



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1151934
OIL & GAS CONSERVATION DIVISION

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 # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

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: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____



1151934

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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 <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
--	---

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> 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

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

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

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	Larson Engineering, Inc. dba Larson Operating Company
Well Name	Roger 1-20
Doc ID	1151934

Tops

Name	Top	Datum
Anhydrite	2139	+665
Base Anhydrite	2167	+637
Heebner	3973	-1169
Lansing	4017	-1213
Stark Sh	4300	-1496
Marmaton	4431	-1627
Pawnee	4505	-1701
Ft. Scott	4553	-1749
Cherokee	4578	-1774
Mississippi	4643	-1839

ALLIED OIL & GAS SERVICES, LLC 059372

Federal Tax I.D.# 20-5975804

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

SERVICE POINT:
Great Bend, KS

DATE <u>3-20-13</u>	SEC. <u>20</u>	TWP. <u>19S</u>	RANGE <u>25W</u>	CALLED OUT	ON LOCATION <u>5:00pm</u>	JOB START <u>6:30</u>	JOB FINISH <u>7:30pm</u>
LEASE <u>Rogor</u>	WELL# <u>1-20</u>	LOCATION <u>Righton, KS 6S 1E</u>			COUNTY <u>Lawe</u>	STATE <u>KS</u>	
OLD OR NEW (Circle one)			<u>1S E into</u>				

CONTRACTOR <u>H.D. Drilling #3</u>	OWNER
TYPE OF JOB <u>5w Face</u>	
HOLE SIZE <u>12 1/4</u> T.D.	CEMENT
CASING SIZE <u>4 5/8</u> DEPTH <u>284.12</u>	AMOUNT ORDERED <u>175 sks class A</u>
TUBING SIZE DEPTH	<u>3 1/2 c.c. 2 1/2 gal</u>
DRILL PIPE <u>4 1/2</u> DEPTH	
TOOL DEPTH	
PRES. MAX. MINIMUM	COMMON <u>175</u> @ <u>17.90</u> <u>3132.50</u>
MEAS. LINE SHOE JOINT	POZMIX @
CEMENT LEFT IN CSG. <u>15 FT</u>	GEL <u>3</u> @ <u>23.40</u> <u>70.20</u>
PERFS.	CHLORIDE <u>10</u> @ <u>14.00</u> <u>384.00</u>
DISPLACEMENT <u>17.14 bbls Fresh water</u>	ASC @
EQUIPMENT	
PUMP TRUCK CEMENTER <u>Dustin Chambers</u>	
# <u>398</u> HELPER <u>Josh Isaac</u>	
BULK TRUCK	
# <u>610-170</u> DRIVER <u>Mike Goethorn</u>	
BULK TRUCK	
# DRIVER	
	HANDLING <u>188.74</u> @ <u>2.48</u> <u>468.08</u>
	MILEAGE <u>8.62 X 32</u> @ <u>2.60</u> <u>223.84</u>
	TOTAL <u>4771.96</u>

REMARKS:

Break circulation with bit and pump 5 bbls Fresh water About 1 min 175 sks class A 3 1/2 c.c. 2 1/2 gal Displace 17.14 bbls Fresh water shut in Cement did circulation plug Release 1.00 gal Bit Drive

SERVICE

DEPTH OF JOB <u>284</u>	
PUMP TRUCK CHARGE <u>1512.25</u>	
EXTRA FOOTAGE @	
MILEAGE @	
MANIFOLD @	
<u>HVM 32</u> @ <u>7.70</u> <u>246.40</u>	
<u>LVM 32</u> @ <u>4.40</u> <u>140.80</u>	
	TOTAL <u>1899.45</u>

CHARGE TO: Halson 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 6671.41
DISCOUNT -2001.42 IF PAID IN 30 DAYS
4669.99

PRINTED NAME X LEWYNE TRESNER
SIGNATURE X Lewyne Tresner
Thank You!!



CONSOLIDATED
Oil Well Services, LLC

257802

TICKET NUMBER 39423

LOCATION Oakley KS

FOREMAN Miles Shaw

Walt Dinkel

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	
4-2-13	4802	Roger # 1-20	20	19S	28W	Lone	
CUSTOMER <u>Larson Engineering</u>			DIGTA S 30 01 90				
MAILING ADDRESS			1 E 1 S East into				
CITY		STATE	ZIP CODE	TRUCK #	DRIVER	TRUCK #	DRIVER
				450718	Jerry Y		
				4600	Mike P		

JOB TYPE long string HOLE SIZE 7 7/8" HOLE DEPTH 4718 CASING SIZE & WEIGHT 5 1/2" 15.5#
 CASING DEPTH 4717.98 DRILL PIPE _____ TUBING _____ OTHER Pctd @ 2104.62
 SLURRY WEIGHT 138 SLURRY VOL 1.42 WATER gal/sk _____ CEMENT LEFT in CASING 42.16
 DISPLACEMENT 111 bbls DISPLACEMENT PSI 760 MIX PSI 120 RATE _____

REMARKS: Safety meeting & rig up on #D drilling #3. Run casing to bottom Ran their own plant equipment Centralizer on 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 60 baskets on bottom at 102 Post collar tool on top of 60 @ 2104.02' Circulate casing 1 hr Pump 15 bbls HCL mud flush 5 bbls HCL mix 125 slls OWC with 7# Nolsal 3/4" C.D.F. 26 44# flo seal Shutdown Clear pump & lines release plug displace 111 bbls water 760 psi lift plug and 1200 psi Plus hold

Thanks Miles + crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
540C	1	PUMP CHARGE	2950.00	2950.00
5406	30	MILEAGE	5.00	150.00
5407	7.79 TONS	135 Ton Mitsuba delivery min	1.67	410.00
1126	125 slls	OWC	22.55	2818.75
1131	30 slls	60/40 1002	15.10	453.00
1110A	875 #	Nolsal	1.56	490.00
1118B	103 #	Bentonite gel	.25	25.75
1107	38 #	flo seal	2.82	107.16
1137	97 #	C.D.F. 26	9.69	939.93
1142A	2 gal	HCL	39.10	78.20
1141G	500 gal	Mud flush	1.00	500.00
			Subtotal	8022.79
			less 10% discount	282.28
			Subtotal	8030.51
			SALES TAX	306.91
			ESTIMATED TOTAL	8337.42

completed

AUTHORIZATION Colbye Tramm TITLE Pusher

DATE 4-2-13

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.26 @ 14:42:15

End Date: 2013.03.26 @ 20:22:30

Job Ticket #: 49047 DST #: 1

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

Printed: 2013.04.04 @ 10:26:18



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

20-19s-28w Lane,KS

Roger #1-20

Job Ticket: 49047

DST#: 1

Test Start: 2013.03.26 @ 14:42:15

GENERAL INFORMATION:

Formation: **H**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:48:30
 Time Test Ended: 20:22:30
 Interval: **4192.00 ft (KB) To 4214.00 ft (KB) (TVD)**
 Total Depth: 4214.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2802.00 ft (KB)
 2797.00 ft (CF)
 KB to GR/CF: 5.00 ft

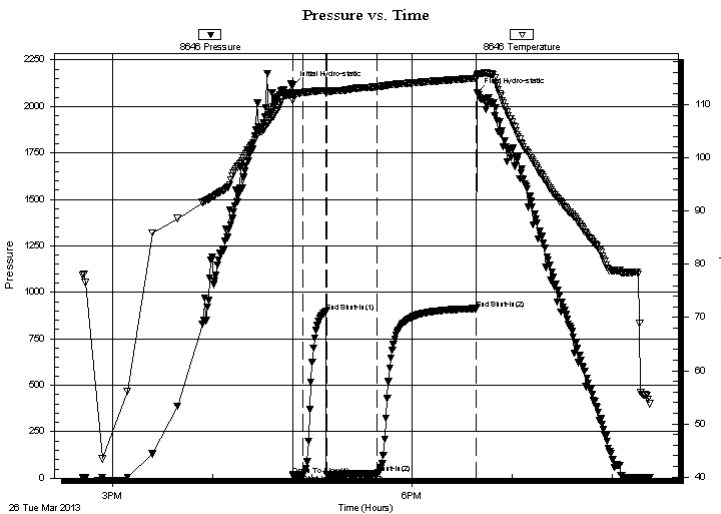
Serial #: 8646

Inside

Press @ Run Depth: 23.85 psig @ 4194.00 ft (KB)
 Start Date: 2013.03.26 End Date: 2013.03.26
 Start Time: 14:42:15 End Time: 20:22:30
 Capacity: 8000.00 psig
 Last Calib.: 2013.03.26
 Time On Btm: 2013.03.26 @ 16:48:15
 Time Off Btm: 2013.03.26 @ 18:39:15

TEST COMMENT: IF: Built to weak surface blow
 IS: No return blow
 FF: Built to 1/8" blow
 FS: No return blow

PRESSURE SUMMARY



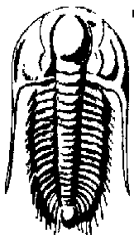
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2111.07	112.27	Initial Hydro-static
1	16.06	110.80	Open To Flow (1)
6	18.06	112.26	Shut-In(1)
20	896.71	112.65	End Shut-In(1)
21	19.88	112.17	Open To Flow (2)
51	23.85	113.35	Shut-In(2)
110	912.87	114.96	End Shut-In(2)
111	2076.03	115.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mud with oil spots	0.15

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

20-19s-28w Lane, KS

Roger #1-20

Job Ticket: 49047

DST#: 1

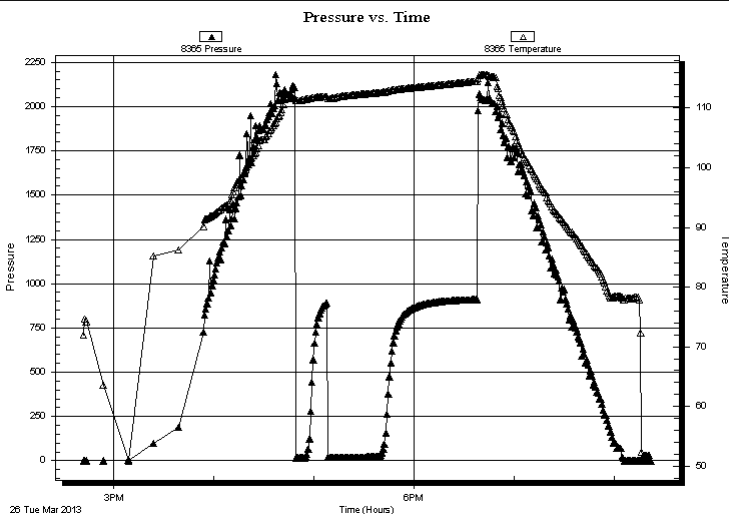
Test Start: 2013.03.26 @ 14:42:15

GENERAL INFORMATION:

Formation:	H			
Deviated:	No	Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened:	16:48:30			Tester: Mike Roberts
Time Test Ended:	20:22:30			Unit No: 65
Interval:	4192.00 ft (KB) To	4214.00 ft (KB) (TVD)		Reference Elevations:
Total Depth:	4214.00 ft (KB) (TVD)			2802.00 ft (KB)
Hole Diameter:	7.88 inches	Hole Condition: Fair		2797.00 ft (CF)
				KB to GR/CF: 5.00 ft

Serial #: 8365	Outside				
Press @ Run Depth:	psig @	4194.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2013.03.26	End Date:	2013.03.26	Last Calib.:	2013.03.26
Start Time:	14:41:45	End Time:	20:22:30	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: IF: Built to weak surface blow
 IS: No return blow
 FF: Built to 1/8" blow
 FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	mud w ith oil spots	0.15

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49047

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.03.26 @ 14:42:15

Tool Information

Drill Pipe:	Length: 4045.00 ft	Diameter: 3.80 inches	Volume: 56.74 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 57.47 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	29.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4192.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4165.00	
Shut In Tool	5.00			4170.00	
Hydraulic tool	5.00		Inside	4175.00	
Jars	5.00			4180.00	
Safety Joint	3.00			4183.00	
Packer	5.00			4188.00	28.00 Bottom Of Top Packer
Packer	4.00			4192.00	
Stubb	1.00			4193.00	
Perforations	1.00			4194.00	
Recorder	0.00	8646	Inside	4194.00	
Recorder	0.00	8365	Outside	4194.00	
Perforations	15.00			4209.00	
Bullnose	5.00			4214.00	22.00 Bottom Packers & Anchor

Total Tool Length: 50.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49047

DST#: 1

ATTN: Vern Schrag

Test Start: 2013.03.26 @ 14:42:15

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: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.11 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2100.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	mud w ith oil spots	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

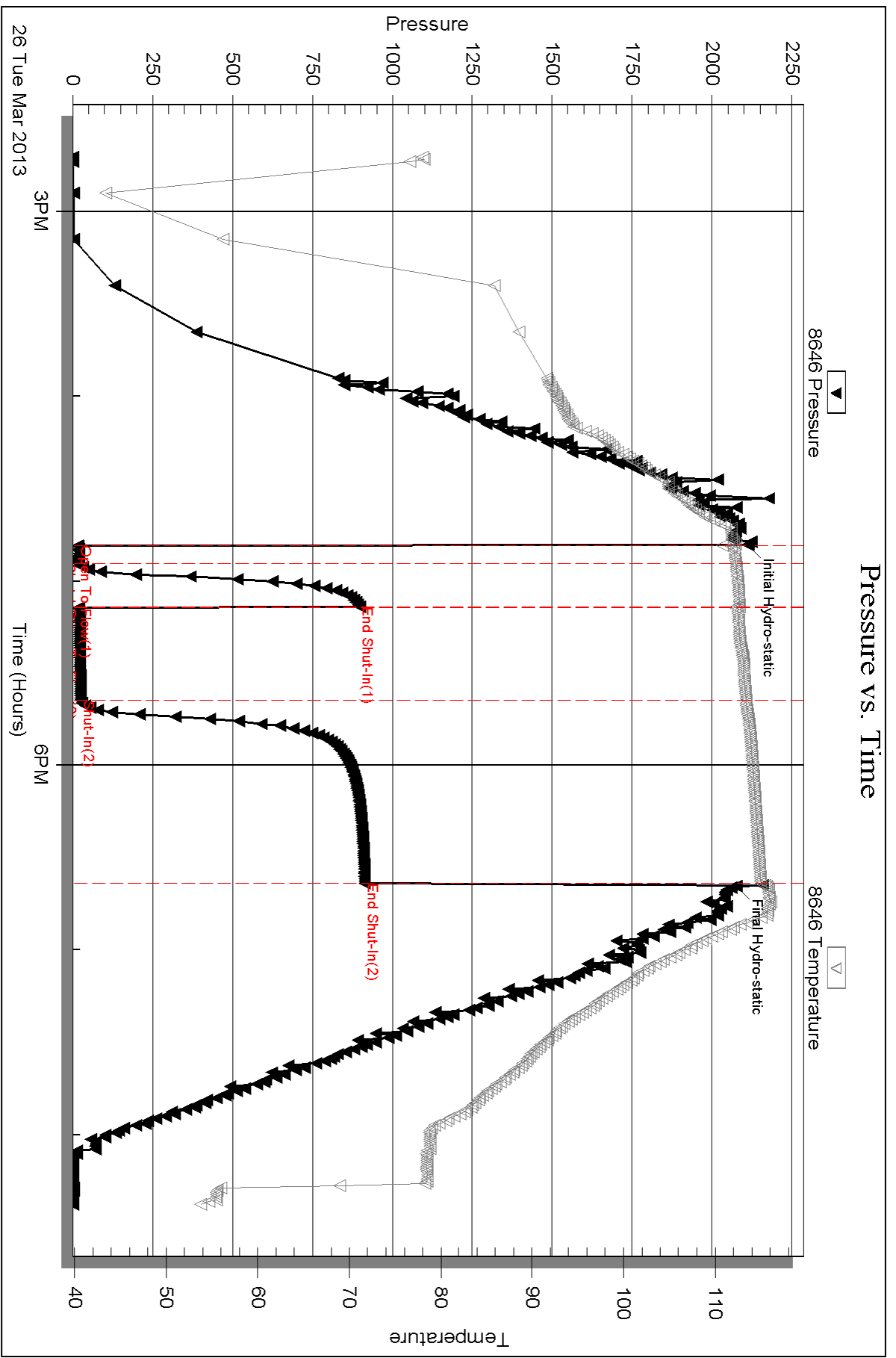
Num Gas Bombs: 0

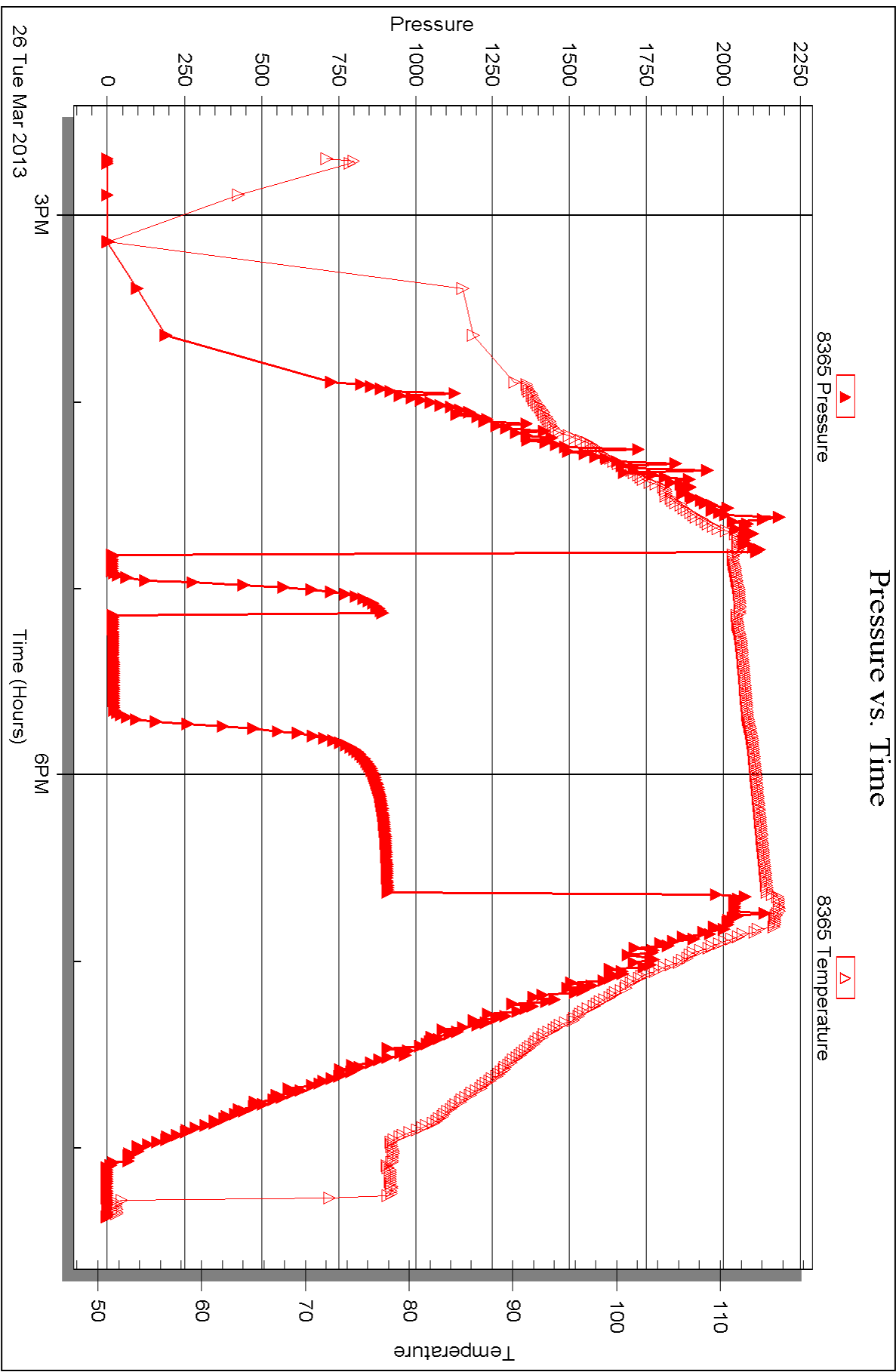
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.27 @ 05:55:15

End Date: 2013.03.27 @ 11:23:00

Job Ticket #: 49048 DST #: 2

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

Printed: 2013.04.04 @ 10:25:44



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

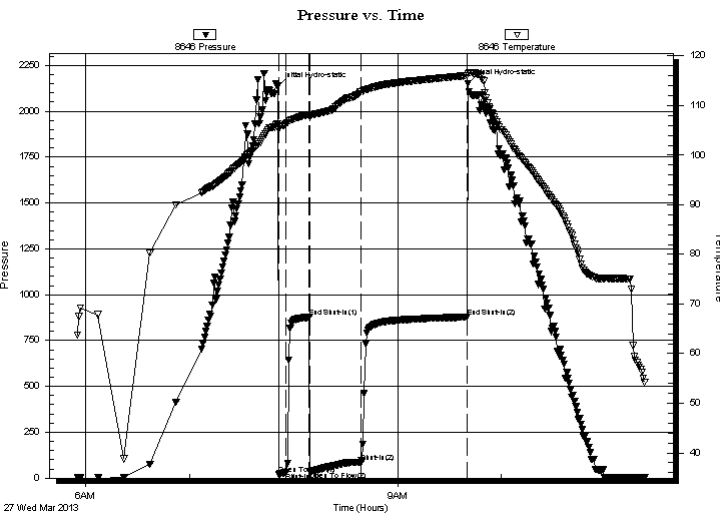
20-19s-28w Lane,KS
Roger #1-20
 Job Ticket: 49048 **DST#: 2**
 Test Start: 2013.03.27 @ 05:55:15

GENERAL INFORMATION:

Formation: **I**
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**
 Time Tool Opened: **07:51:30** Tester: **Mike Roberts**
 Time Test Ended: **11:23:00** Unit No: **65**
Interval: 4235.00 ft (KB) To 4260.00 ft (KB) (TVD) Reference Elevations: **2802.00 ft (KB)**
 Total Depth: **4260.00 ft (KB) (TVD)** **2797.00 ft (CF)**
 Hole Diameter: **7.88 inches** Hole Condition: **Fair** KB to GR/CF: **5.00 ft**

Serial #: 8646 **Inside**
 Press @ Run Depth: **86.92 psig @ 4240.00 ft (KB)** Capacity: **8000.00 psig**
 Start Date: **2013.03.27** End Date: **2013.03.27** Last Calib.: **2013.03.27**
 Start Time: **05:55:15** End Time: **11:23:00** Time On Btm: **2013.03.27 @ 07:51:00**
 Time Off Btm: **2013.03.27 @ 09:40:45**

TEST COMMENT: IF: Built to 1 1/2" blow
 IS: No return blow
 FF: Built to 8" blow
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2134.65	106.37	Initial Hydro-static
1	21.16	105.17	Open To Flow (1)
5	32.30	106.34	Shut-In(1)
18	876.61	108.22	End Shut-In(1)
19	36.60	107.65	Open To Flow (2)
48	86.92	112.82	Shut-In(2)
109	876.86	116.04	End Shut-In(2)
110	2150.06	116.43	Final Hydro-static

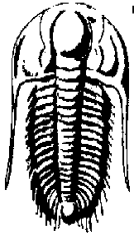
Recovery

Length (ft)	Description	Volume (bbl)
10.00	free oil	0.05
20.00	gcmo 10%g 40%m 50 %o	0.10
148.00	ocm 40%o 60%m	1.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

20-19s-28w Lane,KS

Roger #1-20

Job Ticket: 49048

DST#: 2

Test Start: 2013.03.27 @ 05:55:15

GENERAL INFORMATION:

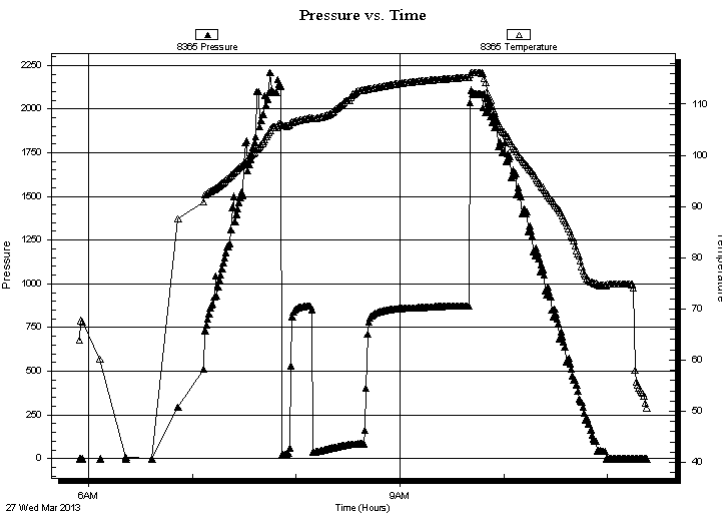
Formation: I				Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock:		ft (KB)		Tester: Mike Roberts
Time Tool Opened: 07:51:30				Unit No: 65
Time Test Ended: 11:23:00				
Interval: 4235.00 ft (KB) To 4260.00 ft (KB) (TVD)				Reference Elevations: 2802.00 ft (KB)
Total Depth: 4260.00 ft (KB) (TVD)				2797.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair			KB to GR/CF: 5.00 ft

Serial #: 8365

Outside

Press @ RunDepth:	psig @	4240.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2013.03.27	End Date:	2013.03.27	Last Calib.:	2013.03.27
Start Time:	05:55:00	End Time:	11:22:45	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: IF:Built to 1 1/2" blow
IS:No return blow
FF:Built to 8" blow
FS:No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	free oil	0.05
20.00	gcmo 10%g 40%m 50 %o	0.10
148.00	ocm 40%o 60%m	1.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49048

DST#: 2

ATTN: Vern Schrag

Test Start: 2013.03.27 @ 05:55:15

Tool Information

Drill Pipe:	Length: 4077.00 ft	Diameter: 3.80 inches	Volume: 57.19 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 57.92 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4235.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	25.00 ft			
Tool Length:	53.00 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			4208.00	
Shut In Tool	5.00			4213.00	
Hydraulic tool	5.00		Inside	4218.00	
Jars	5.00			4223.00	
Safety Joint	3.00			4226.00	
Packer	5.00			4231.00	28.00 Bottom Of Top Packer
Packer	4.00			4235.00	
Stubb	1.00			4236.00	
Perforations	4.00			4240.00	
Recorder	0.00	8646	Inside	4240.00	
Recorder	0.00	8365	Outside	4240.00	
Perforations	15.00			4255.00	
Bullnose	5.00			4260.00	25.00 Bottom Packers & Anchor

Total Tool Length: 53.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49048

DST#: 2

ATTN: Vern Schrag

Test Start: 2013.03.27 @ 05:55:15

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.12 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
10.00	free oil	0.049
20.00	gcmo 10%g 40%m 50 %o	0.098
148.00	ocm 40%o 60%m	1.001

Total Length: 178.00 ft

Total Volume: 1.148 bbl

Num Fluid Samples: 0

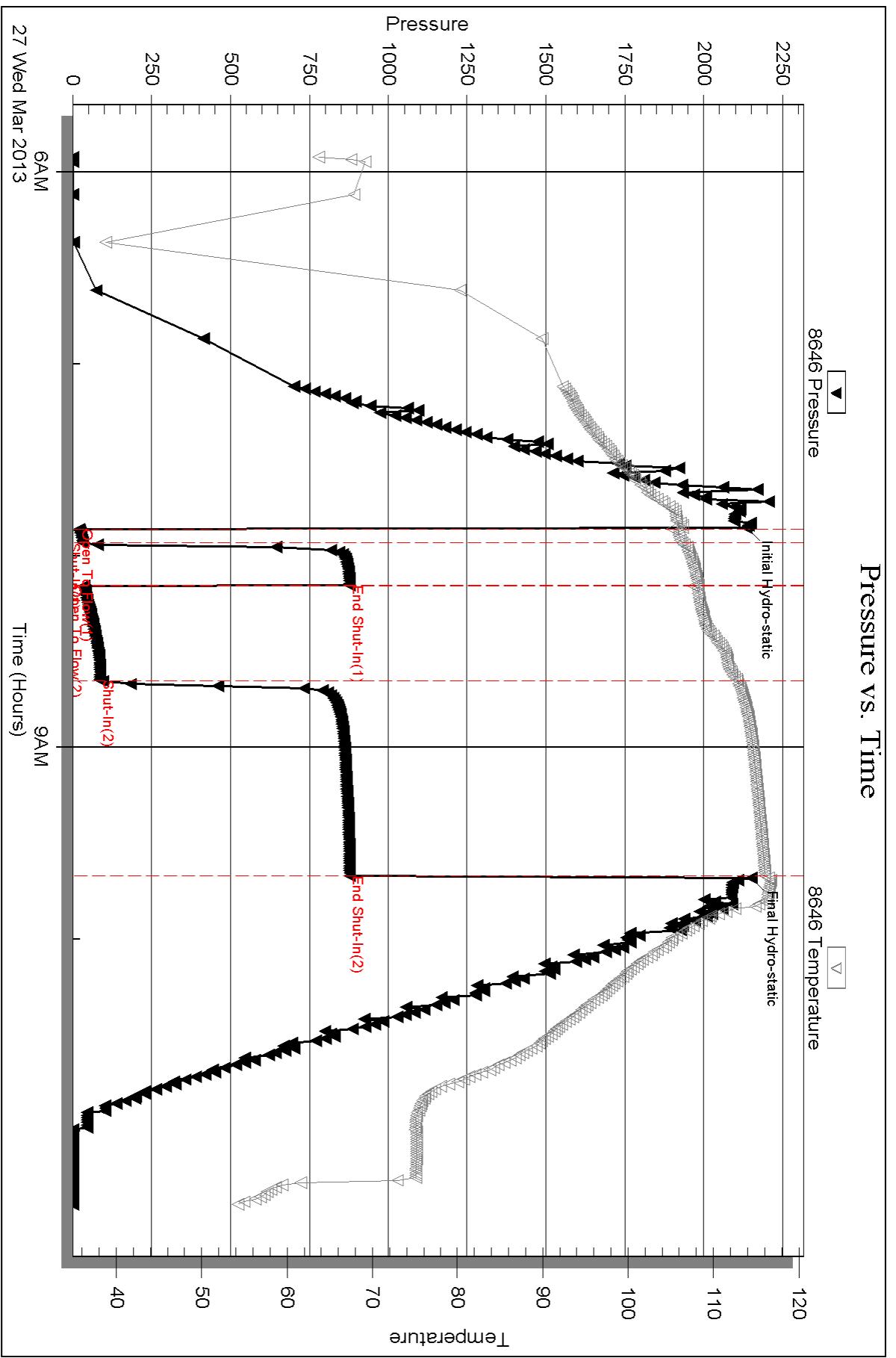
Num Gas Bombs: 0

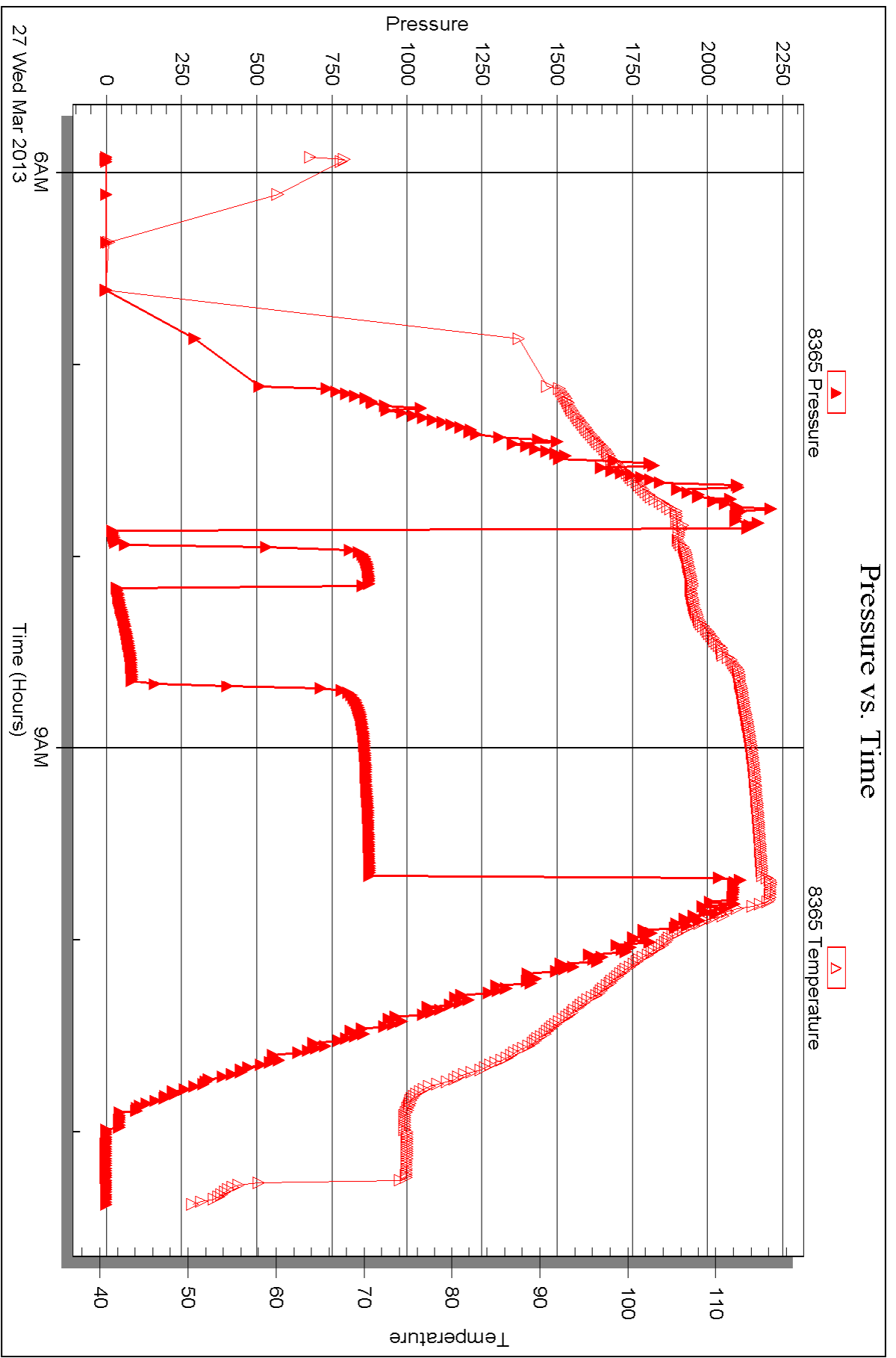
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.27 @ 20:44:15

End Date: 2013.03.28 @ 02:37:45

Job Ticket #: 49049 DST #: 3

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

Printed: 2013.04.04 @ 10:25:04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
 Job Ticket: 49049 **DST#: 3**
 Test Start: 2013.03.27 @ 20:44:15

GENERAL INFORMATION:

Formation: **J**
 Deviated: **No** Whipstock: **ft (KB)** Test Type: **Conventional Bottom Hole (Reset)**
 Time Tool Opened: **23:07:45** Tester: **Mike Roberts**
 Time Test Ended: **02:37:45** Unit No: **65**
Interval: 4265.00 ft (KB) To 4278.00 ft (KB) (TVD) Reference Elevations: **2802.00 ft (KB)**
 Total Depth: **4278.00 ft (KB) (TVD)** **2797.00 ft (CF)**
 Hole Diameter: **7.88 inches** Hole Condition: **Fair** KB to GR/CF: **5.00 ft**

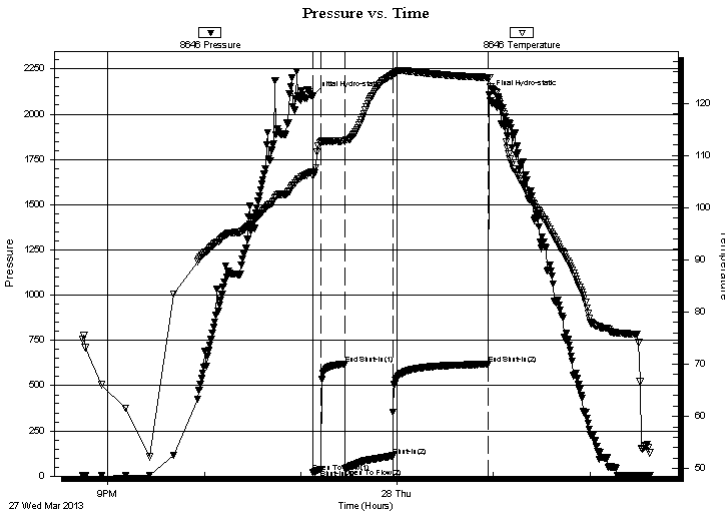
Serial #: 8646

Inside

Press @ RunDepth: **111.31 psig @ 4268.00 ft (KB)** Capacity: **8000.00 psig**
 Start Date: **2013.03.27** End Date: **2013.03.28** Last Calib.: **2013.03.28**
 Start Time: **20:44:15** End Time: **02:37:45** Time On Btm: **2013.03.27 @ 23:07:30**
 Time Off Btm: **2013.03.28 @ 00:57:30**

TEST COMMENT: IF: Built to 2" blow
 IS: No return blow
 FF: Built to 8" blow
 FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2101.22	106.83	Initial Hydro-static
1	21.51	106.04	Open To Flow (1)
5	39.06	112.53	Shut-In(1)
20	619.93	112.79	End Shut-In(1)
20	41.24	112.60	Open To Flow (2)
50	111.31	125.40	Shut-In(2)
110	618.57	124.92	End Shut-In(2)
110	2107.06	124.86	Final Hydro-static

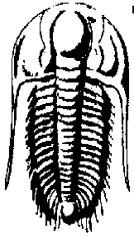
Recovery

Length (ft)	Description	Volume (bbl)
88.00	w cm 40% w 60% m	0.43
120.00	ocm 2% o 98% m	1.14

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49049

DST#: 3

ATTN: Vern Schrag

Test Start: 2013.03.27 @ 20:44:15

GENERAL INFORMATION:

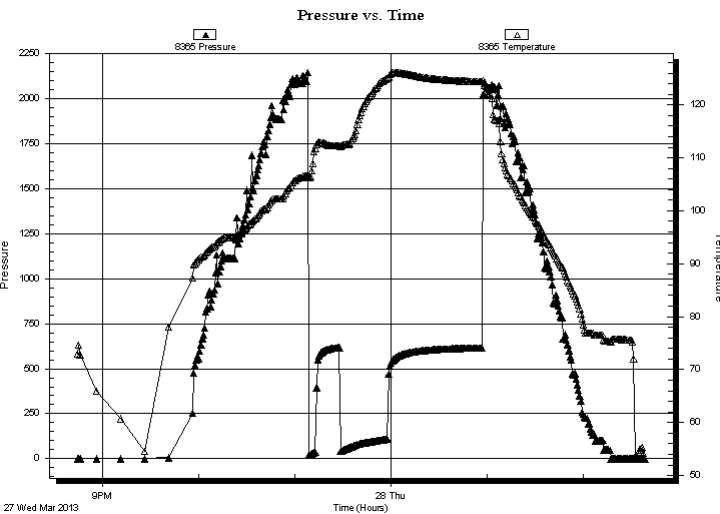
Formation: **J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:07:45
 Time Test Ended: 02:37:45
 Interval: **4265.00 ft (KB) To 4278.00 ft (KB) (TVD)**
 Total Depth: 4278.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2802.00 ft (KB)
 2797.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8365

Outside

Press @ Run Depth: psig @ 4268.00 ft (KB)
 Start Date: 2013.03.27 End Date: 2013.03.28
 Start Time: 20:44:15 End Time: 02:38:15
 Capacity: 8000.00 psig
 Last Calib.: 2013.03.28
 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Built to 2" blow
 IS: No return blow
 FF: Built to 8" blow
 FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
88.00	w cm 40% w 60% m	0.43
120.00	ocm 2% o 98% m	1.14

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49049

DST#: 3

ATTN: Vern Schrag

Test Start: 2013.03.27 @ 20:44:15

Tool Information

Drill Pipe:	Length: 4106.00 ft	Diameter: 3.80 inches	Volume: 57.60 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4265.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	13.00 ft			
Tool Length:	41.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4238.00	
Shut In Tool	5.00			4243.00	
Hydraulic tool	5.00		Inside	4248.00	
Jars	5.00			4253.00	
Safety Joint	3.00			4256.00	
Packer	5.00			4261.00	28.00 Bottom Of Top Packer
Packer	4.00			4265.00	
Stubb	1.00			4266.00	
Perforations	2.00			4268.00	
Recorder	0.00	8646	Inside	4268.00	
Recorder	0.00	8365	Outside	4268.00	
Perforations	5.00			4273.00	
Bullnose	5.00			4278.00	13.00 Bottom Packers & Anchor

Total Tool Length: 41.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49049

DST#: 3

ATTN: Vern Schrag

Test Start: 2013.03.27 @ 20:44:15

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:

19000 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.54 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
88.00	w cm 40% w 60%m	0.433
120.00	ocm 2% o 98%m	1.137

Total Length: 208.00 ft Total Volume: 1.570 bbl

Num Fluid Samples: 0

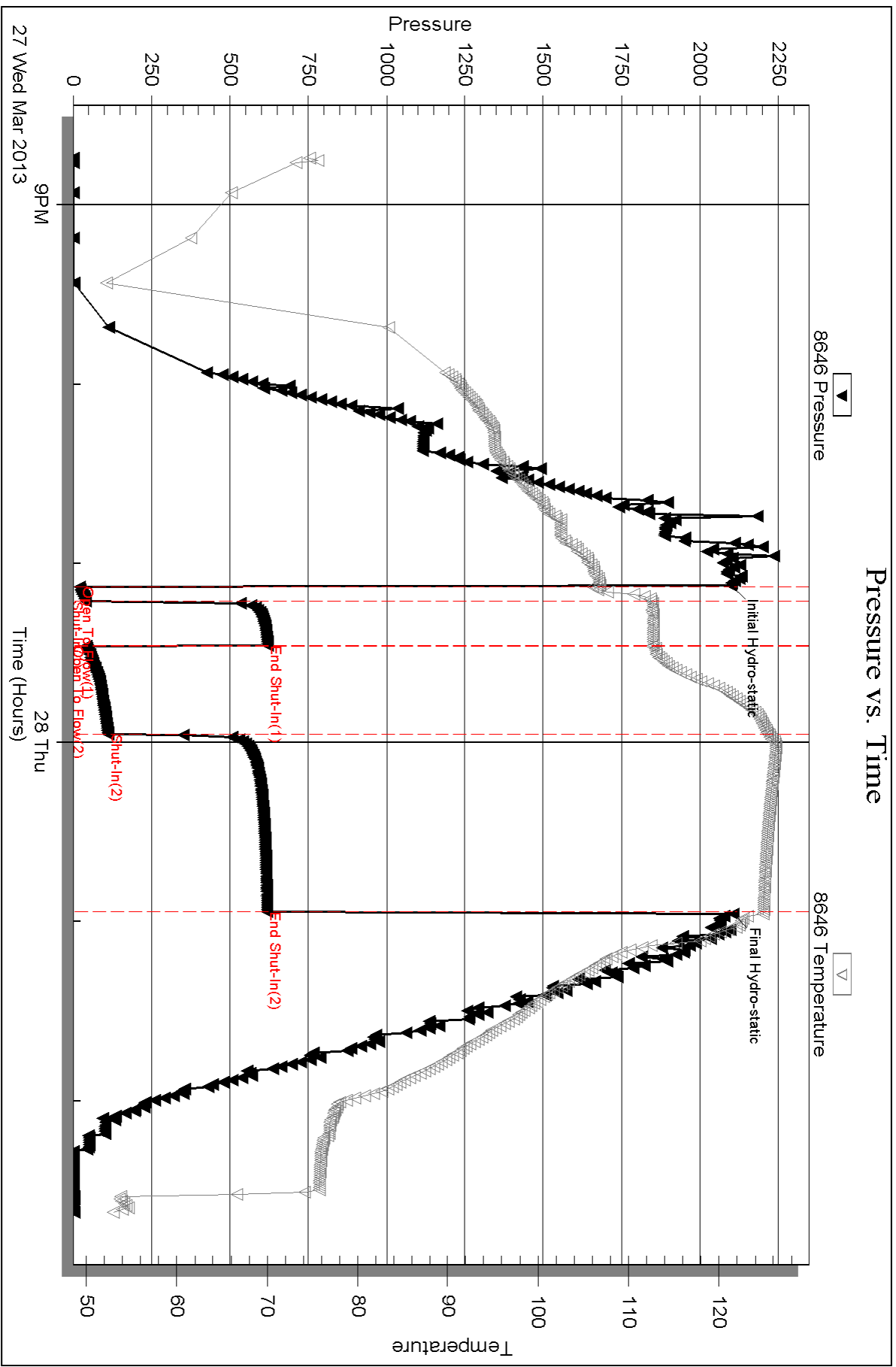
Num Gas Bombs: 0

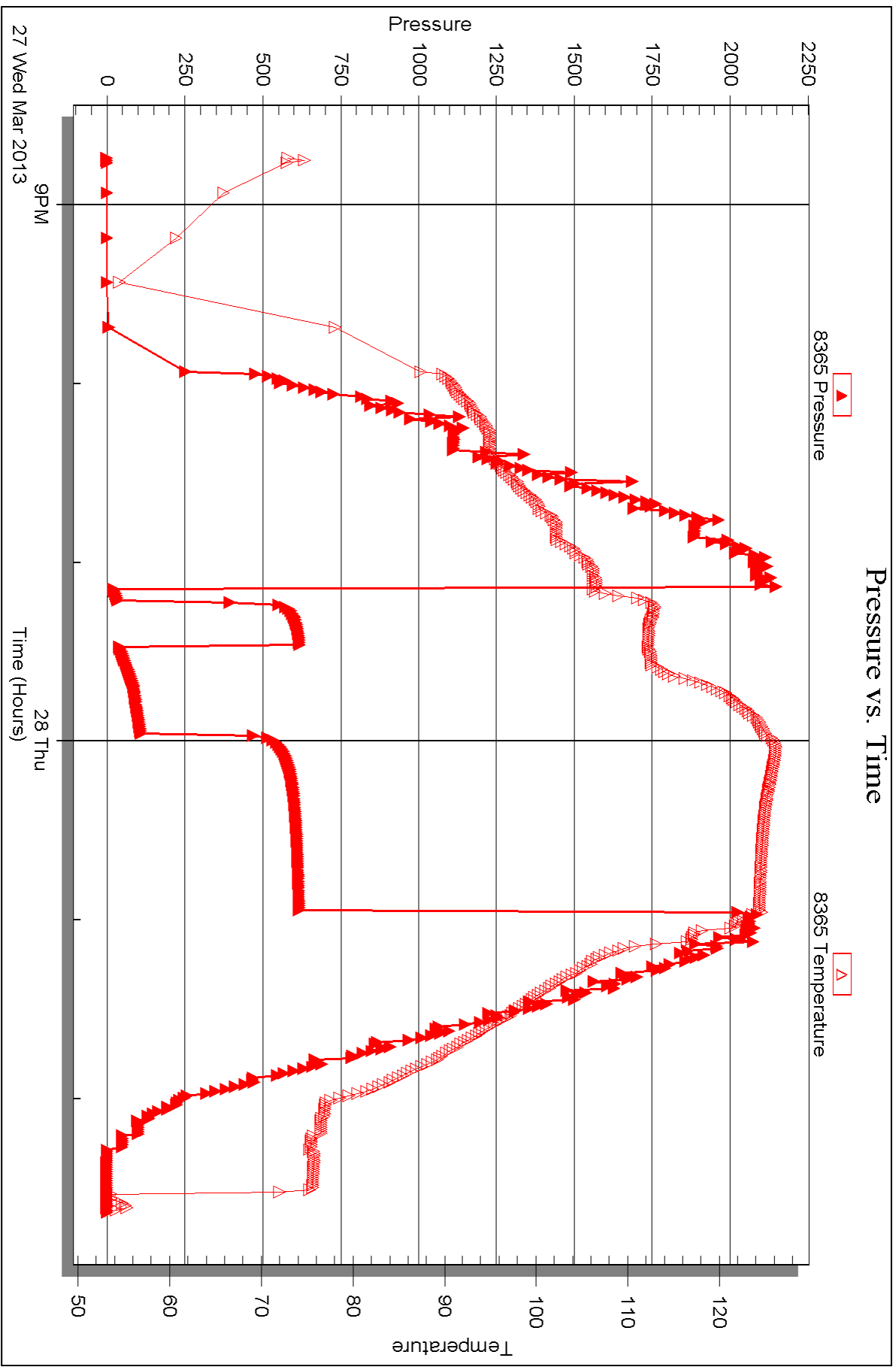
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .644@39.6*=19,000 ppm







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.28 @ 10:28:15

End Date: 2013.03.28 @ 15:27:30

Job Ticket #: 49050 DST #: 4

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

Printed: 2013.04.04 @ 10:24:28



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
Job Ticket: 49050 **DST#: 4**
Test Start: 2013.03.28 @ 10:28:15

GENERAL INFORMATION:

Formation: "K"
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:09:15
Time Test Ended: 15:27:30
Interval: **4293.00 ft (KB) To 4310.00 ft (KB) (TVD)**
Total Depth: 4310.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2802.00 ft (KB)
2797.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65

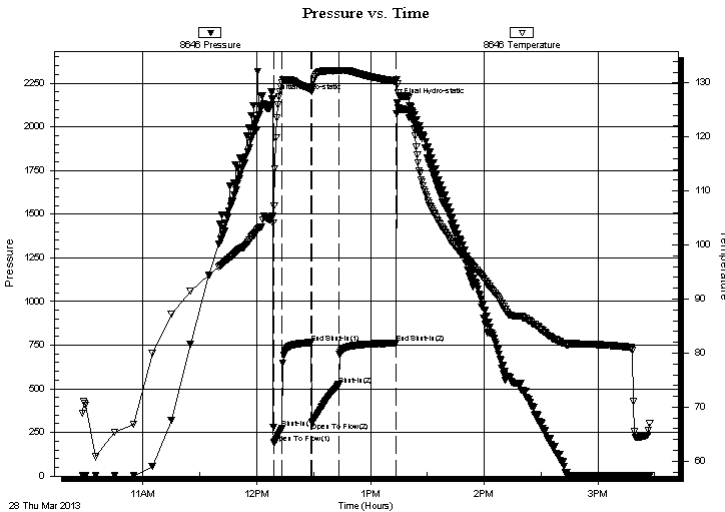
Serial #: 8646

Inside

Press @ RunDepth: 523.62 psig @ 4295.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.03.28 End Date: 2013.03.28 Last Calib.: 2013.03.28
Start Time: 10:28:15 End Time: 15:27:30 Time On Btm: 2013.03.28 @ 12:08:30
Time Off Btm: 2013.03.28 @ 13:14:15

TEST COMMENT: IF:BOB in 2 min.
IS:Return blow built to surface blow in 12 min.
FF:BOB in 2 min.
FS:No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2159.64	105.47	Initial Hydro-static
1	190.88	107.25	Open To Flow (1)
5	272.07	130.09	Shut-In (1)
21	764.54	128.62	End Shut-In (1)
21	310.47	128.36	Open To Flow (2)
35	523.62	132.22	Shut-In (2)
65	761.84	130.29	End Shut-In (2)
66	2136.90	129.74	Final Hydro-static

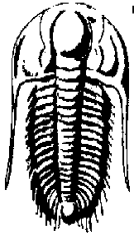
Recovery

Length (ft)	Description	Volume (bbl)
830.00	sw 100% sw	10.29
124.00	sw cm 20%w 80%m	1.74
186.00	mud with oil spots 100% m	2.61

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
 Job Ticket: 49050 **DST#: 4**
 Test Start: 2013.03.28 @ 10:28:15

GENERAL INFORMATION:

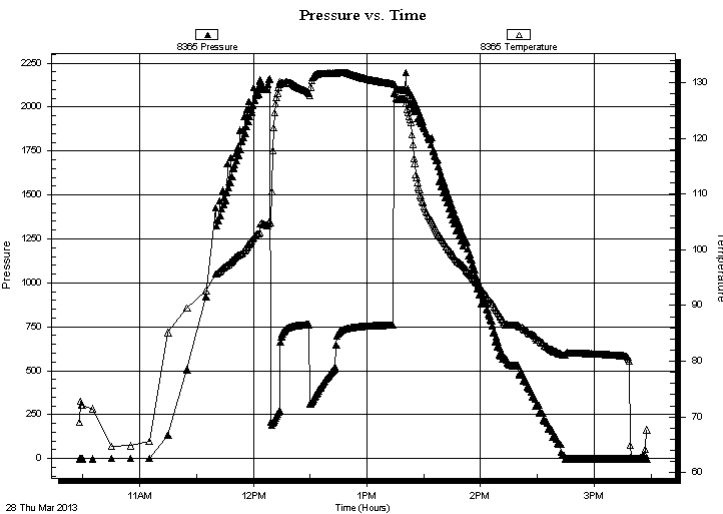
Formation:	"K"	Test Type:	Conventional Bottom Hole (Reset)
Deviated:	No Whipstock:	ft (KB)	
Time Tool Opened:	12:09:15	Tester:	Mike Roberts
Time Test Ended:	15:27:30	Unit No:	65
Interval:	4293.00 ft (KB) To 4310.00 ft (KB) (TVD)	Reference Elevations:	2802.00 ft (KB)
Total Depth:	4310.00 ft (KB) (TVD)		2797.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Fair
		KB to GR/CF:	5.00 ft

Serial #: 8365

Outside

Press @ Run Depth:	psig @ 4295.00 ft (KB)	Capacity:	8000.00 psig
Start Date:	2013.03.28	End Date:	2013.03.28
Start Time:	10:28:15	End Time:	15:27:45
		Last Calib.:	2013.03.28
		Time On Btm:	
		Time Off Btm:	

TEST COMMENT: IF:BOB in 2 min.
 IS:Return blow built to surface blow in 12 min.
 FF:BOB in 2 min.
 FS:No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
830.00	sw 100% sw	10.29
124.00	sw cm 20%w 80%m	1.74
186.00	mud w ith oil spots 100% m	2.61

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49050

DST#: 4

ATTN: Vern Schrag

Test Start: 2013.03.28 @ 10:28:15

Tool Information

Drill Pipe:	Length: 4147.00 ft	Diameter: 3.80 inches	Volume: 58.17 bbl	Tool Weight:	1500.00 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: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose:	90000.00 lb
			<u>Total Volume: 58.90 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4293.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	17.00 ft				
Tool Length:	45.00 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			4266.00	
Shut In Tool	5.00			4271.00	
Hydraulic tool	5.00		Inside	4276.00	
Jars	5.00			4281.00	
Safety Joint	3.00			4284.00	
Packer	5.00			4289.00	28.00 Bottom Of Top Packer
Packer	4.00			4293.00	
Stubb	1.00			4294.00	
Perforations	1.00			4295.00	
Recorder	0.00	8646	Inside	4295.00	
Recorder	0.00	8365	Outside	4295.00	
Perforations	10.00			4305.00	
Bullnose	5.00			4310.00	17.00 Bottom Packers & Anchor

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 49050

DST#: 4

ATTN: Vern Schrag

Test Start: 2013.03.28 @ 10:28:15

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:

19000 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.56 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
830.00	sw 100% sw	10.295
124.00	sw cm 20%w 80%m	1.739
186.00	mud with oil spots 100% m	2.609

Total Length: 1140.00 ft Total Volume: 14.643 bbl

Num Fluid Samples: 0

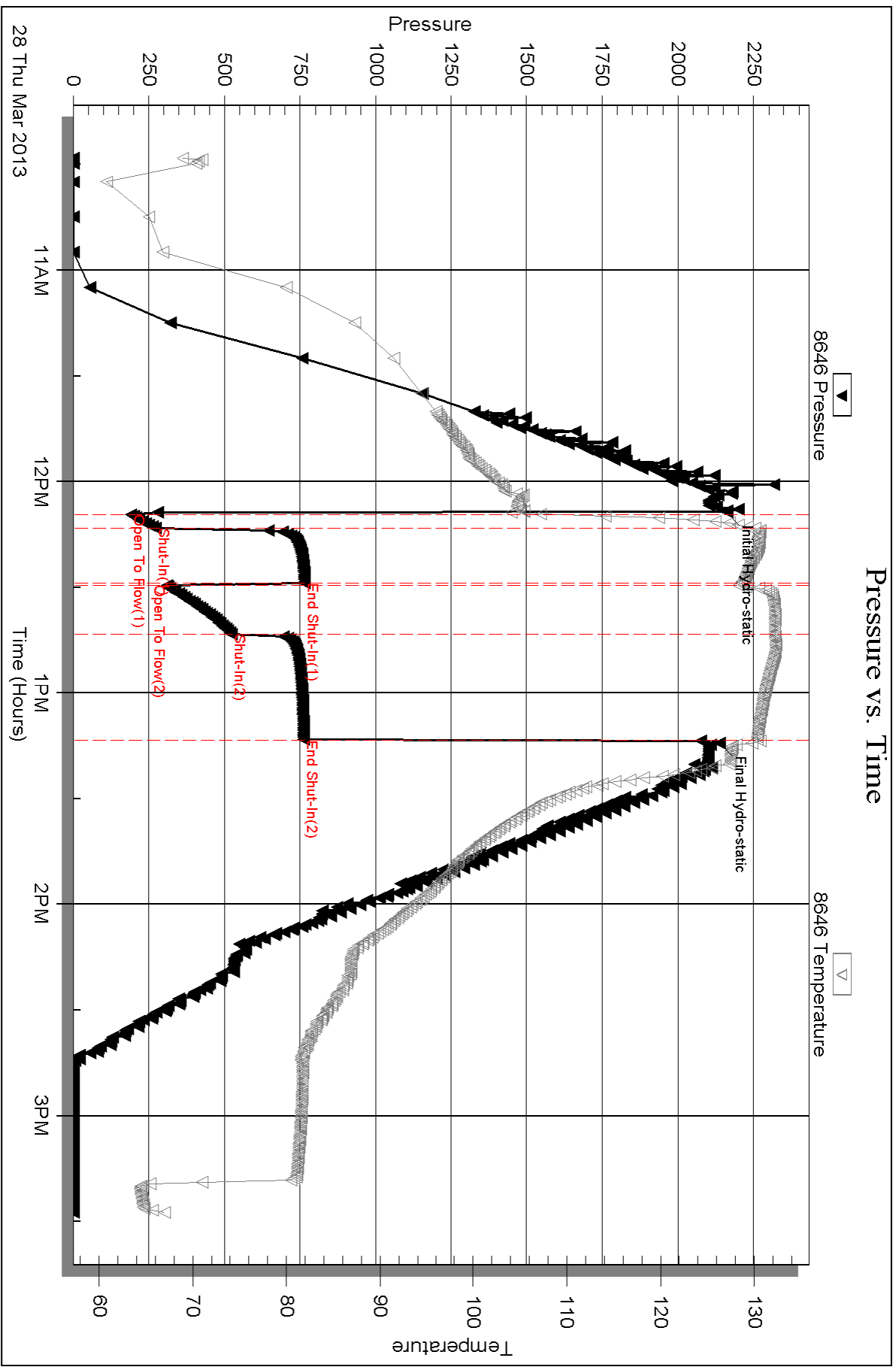
Num Gas Bombs: 0

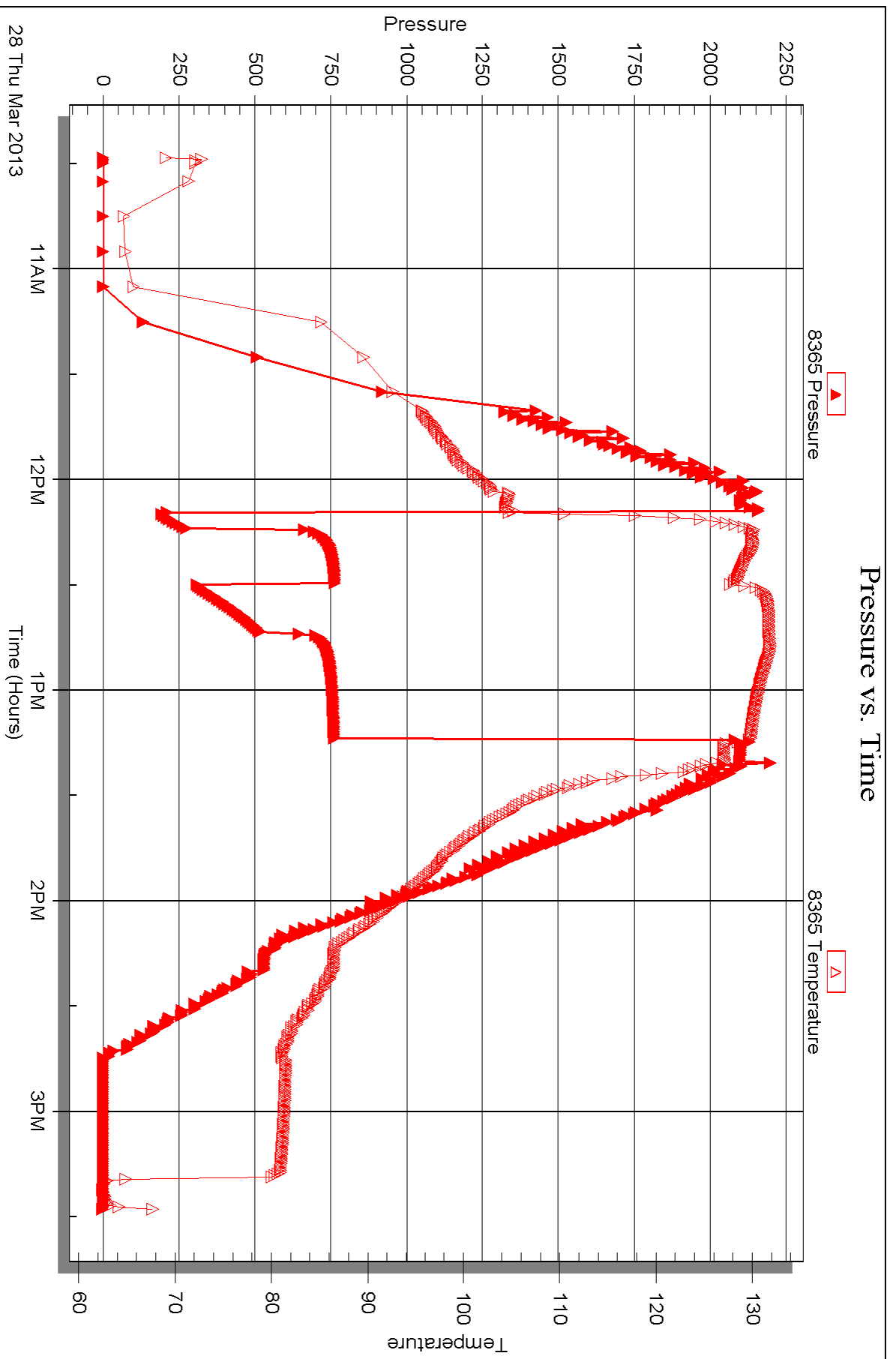
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .398@ 70.1=19,000 ppm







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.28 @ 02:21:15

End Date: 2013.03.28 @ 07:00:00

Job Ticket #: 50176 DST #: 5

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

Printed: 2013.04.04 @ 10:23:42



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
 Job Ticket: 50176 **DST#: 5**
 Test Start: 2013.03.28 @ 02:21:15

GENERAL INFORMATION:

Formation: **Middle Creek**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:16:30
 Time Test Ended: 07:00:00
Interval: 4329.00 ft (KB) To 4345.00 ft (KB) (TVD)
 Total Depth: 4345.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2802.00 ft (KB)
 2797.00 ft (CF)
 KB to GR/CF: 5.00 ft

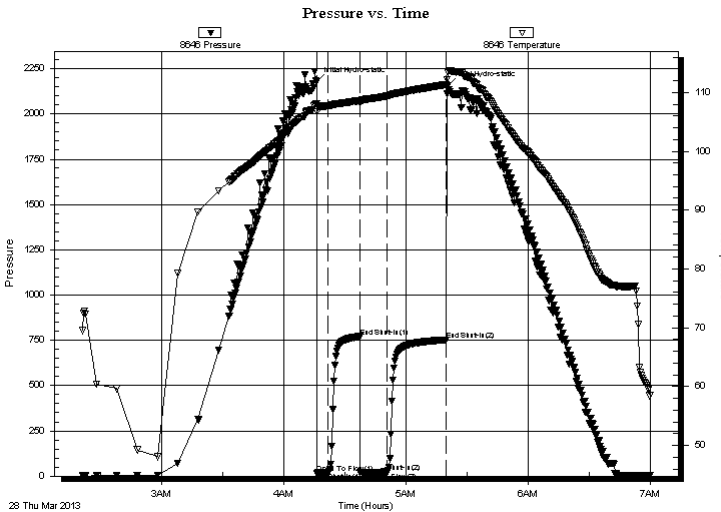
Serial #: 8646

Inside

Press @ RunDepth: 22.77 psig @ 4330.00 ft (KB)
 Start Date: 2013.03.28 End Date: 2013.03.28
 Start Time: 02:21:15 End Time: 07:00:00
 Capacity: 8000.00 psig
 Last Calib.: 2013.03.29
 Time On Btm: 2013.03.28 @ 04:16:15
 Time Off Btm: 2013.03.28 @ 05:20:45

TEST COMMENT: IF:Weak surface blow
 IS:No return blow
 FF:Weak Surface blow died in 10 min.
 FS:No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2180.23	108.12	Initial Hydro-static
1	17.25	106.68	Open To Flow (1)
6	18.99	107.73	Shut-In(1)
21	770.49	108.63	End Shut-In(1)
22	19.90	108.22	Open To Flow (2)
35	22.77	109.39	Shut-In(2)
64	753.51	111.38	End Shut-In(2)
65	2154.76	113.33	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane,KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50176

DST#: 5

ATTN: Vern Schrag

Test Start: 2013.03.28 @ 02:21:15

Tool Information

Drill Pipe:	Length: 4175.00 ft	Diameter: 3.80 inches	Volume: 58.56 bbl	Tool Weight:	1500.00 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: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 59.29 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4329.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	16.00 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			4306.00	
Shut In Tool	5.00			4311.00	
Hydraulic tool	5.00		Inside	4316.00	
Jars	5.00			4321.00	
Safety Joint	3.00			4324.00	
Packer	5.00			4329.00	24.00 Bottom Of Top Packer
Packer - Shale	0.00			4329.00	
Stubb	1.00			4330.00	
Recorder	0.00	8646	Inside	4330.00	
Recorder	0.00	8365	Outside	4330.00	
Perforations	10.00			4340.00	
Bullnose	5.00			4345.00	16.00 Anchor Tool

Total Tool Length: 40.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50176

DST#: 5

ATTN: Vern Schrag

Test Start: 2013.03.28 @ 02:21:15

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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

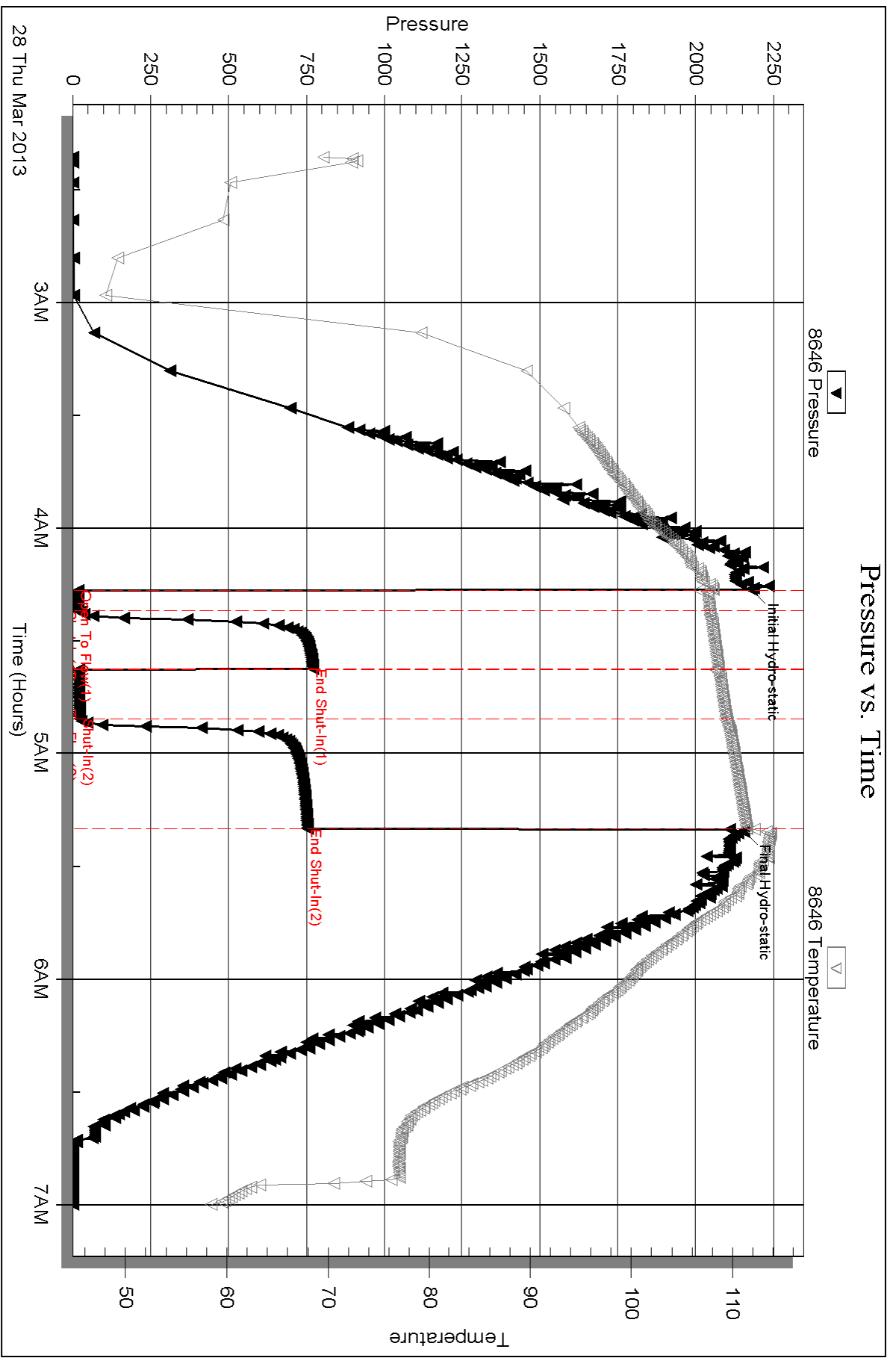
Num Gas Bombs: 0

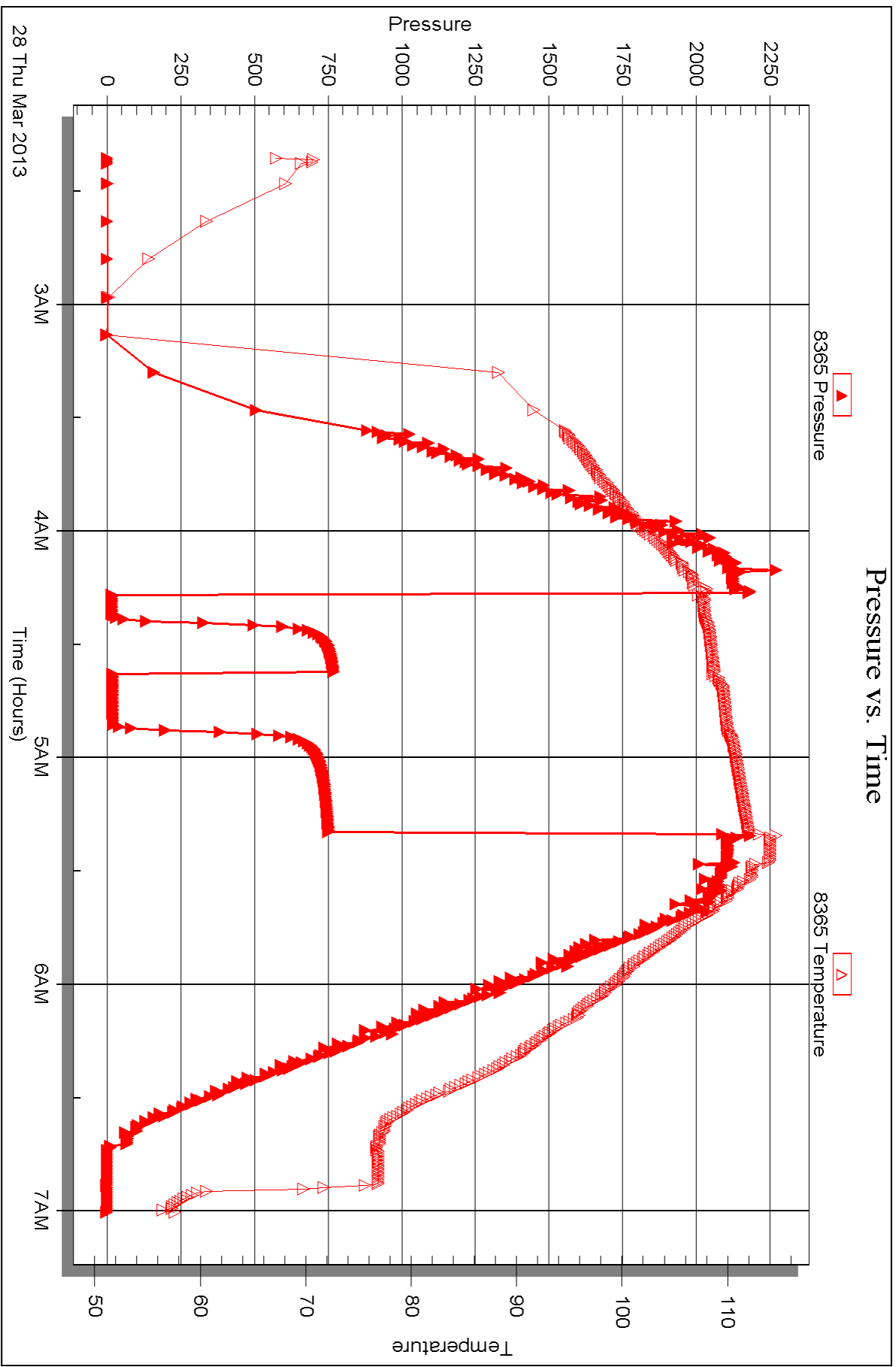
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.29 @ 21:24:15

End Date: 2013.03.30 @ 02:46:15

Job Ticket #: 50177 DST #: 6

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

Printed: 2013.04.04 @ 10:23:00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

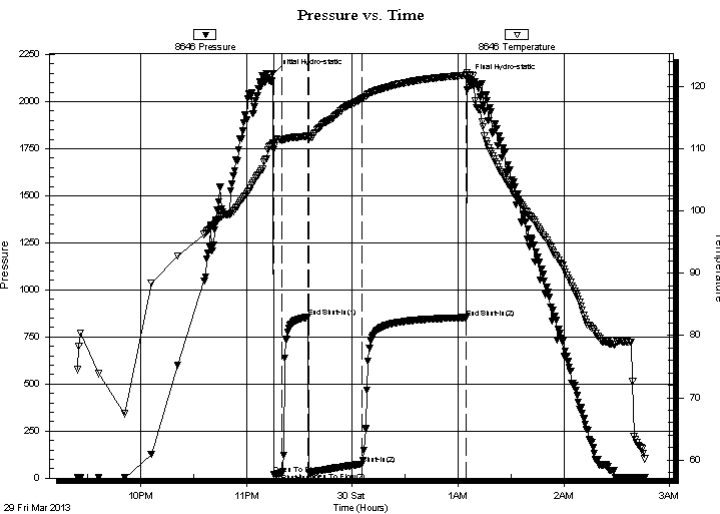
20-19s-28w Lane,KS
Roger #1-20
Job Ticket: 50177 **DST#: 6**
Test Start: 2013.03.29 @ 21:24:15

GENERAL INFORMATION:

Formation: **Pleasanton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:15:30
Time Test Ended: 02:46:15
Interval: **4384.00 ft (KB) To 4400.00 ft (KB) (TVD)**
Total Depth: 4400.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2802.00 ft (KB)
2797.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65

Serial #: 8646 Inside
Press @ RunDepth: 75.39 psig @ 4386.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.03.29 End Date: 2013.03.30 Last Calib.: 2013.03.30
Start Time: 21:24:15 End Time: 02:46:15 Time On Btm: 2013.03.29 @ 23:15:15
Time Off Btm: 2013.03.30 @ 01:05:45

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: Built to 5 1/2" blow
FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2148.48	110.92	Initial Hydro-static
1	18.75	109.85	Open To Flow (1)
5	27.15	111.40	Shut-In(1)
20	855.00	112.05	End Shut-In(1)
20	30.65	111.74	Open To Flow (2)
51	75.39	118.05	Shut-In(2)
110	853.25	121.83	End Shut-In(2)
111	2120.94	121.95	Final Hydro-static

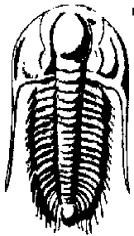
Recovery

Length (ft)	Description	Volume (bbl)
1.00	free oil 100% o	0.00
120.00	gcom 10%g 10%o 80%m	0.59

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

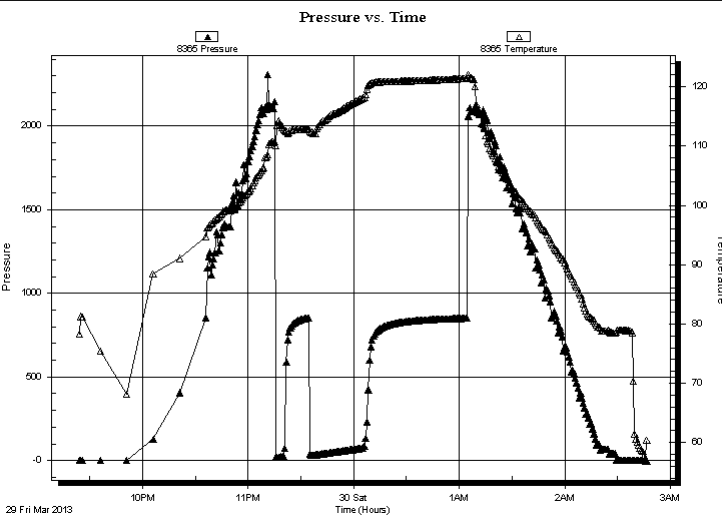
20-19s-28w Lane,KS
Roger #1-20
 Job Ticket: 50177 **DST#: 6**
 Test Start: 2013.03.29 @ 21:24:15

GENERAL INFORMATION:

Formation: **Pleasanton**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 23:15:30 Tester: Mike Roberts
 Time Test Ended: 02:46:15 Unit No: 65
 Interval: **4384.00 ft (KB) To 4400.00 ft (KB) (TVD)**
 Reference Elevations: 2802.00 ft (KB)
 Total Depth: 4400.00 ft (KB) (TVD) 2797.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8365 Outside
 Press @ Run Depth: psig @ 4386.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.03.29 End Date: 2013.03.30 Last Calib.: 1899.12.30
 Start Time: 21:24:15 End Time: 02:46:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Built to 1" blow
 IS: No return blow
 FF: Built to 5 1/2" blow
 FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	free oil 100% o	0.00
120.00	gcom 10%g 10%o 80%m	0.59

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50177

DST#: 6

ATTN: Vern Schrag

Test Start: 2013.03.29 @ 21:24:15

Tool Information

Drill Pipe:	Length: 4233.00 ft	Diameter: 3.80 inches	Volume: 59.38 bbl	Tool Weight: 1500.00 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: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.11 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4384.00 ft			Final lb
Depth to Bottom Packer:	ft			
Interval between Packers:	17.00 ft			
Tool Length:	45.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4357.00	
Shut In Tool	5.00			4362.00	
Hydraulic tool	5.00		Inside	4367.00	
Jars	5.00			4372.00	
Safety Joint	3.00			4375.00	
Packer	5.00			4380.00	28.00 Bottom Of Top Packer
Packer	4.00			4384.00	
Stubb	1.00			4385.00	
Perforations	1.00			4386.00	
Recorder	0.00	8646	Inside	4386.00	
Recorder	0.00	8365	Outside	4386.00	
Perforations	10.00			4396.00	
Bullnose	5.00			4401.00	17.00 Bottom Packers & Anchor

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50177

DST#: 6

ATTN: Vern Schrag

Test Start: 2013.03.29 @ 21:24:15

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.57 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1.00	free oil 100% o	0.005
120.00	gcom 10%g 10%o 80%m	0.590

Total Length: 121.00 ft

Total Volume: 0.595 bbl

Num Fluid Samples: 0

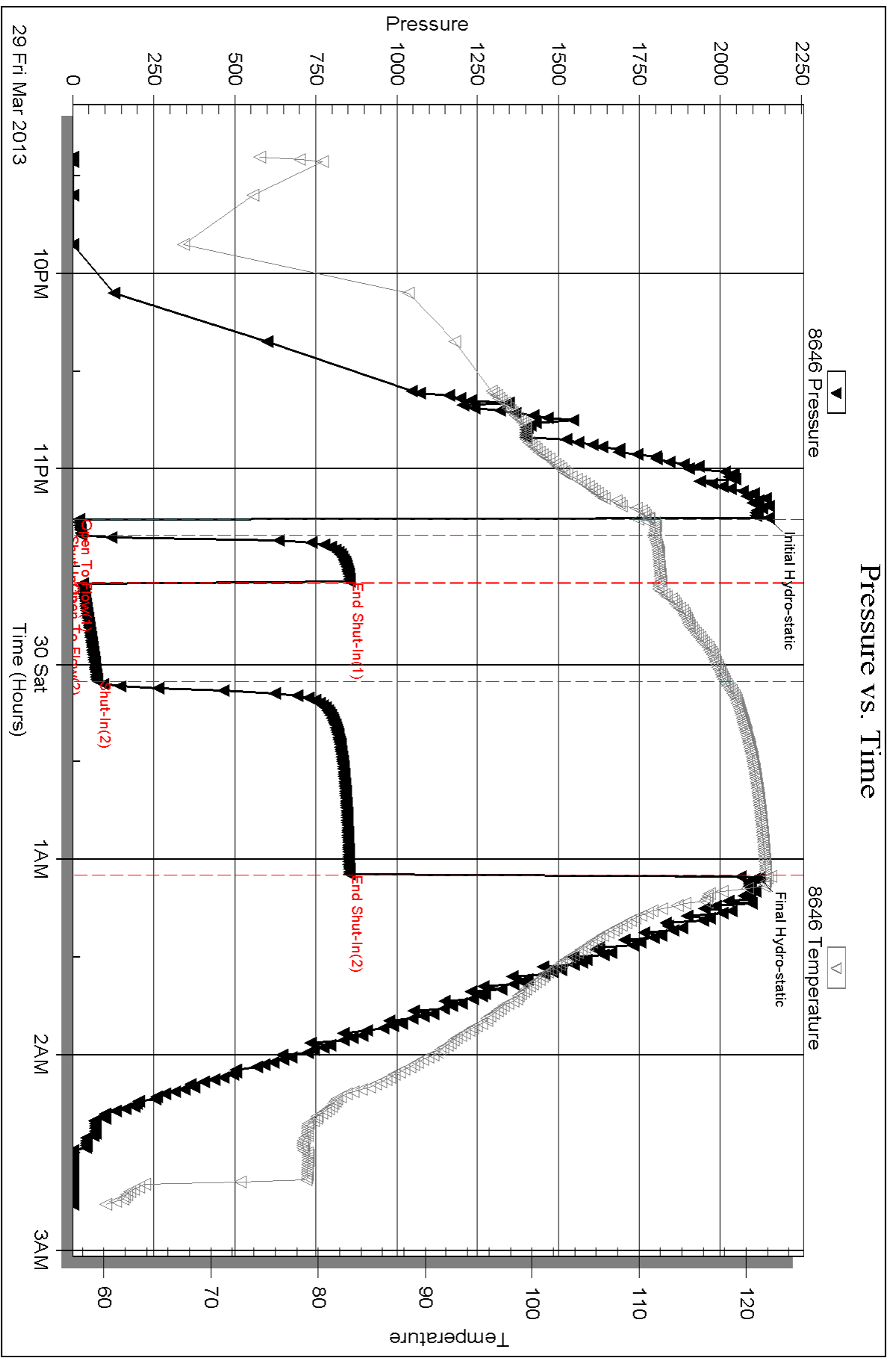
Num Gas Bombs: 0

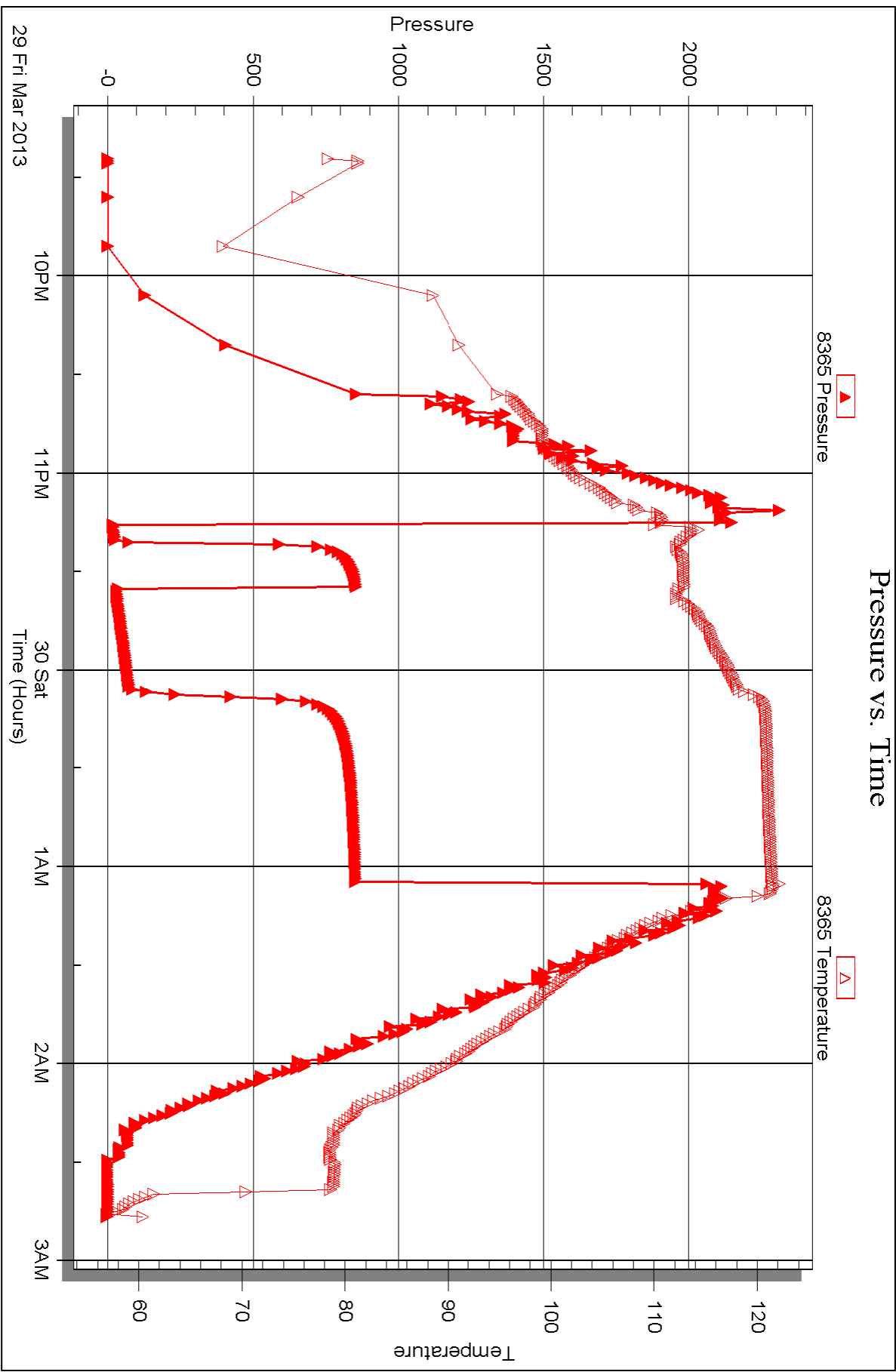
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.30 @ 18:22:15

End Date: 2013.03.30 @ 23:13:30

Job Ticket #: 50178 DST #: 7

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

Printed: 2013.04.04 @ 10:21:59



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering
 562 West State Rd.4
 Olmitz KS 67564
 ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
 Job Ticket: 50178 **DST#: 7**
 Test Start: 2013.03.30 @ 18:22:15

GENERAL INFORMATION:

Formation: **Marm-Alt**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:23:15
 Time Test Ended: 23:13:30
 Interval: **4403.00 ft (KB) To 4489.00 ft (KB) (TVD)**
 Total Depth: 4489.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 65
 Reference Elevations: 2802.00 ft (KB)
 2797.00 ft (CF)
 KB to GR/CF: 5.00 ft

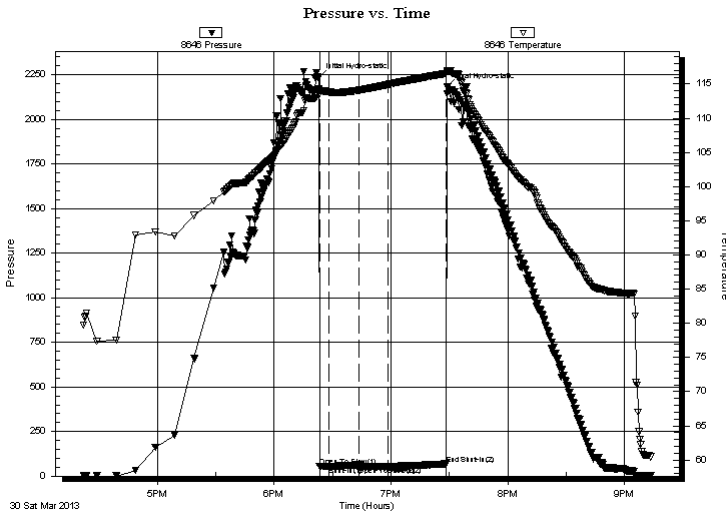
Serial #: 8646

Inside

Press @ Run Depth: 54.64 psig @ 4474.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.03.30 End Date: 2013.03.30 Last Calib.: 2013.03.30
 Start Time: 16:22:15 End Time: 21:13:30 Time On Btm: 2013.03.30 @ 18:23:00
 Time Off Btm: 2013.03.30 @ 19:29:00

TEST COMMENT: IF: Built to weak surface blow
 IS: No return blow
 FF: No blow
 FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2233.36	114.28	Initial Hydro-static
1	53.34	113.62	Open To Flow (1)
5	54.51	113.83	Shut-In(1)
21	64.55	114.09	End Shut-In(1)
21	53.10	114.10	Open To Flow (2)
36	54.64	114.94	Shut-In(2)
65	68.40	116.54	End Shut-In(2)
66	2181.05	116.85	Final Hydro-static

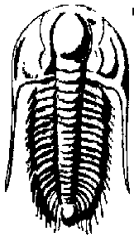
Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

20-19s-28w Lane, KS
Roger #1-20
Job Ticket: 50178 **DST#: 7**
Test Start: 2013.03.30 @ 18:22:15

GENERAL INFORMATION:

Formation: **Marm-Alt**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:23:15
Time Test Ended: 23:13:30
Interval: **4403.00 ft (KB) To 4489.00 ft (KB) (TVD)**
Total Depth: 4489.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 65
Reference Elevations: 2802.00 ft (KB)
2797.00 ft (CF)
KB to GR/CF: 5.00 ft

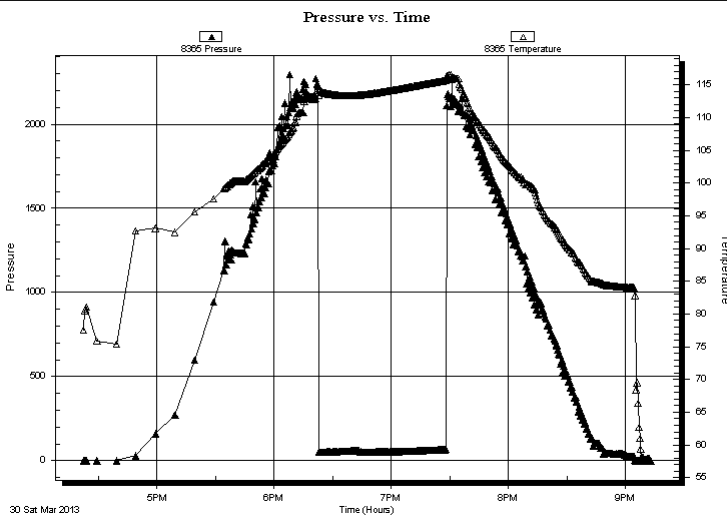
Serial #: 8365

Outside

Press @ Run Depth: psig @ 4474.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.03.30 End Date: 2013.03.30 Last Calib.: 2013.03.30
Start Time: 16:22:23 End Time: 21:13:08 Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Built to weak surface blow
IS: No return blow
FF: No blow
FS: No return blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud w ith oil spots	0.02

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50178

DST#: 7

ATTN: Vern Schrag

Test Start: 2013.03.30 @ 18:22:15

Tool Information

Drill Pipe:	Length: 4237.00 ft	Diameter: 3.80 inches	Volume: 59.43 bbl	Tool Weight: 1500.00 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: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4403.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	86.00 ft			
Tool Length:	110.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4380.00	
Shut In Tool	5.00			4385.00	
Hydraulic tool	5.00		Inside	4390.00	
Jars	5.00			4395.00	
Safety Joint	3.00			4398.00	
Packer	5.00			4403.00	24.00 Bottom Of Top Packer
Packer - Shale	0.00			4403.00	
Stubb	1.00			4404.00	
Perforations	5.00			4409.00	
Change Over Sub	1.00			4410.00	
Drill Pipe	63.00			4473.00	
Change Over Sub	1.00			4474.00	
Recorder	0.00	8646	Inside	4474.00	
Recorder	0.00	8365	Outside	4474.00	
Perforations	10.00			4484.00	
Bullnose	5.00			4489.00	86.00 Anchor Tool
Total Tool Length:	110.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50178

DST#: 7

ATTN: Vern Schrag

Test Start: 2013.03.30 @ 18:22:15

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud w ith oil spots	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

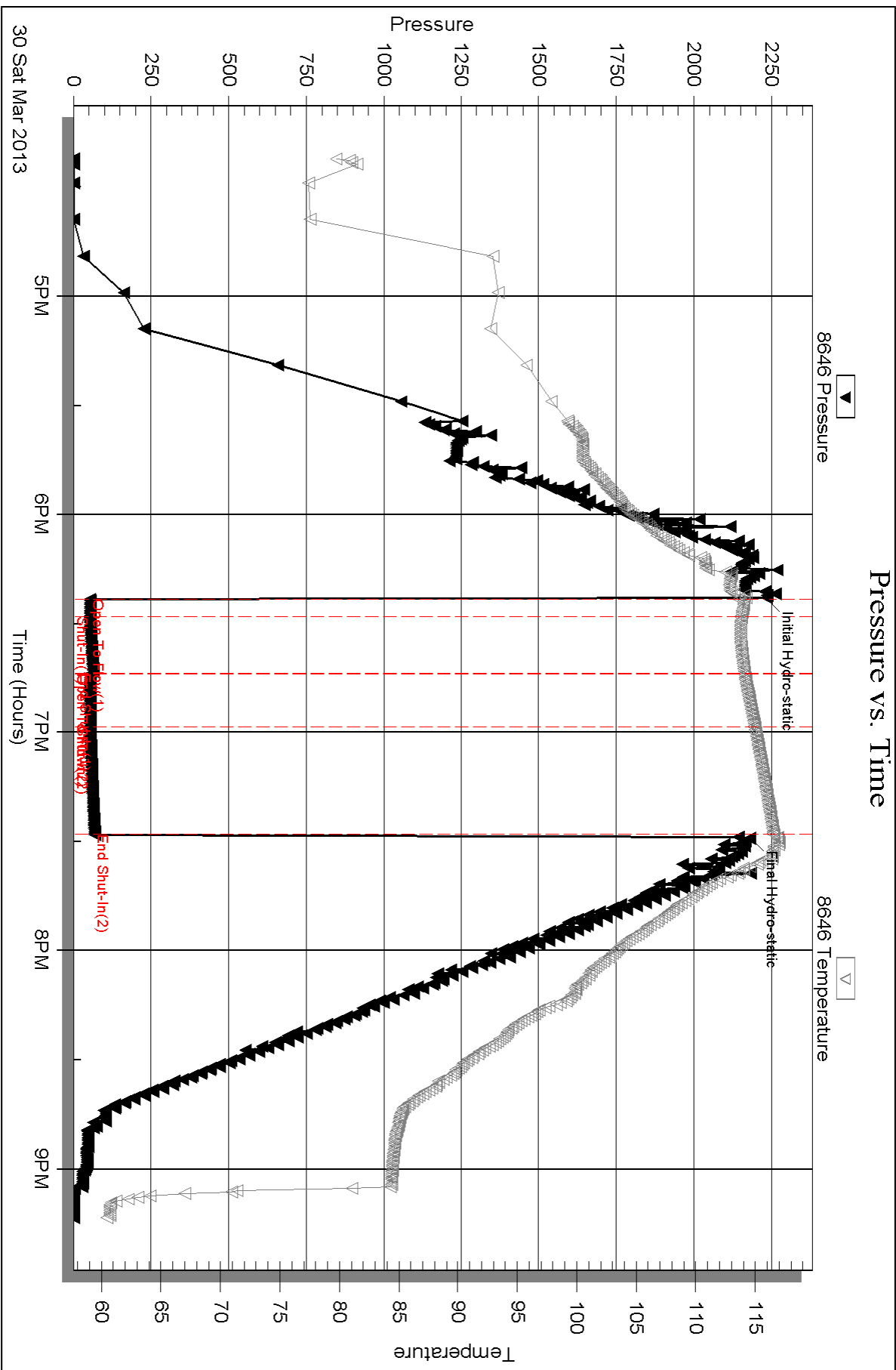
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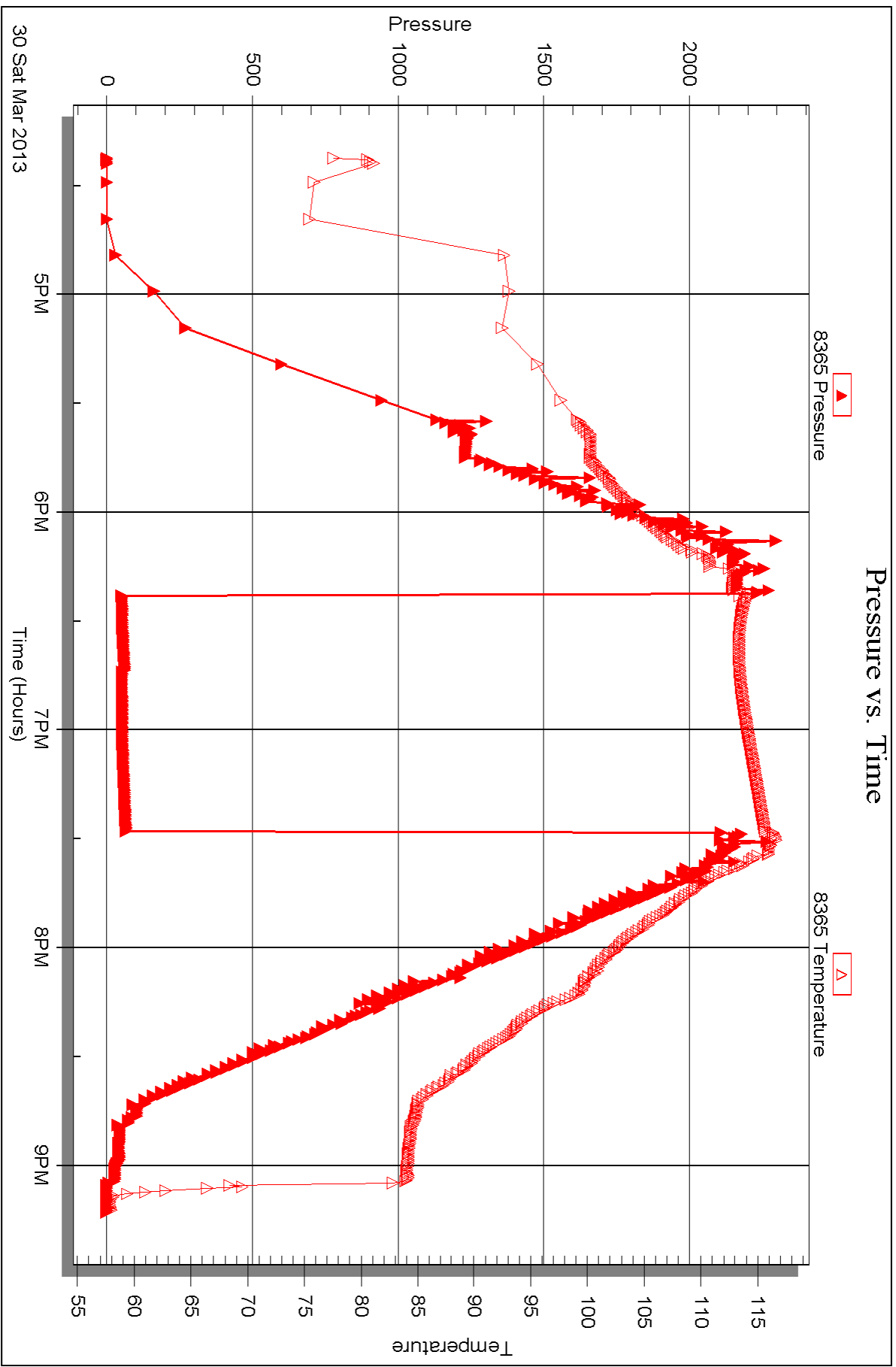
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering**

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

Roger #1-20

20-19s-28w Lane,KS

Start Date: 2013.03.31 @ 17:22:15

End Date: 2013.03.31 @ 22:22:00

Job Ticket #: 50179 DST #: 8

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.04.04 @ 10:21:10



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Larson Engineering
562 West State Rd.4
Olmitz KS 67564
ATTN: Vern Schrag

20-19s-28w Lane,KS

Roger #1-20

Job Ticket: 50179

DST#: 8

Test Start: 2013.03.31 @ 17:22:15

GENERAL INFORMATION:

Formation: **Ft. Scott-Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:21:30

Time Test Ended: 22:22:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: **4572.00 ft (KB) To 4642.00 ft (KB) (TVD)**

Total Depth: 4642.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2802.00 ft (KB)

2797.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8646

Inside

Press @ Run Depth: 55.88 psig @ 4617.00 ft (KB)

Start Date: 2013.03.31

End Date:

2013.03.31

Start Time: 17:22:15

End Time:

22:22:00

Capacity: 8000.00 psig

Last Calib.: 2013.03.31

Time On Btm: 2013.03.31 @ 19:21:15

Time Off Btm: 2013.03.31 @ 20:29:15

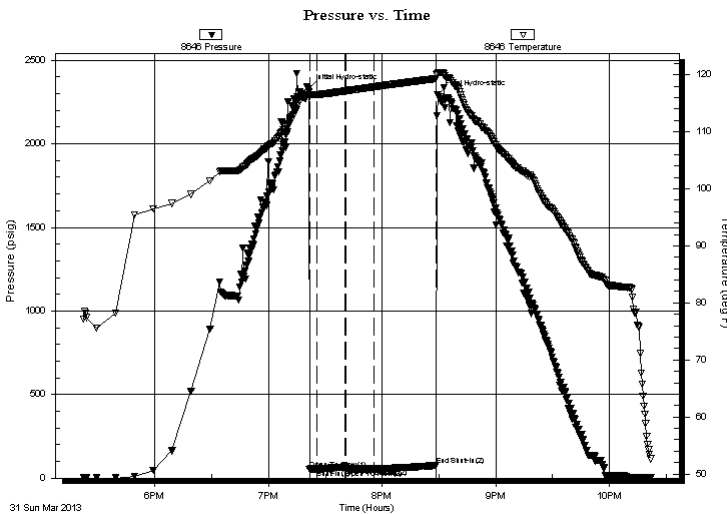
TEST COMMENT: IF: Built to weak surface blow

IS: No return blow

FF: No blow

FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2331.56	116.97	Initial Hydro-static
1	54.48	116.27	Open To Flow (1)
5	55.54	116.52	Shut-In(1)
20	67.72	117.18	End Shut-In(1)
20	54.98	117.19	Open To Flow (2)
35	55.88	117.90	Shut-In(2)
67	76.05	119.33	End Shut-In(2)
68	2294.19	120.21	Final Hydro-static

Recovery

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

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Larson Engineering

562 West State Rd.4
Olmitz KS 67564

ATTN: Vern Schrag

20-19s-28w Lane, KS

Roger #1-20

Job Ticket: 50179

DST#: 8

Test Start: 2013.03.31 @ 17:22:15

GENERAL INFORMATION:

Formation: **Ft. Scott-Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:21:30

Time Test Ended: 22:22:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: **4572.00 ft (KB) To 4642.00 ft (KB) (TVD)**

Total Depth: 4642.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2802.00 ft (KB)

2797.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8365 Outside

Press @ Run Depth: psig @ 4617.00 ft (KB)

Start Date: 2013.03.31 End Date: 2013.03.31

Start Time: 17:22:15 End Time: 22:22:30

Capacity: 8000.00 psig

Last Calib.: 2013.03.31

Time On Btm:

Time Off Btm:

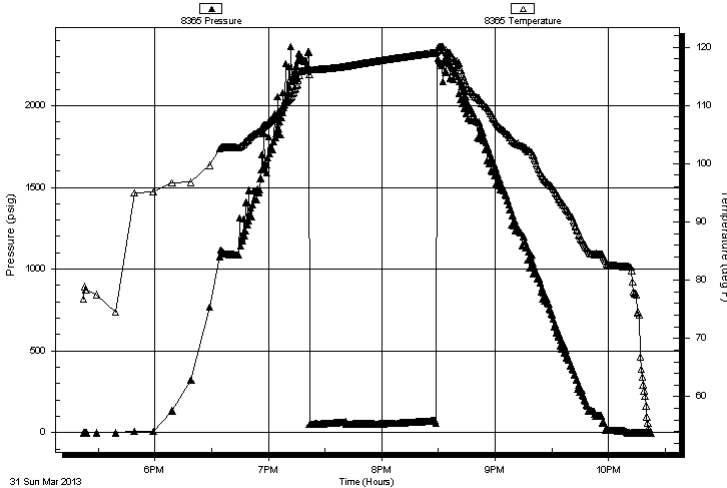
TEST COMMENT: IF: Built to weak surface blow

IS: No return blow

FF: No blow

FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50179

DST#: 8

ATTN: Vern Schrag

Test Start: 2013.03.31 @ 17:22:15

Tool Information

Drill Pipe:	Length: 4390.00 ft	Diameter: 3.80 inches	Volume: 61.58 bbl	Tool Weight: 1500.00 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: 148.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 62.31 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4547.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	122.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4521.00	
Shut In Tool	5.00			4526.00	
Hydraulic tool	5.00		Inside	4531.00	
Jars	5.00			4536.00	
Safety Joint	2.00			4538.00	
Packer	5.00			4543.00	27.00 Bottom Of Top Packer
Packer	4.00			4547.00	
Stubb	1.00			4548.00	
Perforations	4.00			4552.00	
Change Over Sub	1.00			4553.00	
Drill Pipe	63.00			4616.00	
Change Over Sub	1.00			4617.00	
Recorder	0.00	8646	Inside	4617.00	
Recorder	0.00	8365	Outside	4617.00	
Perforations	20.00			4637.00	
Bullnose	5.00			4642.00	95.00 Bottom Packers & Anchor
Total Tool Length:	122.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering

20-19s-28w Lane, KS

562 West State Rd.4
Olmitz KS 67564

Roger #1-20

Job Ticket: 50179

DST#: 8

ATTN: Vern Schrag

Test Start: 2013.03.31 @ 17:22:15

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100% m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

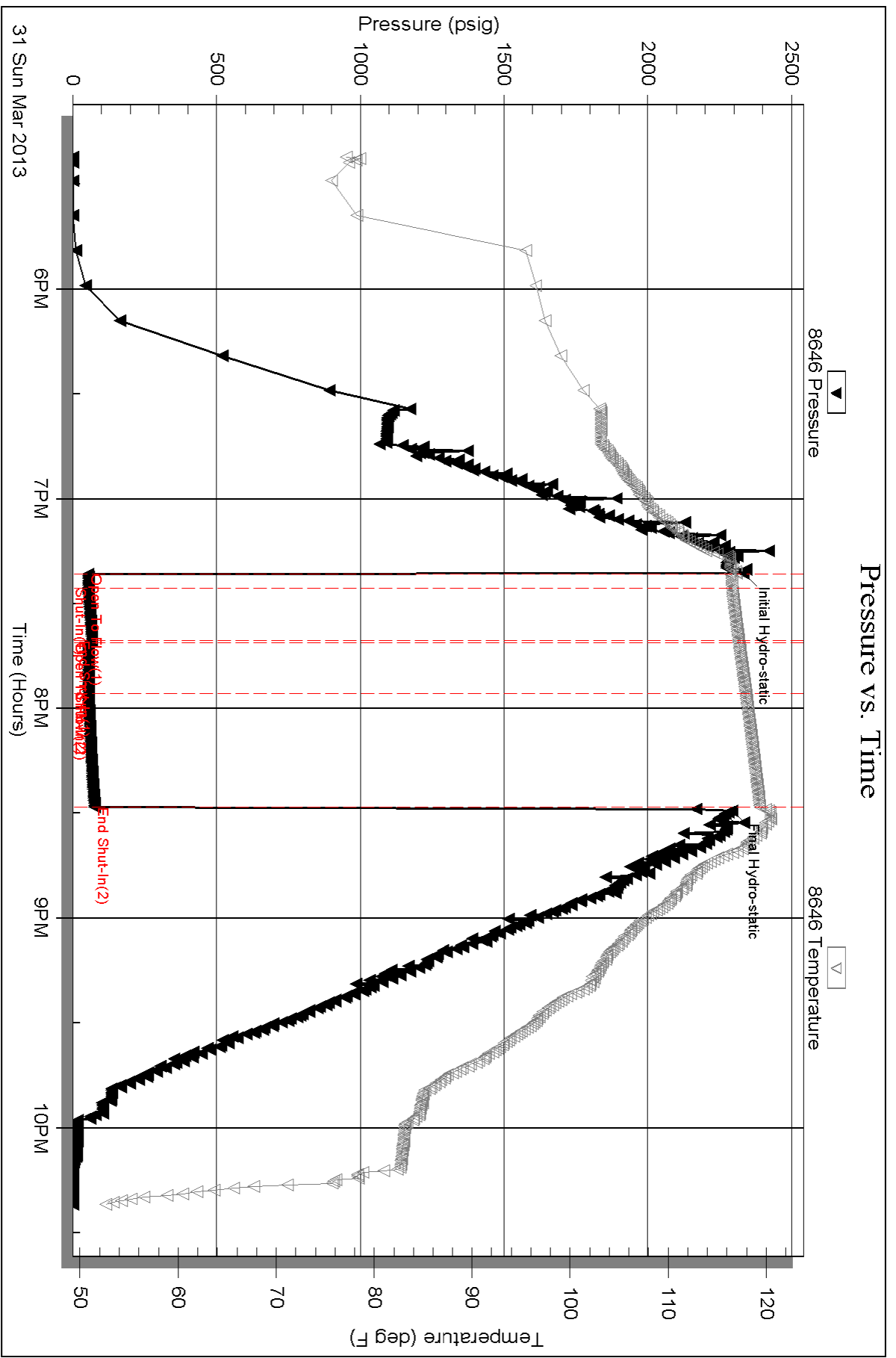
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

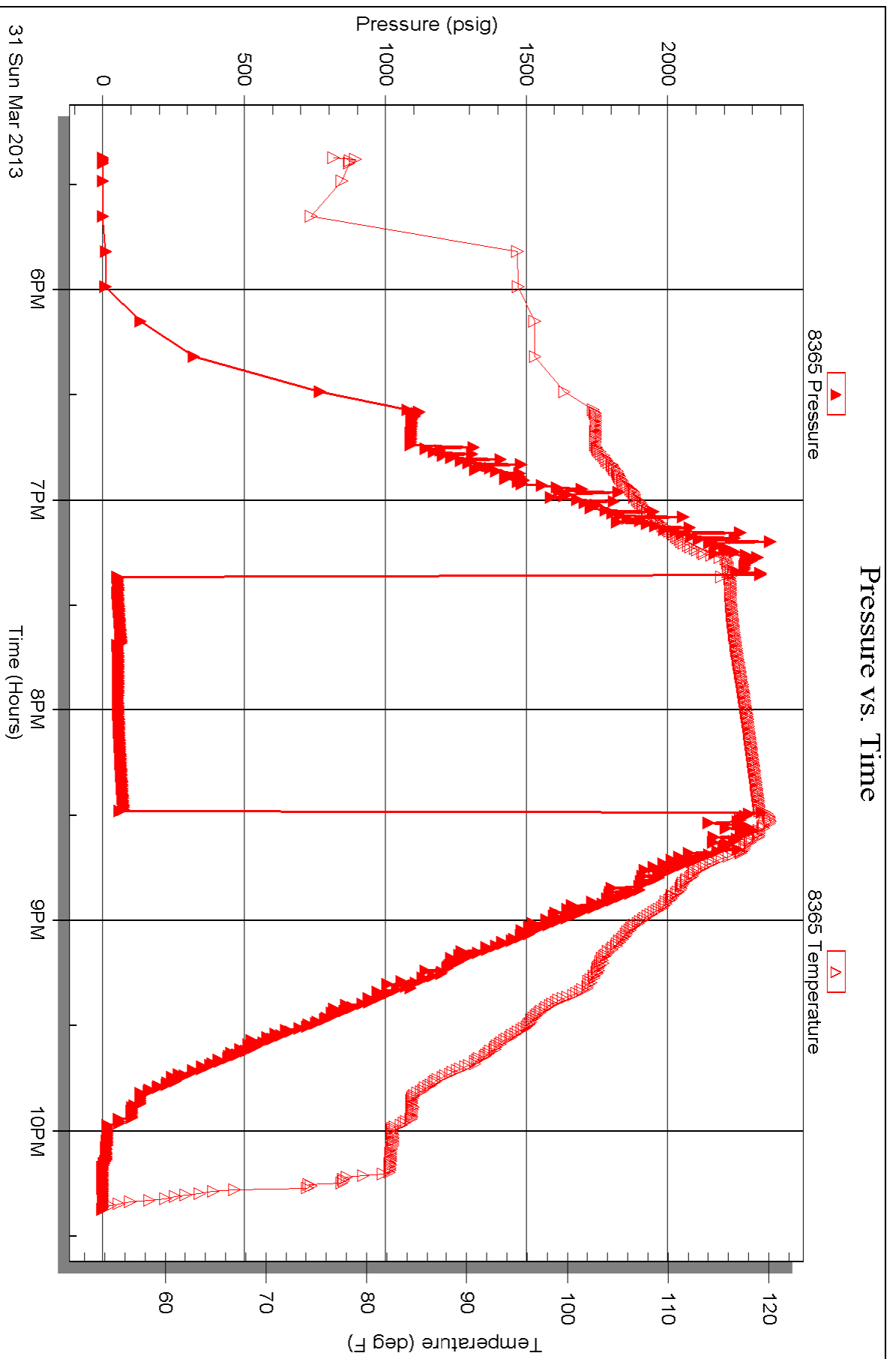


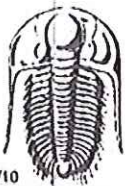
Serial #: 8365

Outside Larson Engineering

Roger #1-20

DST Test Number: 8





TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49047

Well Name & No. Roger #1-20 Test No. 1 Date 3-26-13
 Company Larson Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Road 4 Olmitz KS 67564
 Co. Rep / Geo. Vern Schrage Rig HD #3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4192-4214 Zone Tested "H"
 Anchor Length 22' Drill Pipe Run 4045 Mud Wt. 8.9
 Top Packer Depth 4188 Drill Collars Run 148 Vis 64
 Bottom Packer Depth 4192 Wt. Pipe Run 0 WL 7.2
 Total Depth 4214 Chlorides 2100 ppm System LCM 1

Blow Description IF: Weak Surface Blow
IS: NO Return Blow
FF: Built to 1/8" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MUD with oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30 BHT 115 Gravity - API RW - @ - F Chlorides - ppm
 (A) Initial Hydrostatic 2111 Test 1250 T-On Location 10:30
 (B) First Initial Flow 16 Jars 250 T-Started 14:42
 (C) First Final Flow 18 Safety Joint 75 T-Open 16:49
 (D) Initial Shut-In 894 Circ Sub NC T-Pulled 18:39
 (E) Second Initial Flow 19 Hourly Standby 3 HRS T-Out 20:20
 (F) Second Final Flow 23 Mileage 64 RT 99.20%
 (G) Final Shut-In 912 Sampler _____
 (H) Final Hydrostatic 2074 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Comments Wait on Elevators to finish Trip Out of Hole
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1674.20
 MP/DST Disc't _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60

Approved By Vern Schrage Our Representative Mike Roth

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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49048

Well Name & No. Roger # 1-20 Test No. 2 Date 3-27-13
 Company Larson Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD# 3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4235-4260 Zone Tested "I"
 Anchor Length 25 Drill Pipe Run 4077 Mud Wt. 9.2
 Top Packer Depth 4231 Drill Collars Run 148 Vis 50
 Bottom Packer Depth 4235 Wt. Pipe Run Ø WL 6.8
 Total Depth 4260 Chlorides 2500 ppm System LCM 1
 Blow Description IF: Built to 1 1/2" Blow
IS: No Return Blow
FF: Built to 8" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Free oil</u>	<u>100</u>			
<u>20</u>	<u>gemo</u>	<u>50</u>		<u>40</u>	
<u>148</u>	<u>OCM</u>	<u>40</u>		<u>60</u>	

Rec Total 178 BHT 116 Gravity — API RW — @ — ° F Chlorides — ppm

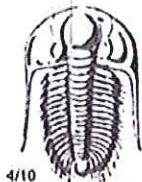
(A) Initial Hydrostatic <u>2134</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>05:20</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>05:55</u>
(C) First Final Flow <u>32</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>07:51</u>
(D) Initial Shut-In <u>876</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>11:23</u>
(E) Second Initial Flow <u>36</u>	<input type="checkbox"/> Hourly Standby	T-Out
(F) Second Final Flow <u>86</u>	<input type="checkbox"/> Mileage <u>64 RT 99.2%</u>	Comments
(G) Final Shut-In <u>876</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2150</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open 5 Shale Packer
 Initial Shut-In 15 Extra Packer
 Final Flow 30 Extra Recorder
 Final Shut-In 60 Day Standby
 Accessibility

Sub Total 1674.20

Sub Total 0
 Total 1674.20
 MP/DST Disc't

Approved By Vern Schrag Our Representative Mike Roberts
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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49049

Well Name & No. Roger # 1-20 Test No. 3 Date 3-27-13
 Company LARSON Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4265-4278 Zone Tested "J"
 Anchor Length 13 Drill Pipe Run 4106 Mud Wt. 9.4
 Top Packer Depth 4261 Drill Collars Run 148 Vis 47
 Bottom Packer Depth 4265 Wt. Pipe Run Ø Wt. 7.6
 Total Depth 4278 Chlorides 2700 ppm System LCM 1
 Blow Description IF: Built to 2" Blow
IS: No Return Blow
FF: Built to 8" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>OCM</u>	<u>2</u>		<u>98</u>	
<u>88</u>	<u>WCM</u>		<u>40</u>	<u>60</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 208 BHT 125 Gravity API RW .644 @ 39.6° F Chlorides 19,000 ppm

(A) Initial Hydrostatic <u>2101</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>20:00</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>20:44</u>
(C) First Final Flow <u>39</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>23:08</u>
(D) Initial Shut-In <u>619</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>00:58</u>
(E) Second Initial Flow <u>41</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>02:37</u>
(F) Second Final Flow <u>111</u>	<input checked="" type="checkbox"/> Mileage <u>64 RT = 99.20%</u>	Comments
(G) Final Shut-In <u>618</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2107</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>5</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>15</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1674.20</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1674.20</u>	

Approved By [Signature] Our Representative [Signature]
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TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 49050

Well Name & No. Roger #1-20 Test No. 4 Date 3-28-13
 Company Larson Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Road Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 20 Twp. 99S Rge. 28W Co. Lane State KS

Interval Tested 4293-4310 Zone Tested "K"
 Anchor Length 17 Drill Pipe Run 4147 Mud Wt. 9.4
 Top Packer Depth 4289 Drill Collars Run 148 Vis 47
 Bottom Packer Depth 4293 Wt. Pipe Run Ø WL 7.6
 Total Depth 4310 Chlorides 2700 ppm System LCM 1

Blow Description IF: BOB in 2 Min
IS: Return Blow Built to Surface Blow After 12 Min
FF: BOB in 2 Min
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>MUD with oil spots</u>			<u>100</u>	
<u>124</u>	<u>MUD SWCM</u>		<u>20</u>	<u>80</u>	
<u>830-1082</u>	<u>SW</u>		<u>100</u>		
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1140 BHT 130 Gravity — API RW 1398 @ 70.1° F Chlorides 19,000 ppm
 (A) Initial Hydrostatic 2159 Test 1250 T-On Location 10:00
 (B) First Initial Flow 190 Jars 250 T-Started 10:28
 (C) First Final Flow 272 Safety Joint 75 T-Open 12:08
 (D) Initial Shut-In 764 Circ Sub NC T-Pulled 13:13
 (E) Second Initial Flow 310 Hourly Standby _____ T-Out 15:27
 (F) Second Final Flow 523 Mileage 62RT 99.20/- Comments _____
 (G) Final Shut-In 761 Sampler _____
 (H) Final Hydrostatic 2136 Straddle _____
 Ruined 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 1674.20
 Final Shut-In 30 Accessibility _____ MP/DST Disc't _____
 Sub Total 1674.20

Approved By Vern C Schrag Our Representative Mike Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50176

Well Name & No. Roger #1-20 Test No. 5 Date 3-29-13
 Company LARSON Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Road Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4329-4345 Zone Tested Middle Creek
 Anchor Length 16 Drill Pipe Run 4175 Mud Wt. 9.2
 Top Packer Depth 4325 Drill Collars Run 148 Vis 58
 Bottom Packer Depth 4329 Wt. Pipe Run Ø WL 7.6
 Total Depth 4345 Chlorides 2600 ppm System LCM 1

Blow Description IF: Weak Surface Blow
IS: NO Return Blow
FF: Weak Surface Blow Died in 10 Min
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>MUD with oil spots</u>			<u>100</u>	

Rec Total 5 BHT 111 Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic 2180 Test 1250 T-On Location 01:45
 (B) First Initial Flow 17 Jars 250 T-Started 02:21
 (C) First Final Flow 18 Safety Joint 75 T-Open 04:16
 (D) Initial Shut-In 770 Circ Sub NC T-Pulled 05:21
 (E) Second Initial Flow 19 Hourly Standby T-Out 07:00
 (F) Second Final Flow 22 Mileage 6.2 RT = 99.20% Comments _____
 (G) Final Shut-In 753 Sampler _____
 (H) Final Hydrostatic 2154 Straddle _____
 Shale Packer 250 Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Sub Total 1924.20
 Total 1924.20
 MP/DST Disc't _____

Approved By Vernon C Schrag Our Representative Mike Robert

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50177

Well Name & No. Roger #1-20 Test No. 6 Date 3-29-13
 Company LALSON Engineering Inc Elevation 2802 KB 2797 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig HD#3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. LANE State KS

Interval Tested 4384-4400 Zone Tested Pleasanton
 Anchor Length 16 Drill Pipe Run 4233 Mud Wt. 9.1
 Top Packer Depth 4380 Drill Collars Run 148 Vis 50
 Bottom Packer Depth ~~4400~~ 4384 Wt. Pipe Run φ WL 7.6
 Total Depth 4400 Chlorides 2800 ppm System LCM 1
 Blow Description IF: Built to 1" Blow
IS: No Return Blow
FF: Built to 5 1/2" Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Free oil</u>	<u>100</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>120</u>	<u>geom</u>	<u>10</u>	<u>0</u>	<u>80</u>	<u>10</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 121 BHT 122 Gravity _____ API RW _____ @ _____ F Chlorides _____ ppm
 (A) Initial Hydrostatic 2148 Test 1250 T-On Location 20:15
 (B) First Initial Flow 18 Jars 250 T-Started 21:24
 (C) First Final Flow 27 Safety Joint 75 T-Open 23:15
 (D) Initial Shut-In 855 Circ Sub T-Pulled 01:05
 (E) Second Initial Flow 30 Hourly Standby T-Out 02:46
 (F) Second Final Flow 75 Mileage 62RT 99.20/- Comments _____
 (G) Final Shut-In 853 Sampler _____
 (H) Final Hydrostatic 2120 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1674.20
 Accessibility _____ MP/DST Disc't _____

Sub Total 1674.20

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60

Approved By Vern C Schrag

Our Representative Mike Rabot

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50178

4/10

Well Name & No.	Roger #1-20	Test No.	7	Date	3-30-13
Company	Larson Engineering Inc.	Elevation	2802	KB	2797 GL
Address	562 W. Slate Rd Olmitz KS 67564				
Co. Rep / Geo.	Vern Schrag	Rig	HD#3		
Location: Sec.	20	Twp.	19S	Rge.	28W Co. LANE State KS

Interval Tested	4403 - 4489	Zone Tested	MARM - A14		
Anchor Length	86	Drill Pipe Run	4237	Mud Wt.	9.2
Top Packer Depth	4399	Drill Collars Run	148	Vis	50
Bottom Packer Depth	4403	Wt. Pipe Run	∅	WL	7.2
Total Depth	4489	Chlorides	2700 ppm System	LCM	1

Blow Description IF: Built to Weak Surface Blow
IS: No Return Blow
FF: No Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
5	mud with oil spots			180	

Rec Total	5	BHT	147	Gravity		API RW	@	F Chlorides	ppm
(A) Initial Hydrostatic	2233	<input checked="" type="checkbox"/> Test	1250	T-On Location	16:18				
(B) First Initial Flow	53	<input checked="" type="checkbox"/> Jars	250	T-Started	16:22				
(C) First Final Flow	54	<input checked="" type="checkbox"/> Safety Joint	75	T-Open	18:23				
(D) Initial Shut-In	64	<input checked="" type="checkbox"/> Circ Sub	NC	T-Pulled	19:28				
(E) Second Initial Flow	53	<input type="checkbox"/> Hourly Standby		T-Out	20:13				
(F) Second Final Flow	64	<input checked="" type="checkbox"/> Mileage	62 RT 99.2%	Comments					
(G) Final Shut-In	68	<input type="checkbox"/> Sampler							
(H) Final Hydrostatic	2181	<input type="checkbox"/> Straddle		<input type="checkbox"/> Ruined Shale Packer					

Initial Open	5	<input checked="" type="checkbox"/> Shale Packer	250.00/-	<input type="checkbox"/> Ruined Packer	
Initial Shut-In	15	<input type="checkbox"/> Extra Packer		<input type="checkbox"/> Extra Copies	
Final Flow	15	<input type="checkbox"/> Extra Recorder		Sub Total	0
Final Shut-In	30	<input type="checkbox"/> Day Standby		Total	1924.20
		<input type="checkbox"/> Accessibility		MP/DST Disc't	
		Sub Total	1924.20/-		

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50179

Well Name & No. Roger #1-20 Test No. 8 Date 3-31-13
 Company LARSON Engineering Inc. Elevation 2802 KB 2797 GL
 Address 562 W. State Road Olmitz KS 67564
 Co. Rep / Geo. Uern Schrag Rig HD #3
 Location: Sec. 20 Twp. 19S Rge. 28W Co. Lane State KS

Interval Tested 4547-4642 Zone Tested Ft. Scott - Cherokee
 Anchor Length 95 Drill Pipe Run 4390 Mud Wt. 9.3
 Top Packer Depth 4543 Drill Collars Run 148 Vis 54
 Bottom Packer Depth 4547 Wt. Pipe Run Ø WL 7.2
 Total Depth 4642 Chlorides 3000 ppm System LCM 1
 Blow Description IF: Built to Weak Surface Blow
IS: No Return Blow
FF: No Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>MUP</u>			<u>100</u>	
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 120 Gravity — API RW — @ — ° F Chlorides — ppm

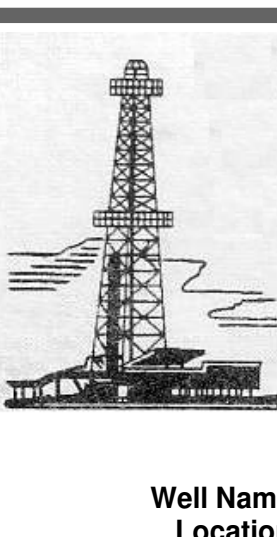
(A) Initial Hydrostatic <u>2331</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>16:15</u>
(B) First Initial Flow <u>54</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>17:22</u>
(C) First Final Flow <u>55</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>19:21</u>
(D) Initial Shut-In <u>67</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>20:26</u>
(E) Second Initial Flow <u>54</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>22:22</u>
(F) Second Final Flow <u>55</u>	<input checked="" type="checkbox"/> Mileage <u>62RT</u> 99.20	Comments
(G) Final Shut-In <u>76</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2294</u>	<input type="checkbox"/> Straddle	

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30

- Ruined Shale Packer
- Ruined Packer
- Extra Copies
- Sub Total 0
- Total 1674.20
- MP/DST Disc't
- Sub Total 1674.20

Approved By James C. Schrag Our Representative Mark Roberts

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.



WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST



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

Well Name: Roger #1-20
 Location: NW NE SE SW SEC. 20-19s-28w
 Licence Number: 15-101-22429
 Spud Date: March 20, 2013
 Surface Coordinates: 1302' FSL & 2145' FWL

Region: Lane Co., KS
 Drilling Completed: April 1, 2013

Bottom Hole Coordinates: 2797' K.B. Elevation (ft): 2804'
 Ground Elevation (ft): 3800' To: RTD Total Depth (ft): 4718'
 Logged Interval (ft): 3800'
 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 4130'; JZ-20 to RTD, 7-7/8"; jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Low" Tresner (tool pusher).

CASING:

Set 8-5/8" casing at 281'

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, displaced 3360'; earth pits, Morgan Mud, Inc., Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to surface casing; LogTech-Pioneer Wireline, Hays, KS, Chris Desaire, Log total depth (4718') was equal to rotary total depth (4718').

DRILL STEM TEST #1:

LKC "H": Interval: 4192-4212 (22'); Blow: weak surf IFP, no RB, no blow at first then built to 1/8" FFP, no RB; Times: 5-15-30-60; Recovery: 30' mud with oil spots; Pressures: HP: 2111-2076, SIP: 896-912; FP: 16-18, 19-23; BHT: 115 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #2:

LKC "I": Interval: 4235-4260 (25'); Blow: weak incr to 1" IFP, no RB, weak incr to 8" FFP, no RB; Times: 5-15-30-60; Recovery: 178' TF, no GIP, no water; 10' Oil (no sample), 20' GMCO (10%G, 50%O, 40%M), 148' HOCM (40%O, 60%M); Pressures: HP: 2134-2150; SIP: 876-876; FP: 21-32, 36-86; BHT: 116 F; bottom stand did not appear visually to be heavy oil cut mud; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #3:

LKC "J": Interval: 4265-4278 (13'); Blow: weak incr 2" IFP, no RB, incr to 8" FFP, no RB; Times: 5-15-30-60; Recovery: 208' TF; 120' SOCM (2%O, 98%M), 88' WM (40%W, 60%M, Rw 0.644 at 39.6 F, chlorides 19k); Pressures: HP: 2101-2107; SIP: 619-618; FP: 21-39, 41-111; BHT: 125 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #4:

LKC "K": Interval: 4293-4310 (17'); Blow: BOB 2 min IFP, weak surf RB after 12 min ISIP, BOB 2 min FFP, no RB; Times: 5-15-30-60; Recovery: 1140' TF; 186' mud w/oil spots (100%M), 124' WM (20%W, 80%M), 830' SW (Rw 0.938 at 70 F, chlorides 19k); Pressures: HP: 2159-2136, SIP: 764-761, FP: 190-272, 310-523; BHT: 130 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #5:

LKC "Lower-K" thru Middle Creek: 4329-4345 (16'); Blow: weak surf IFP, no RB, surf blow died 10 min FFP; Times: 5-15-15-30; Recovery: 5' mud with oil spots (100%M); Pressures: HP: 2180-2154; SIP: 770-753; FP: 17-18, 19-22; BHT: 111 F; ran shale packer; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #6:

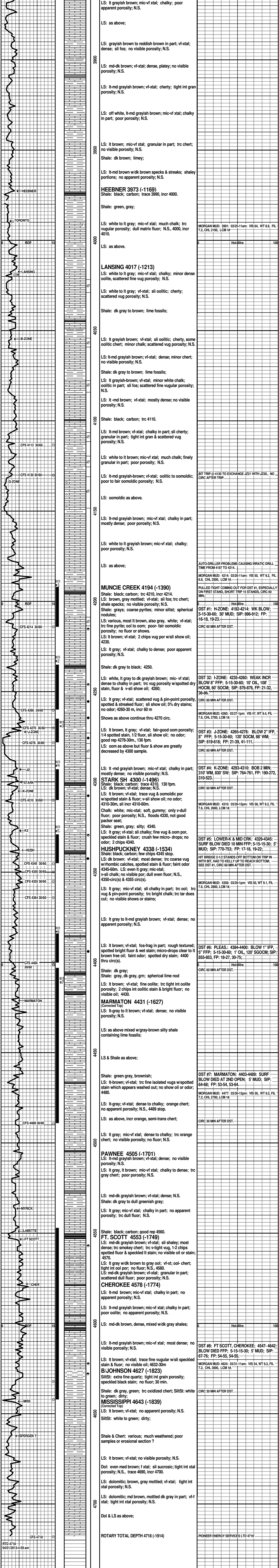
Pleasanton: Interval: 4384-4400 (16'); Blow: weak incr to 1" IFP, no RB, weak 1/8" blow for about 5 min then incr to 5.5" FFP; no RB; Times: 5-15-30-60; Recovery: 121' TF; 1' oil, 120' GOCM (10%G, 10%O, 80%M); Pressures: HP: 2148-2120; SIP: 855-853; FP: 18-27, 30-75; BHT: 121 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #7:

Marmaton: Interval: 4403-4489 (86'); Weak surf blow IFP, no RB, no blow FFP; Times: 5-15-15-30; Recovery: 5' mud with oil spots (100%M); Pressures: HP: 2233-2181; SIP: 64-68; FP: 53-54, 53-64; BHT: 117 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.

DRILL STEM TEST #8:

Ft. Scott, Cherokee Interval: 4547-4642 (95'); Blow: weak surf IFP, no RB, no blow FFP; Times: 5-15-15-30; Recovery: 5' mud (100%M); Pressures: HP: 2331-2294; SIP: 67-76; FP: 54-55, 54-55; BHT: 120 F; Trilobite Testing, Inc., Scott City, KS, Mike Roberts.





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

TICKET No 24251

PAGE 1 OF 1

SERVICE LOCATIONS: Ness City KS
 WELL/PROJECT NO: 1-20 LEASE: Roger COUNTY/PARISH: LANE STATE: KS CITY: Dalton DATE: 10 APR 13 OWNER: _____
 TICKET TYPE: SERVICE SALES CONTRACTOR: FRITZLER RIG NAME/NO: _____ SHIPPED: VC DELIVERED TO: location ORDER NO: _____
 WELL TYPE: D1 WELL CATEGORY: Development JOB PURPOSE: cement post collar WELL PERMIT NO: _____ WELL LOCATION: 20-19-28

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.		U/M		UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE	40		Mi		6.00	240.00
576D		1			Pump Charge					12.50	1250.00
330		1			SMD cement	160		SK		16.50	2640.00
					Subsoil						
276		1			Floacle	60		lb		2.00	120.00
290		1			D-AIR	2		gal		35.00	70.00
583		1			Drayage	23	35	lb	467.00	1.00	467.00
581		1			Service Charge	235		SK		2.00	470.00

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.

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

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?				5257.70
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?	<input type="checkbox"/> YES <input type="checkbox"/> NO			
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND				
TOTAL				5464.29

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.
 SWIFT OPERATOR: ABG/bell APPROVAL: _____
 Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 10 APR 13 PAGE NO. 1

CUSTOMER Larson Engineering WELL NO. 1-20 LEASE ROGER JOB TYPE cement port collar TICKET NO. 24251

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								235 sk SMD w/ 1/2" floater 2 3/8 x 5 1/2 port collar 2104'
	1000							on loc TRK 114
	1015					1000	1000	test - to 1000 psi - held
	1210	3 1/2	2			400		open port collar inj rate 3 1/2 bpm @ 400 psi
	1215	3 1/2				400		mix SMD cement @ 11.2 ppw
		3 1/2	16			400		- fluid to surface -
	1240	3 1/2	85			500		- Cement to surface -
								160 sk mixed 200 ft
	1250					1000	1000	close port collar test to 1000 psi - held
								Run 5 joints
			25					Reverse hole clean - 2 cement plugs -
								wash truck
								Rack up
								job complete
								Thanks Blake Doug TJ & John

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



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

Mark Sievers, Chairman
Thomas E. Wright, Commissioner
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

July 17, 2013

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

Re: ACO1
API 15-101-22429-00-00
Roger 1-20
SW/4 Sec.20-19S-28W
Lane County, Kansas

Dear Production Department:

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

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

Respectfully,
Thomas Larson