



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1233377
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: _____

1233377

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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> _____	PRODUCTION INTERVAL: _____ _____
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OPERATOR

Company: TDI, INC.
 Address: 1310 BISON ROAD
 HAYS, KANSAS 67601

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: GEORGE # 2
 Location: N2 NW SW NW, S18-T12S-R18W
 API: 15-051-26,738-00-00
 Pool:
 State: KANSAS

Field: UNNAMED
 Country: USA



Scale 1:240 Imperial

Well Name: GEORGE # 2
 Surface Location: N2 NW SW NW, S18-T12S-R18W
 Bottom Location:
 API: 15-051-26,738-00-00
 License Number: 4787
 Spud Date: 10/16/2014 Time: 3:30 PM
 Region: ELLIS COUNTY Time: 6:42 AM
 Drilling Completed: 10/22/2014
 Surface Coordinates: 1500' FNL & 330' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2175.00ft
 K.B. Elevation: 2185.00ft
 Logged Interval: 2550.00ft To: 3900.00ft
 Total Depth: 3900.00ft
 Formation: LANSING-KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.3699421
 Latitude: 39.0118166
 N/S Co-ord: 1500' FNL
 E/W Co-ord: 330' FWL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 WEST 35TH STREET
 HAYS, KANSAS 67601

Phone Nbr: 785-625-3380
 Logged By: GEOLOGIST Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC.
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 10/16/2014 Time: 3:30 PM
 TD Date: 10/22/2014 Time: 6:42 AM

ELEVATIONS

K.B. Elevation: 2185.00ft
K.B. to Ground: 10.00ft

Ground Elevation: 2175.00ft

NOTES

DECISION TO RUN PRODUCTION CASING TO FURTHER TEST LANSING-KANSAS AND TORONTO BASED ON FAVORABLE STRUCTURE AND LOG ANALYSIS

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC: TWO (2) CONVENTIONAL TESTS

FORMATION TOPS COMPARISON

	GEORGE # 2 N2 NW SW NW SEC.18-12S-18W 2175'GL 2185'KB	STACKHOUSE RANCH #1 SW SE NE NE SEC.13-12-19W KB 2208'	GEORGE # 1 NW SW SE NW SEC.18-12-18W KB 2217'
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1506+ 679	+ 673	+ 684
B-Anhydrite	1542+ 643	+ 644	+ 650
Topeka	3197-1012	-1012	-1011
Heebner Shale	3428-1243	-1242	-1242
Toronto	3447-1262	-1260	-1262
LKC	3472-1287	-1286	-1286
BKC	3705-1520	-1518	-1520
Arbuckle	3802-1617	-1610	NR
RTD	3900-1715	-1691	-1681

SUMMARY OF DAILY ACTIVITY

10-16-14 RU, spud 3:30 PM, set 8 5/8" surface casing to 221' w/ 150 sxs
Common 2% Gel, 3%CC, slope 1/2 degree, plug down 9:15PM

10-17-14 333', drill plug at 5:15AM

10-18-14 1866', drilling, displaced 2533'-2548'

10-19-14 2830', drilling

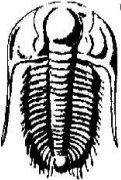
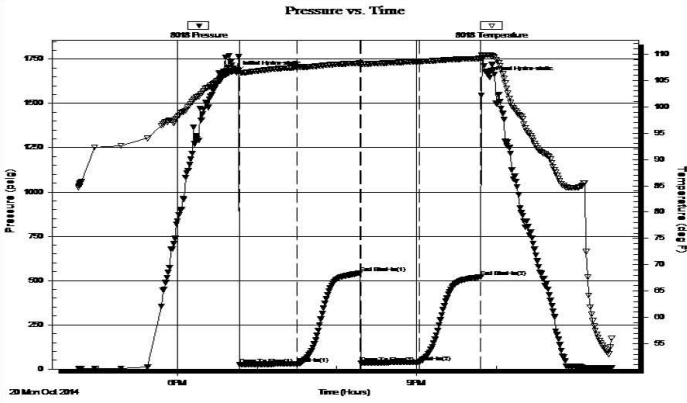
10-20-14 3471', drilling, CFS 3484', ST, CFS 3540', DST # 1 3420'-3540'

10-21-14 3620', TIWB, drilling, CFS 3565', CFS 3660', DST #2 3574'-3660'


10-22-14 3900', RTD 3900' @6:42AM, CCH, TOWB, logs, LDDP, run casing

10-23-14 3900', finish running casing and cementing, RD

DST # 1 TEST SUMMARY

 TRILOBITE TESTING, INC.	<h3>DRILL STEM TEST REPORT</h3>																																								
TDI, Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning, Herb D	18-12s-18w Ellis George #2 Job Ticket: 60891 DST#: 1 Test Start: 2014.10.20 @ 16:45:29																																								
GENERAL INFORMATION: Formation: Tor- LKC D Deviated: No Whipstock: ft (KB) Time Tool Opened: 18:46:54 Time Test Ended: 23:27:23 Interval: 3420.00 ft (KB) To 3540.00 ft (KB) (TVD) Total Depth: 3540.00 ft (KB) (TVD) Hole Diameter: 7.85 inches Hole Condition: Fair Test Type: Conventional Bottom Hole (Initial) Tester: Ray Schwager Unit No: 70 Reference Elevations: 2185.00 ft (KB) 2175.00 ft (CF) KB to GR/CF: 10.00 ft																																									
Serial #: 8018 Inside Press@RunDepth: 40.16 psig @ 3422.00 ft (KB) Capacity: 8000.00 psig Start Date: 2014.10.20 End Date: 2014.10.20 Last Calib.: 2014.10.20 Start Time: 16:45:29 End Time: 23:27:23 Time On Btm: 2014.10.20 @ 18:44:24 Time Off Btm: 2014.10.20 @ 21:54:53																																									
TEST COMMENT: 45-IFP-w k bl thru-out 1/4" to 1 1/2" bl 45-ISIP-no bl 45FFP-no bl 1st 7min, then surface bl thru-out 45-FSIP-no bl																																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">PRESSURE SUMMARY</th> </tr> <tr> <th style="width: 10%;">Time (Min.)</th> <th style="width: 15%;">Pressure (psig)</th> <th style="width: 15%;">Temp (deg F)</th> <th style="width: 60%;">Annotation</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1675.71</td> <td>106.78</td> <td>Initial Hydro-static</td> </tr> <tr> <td>3</td> <td>25.90</td> <td>106.27</td> <td>Open To Flow (1)</td> </tr> <tr> <td>46</td> <td>30.66</td> <td>107.47</td> <td>Shut-In(1)</td> </tr> <tr> <td>93</td> <td>543.14</td> <td>108.29</td> <td>End Shut-In(1)</td> </tr> <tr> <td>94</td> <td>34.92</td> <td>108.11</td> <td>Open To Flow (2)</td> </tr> <tr> <td>138</td> <td>40.16</td> <td>108.59</td> <td>Shut-In(2)</td> </tr> <tr> <td>184</td> <td>520.12</td> <td>109.18</td> <td>End Shut-In(2)</td> </tr> <tr> <td>191</td> <td>1648.07</td> <td>109.81</td> <td>Final Hydro-static</td> </tr> </tbody> </table>	PRESSURE SUMMARY				Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1675.71	106.78	Initial Hydro-static	3	25.90	106.27	Open To Flow (1)	46	30.66	107.47	Shut-In(1)	93	543.14	108.29	End Shut-In(1)	94	34.92	108.11	Open To Flow (2)	138	40.16	108.59	Shut-In(2)	184	520.12	109.18	End Shut-In(2)	191	1648.07	109.81	Final Hydro-static
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DST # 2 TEST SUMMARY

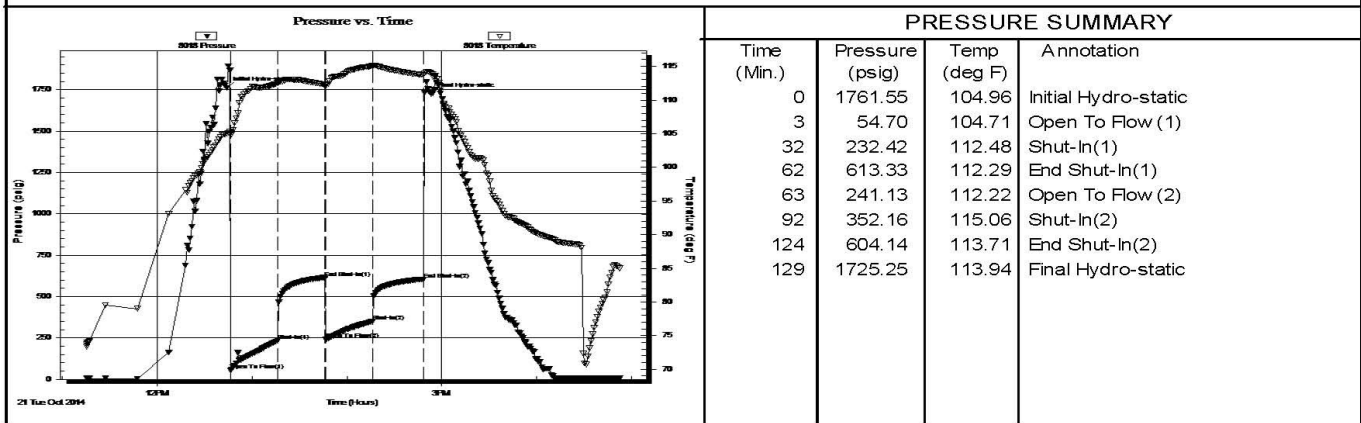
	DRILL STEM TEST REPORT	
	TDI, Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning, Herb D	18-12s-18w Ellis George #2 Job Ticket: 60892 DST#: 2 Test Start: 2014.10.21 @ 11:15:48

GENERAL INFORMATION:

Formation: LKC H-J	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock ft (KB)	Tester: Ray Schwager
Time Tool Opened: 12:46:43	Unit No: 70
Time Test Ended: 16:52:12	Reference Elevations: 2185.00 ft (KB)
Interval: 3574.00 ft (KB) To 3660.00 ft (KB) (TVD)	2175.00 ft (CF)
Total Depth: 3660.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.85 inches	Hole Condition: Fair

Serial #: 8018	Inside	Capacity: 8000.00 psig
Press@RunDepth: 352.16 psig @ 3576.00 ft (KB)	Start Date: 2014.10.21	Last Calib.: 2014.10.21
Start Time: 11:15:48	End Date: 2014.10.21	Time On Btm: 2014.10.21 @ 12:44:13
	End Time: 16:52:12	Time Off Btm: 2014.10.21 @ 14:53:13

TEST COMMENT: 30-IFP-w k to strg in 4min
 30-ISIP-no bl
 30-FFP-w k to strg in 8min
 30-FSIP-no bl



Recovery			Gas Rates		
Length (ft)	Description	Volume (bbl)	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
278.00	SOCWM 2% O38% VV60% M	3.90			
434.00	SOCMV 1% O20% M79% VV	6.09			

* Recovery from multiple tests

TriLOBITE Testing, Inc

Ref. No: 60892

Printed: 2014.10.21 @ 20:18:13

Image Header 04

Image Header 05

ROCK TYPES



Chtcongl
 Lmst fw7>
 Carbon Sh
 Ss
 Dolprim
 shale, grn
 shale, red
 Lscongl

ACCESSORIES

MINERAL
▲ Chert, dark

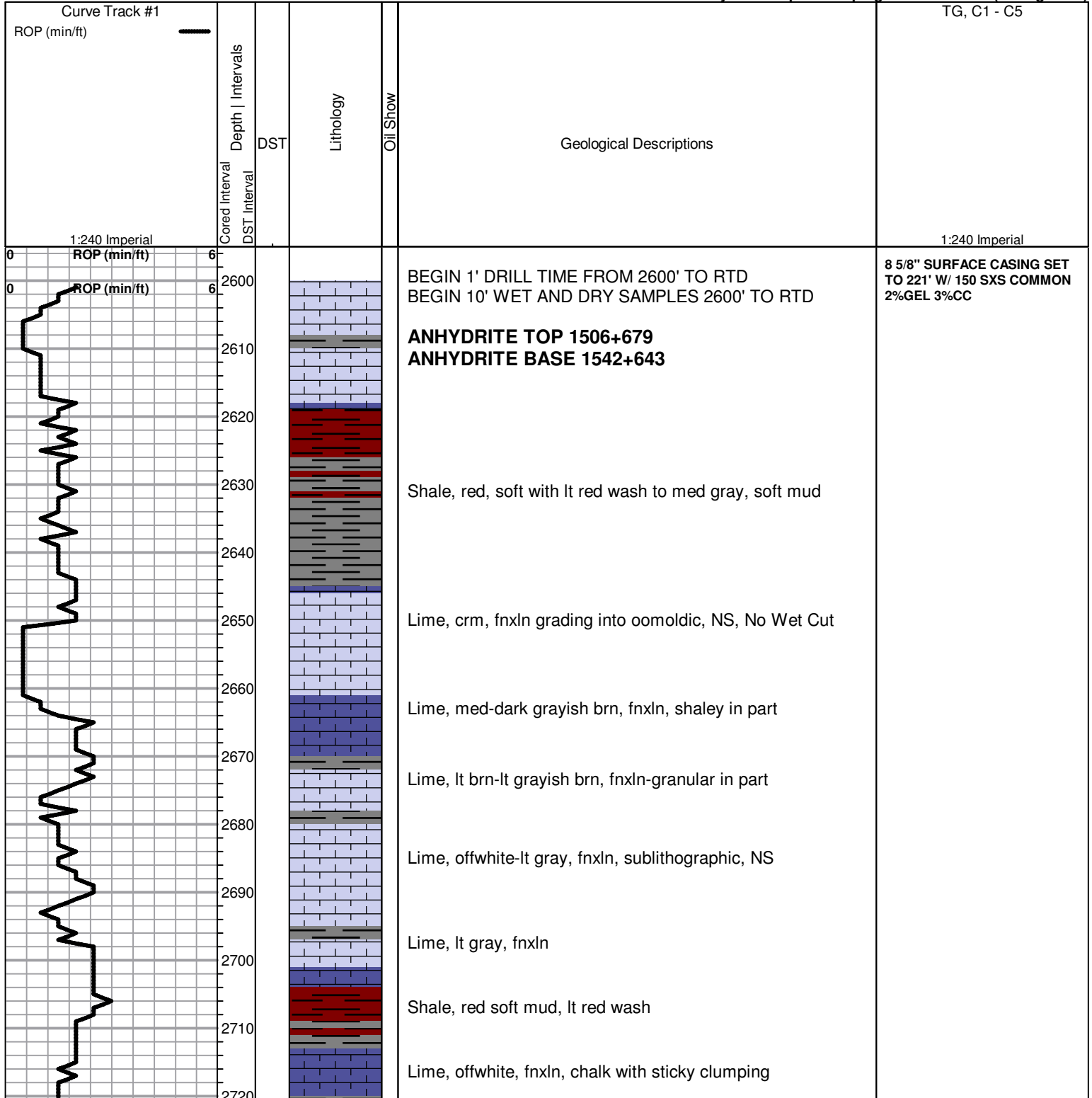
FOSSIL
⊗ Fossilinid

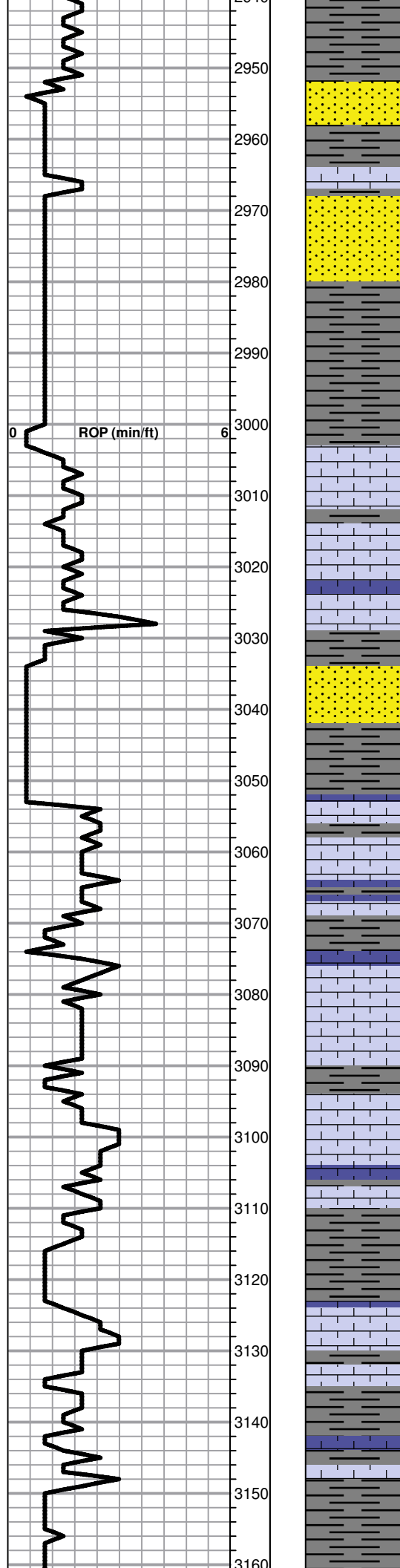
OTHER SYMBOLS

Oil Show
 ● Good Show
 ● Fair Show
 ○ Poor Show
 ○ Spotted or Trace
 ○ Questionable Stn
 D Dead Oil Stn
 ■ Fluorescence
 * Gas

DST
 DST Int
 DST alt
 Core
 tail pipe

Printed by GEOstrip VC Striplog version 4.0.8.9 (www.grsi.ca)





Shale, lt gray, soft mud

Sandstone, lt gray, very fine grain, gritty, poorly sorted, micaceous, NS

DOVER LIME ELog 2964-779

Sandstone, lt gray, fine grained, laminated, micaceous, NS

Shale, lt-med gray, soft mud to soft blocky

STOTLER/TARKIO LIME ELog 3003-818

Lime, lt-med brn-med grayish brn, fnxln, slightly fossiliferous

Lime, crm, fnxln

Lime, crm-lt brn-lt gray, fnxln, slightly fossiliferous

Sandstone, very fine and poorly developed, NS

Shale, med-dark gray, soft-firm blocky

Lime, crm-lt gray, fnxln

Lime, lt-dark brn, fnxln

Shale, lt-med gray, firm blocky

Lime, med brn-med grayish brn, fn-vfxln, slightly fossiliferous

Lime, lt-med brn-lt grayish brn, fnxln

Lime, lt-med brn, fn-vfxln, thin cemented fusulinid beds

Lime, med brn-med gray, fnxln

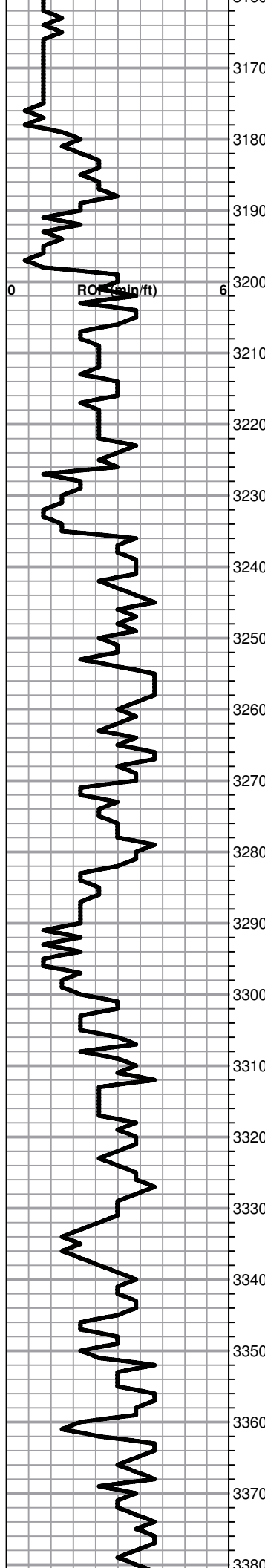
Shale, lt-med gray, soft-firm blocky

Lime, med brn, fnxln, gray fossiliferous mottling

Lime, med brn, fnxln, lt sticky chalk clumps in part

Lime, med grayish brn, fnxln, fossiliferous

Shale, dove gray forming soft mud



3170
3180
3190
3200
3210
3220
3230
3240
3250
3260
3270
3280
3290
3300
3310
3320
3330
3340
3350
3360
3370
3380

Shalae, lt-med gray, soft mud to soft blocky

Lime, crm-lt brn, chalky matrix with sticky chalk clumping

Lime, crm-lt brn, fnxln

Shale, lt-med gray, soft blocky

TOPEKA ELog 3197-1012

Lime, crm-lt brn, fnxln , slight bedded chalk

Lime, crm-lt brn, fn-micro xln in part

Lime, lt brn-lt grayish brn, fnxln

Lime, lt brn, fnxln-granular/oomoldic, NS

Lime, med brn-med gray, fnxln, slightly fossiliferous

Lime, lt brn, fnxln, slightly fossiliferous

Lime, lt brn-lt grayish brn, fn-vfxln

Lime, lt brn-lt grayish brn, fnxln, slightly fossiliferous

Lime, lt-med brn, fnxln

Lime, lt brn, granular, chalky with scattered fossils

Shale, black carbonaceous, blocky

Lime, lt brn, fnxln

Lime, crm, fnxln, bedded chalk with lt chalk wash, sublithographic

Lime, crm, fnxln, chalky with lt white wash

Lime, crm-lt brn, fnxln, bedded chalk

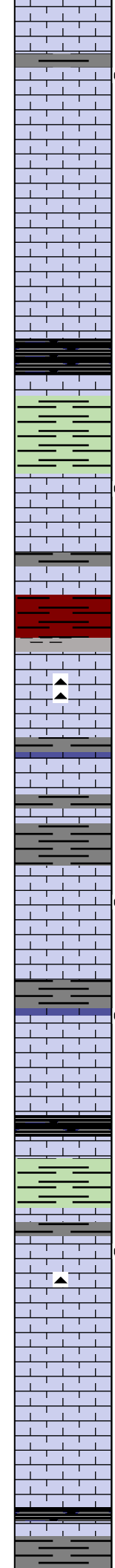
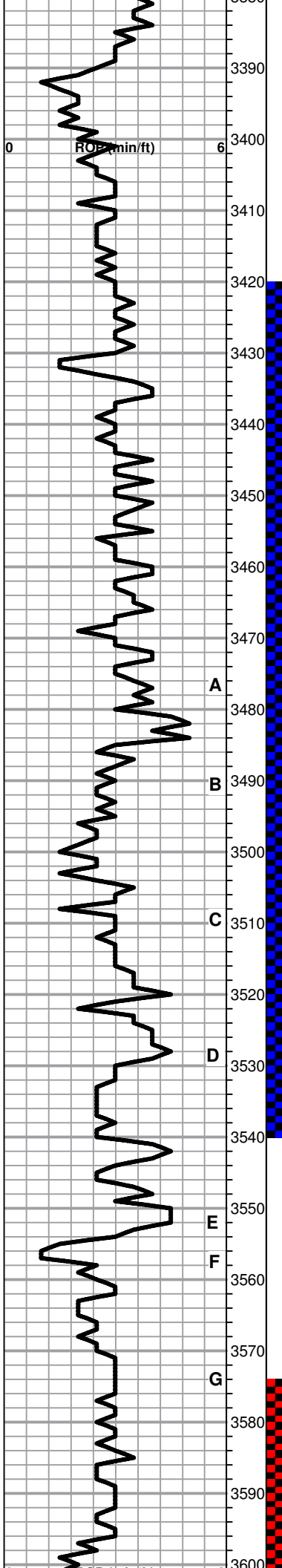
Lime, lt-med brn, fnxln with gray mottling in part

Shale, black carbonaceous, fissile, blocky

Lime, lt-med brn, fnxln

Lime, crm, fnxln, bedded chalk in part, NS

Lime, crm, fnxln, bedded chalk, NS

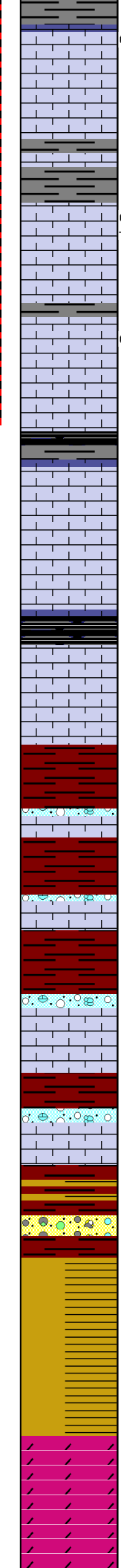
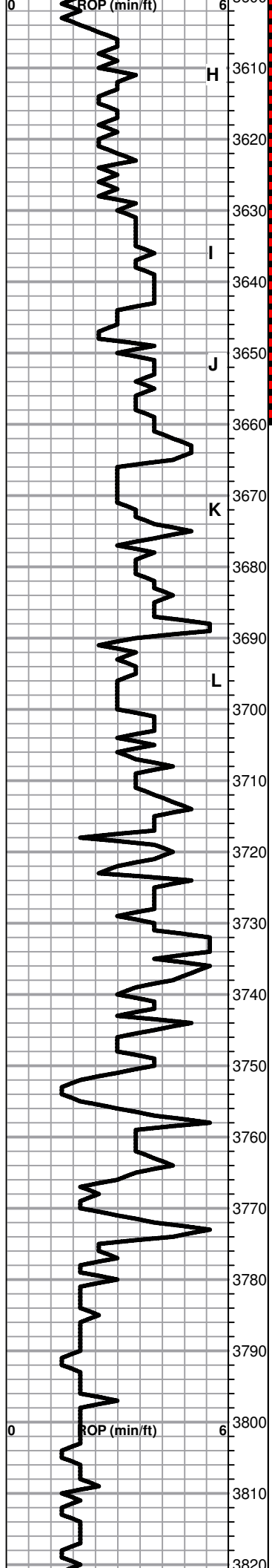


- 3390 ○ Lime, tan, coarse granular with fossil fragments, spotty dark stain, NFO, No Odor, interxltn porosity
- 3400 Lime, crm-lt brn, fnxln, bedded chalk in part
- 3410 Lime, crm-tan, fnxln
- 3420 Lime, tan-lt brn, fnxln, bedded chalk
- HEEBNER SHALE ELog 3428-1243**
- 3430 Shale, black carbonaceous, fissile, blocky
- Lime, lt brn, vfxln
- 3440 Shale, lime green, soft mud
- TORONTO ELog 3447-1262**
- 3450 ○ Lime, crm, fnxln with thin oolitic zone with fine interxltn fill, scattered-saturated staining, NFO, No Odor
- 3460 Lime, white-crm, fnxln, bedded chalk
- 3470 Shale, dove gray-red, soft mud with lt red wash
- LKC ELog 3472-1287**
- 3480 ▲ Lime, lt brn, fn-micro xln
- ▲ Chert, tan, fresh, sharp
- Lime, tan with gray tinting in part, fn-micro xln
- 3490 B Lime, lt brn, fnxln, gray mottling in part, NS
- 3500 Shale, med gray, firm, calcareous in part
- 3510 C ○ Lime, crm, fnxln with thin oolitic bed with inter oolitic porosity, scattered-saturated staining, very lt odor, NFO
- Lime, crm, fnxln, cemented oolitic beds, slight bed chalk
- 3520 D ○ Lime, white-crm, fnxln, spotty staining in fossil casts and few vugs, NFO, No Odor
- Lime, crm, fn-vfxln, slight bedded chalk, lithographic grading into lt gray, fnxln lime near shale boundary
- 3530 E Shale, black carbonaceous
- Lime, lt gray, fnxln
- 3540 Shale, lime green, soft mud
- Lime, crm-lt brn, fnxln
- 3550 F ○ Lime, crm, granular, trace spotty stain in interxltn porosity with trace of hydrocarbon on crush, not well developed
- 3560 ▲ Lime, crm-offwhite, fn-vfxln
- 3570 G Lime, offwhite-crm, fn-vfxln
- Lime, crm-lt gray, fn-vfxln
- 3580 Shale, gray-black carbonaceous, fissile, blocky
- 3590 Shale, med gray, firm blocky, calcareous in part
- 3600

CFS 3484' & SHORT TRIP

DST # 1 3420' TO 3540' SEE
HEADER FOR TEST SUMMARY

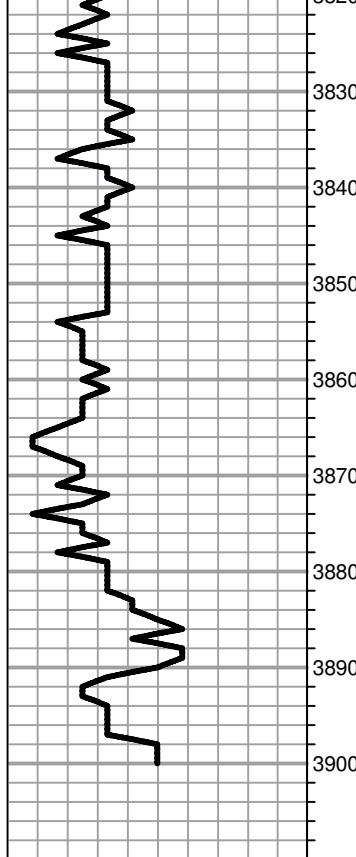
CFS 3565'



Lime, lt brn, mostly fn-micro xln, slight bedded chalk, few chips with trace of stain, appears poorly developed
 Lime, tan-lt brn, fn-micro xln
 Shale, gray-grayish green, soft-firm blocky
 Lime, white-crm, fn-vfxln, Good Odor and lt spotty staining along flat surfaces indicating possible fracturing,
 Lime, crm-lt brn, fn-vfxln
 Lime, lt brn, fn-vfxln, slight bedded chalk, scattered lt stain, NFO,
 Lime, lt brn, fn-vfxln
 Shale, gray-black carbonaceous
 Lime, white-crm, fn-micro xln, NS
 Lime, lt brn-lt gray, fnxln
 Shale, gray-black carbonaceous, blocky
 Lime, crm-lt brn, fn-vfxln
BKC ELog 3705-1520
 Shale, reddish brn, firm blocky
 Lime, crm-lt brn, fn-vfxln
 Shale, reddish brn, firm blocky
 Lime, crm-lt brn, fn-vfxln, clastic lime mix in part
 Shale, red, soft mud, lt red wash
 Lime, white with red shale staining, fnxln with soft chalk
 Shale, brn-dark brn, firm blocky
 Lime, white, fnxln, clastic lime mix in part
 Shale, reds, brns, vari color, soft mud-soft blocky
 Shale, vary color, firm blocky, lt red wash
 Shale, vari color, reds, brns, maroon, moderately firm blocky
ARBUCKLE ELog 3802-1617
 Dolomite, lt brn, fnxln-granular, NS
 Dolomite, crm-lt brn, fnxln-granular, inter xln porosity
 Dolomite, crm-lt brn, fnxln-granular

DST # 2 3574' TO 3660' SEE HEADER FOR TEST SUMMARY

CFS 3660'



Dolomite, lt brn, fnxln with scattered sucrosic chips

Dolomite, lt brn-lt salmon, fnxln-ganular

Dolomite, lt brn-lt salmon, fnxln-ganular, few oomoldic chips

Dolomite, lt-med brn, hard granular with oolitic chert

Dolomite, ivory-lt brn, fnxln-ganular, scattered quartz grain and cluster inclusions

Dolomite, lt brn, fnxln-ganular

Dolomite, crm-lt-med brn, fnxln-ganular, oolitic chert

Dolomite, lt brn, fnxln-ganular

RTD 3900-1715 LTD 3901-1716

5 1/2" 14# PRODUCTION CASING SET TO 3896' W/ 150 SXS EA2 ON BOTTOM STAGE AND 155 SXS SMD ON TOP STAGE THROUGH DV TOOL. 30 SXS IN RATHOLE AND 15 SXS IN MOUSEHOLE

JOB LOG

SWIFT Services, Inc.

DATE 10-22-14 PAGE NO. 1

CUSTOMER T.D.I. WELL NO. #2 LEASE George JOB TYPE Cement 2-Stage L.S. TICKET NO. 26898

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		TD3900'	DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING		
	2130					14 #/ft	5 1/2		On location - 1-Float Equip.
	2345								Rig L.D.D.C Start 5 1/2" - 14 #/ft casing to 3898' Insert Float Shoe w/ Auto-Fill D.V. L.D. Baffle - SJ-42' = 3856' = 94 881 Cent-1-3-5-7-9-11-13-55 Cmt Basket - Flarend #2-10-56 D.V. Tool #56 collar @ 1513' = 37 881 (Fill-up ball - 5 Jts out)
	0130								Fin running casing Tag + Lay down It
	0140								Start circ & Rotate 30 min / 30 min Desco Fin circ - 1st stage
		5	12				250		Start 500gal Mucal Flush
		6	20				300		Pump 20 BBL KCL Flush
		5					250		Start 150 SKS FA-2 cmt
		4	36				Vac		Finish cut - Wash out pump lines Drop D.V. LD, Plug -
		9					400		Start Displ
		8					500		Caught 1. Pf press
		6	70				1100		last circ press
		5	93				1600		Plug obtain - Hold - Release - Hold
	0315		94						Drop D.V. opening tool Plug RH-30 SKS / MH-15 SKS - SMD cut
			47						
	0335						1400		Open D.V. for 2nd stage Continue Plug
		5	5				250		Start 155 SKS SMD cut
			86				Vac		Finish cut - Drop casing Plug
		5					300		Start Displ
							500		last circ press - 30 BBL SMD cut circulate
	0415						1300		Plug down - D.V. closed - Hold - Release
							0		Job Complete

For, Tom, Steve & Jared



DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

George #2

18-12s-18w Ellis,KS

Start Date: 2014.10.20 @ 16:45:29

End Date: 2014.10.20 @ 23:27:23

Job Ticket #: 60891 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.24 @ 08:47:35



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

TDI
 1310 Bison Rd
 Hays KS 67601-9696
 ATTN: Tom Denning, Herb D

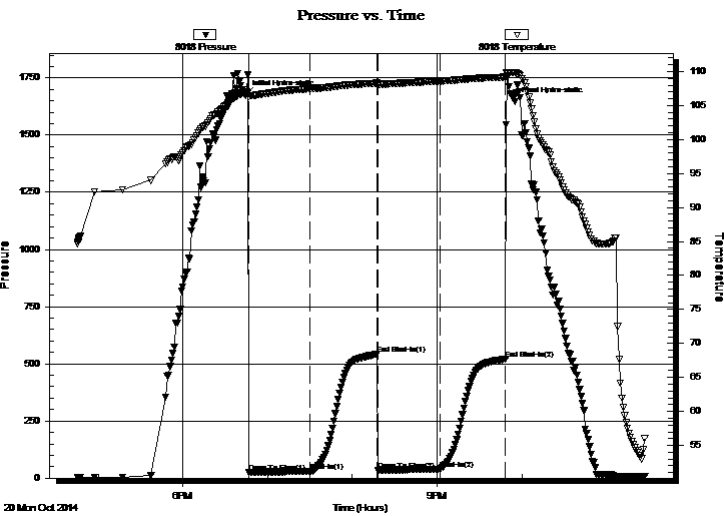
18-12s-18w Ellis,KS
George #2
 Job Ticket: 60891 **DST#: 1**
 Test Start: 2014.10.20 @ 16:45:29

GENERAL INFORMATION:

Formation: **Toronto - LKC D**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 18:46:54 Tester: Ray Schwager
 Time Test Ended: 23:27:23 Unit No: 70
 Interval: **3420.00 ft (KB) To 3540.00 ft (KB) (TVD)** Reference Elevations: 2185.00 ft (KB)
 Total Depth: 3540.00 ft (KB) (TVD) 2175.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 8018 Inside
 Press@RunDepth: 40.16 psig @ 3422.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.20 End Date: 2014.10.20 Last Calib.: 2014.10.20
 Start Time: 16:45:29 End Time: 23:27:23 Time On Btm: 2014.10.20 @ 18:44:24
 Time Off Btm: 2014.10.20 @ 21:54:53

TEST COMMENT: 45-IFP-w k bl thru-out 1/4" to 1 1/2" bl
 45-ISIP-no bl
 45FFP-no bl 1st 7 min, then surface bl thru-out
 45-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1675.71	106.78	Initial Hydro-static
3	25.90	106.27	Open To Flow (1)
46	30.66	107.47	Shut-In(1)
93	543.14	108.29	End Shut-In(1)
94	34.92	108.11	Open To Flow (2)
138	40.16	108.59	Shut-In(2)
184	520.12	109.18	End Shut-In(2)
191	1648.07	109.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	45' GIP	0.00
45.00	OCM 10%O90%M	0.63

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning , Herb D

18-12s-18w Ellis,KS
George #2
Job Ticket: 60891 **DST#: 1**
Test Start: 2014.10.20 @ 16:45:29

Tool Information

Drill Pipe:	Length: 3429.00 ft	Diameter: 3.80 inches	Volume: 48.10 bbl	Tool Weight: 2200.00 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 48.10 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3420.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	120.00 ft			
Tool Length:	141.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3400.00	
Shut In Tool	5.00			3405.00	
Hydraulic tool	5.00			3410.00	
Packer	5.00			3415.00	21.00 Bottom Of Top Packer
Packer	5.00			3420.00	
Stubb	1.00			3421.00	
Perforations	1.00			3422.00	
Recorder	0.00	8018	Inside	3422.00	
Recorder	0.00	8700	Outside	3422.00	
Blank Spacing	95.00			3517.00	
Perforations	20.00			3537.00	
Bullnose	3.00			3540.00	120.00 Bottom Packers & Anchor

Total Tool Length: 141.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **18-12s-18w Ellis,KS**
 1310 Bison Rd **George #2**
 Hays KS 67601-9696 Job Ticket: 60891 **DST#: 1**
 ATTN: Tom Denning , Herb D Test Start: 2014.10.20 @ 16:45:29

Mud and Cushion Information

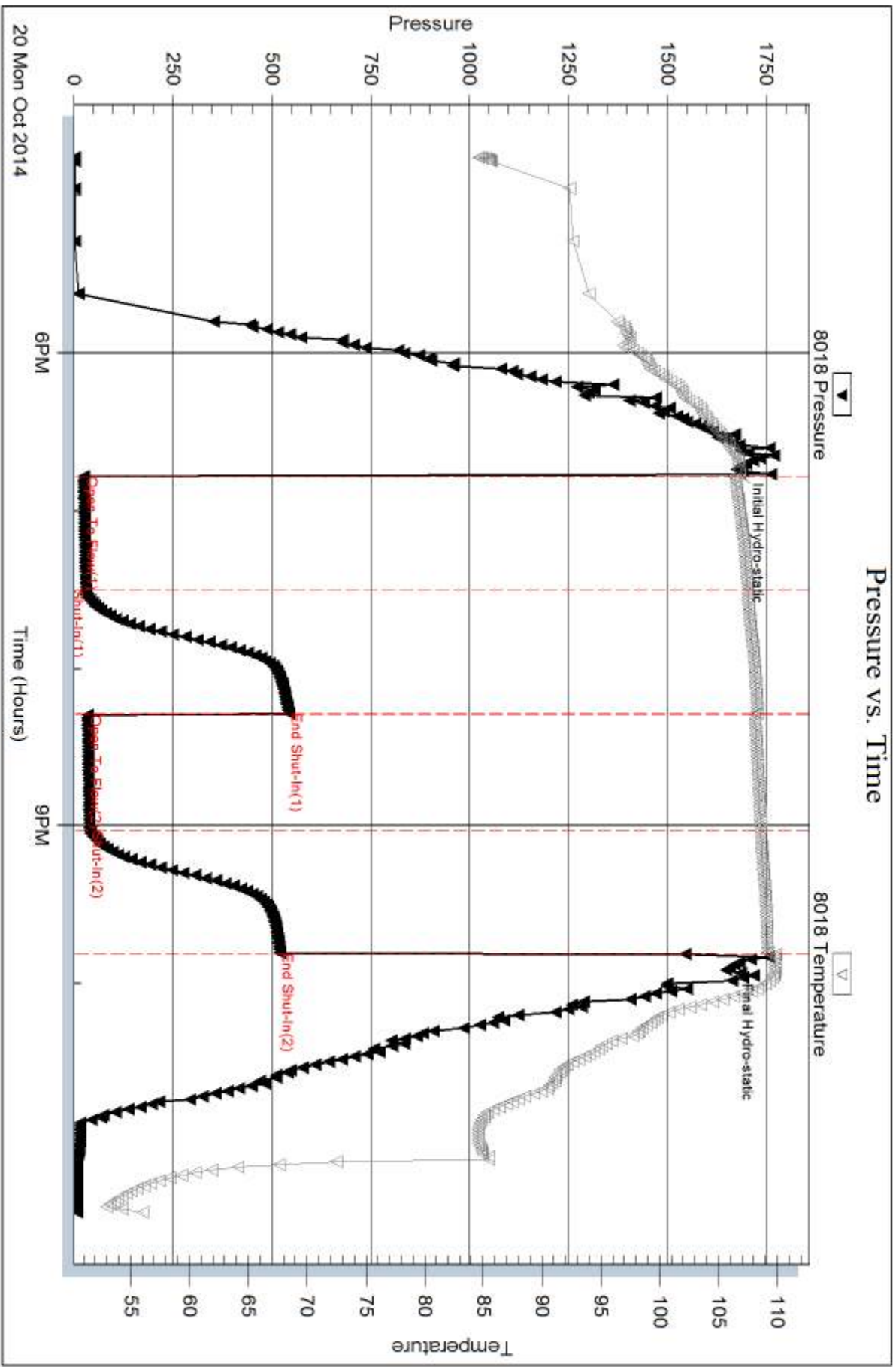
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.37 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1400.00 ppm			
Filter Cake: 1.00 inches			

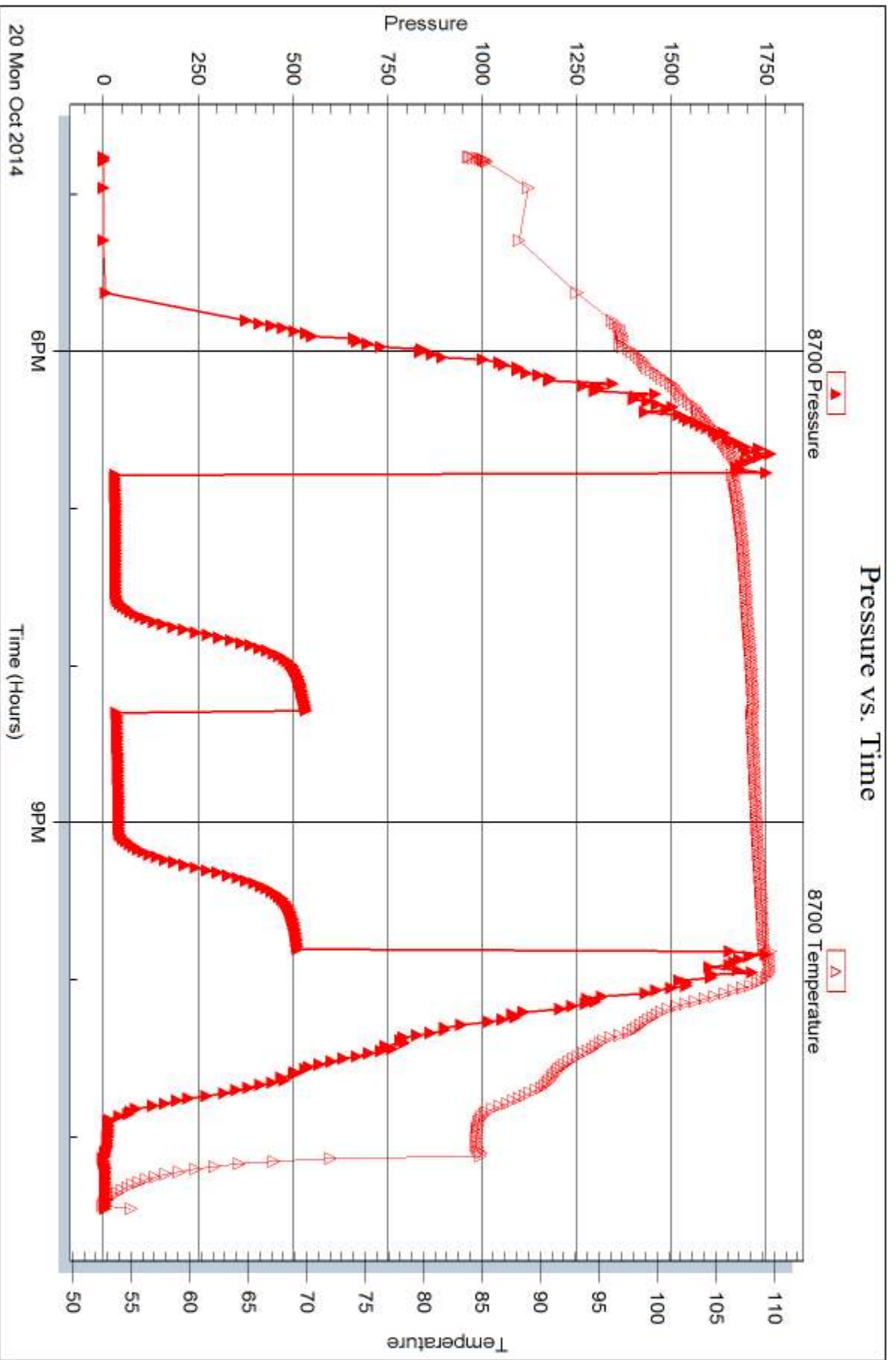
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	45' GIP	0.000
45.00	OCM 10%O90%M	0.631

Total Length: 45.00 ft Total Volume: 0.631 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **TDI**

1310 Bison Rd
Hays KS 67601-9696

ATTN: Tom Denning , Herb D

George #2

18-12s-18w Ellis,KS

Start Date: 2014.10.21 @ 11:15:48

End Date: 2014.10.21 @ 16:52:12

Job Ticket #: 60892 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.10.24 @ 08:47:07

TDI
18-12s-18w Ellis,KS
George #2
DST # 2
LKC H-J
2014.10.21



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning, Herb D

18-12s-18w Ellis,KS
George #2
Job Ticket: 60892 **DST#: 2**
Test Start: 2014.10.21 @ 11:15:48

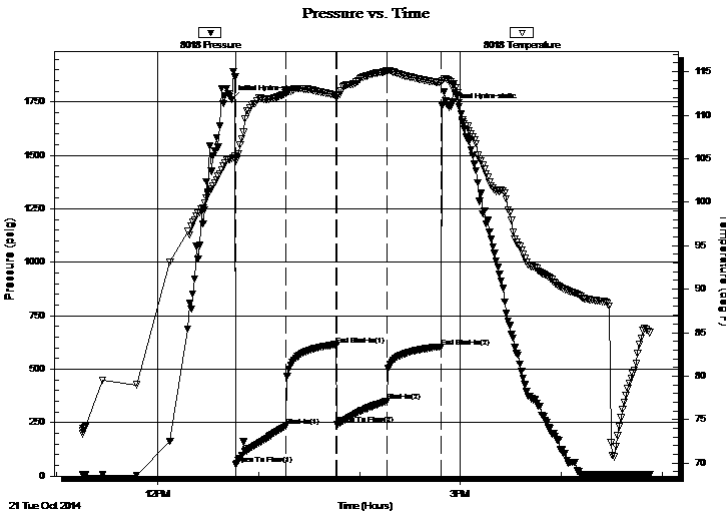
GENERAL INFORMATION:

Formation: **LKC H-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:46:43
Time Test Ended: 16:52:12
Interval: **3574.00 ft (KB) To 3660.00 ft (KB) (TVD)**
Total Depth: 3660.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Ray Schwager
Unit No: 70
Reference Elevations: 2185.00 ft (KB)
2175.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8018 Inside
Press@RunDepth: 352.16 psig @ 3576.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.10.21 End Date: 2014.10.21 Last Calib.: 2014.10.21
Start Time: 11:15:48 End Time: 16:52:12 Time On Btm: 2014.10.21 @ 12:44:13
Time Off Btm: 2014.10.21 @ 14:53:13

TEST COMMENT: 30-IFP-w k to strg in 4 min
30-ISIP-no bl
30-FFP-w k to strg in 8 min
30-FSIP-no bl

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1761.55	104.96	Initial Hydro-static
3	54.70	104.71	Open To Flow (1)
32	232.42	112.48	Shut-In(1)
62	613.33	112.29	End Shut-In(1)
63	241.13	112.22	Open To Flow (2)
92	352.16	115.06	Shut-In(2)
124	604.14	113.71	End Shut-In(2)
129	1725.25	113.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
278.00	SOCWM 2%O38%W60%M	3.90
434.00	SOCMW 1%O20%M79%W	6.09

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI
1310 Bison Rd
Hays KS 67601-9696
ATTN: Tom Denning , Herb D

18-12s-18w Ellis,KS
George #2
Job Ticket: 60892 **DST#: 2**
Test Start: 2014.10.21 @ 11:15:48

Tool Information

Drill Pipe:	Length: 3559.00 ft	Diameter: 3.80 inches	Volume: 49.92 bbl	Tool Weight:	2200.00 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	45000.00 lb
			<u>Total Volume: 49.92 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	38000.00 lb
Depth to Top Packer:	3574.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	86.00 ft				
Tool Length:	107.00 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			3554.00	
Shut In Tool	5.00			3559.00	
Hydraulic tool	5.00			3564.00	
Packer	5.00			3569.00	21.00 Bottom Of Top Packer
Packer	5.00			3574.00	
Stubb	1.00			3575.00	
Perforations	1.00			3576.00	
Recorder	0.00	8018	Inside	3576.00	
Recorder	0.00	8700	Outside	3576.00	
Blank Spacing	63.00			3639.00	
Perforations	18.00			3657.00	
Bullnose	3.00			3660.00	86.00 Bottom Packers & Anchor

Total Tool Length: 107.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI **18-12s-18w Ellis,KS**
 1310 Bison Rd **George #2**
 Hays KS 67601-9696 Job Ticket: 60892 **DST#: 2**
 ATTN: Tom Denning , Herb D Test Start: 2014.10.21 @ 11:15:48

Mud and Cushion Information

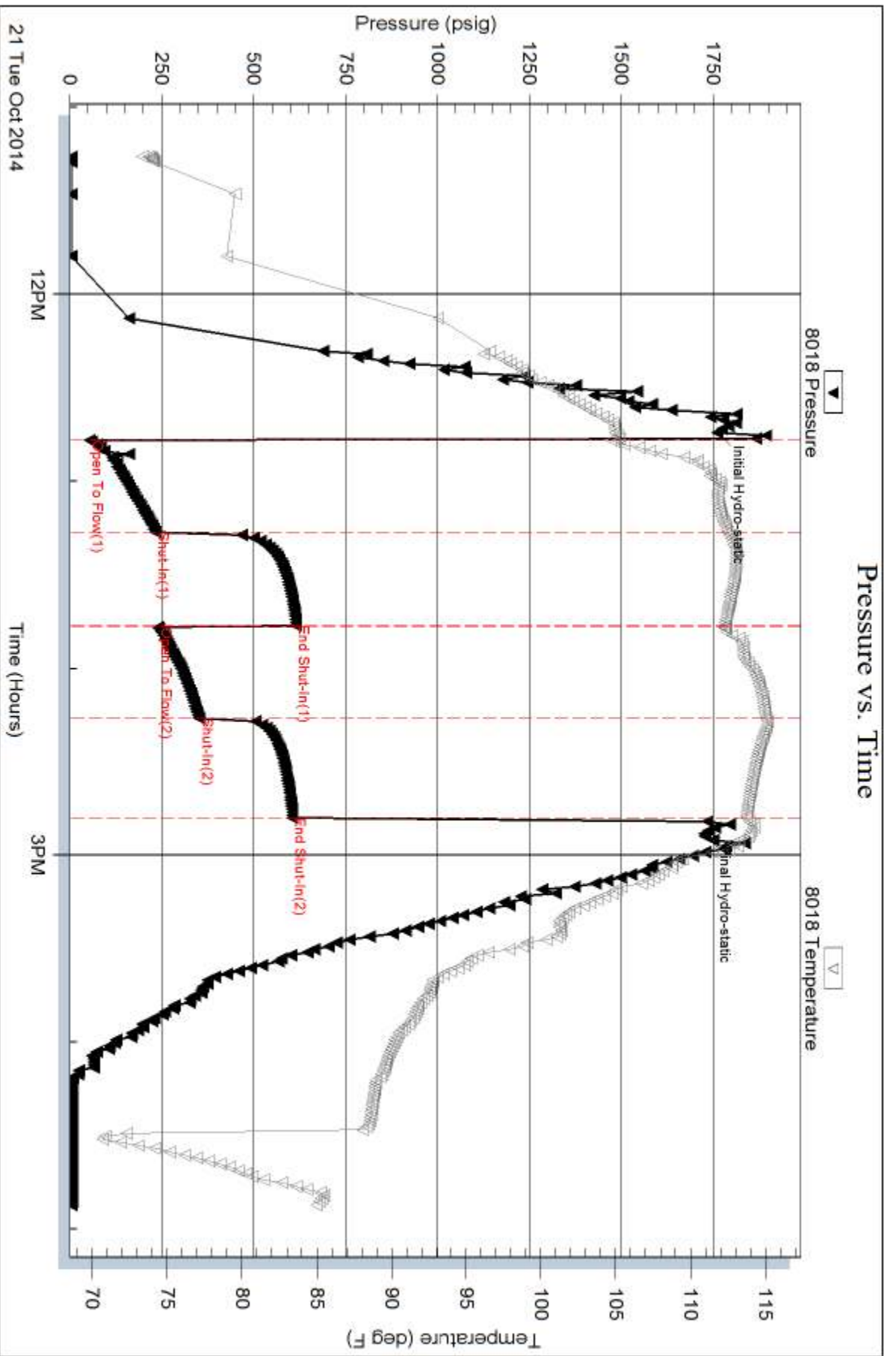
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	55000 ppm
Viscosity: 50.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.96 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1700.00 ppm			
Filter Cake: 1.00 inches			

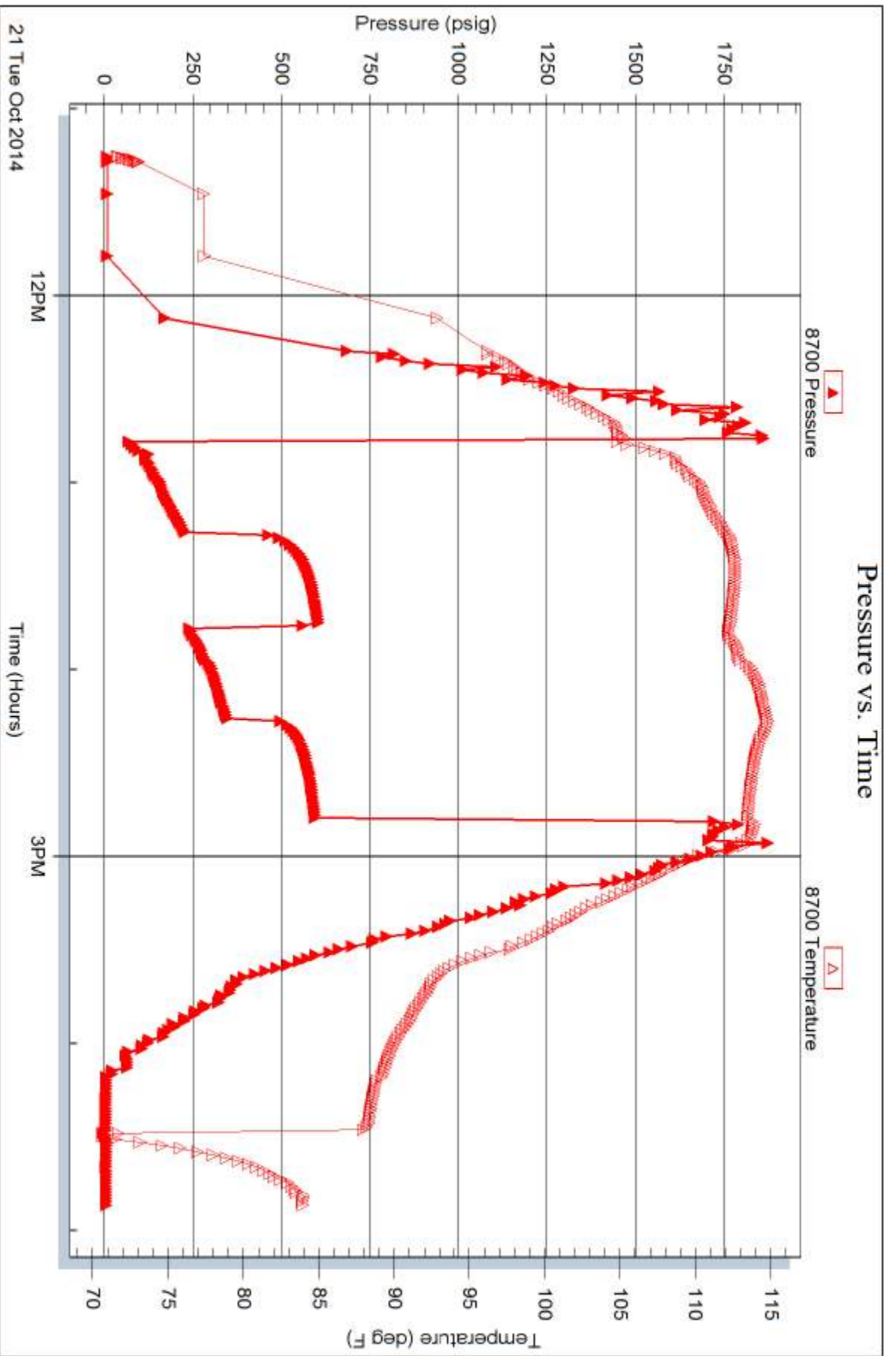
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
278.00	SOCWM 2%O38%W60%M	3.900
434.00	SOCMW 1%O20%M79%W	6.088

Total Length: 712.00 ft Total Volume: 9.988 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: RW .14@70F







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 60891

4/10

Well Name & No. George #2 Test No. 1 Date 10-20-14
 Company TDI, Inc Elevation 2185 KB 2175 GL
 Address 1310 Bison Rd. Hays, Ks 67601-9696
 Co. Rep / Geo. Herb Deines, Tom Denning Rig Southwind rig 1
 Location: Sec. 18 Twp. 12^s Rge. 18^w Co. ELLIS State Ks

Interval Tested 3420-3540 Zone Tested TOR - LKCD
 Anchor Length 120 Drill Pipe Run 3429 Mud Wt. 9.5
 Top Packer Depth 3415 Drill Collars Run - Vis 50
 Bottom Packer Depth 3420 Wt. Pipe Run - WL 7.4
 Total Depth 3540 Chlorides 1400 ppm System LCM 2#
 Blow Description I/FP - WEAK Blow thru-out 1/4" to 1/2" Blow
J/SIP - NO Blow
FFP - NO Blow 1st 7 min, then surface Blow thru-out
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>GIP</u>				
<u>45</u>	<u>OCM</u>		<u>10</u>		<u>90</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 45 BHT 109 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1675</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>1545</u>
(B) First Initial Flow <u>25</u>	<input type="checkbox"/> Jars	T-Started <u>1645</u>
(C) First Final Flow <u>30</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1845</u>
(D) Initial Shut-In <u>543</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>2145</u>
(E) Second Initial Flow <u>34</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2327</u>
(F) Second Final Flow <u>40</u>	<input checked="" type="checkbox"/> Mileage <u>29 RT</u> 44.95	Comments
(G) Final Shut-In <u>520</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1648</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Total <u>1194.95</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1194.95</u>	

Approved By _____ Our Representative Ray Schwaga *Thank you*

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 60892

Well Name & No. George #2 Test No. 2 Date 10-21-14
 Company TDT, Inc Elevation 2185 KB 2175 GL
 Address 1310 Bison Rd. Hays, Ks 67601-9696
 Co. Rep / Geo. Herb Deines, Tom Denning Rig Southwind rig 1
 Location: Sec. 18 Twp. 12^s Rge. 18^w Co. Ellis State Ks

Interval Tested 3574-3660 Zone Tested 1KC H-J
 Anchor Length 86 Drill Pipe Run 3559 Mud Wt. 9.4
 Top Packer Depth 3569 Drill Collars Run - Vis 50
 Bottom Packer Depth 3574 Wt. Pipe Run - WL 8
 Total Depth 3660 Chlorides 1700 ppm System LCM 2#
 Blow Description IFP - WEAK TO STRONG IN 4min
ISIP - NO BLOW
FFP - WEAK TO STRONG IN 8min
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>278</u>	<u>50CWM</u>	<u>2</u>	<u>38</u>	<u>60</u>	
<u>434</u>	<u>50CMW</u>	<u>1</u>	<u>79</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 712 BHT 113 Gravity - API RW .14 @ 70 ° F Chlorides 55000 ppm
 Test 1150
 Jars _____
 Safety Joint _____
 Circ Sub _____
 Hourly Standby _____
 Mileage 29RT 44.95
 Sampler _____ 44.95
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1239.90

(A) Initial Hydrostatic 1761
 (B) First Initial Flow 54
 (C) First Final Flow 232
 (D) Initial Shut-In 613
 (E) Second Initial Flow 241
 (F) Second Final Flow 352
 (G) Final Shut-In 604
 (H) Final Hydrostatic 1725

T-On Location 1015
 T-Started 1115
 T-Open 1245
 T-Pulled 1445
 T-Out 1652

Comments Loaded Tool 1600
10-22-14

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1239.90
 MP/DST Disc't _____

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

Approved By _____ Our Representative Ray Schwager *Thank you*

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.