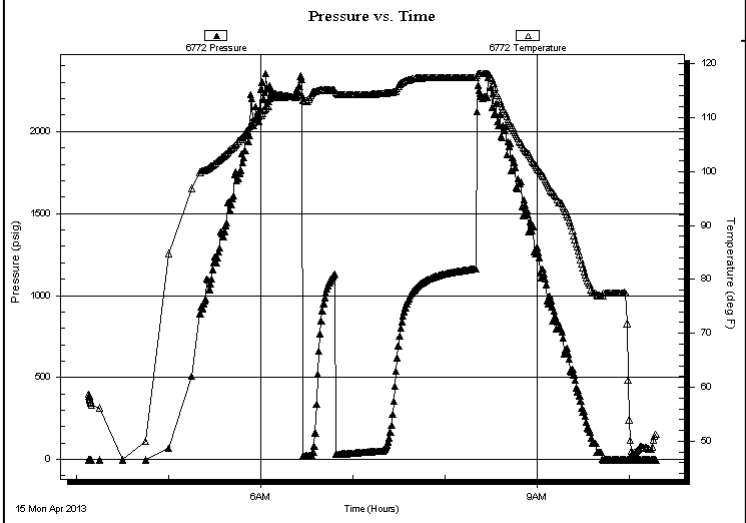
Reference Elevations: 2803.00 ft (KB)
2796.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6772 **Outside**

Press@RunDepth: psig @ 4451.00 ft (KB)
Start Date: 2013.04.15 End Date: 2013.04.15
Start Time: 04:08:05 End Time: 10:17:14

Capacity: 8000.00 psig
Last Calib.: 2013.04.15
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: 1/2" Blow .
ISI: No Return.
FF: 1" Blow .
FSI: No Return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
70.00	OCM 15o 85m	0.34

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53115 **DST#: 3**

Test Start: 2013.04.15 @ 04:08:00

Tool Information

Drill Pipe:	Length:	4295.00 ft	Diameter:	3.80 inches	Volume:	60.25 bbl	Tool Weight:		2000.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:		25000.00 lb
Drill Collar:	Length:	147.00 ft	Diameter:	2.25 inches	Volume:	0.72 bbl	Weight to Pull Loose:		75000.00 lb
					Total Volume:	60.97 bbl	Tool Chased		0.00 ft
Drill Pipe Above KB:		20.00 ft					String Weight:	Initial	65000.00 lb
Depth to Top Packer:		4450.00 ft						Final	65000.00 lb
Depth to Bottom Packer:		ft							
Interval between Packers:		115.00 ft							
Tool Length:		143.00 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			4423.00		
Shut In Tool	5.00			4428.00		
Hydraulic tool	5.00			4433.00		
Jars	5.00			4438.00		
Safety Joint	3.00			4441.00		
Packer	5.00			4446.00	28.00	Bottom Of Top Packer
Packer	4.00			4450.00		
Stubb	1.00			4451.00		
Recorder	0.00	6772	Outside	4451.00		
Recorder	0.00	8845	Outside	4451.00		
Perforations	13.00			4464.00		
Change Over Sub	1.00			4465.00		
Drill Pipe	94.00			4559.00		
Change Over Sub	1.00			4560.00		
Bullnose	5.00			4565.00	115.00	Bottom Packers & Anchor
Total Tool Length:	**143.00**					

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering, Inc.

562 West State Road 4
Olmitz, KS 67564

ATTN: Vern Schrag

22-18s-29w Lane,KS

Harper-James #1-22

Job Ticket: 53115 **DST#: 3**

Test Start: 2013.04.15 @ 04:08:00

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:	7.19 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	2500.00 ppm				
Filter Cake:	2.00 inches				

Recovery Information

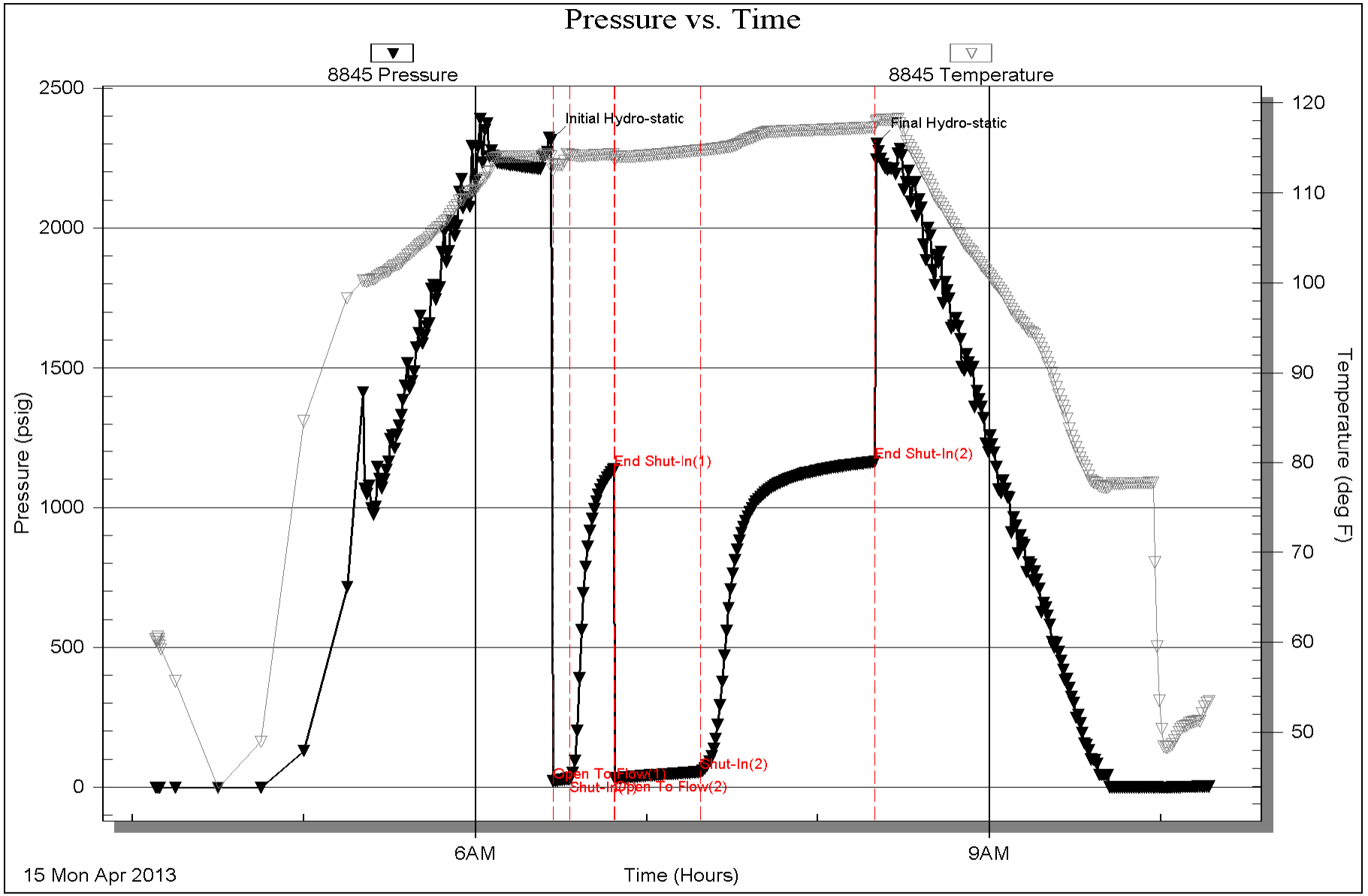
Recovery Table

Length ft	Description	Volume bbl
70.00	OCM 15o 85m	0.344

Total Length: 70.00 ft Total Volume: 0.344 bbl

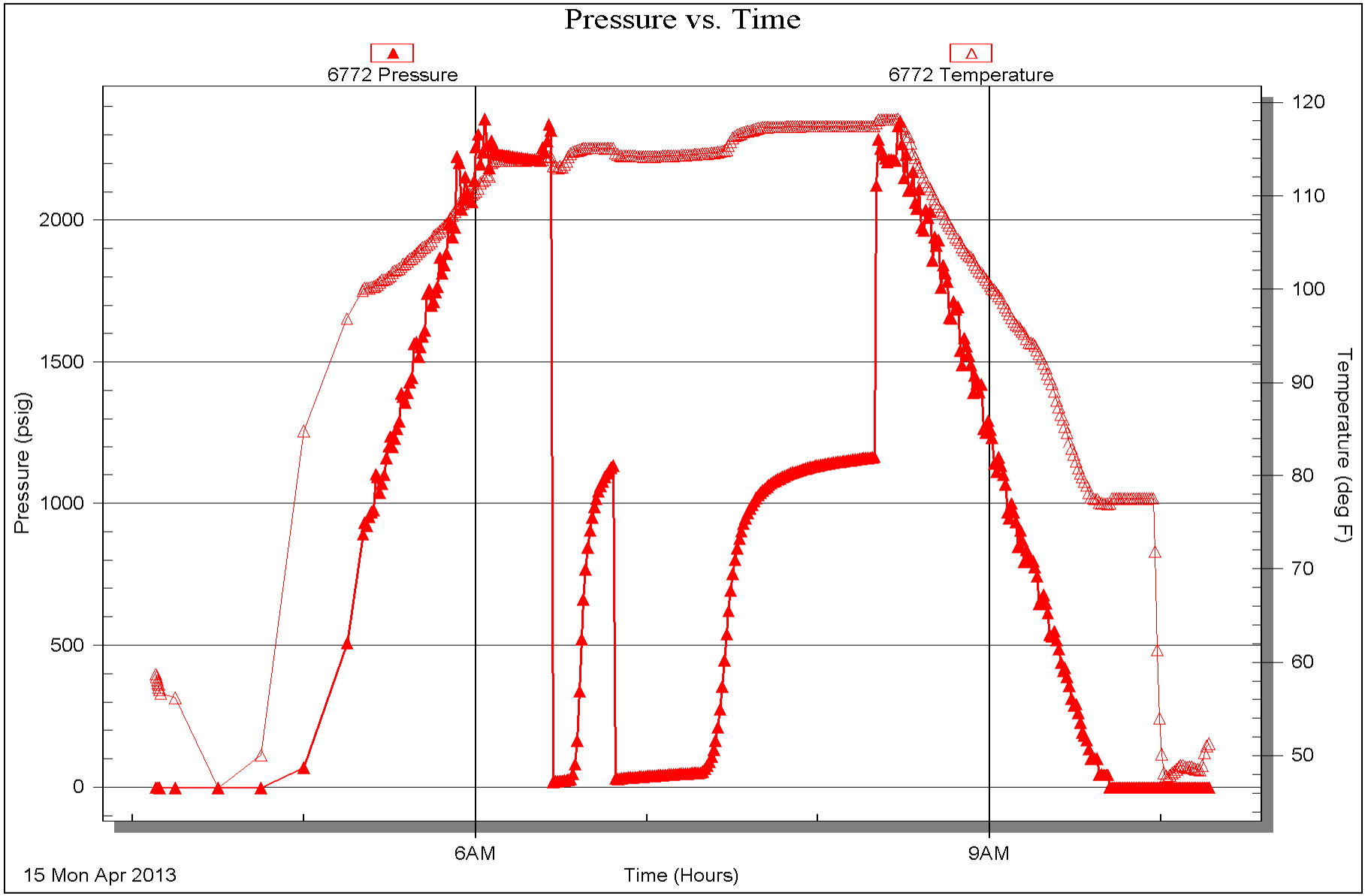
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments:

Serial #: 8845 **Outside** Larson Engineering, Inc. Harper-James #1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 53115 Printed: 2013.04.22 @ 11:53:06

Serial #: 6772 **Outside** Larson Engineering, Inc. Harper-James #1-22 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 53115 Printed: 2013.04.22 @ 11:53:06

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53113

Well Name & No. Harpe-James #1-22 Test No. 1 Date 4/13/13

Company Larson Engineering, Inc. Elevation 2803 KB 2796 GL

Address 562 West State Road 4 Olmitz, KS 67564

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

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

Interval Tested 4274-4305 Zone Tested "L"

Anchor Length 31' Drill Pipe Run 4107 Mud Wt. 9.2

Top Packer Depth 4270 Drill Collars Run 147 Vis 54

Bottom Packer Depth 4274 Wt. Pipe Run 0 WL 8.0

Total Depth 4305 Chlorides 3100 ppm System LCM 1

Blow Description IF: ¼" Blow.
ISI: No Return.
FF: No Blow.
FSI: No Return.

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

Rec Total 5 BHT 114 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2156	☒ Test	1250	T-On Location	6:00
(B) First Initial Flow	14	☒ Jars	250	T-Started	6:44
(C) First Final Flow	15	☒ Safety Joint	75	T-Open	8:54
(D) Initial Shut-In	28	☒ Circ Sub	N/C	T-Pulled	10:01
(E) Second Initial Flow	14	☐ Hourly Standby		T-Out	11:36
(F) Second Final Flow	16	☒ Mileage	44 R/T 68.20	Comments	
(G) Final Shut-In	54	☐ Sampler			
(H) Final Hydrostatic	2103	☐ 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	1643.20
Final Shut-In	30	☐ Accessibility		MP/DST Disc't	
		Sub Total	1643.20		

Approved By Our Representative

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53114

Well Name & No. Harper-James #1-22 Test No. 2 Date 4/14/13

Company Larson Engineering, Inc. Elevation 2803 KB 2796 GL

Address 562 West State Road 4 Olmitz, KS 67564

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

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

Interval Tested 4319-4400 Zone Tested Marmaton

Anchor Length 81' Drill Pipe Run 4169 Mud Wt. 9.2

Top Packer Depth 4315 Drill Collars Run 147 Vis 56

Bottom Packer Depth 4319 Wt. Pipe Run Ø WL 7.6

Total Depth 4400 Chlorides 2100 ppm System LCM 1

Blow Description IF: 4¼" Blow.

ISI: Bled off for 2 min. No Return.

FF: BOB @ 10 Min.

FSI: Bled off for 3 min. ¼" Return died @ 40 min.

Rec 120	Feet of GOCM	10 %gas	30 %oil	%water	60 %mud
Rec 240	Feet of GMCO	20 %gas	60 %oil	%water	20 %mud
Rec	Feet of 300' GIP	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 360 BHT 119 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2166	☒ Test 1250	T-On Location 2:00
(B) First Initial Flow	28	☒ Jars 250	T-Started 2:37
(C) First Final Flow	81	☒ Safety Joint 75	T-Open 4:53
(D) Initial Shut-In	328	☒ Circ Sub N/C	T-Pulled 6:45
(E) Second Initial Flow	88	☐ Hourly Standby	T-Out 8:52
(F) Second Final Flow	163	☒ Mileage 44 R/T 68.20	Comments
(G) Final Shut-In	325	☐ Sampler	
(H) Final Hydrostatic	2100	☐ 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 1643.20
Final Shut-In	60	☐ Accessibility	MP/DST Disc't
		Sub Total 1643.20	

Approved By _____ Our Representative _____

TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

4/10

Test Ticket

NO. 53115

Well Name & No. Harper-James #1-22 Test No. 3 Date 4/15/13

Company Larson Engineering, Inc Elevation 2803 KB 2796 GL

Address 562 West State Road 4 Olmitz, KS 67564

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

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

Interval Tested 4450-4565 Zone Tested Pawnee-Ft. Scott

Anchor Length 115 Drill Pipe Run 4295 Mud Wt. 9.2

Top Packer Depth 4446 Drill Collars Run 147 Vis 57

Bottom Packer Depth 4450 Wt. Pipe Run Ø WL 7.2

Total Depth 4565 Chlorides 2500 ppm System LCM 1

Blow Description IF: ½" Blow.

ISI: No Return.

FF: 1" Blow.

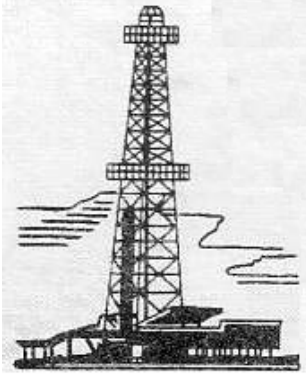
FSI: No return.

Rec 70	Feet of OCM	%gas	15 %oil	%water	85 %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 70 BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic	2315	☒ Test	1250	T-On Location	3:50
(B) First Initial Flow	21	☒ Jars	250	T-Started	4:08
(C) First Final Flow	30	☒ Safety Joint	75	T-Open	6:27
(D) Initial Shut-In	1136	☒ Circ Sub	N/C	T-Pulled	8:19
(E) Second Initial Flow	32	☐ Hourly Standby		T-Out	10:17
(F) Second Final Flow	54	☒ Mileage	44 R/T 68.20	Comments	Loaded tools
(G) Final Shut-In	1162	☐ Sampler			
(H) Final Hydrostatic	2301	☐ Straddle			
		☒ Shale Packer	250	☐ Ruined Shale Packer	
Initial Open	5	☐ Extra Packer		☐ Ruined Packer	
Initial Shut-In	15	☐ Extra Recorder		☐ Extra Copies	
Final Flow	30	☐ Day Standby		Sub Total	0
Final Shut-In	60	☐ Accessibility		Total	1893.20
		Sub Total	1893.20	MP/DST Disc't	

Approved By [signature] Our Representative [signature]



WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST

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

Well Name:	**Harper-James #1-22**		
Location:	**NE NW NE NW SEC. 22-18s-29w**		
Licence Number:	**API: 15-101-22432**	**Region:**	**Lane Co., KS**
Spud Date:	**April 6, 2013**	**Drilling Completed:**	**April 15, 2013**
Surface Coordinates:	**224' FNL & 1916' FWL**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**2796'**	**K.B. Elevation (ft):**	**2803'**
Logged Interval (ft):	**3800' To: RTD**	**Total Depth (ft):**	**4630'**
Formation:	**Mississippi**		
Type of Drilling Fluid:	**Chemical Premix (Displaced)**		

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

OPERATOR:

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

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3

DP 4.5" XH (16.6#); DC 6.25" x 2.25" x 560', Kelly 40.30', Tool Joint 5.5" ; Bit: JZ-21 down to 3315', JZ-20 to RTD, 7-7/8", jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

CASING:

Set 8-5/8" casing at 283'
Set 5-1/2" production casing

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3358-3365'; earth pits, Morgan Mud, Inc., David Lines, Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to suface casing; LogTech-Pioneer Wireline, Hays, KS, Dan Schmidt, Log total depth (4632') was 2 feet long to rotary total depth (4630').

DRILL STEM TEST #1:

LKC "L": Interval: 4274-4305 (31'): Blow: weak 1/4" IFP, no RB, no blow FFP: Times: 5-15-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2156-2103; SIP: 28-54; FP: 14-15, 14-16; BHT: 114 F; Trilobite Testing, Inc., Scott City, KS; Samuel Esparza.

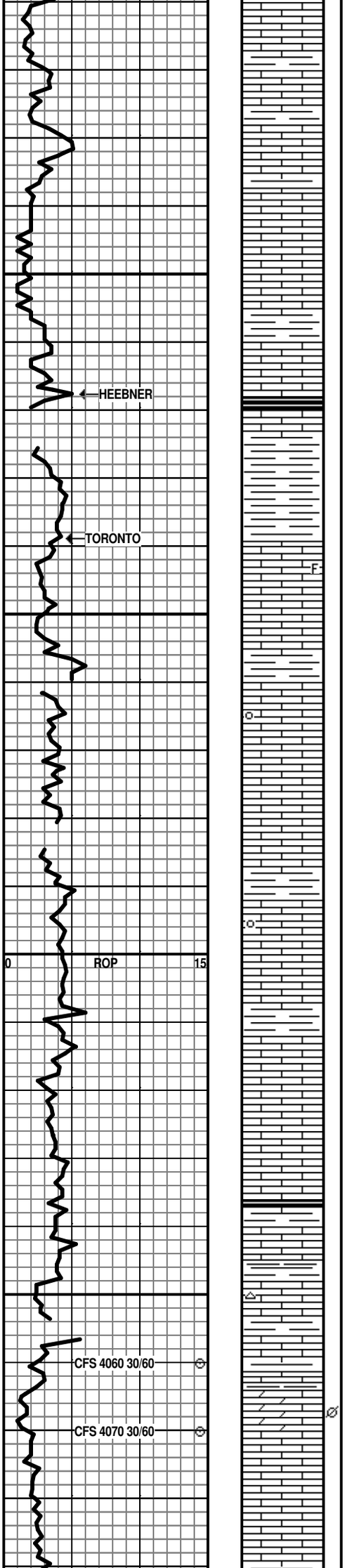
DRILL STEM TEST #2:

Marmaton: Interval: 4319-4400 (81'): Blow incr to 4.5" IFP, no RB, BOB 10 min FFP, weak 1/4" RB died 42 min FSIP; Times: 5-15-30-60: Recovery: 300' GIP, 360' TF: 120' GOCM (10%G, 30%O, 60%M), 240' GMO (20%G, 60%O, 20%M); Pressures: HP: 2166-2100, SIP: 328-325; FP: 28-81, 88-163; BHT: 119 F; Trilobite Testing, Inc., Scott City, KS; Samuel Esparza.

DRILL STEM TEST #3:

Myrick Station through Cherokee Johnson: Interval: 4450-4565 (115'): Blow weak 1/2" IFP, no RB, incr to 1" FFP, no RB; Times: 3-15-30-60; Recovery: 70' SOCM (15%O, 85%M); Pressures: HP: 2315-2301; SIP: 1136-1162; FP: 21-30, 32-54; BHT: 117 F; Trilobite Testing, Inc., Scott City, KS; Samuel Esparza.

ROP ROP (min/ft) Five Ten	DST	Lithology	Porosity and Show	Depth	Geological Descriptions	Total Gas TG (units) Fifty One
0 ROP 15						0 Hot-Wire 100
START DIGITAL ROP 04/11-12:30am				3750	ANHYDRITE 2145 (+658) B/ANHY 2167 (+636)	REFERENCE WELL: DONALD C. SLAWSON, MILLER "AI" #1, SW NW SEC. 22, 18S-29W; MID-CONTINENT ENERGY OPERATING CO., #1-15 JAMES, SW SE NE SW SEC. 15-18S-29W. BIT TRIP @ 3315' CALL GEO: 3315 & 3427, 04/10-7:30am. MORGAN MUD: 3583: 04/10-3pm: VIS 52, WT 8.6, FIL 7.6, CHL 1900, LCM 1#.
START 10' SAMPLES 0 ROP 15				3800	LS: gray & brown w/few dk gray grains; vf-xtal; tight int xtal porosity; N.S. LS: lt gray to brown; mic-vf xtal; chalky in part; no apparent porosity; N.S. LS: lt-brown, minor lt gray; mic-vf xtal; chalky in part; poor apparent porosity; N.S. LS: lt brown; vf-xtal; dense; sli cherty; no visible porosity; N.S.	0 Hot-Wire 100
				3850	LS: as above;	



3900

LS: off-white to lt gray; mic-vf xtal; much soft chalk; poor porosity; N.S.

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

LS: brown, sli mottled gray; mic-vf xtal; dense; no visible porosity; N.S., 3900.

LS: lt-md grayish brown w/tiny dk specks; mic-vf xtal; tight vugular & int xtal porosity; N.S.

LS: as above but seems more chalky;

LS: lt-md grayish brown; vf-xtal; dk shale contacts; poor porosity; N.S.

HEEBNER SH 3918 (-1115)

Shale: black; carbon; many chips 3940.

GEOLOGRAPH PROBLEMS.

Shale: green, gray; trc pyritized micro-fos;

3950

LS: lt brown, vf-xtal; dense; alternating with soft, white, mic-xtal chalk; even dull mineral fluor; v-poor porosity; N.S., trace 3950 then floods 3960.

LANSING 3962 (-1159)

GEOLOGRAPH PROBLEMS.

LS: lt brown; vf-xtal; dense to chalky in part; oolitic in part; poor int ool & scattered vug porosity; dull fluor; N.S.

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

GEOLOGRAPH PROBLEMS.

Shale: dk gray;

LS: white to lt brown; mic-vf xtal; finely oolitic to oomoldic in part; chalky portions; N.S.

4000

0 Hot-Wire 100

LS: as above, trace shell impressions;

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

MORGAN MUD: 4015: 04/11-4pm: VIS 54, WT 9.0, FIL 7.2, CHL 3000, LCM 1#.

LS: as above;

Shale: black; trace 4050.

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

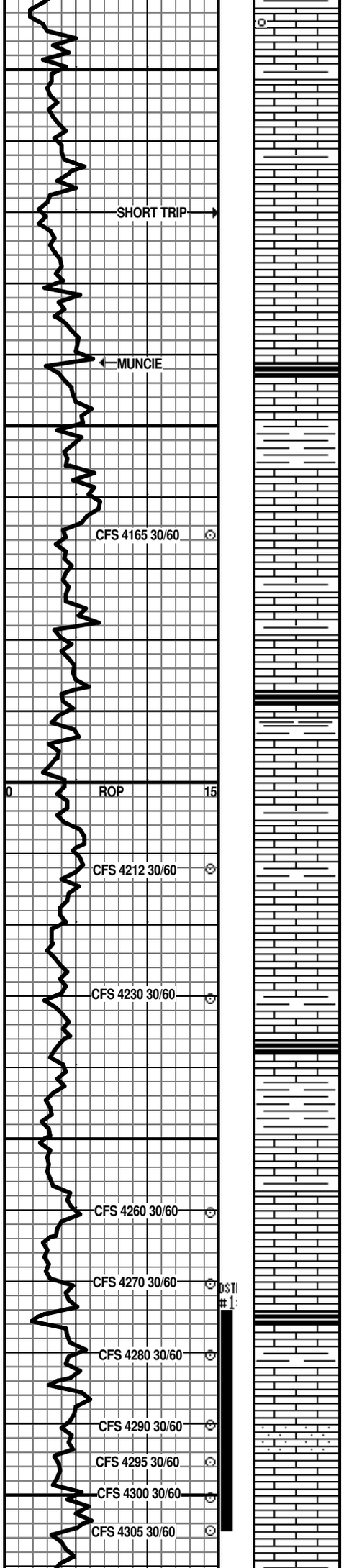
4050

LS: white to lt brown; mic-vf xtal; includes milky chert w/gray fragments; washes white; poor porosity; N.S.

LS: white; v-chalky; poor porosity; N.S.

LS: tan, brown; vf-xtal; dolomitic; tight int xtal porosity; N.S., 4070-30 & 60m.

LS: white to lt brown; mic-vf xtal; chalky in part; dolomitic as above with scattered oolitic to oomoldic; tight int xtal & poor oom por; N.S.



4100

LS: lt-md brown; vf-xtal; coarsely oolitic to oomoldic; poor oomoldic porosity; N.S., 4110.

LS: as above with much soft chalk;

LS: lt brown; vf-xtal; dense; includes white to lt gray opaq chert; no visible porosity; N.S., 4130.

CIRC 15 MIN AT 4120', PERFORM 15 STAND SHORT TRIP, CIRC 15 MIN BEFORE DRILLING AHEAD.

LS: as above including md brown, f-xtal; tight vug porosity; N.S.

MUNCIE CREEK 4141 (-1338)

Shale: black; carbon; 4150.

LS: md grayish brown; vf-xtal; sli shaley; trc fos; mostly dense; no visible porosity; N.S.

4150

Shale: dk gray, green;

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

LS: lt-md brown; vf-xtal; fine oomoldic & vug porosity; N.S., circ(s).

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

LS: lt-gray; mic-vf xtal; smooth; no visible prosity; N.S.

Shale: black; trace 4200.

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

LS: lt gray to lt brown; mic-vf xtal; sli oolitic; chalky in part; trace pin-point porosity; N.S.

4200

0 Hot-Wire 100

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

LS: md grayish brown alternating w/lt gray; mic-vf xtal; chalky in part; no visible porosity; N.S.

LS: lt-md & dk grayish brown; vf-xtal; dense; sli chalky in part; trace pin point porosity; v-dull fluor; N.S.

STARK SH 4236 (-1433)

(Corrected Top)

Shale: black; poorly expressed;

4250

LS: white, lt gray; mic-vf xtal; much soft chalk, washes white; many green, dk-gray shale contacts; v-dull fluor; poor porosity; N.S.

LS: lt gray to lt brown; vf-xtal; dense to chalky; includes opaq chert; poor porosity; N.S.

MORGAN MUD: 4260: 04/12-3pm: VIS 54, WT 9.2, FIL 8.0, CHL 3100, LCM 1#

LS: as above w/dk shale specks and streaks;

HUSHPUCKNEY 4274 (-1471)

Shale: black; carbon; many chips 1/2 hour.

LS: dk brown; vf-xtal; dense; trace spar; no visible porosity; N.S., 4280 30m, incr 60m.

LS: lt grayish brown; vf-xtal; v-fine granular; poor porosity; N.S., 4290 circ(s).

DST #1: L-ZONE: 4274-4305: WEAK BLOW DIED FFP; 5-15-15-30; 5' MUD; SIP: 28-54, FP: 14-15, 14-16.

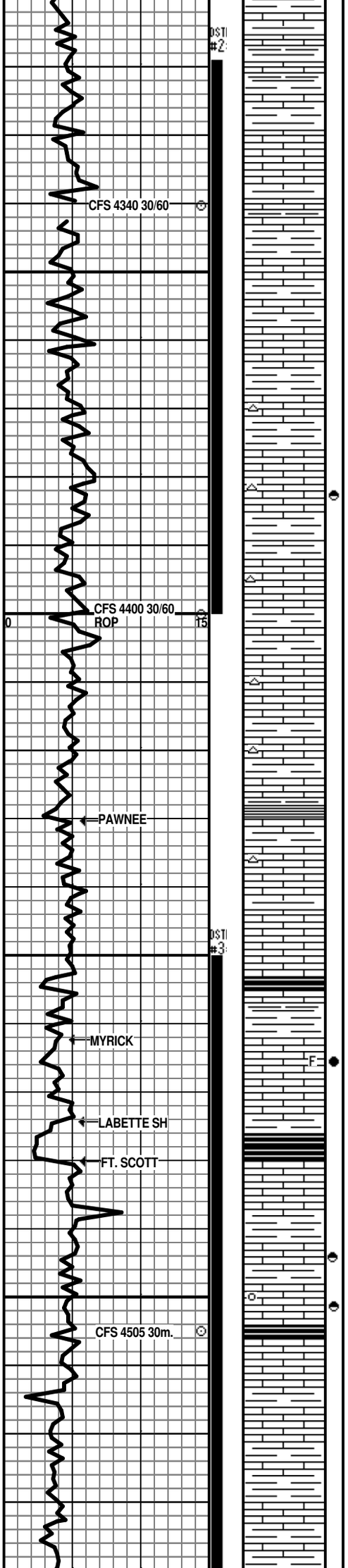
LS: lt gray to brn, sli greenish; vf-xtal; silty; scattered pin-point porosity; N.S., 4295 circ(s).

CIRC 30 MIN AFTER DST.

4300

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

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



4350

4400

4450

4500

Shale: gray, green;

LS: gray to brown; chaky to dense; trc chert; no visible porosity; N.S.

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

Shale: gray, green;

LS: lt-brown; vf xtal; dense, sli fos, minor soft chalk; poor porosity; N.S.

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

LS: lt gray; vf-xtal; trace orange chert; trc oolite; poor porosity; N.S.

LS: white; mic-xtal; chalky but firm; trace bright yel fluor, v-fine vugular porosity yields micro-drops brown oil; no odor; 1 chip 4390, sli incr 4400.

LS: lt-brown; vf-xtal; dense to chalky in part; orange opaq chert; no visible porosity; N.S.

LS: lt gray; mic-vf xtal; dense to chalky in part; includes minor orange chert; granular in part; poor porosity; N.S.

LS: as above.

Shale: dk gray;

PAWNEE 4430 (-1627)

LS: off white to lt gray or brown; mic-vf xtal; chalky portions; includes mostly gray semi- opaq chert; poor porosity; N.S.

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

Shale: black: carbon: 4470.

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

Shale: green, gray;

LS: lt gray; mic-vf xtal; chalky in part; fine vugular porosity, v-light spotted stain & v-sli show oil; bright yel-wht fluor, trc 4470 then 5-10% of 4480.

Shale: black; carbon; 4490.

FT. SCOTT 4480 (-1677)

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

LS: lt-md grayish brown; vf-xtal; trc md oolite w/tight int ool porosity, lt brn stain along with lt gray lime w/fine vug por & sptd fluor; no oil show; 4500, 4505.

CHEROKEE 4505 (-1702)

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

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

LS: lt -dk browns; vf-xtal; dense; some w/dark shale contacts; no visible porosity; N.S.

LS/Shale as above;

MORGAN MUD: 4330: 04/13-4pm: VIS 56, WT 9.2, FIL 7.6, CHL 2100, LCM 1#.

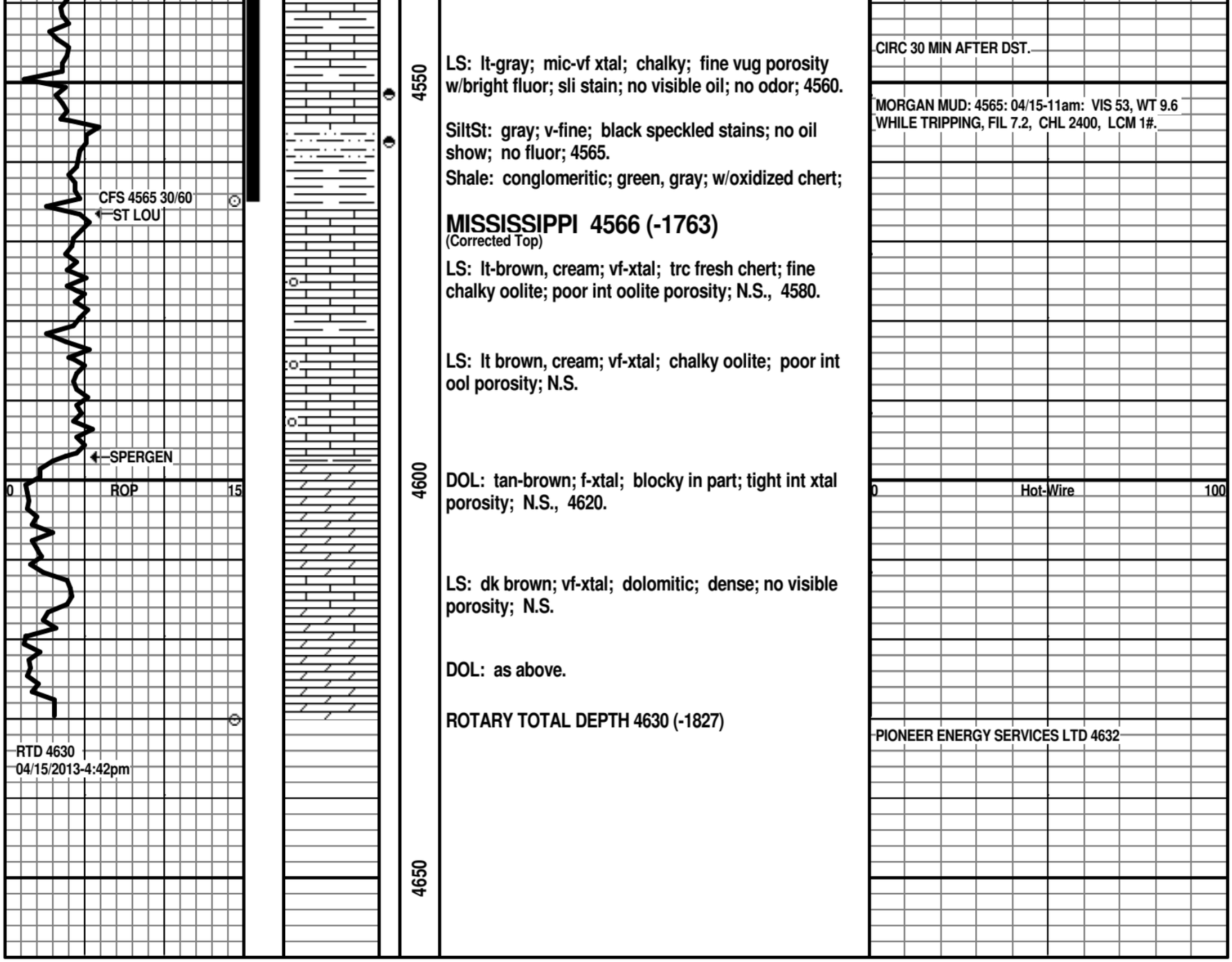
DST #2: MARM: 4319-4400: 4" BLOW IFP, BOB 10 MIN FFP, WEAK RB; 5-15- 30-60; 360' OCM; SIP: 328-325; FP: 28-81, 88-163.

CIRC 60 MIN AFTER DST.

0 Hot-Wire 100

MORGAN MUD: 4453: 04/14-4pm: VIS 57, WT 9.2, FIL 7.2, CHL 2500, LCM 1#

DST #3: MYRICK THRU JOHNSON: 4450-4565: 1/2" BLOW IFP: 5-15-30-60; 70' SOCM (15% OIL); SIP: 1136-1162; FP: 21-30, 32-54.


CFS 4565 30/60
ST LOU
SPERGEN
0
ROP
15
RTD 4630
04/15/2013-4:42pm
4550
4600
4650
LS: lt-gray; mic-vf xtal; chalky; fine vug porosity w/bright fluor; sli stain; no visible oil; no odor; 4560.
SiltSt: gray; v-fine; black speckled stains; no oil show; no fluor; 4565.
Shale: conglomeritic; green, gray; w/oxidized chert;
MISSISSIPPI 4566 (-1763)
(Corrected Top)
LS: lt-brown, cream; vf-xtal; trc fresh chert; fine chalky oolite; poor int oolite porosity; N.S., 4580.
LS: lt brown, cream; vf-xtal; chalky oolite; poor int ool porosity; N.S.
DOL: tan-brown; f-xtal; blocky in part; tight int xtal porosity; N.S., 4620.
LS: dk brown; vf-xtal; dolomitic; dense; no visible porosity; N.S.
DOL: as above.
ROTARY TOTAL DEPTH 4630 (-1827)
CIRC 30 MIN AFTER DST.
MORGAN MUD: 4565: 04/15-11am: VIS 53, WT 9.6
WHILE TRIPPING, FIL 7.2, CHL 2400, LCM 1#.
0
Hot-Wire
100
PIONEER ENERGY SERVICES LTD 4632

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

Kansas
Corporation Commission

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

August 01, 2013

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

Re: ACO1
API 15-101-22432-00-00
Harper-James 1-22
NW/4 Sec.22-18S-29W
Lane County, Kansas

Dear Production Department:

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

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

Respectfully,
Thomas Larson