



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1070698
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: _____



1070698

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
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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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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
Ward Loyd, Commissioner
Thomas E. Wright, Commissioner

Sam Brownback, Governor

January 09, 2012

Tom Denning
TDI, Inc.
1310 BISON RD
HAYS, KS 67601-9696

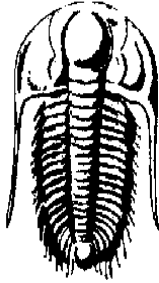
Re: ACO1
API 15-051-26204-00-00
Bieker 1
SE/4 Sec.24-15S-19W
Ellis County, Kansas

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,
Tom Denning



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Road
Hays, KS 67601

ATTN: Jeff Lawler

Beiker #1

24-15s-19w Ellis,KS

Start Date: 2011.11.24 @ 08:29:46

End Date: 2011.11.24 @ 16:08:46

Job Ticket #: 44694 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2011.11.30 @ 15:04:27

TDI Inc.
24-15s-19w Ellis,KS
Beiker #1
DST # 1
LKC B-D
2011.11.24



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

24-15s-19w Ellis, KS
Beiker #1
Job Ticket: 44694 **DST#: 1**
Test Start: 2011.11.24 @ 08:29:46

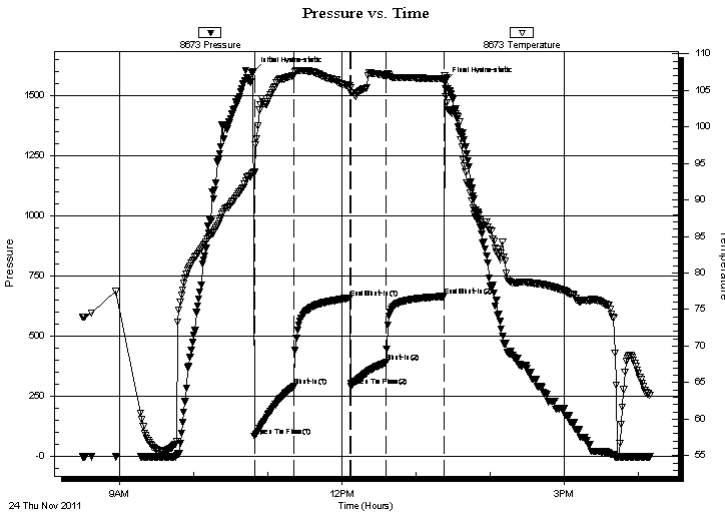
GENERAL INFORMATION:

Formation: **LKC B-D**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:48:46
Time Test Ended: 16:08:46
Interval: **3284.00 ft (KB) To 3240.00 ft (KB) (TVD)**
Total Depth: 3340.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Jason McLemore
Unit No: 54
Reference Elevations: 1988.00 ft (KB)
1981.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8673 Inside
Press @ Run Depth: 392.78 psig @ 3322.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.11.24 End Date: 2011.11.24 Last Calib.: 2011.11.24
Start Time: 08:29:48 End Time: 16:08:46 Time On Btm: 2011.11.24 @ 10:48:01
Time Off Btm: 2011.11.24 @ 13:22:46

TEST COMMENT: IFP-Strong, BOB in 2 Min.
ISI-Blow back BOB in 15 Min.
FFP-Strong, BOB in 2 Min., Gas To Surface in 25 Min.
FSI-Blow back BOB in 5 Min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1598.90	93.73	Initial Hydro-static
1	85.85	93.81	Open To Flow (1)
33	291.56	107.04	Shut-In(1)
79	660.13	105.67	End Shut-In(1)
79	293.60	104.72	Open To Flow (2)
108	392.78	107.01	Shut-In(2)
155	666.33	106.59	End Shut-In(2)
155	1557.12	107.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCM-10%O-90%M	0.84
720.00	Muddy Oil-97%O-3%M	10.10
150.00	Muddy Water-95%W-5%M	2.10

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

24-15s-19w Ellis,KS
Beiker #1
Job Ticket: 44694 **DST#: 1**
Test Start: 2011.11.24 @ 08:29:46

Tool Information

Drill Pipe:	Length: 3268.00 ft	Diameter: 3.80 inches	Volume: 45.84 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 45.84 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 35000.00 lb
Depth to Top Packer:	3284.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	77.00 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			3264.00	
Shut In Tool	5.00			3269.00	
Hydraulic tool	5.00			3274.00	
Packer	5.00			3279.00	21.00 Bottom Of Top Packer
Packer	5.00			3284.00	
Stubb	1.00			3285.00	
Perforations	4.00			3289.00	
Change Over Sub	1.00			3290.00	
Blank Spacing	31.00			3321.00	
Change Over Sub	1.00			3322.00	
Recorder	0.00	8673	Inside	3322.00	
Recorder	0.00	6755	Outside	3322.00	
Perforations	15.00			3337.00	
Bullnose	3.00			3340.00	56.00 Bottom Packers & Anchor

Total Tool Length: 77.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc.

24-15s-19w Ellis, KS

1310 Bison Road
Hays, KS 67601

Beiker #1

Job Ticket: 44694

DST#: 1

ATTN: Jeff Lawler

Test Start: 2011.11.24 @ 08:29:46

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

39 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

46000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	OCM-10%O-90%M	0.842
720.00	Muddy Oil-97%O-3%M	10.100
150.00	Muddy Water-95%W-5%M	2.104

Total Length: 930.00 ft

Total Volume: 13.046 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

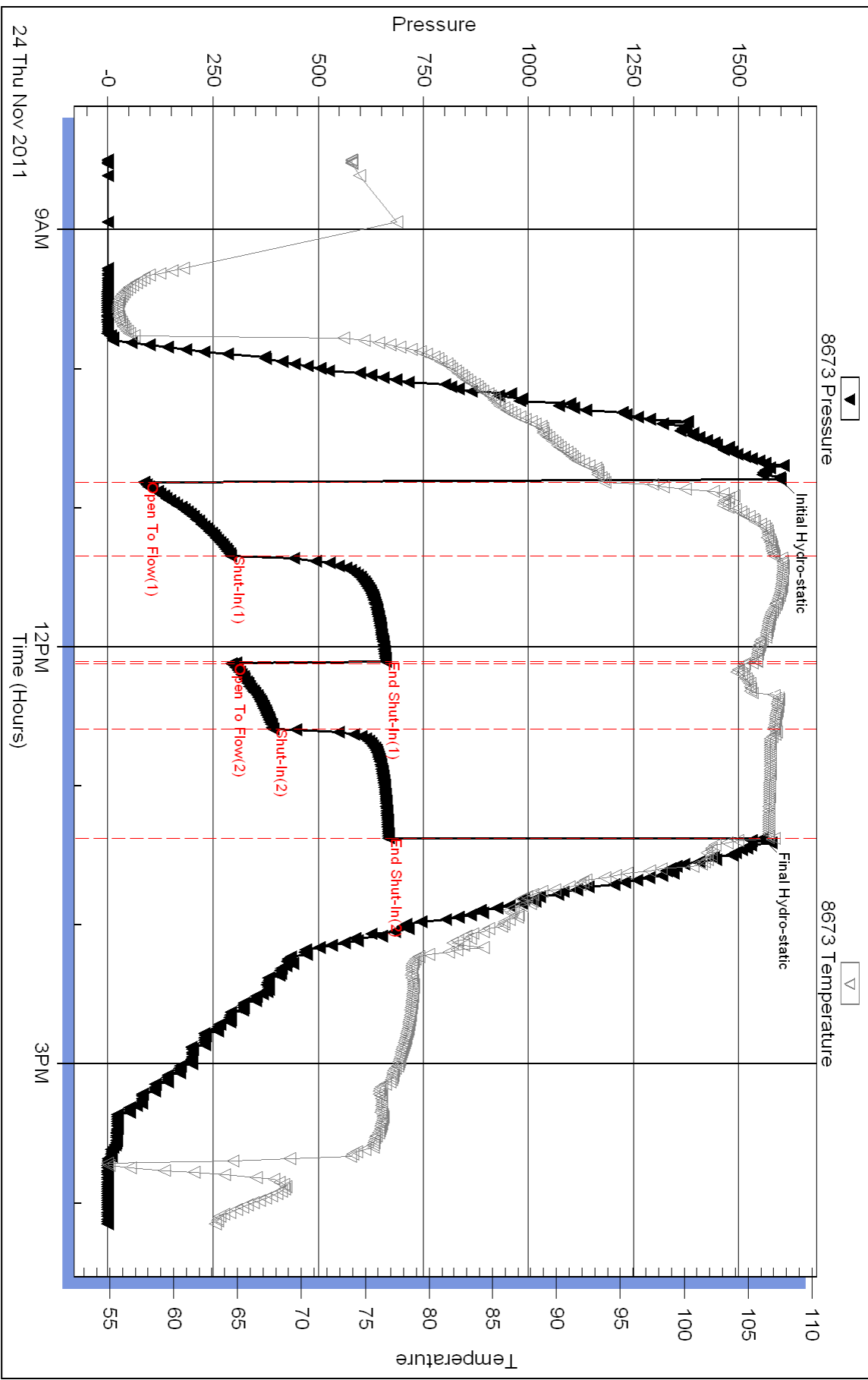
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

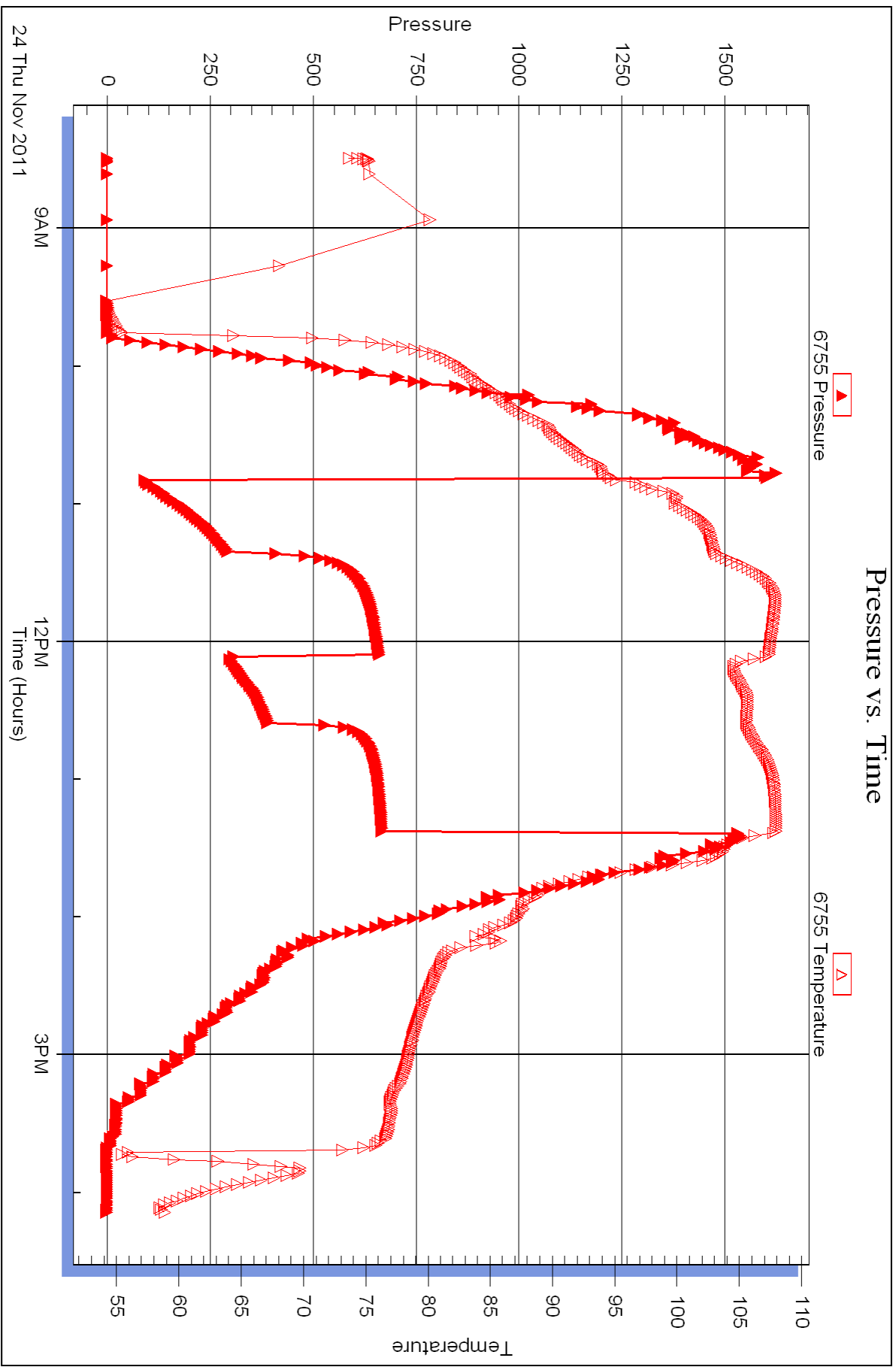


Serial #: 6755

Outside TDI Inc.

Beiker #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Road
Hays, KS 67601

ATTN: Jeff Lawler

Beiker #1

24-15s-19w Ellis,KS

Start Date: 2011.11.25 @ 02:54:32

End Date: 2011.11.25 @ 10:12:32

Job Ticket #: 44695 DST #: 2

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

Printed: 2011.11.30 @ 14:56:33

TDI Inc. 24-15s-19w Ellis,KS Beiker #1 DST # 2 LKC I-J 2011.11.25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

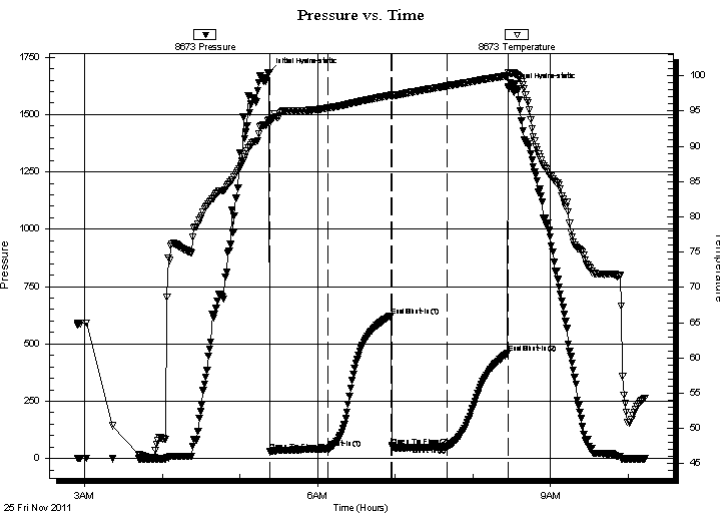
24-15s-19w Ellis, KS
Beiker #1
Job Ticket: 44695 **DST#: 2**
Test Start: 2011.11.25 @ 02:54:32

GENERAL INFORMATION:

Formation: **LKC I-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 05:23:02
Time Test Ended: 10:12:32
Interval: **3428.00 ft (KB) To 3478.00 ft (KB) (TVD)**
Total Depth: 3478.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Jason McLemore
Unit No: 54
Reference Elevations: 1988.00 ft (KB)
1981.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8673 Inside
Press @ Run Depth: 51.48 psig @ 3465.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.11.25 End Date: 2011.11.25 Last Calib.: 2011.11.30
Start Time: 02:54:34 End Time: 10:12:32 Time On Btm: 2011.11.25 @ 05:22:32
Time Off Btm: 2011.11.25 @ 08:27:17

TEST COMMENT: IFP-Weak Blow, Built to 4-1/2"
ISI-Dead
FFP-Weak Blow, Built to 3"
FSI-Dead



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1683.82	93.79	Initial Hydro-static
1	30.47	93.27	Open To Flow (1)
46	42.69	95.43	Shut-In(1)
95	623.00	97.25	End Shut-In(1)
95	55.22	97.10	Open To Flow (2)
138	51.48	98.54	Shut-In(2)
185	458.93	100.01	End Shut-In(2)
185	1619.33	100.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Free Oil	0.07
45.00	Muddy Water-60%W-40%M	0.63

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

24-15s-19w Ellis,KS
Beiker #1
Job Ticket: 44695 **DST#: 2**
Test Start: 2011.11.25 @ 02:54:32

Tool Information

Drill Pipe:	Length: 3422.00 ft	Diameter: 3.80 inches	Volume: 48.00 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume: 48.00 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	37000.00 lb
Depth to Top Packer:	3428.00 ft			Final	37000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	50.00 ft				
Tool Length:	71.00 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			3408.00	
Shut In Tool	5.00			3413.00	
Hydraulic tool	5.00			3418.00	
Packer	5.00			3423.00	21.00 Bottom Of Top Packer
Packer	5.00			3428.00	
Stubb	1.00			3429.00	
Perforations	3.00			3432.00	
Change Over Sub	1.00			3433.00	
Blank Spacing	31.00			3464.00	
Change Over Sub	1.00			3465.00	
Recorder	0.00	8673	Inside	3465.00	
Recorder	0.00	6755	Outside	3465.00	
Perforations	10.00			3475.00	
Bullnose	3.00			3478.00	50.00 Bottom Packers & Anchor

Total Tool Length: 71.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc. **24-15s-19w Ellis, KS**
 1310 Bison Road **Beiker #1**
 Hays, KS 67601 Job Ticket: 44695 **DST#: 2**
 ATTN: Jeff Lawler Test Start: 2011.11.25 @ 02:54:32

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 32 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 19000 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.38 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3800.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Free Oil	0.070
45.00	Muddy Water-60%W-40%M	0.631

Total Length: 50.00 ft Total Volume: 0.701 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 8673

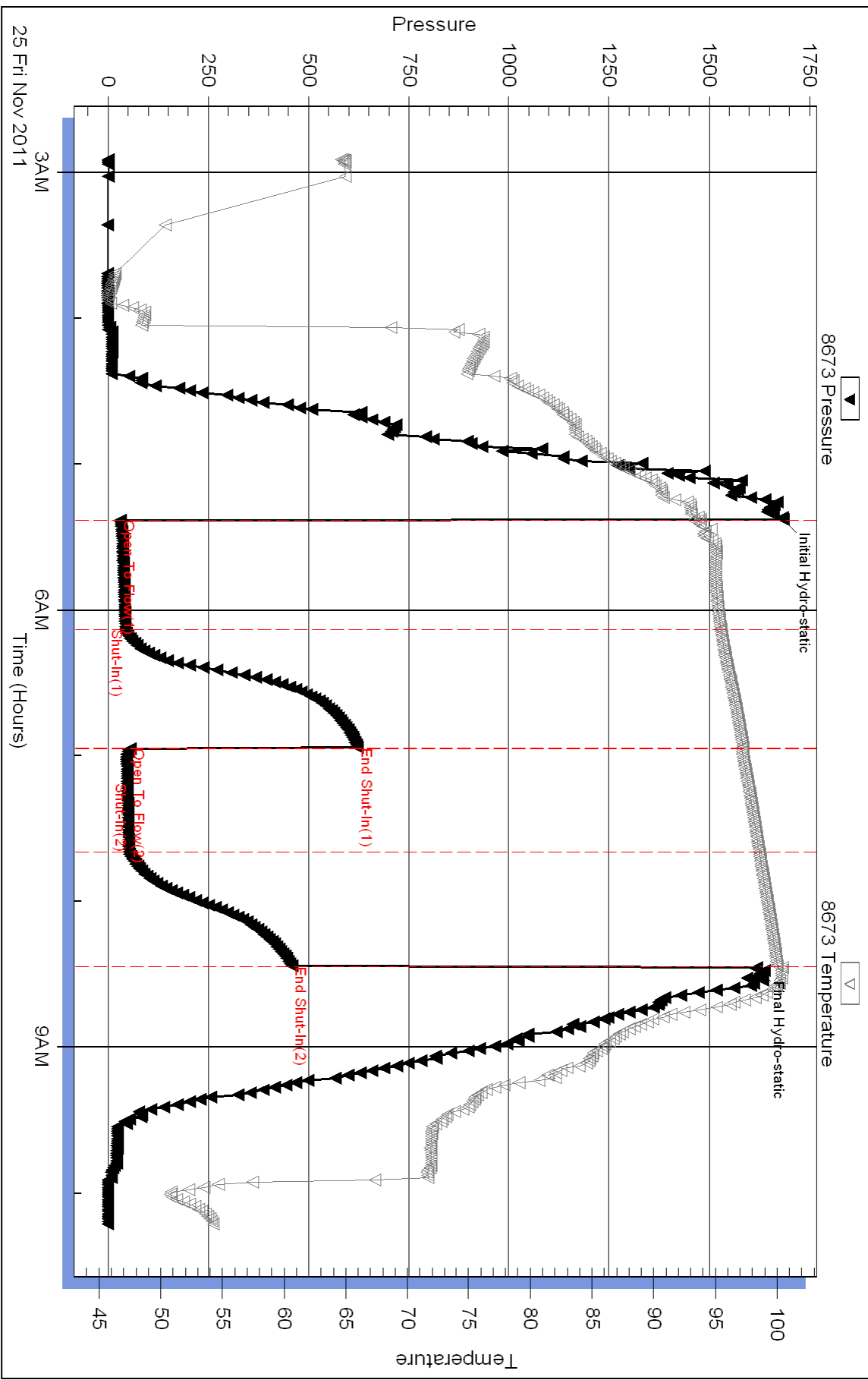
Inside

TDI Inc.

Beiker #1

DST Test Number: 2

Pressure vs. Time

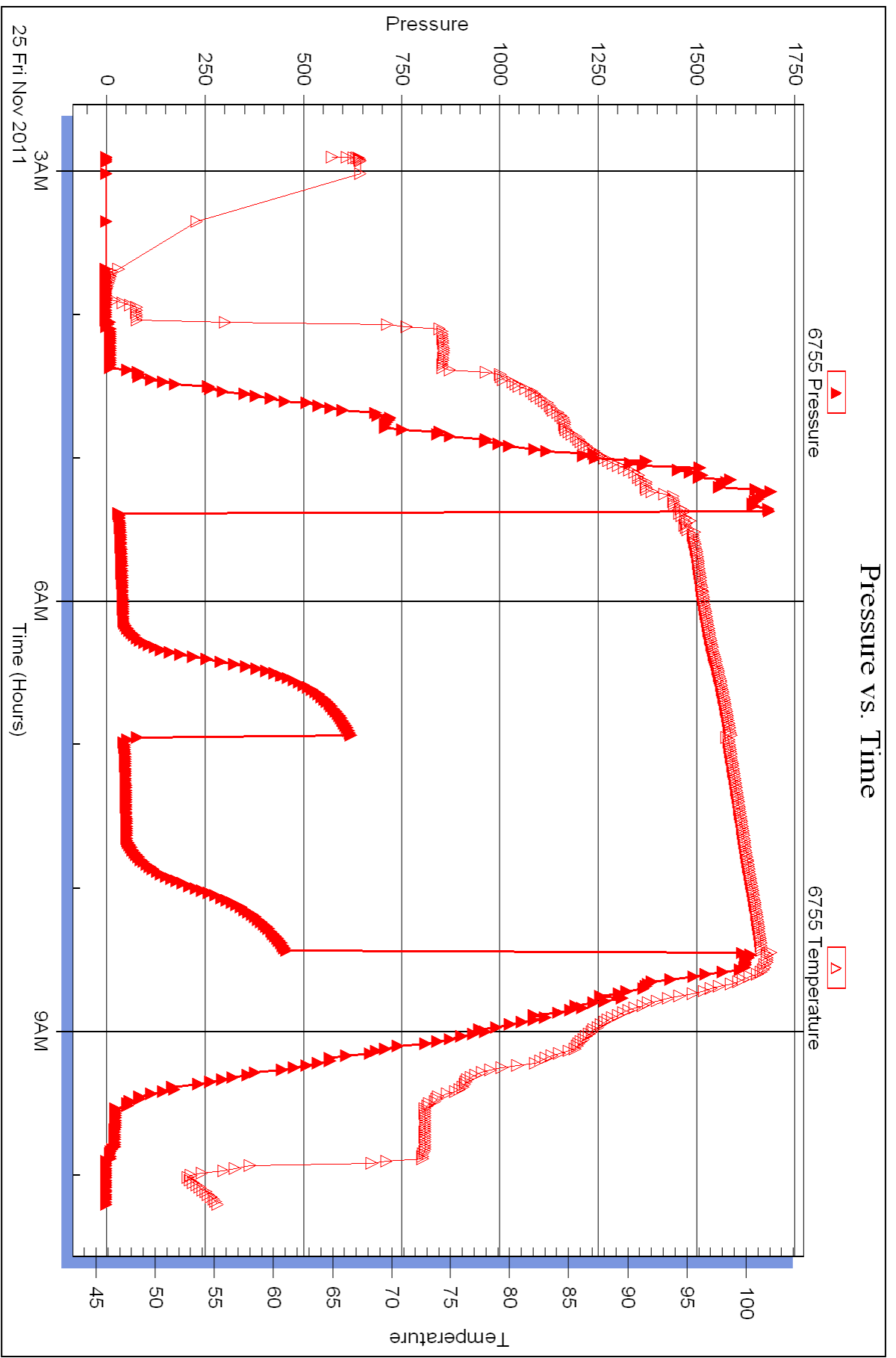


Serial #: 6755

Outside TDI Inc.

Beiker #1

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 44695

Printed: 2011.11.30 @ 14:56:36



DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Road
Hays, KS 67601

ATTN: Jeff Lawler

Beiker #1

24-15s-19w Ellis,KS

Start Date: 2011.11.26 @ 00:26:54

End Date: 2011.11.26 @ 06:54:09

Job Ticket #: 44696 DST #: 3

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

Printed: 2011.11.30 @ 14:55:46

TDI Inc.
24-15s-19w Ellis,KS
Beiker #1
DST # 3
LKC K-Conglomerate S
2011.11.26



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

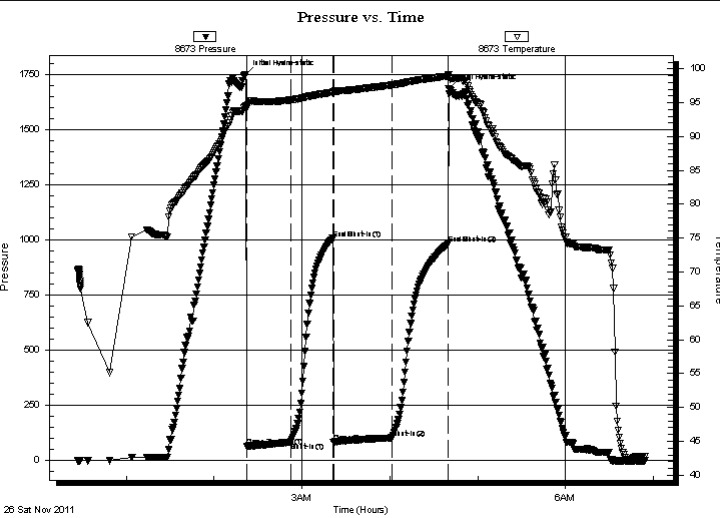
24-15s-19w Ellis, KS
Beiker #1
Job Ticket: 44696 **DST#: 3**
Test Start: 2011.11.26 @ 00:26:54

GENERAL INFORMATION:

Formation: **LKC K-Conglomerate S**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:22:09
Time Test Ended: 06:54:09
Interval: **3470.00 ft (KB) To 3605.00 ft (KB) (TVD)**
Total Depth: 3605.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Jason McLemore
Unit No: 54
Reference Elevations: 1988.00 ft (KB)
1981.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8673 Inside
Press @ Run Depth: 103.44 psig @ 3572.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.11.26 End Date: 2011.11.26 Last Calib.: 2011.11.26
Start Time: 00:26:56 End Time: 06:54:09 Time On Btm: 2011.11.26 @ 02:21:39
Time Off Btm: 2011.11.26 @ 04:40:09

TEST COMMENT: IFF-Good Blow ,BOB in 10 Min
ISI-Dead
FFP-Good Blow ,BOB in 7 Min.
FSI-Dead



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1752.79	94.54	Initial Hydro-static
1	64.26	94.13	Open To Flow (1)
31	83.59	95.39	Shut-In(1)
60	1008.85	96.52	End Shut-In(1)
60	83.25	96.59	Open To Flow (2)
100	103.44	97.61	Shut-In(2)
138	982.74	98.93	End Shut-In(2)
139	1689.52	99.18	Final Hydro-static

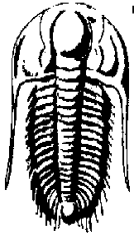
Recovery

Length (ft)	Description	Volume (bbl)
50.00	Free Oil	0.70
60.00	Mud Cut Oil-30%G-40%O-30%M	0.84
0.00	360' Gas In Pipe	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

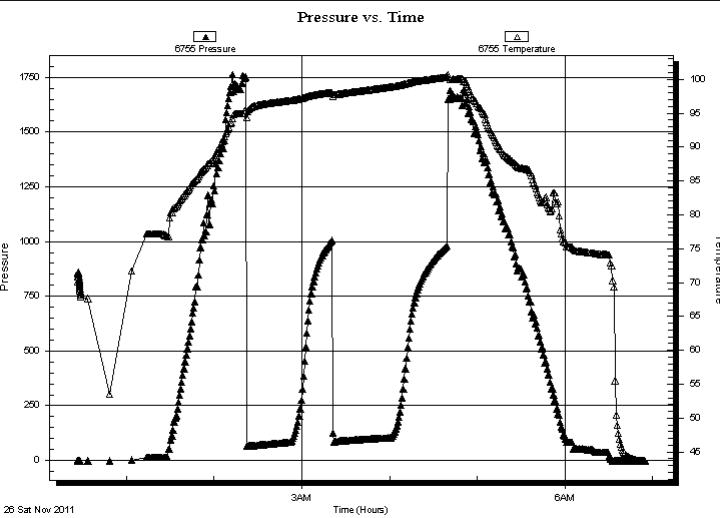
24-15s-19w Ellis, KS
Beiker #1
Job Ticket: 44696 **DST#: 3**
Test Start: 2011.11.26 @ 00:26:54

GENERAL INFORMATION:

Formation: **LKC K-Conglomerate S**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:22:09
Time Test Ended: 06:54:09
Interval: **3470.00 ft (KB) To 3605.00 ft (KB) (TVD)**
Total Depth: 3605.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Jason McLemore
Unit No: 54
Reference Elevations: 1988.00 ft (KB)
1981.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 6755 Outside
Press @ Run Depth: psig @ 3572.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2011.11.26 End Date: 2011.11.26 Last Calib.: 2011.11.26
Start Time: 00:26:41 End Time: 06:54:24 Time On Btm:
Time Off Btm:

TEST COMMENT: IFP-Good Blow, BOB in 10 Min
ISI-Dead
FFP-Good Blow, BOB in 7 Min.
FSI-Dead



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

Recovery		
Length (ft)	Description	Volume (bbl)
50.00	Free Oil	0.70
60.00	Mud Cut Oil-30%G-40%O-30%M	0.84
0.00	360' Gas In Pipe	0.00

* Recovery from multiple tests

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

24-15s-19w Ellis,KS
Beiker #1
Job Ticket: 44696 **DST#: 3**
Test Start: 2011.11.26 @ 00:26:54

Tool Information

Drill Pipe:	Length: 3454.00 ft	Diameter: 3.80 inches	Volume: 48.45 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: 48.45 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	38000.00 lb
Depth to Top Packer:	3470.00 ft			Final	39000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	135.00 ft				
Tool Length:	156.00 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			3450.00	
Shut In Tool	5.00			3455.00	
Hydraulic tool	5.00			3460.00	
Packer	5.00			3465.00	21.00 Bottom Of Top Packer
Packer	5.00			3470.00	
Stubb	1.00			3471.00	
Perforations	5.00			3476.00	
Change Over Sub	1.00			3477.00	
Blank Spacing	94.00			3571.00	
Change Over Sub	1.00			3572.00	
Recorder	0.00	8673	Inside	3572.00	
Recorder	0.00	6755	Outside	3572.00	
Perforations	30.00			3602.00	
Bullnose	3.00			3605.00	135.00 Bottom Packers & Anchor

Total Tool Length: 156.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc.
1310 Bison Road
Hays, KS 67601
ATTN: Jeff Lawler

24-15s-19w Ellis,KS
Beiker #1
Job Ticket: 44696 **DST#: 3**
Test Start: 2011.11.26 @ 00:26:54

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 43 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.38 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 3800.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

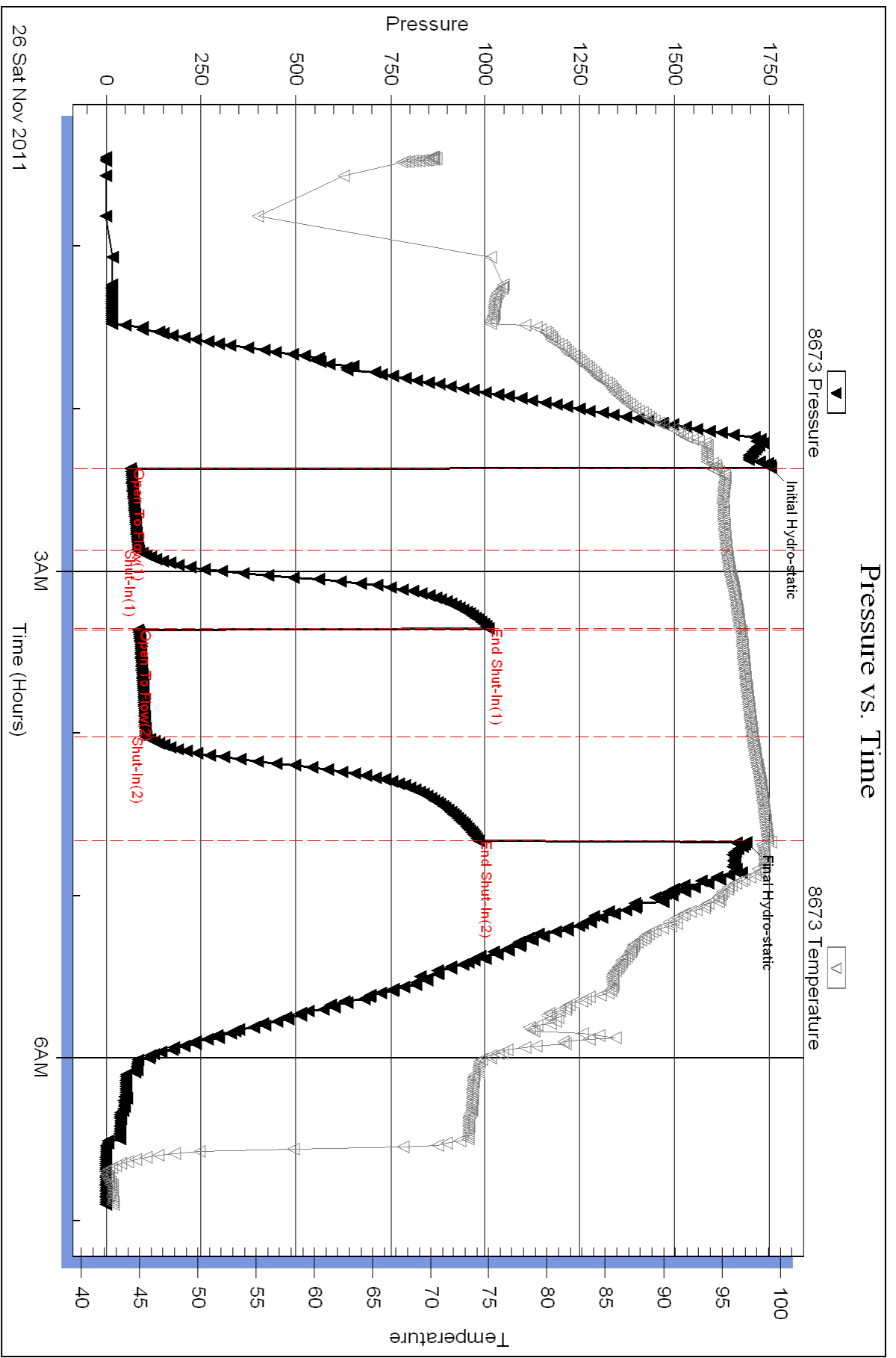
Length ft	Description	Volume bbl
50.00	Free Oil	0.701
60.00	Mud Cut Oil-30%G-40%O-30%M	0.842
0.00	360' Gas In Pipe	0.000

Total Length: 110.00 ft Total Volume: 1.543 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:

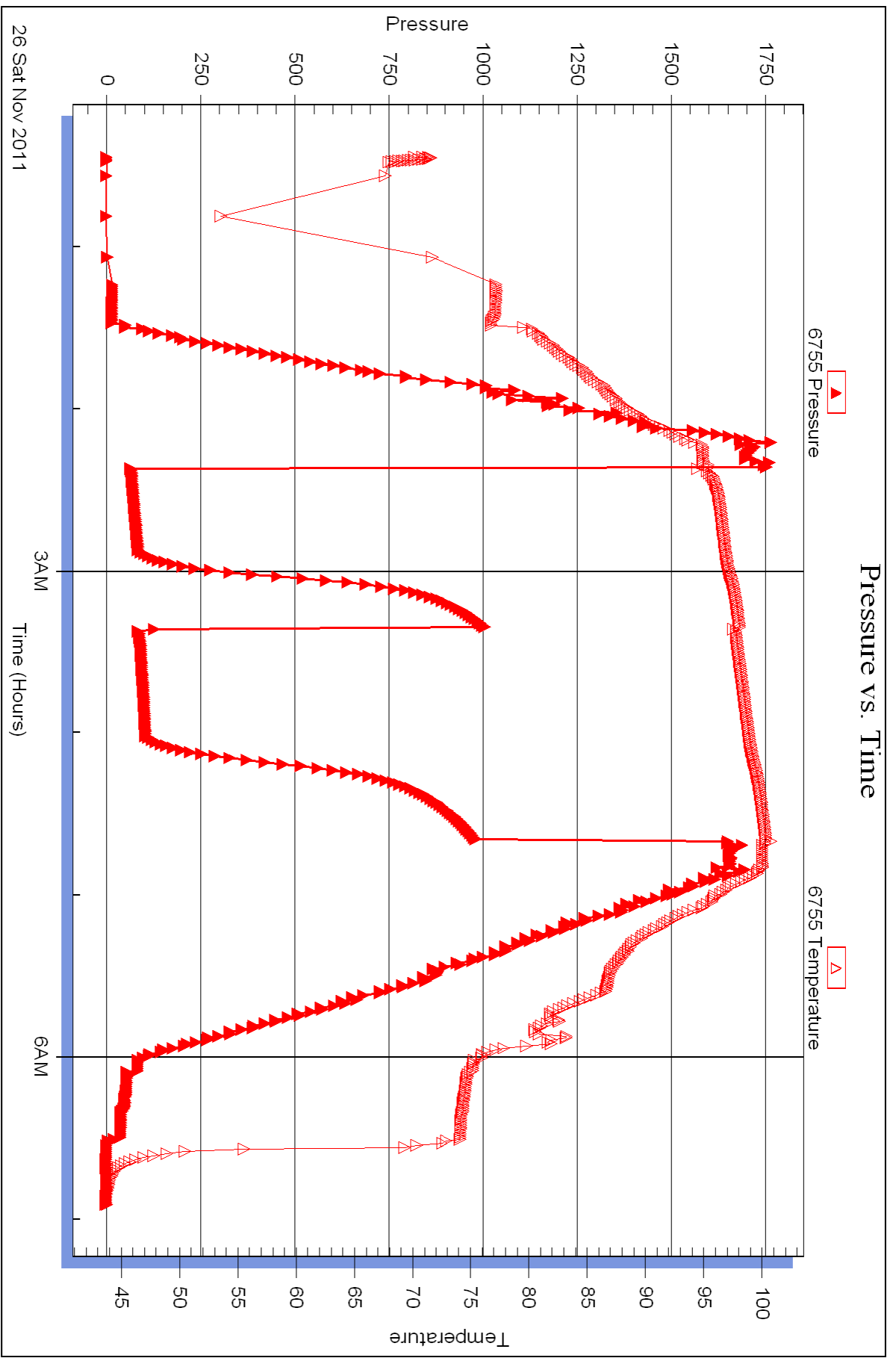


Serial #: 6755

Outside TDI Inc.

Belker #1

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 44696

Printed: 2011.11.30 @ 14:55:49



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED Test Ticket
NOV 23 2011 NO. 44694

Well Name & No. Bieker #1 Test No. 1 Date 11-24-11
 Company TDI Inc. Elevation 1988 KB 1981 GL
 Address 1310 Bison Road, Hays, KS. 67601
 Co. Rep / Geo. Jeff Lawler Rig Southwind #1
 Location: Sec. 24 Twp. 15s Rge. 19w Co. Ellis State KS

Interval Tested 3284-3340 Zone Tested BCD
 Anchor Length 56' Drill Pipe Run 3268 Mud Wt. 9.0
 Top Packer Depth 3279 Drill Collars Run 0 Vis 52
 Bottom Packer Depth 3284 Wt. Pipe Run 0 WL 6.4
 Total Depth 3340 Chlorides 3800 ppm System LCM NIL
 Blow Description IFF - Strong Blow, BOB in 2 min.
ISI - Blowback BOB in 15 min.
IFF - Strong, BOB in 2 min., Gas To Surface in 25 min.
FSI - Blowback BOB in 5 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>OCM</u>	<u>10</u>		<u>90</u>	
<u>720</u>	<u>Muddy Oil</u>	<u>97</u>		<u>3</u>	
<u>150</u>	<u>Muddy Water</u>		<u>95</u>	<u>5</u>	

Rec Total 930 BHT 106 Gravity 39 API RW 140 @ 76 °F Chlorides 46,000 ppm
 (A) Initial Hydrostatic 1599 Test 1125 T-On Location 7:10
 (B) First Initial Flow 86 Jars _____ T-Started 8:27
 (C) First Final Flow 292 Safety Joint _____ T-Open 10:42
 (D) Initial Shut-In 660 Circ Sub _____ T-Pulled 13:12
 (E) Second Initial Flow 294 Hourly Standby _____ T-Out 16:06
 (F) Second Final Flow 393 Mileage 24.8 33.60 Comments _____
 (G) Final Shut-In 667 Sampler _____
 (H) Final Hydrostatic 1557 Straddle _____
 Initial Open 30 Extra Packer _____
 Initial Shut-In 45 Extra Recorder _____
 Final Flow 30 Day Standby _____
 Final Shut-In 45 Accessibility _____
 Sub Total 1158.60

Approved By _____ Our Representative Jason McJannet
 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.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED
NOV 23 2011

Test Ticket

NO. 44695

Well Name & No. Bieker #1 Test No. 2 Date 11-25-11
 Company TDI, Inc. Elevation 1988 KB 1981 GL
 Address 1310 Bison Road, Hays, KS, 67601
 Co. Rep / Geo. Jeff Lawler Rig Southwind #1
 Location: Sec. 24 Twp. 15s Rge. 19w Co. Ellis State KS

Interval Tested 3428 - 3478 Zone Tested I-J
 Anchor Length 50 Drill Pipe Run 3422 Mud Wt. 9.2
 Top Packer Depth 3423 Drill Collars Run 0 Vis 52
 Bottom Packer Depth 3428 Wt. Pipe Run 0 WL 6.8
 Total Depth 3478 Chlorides 20 ppm System LCM Nil
 Blow Description IFF - Weak Blow, Built to 4 1/2"
ISI - Dead
FFP - Weak Blow, Built to 3"
FSI - Dead

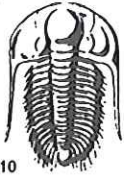
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Free Oil</u>				
<u>45</u>	<u>Muddy Water</u>		<u>60</u>	<u>40</u>	

Rec Total 50 BHT 100° Gravity 32 API RW, 543 @ 53 °F Chlorides 19,000 ppm

(A) Initial Hydrostatic 1684 Test 1125 T-On Location 2:39
 (B) First Initial Flow 30 Jars _____ T-Started 2:52
 (C) First Final Flow 43 Safety Joint _____ T-Open 5:18
 (D) Initial Shut-In 623 Circ Sub _____ T-Pulled 8:18
 (E) Second Initial Flow 55 Hourly Standby _____ T-Out 10:12
 (F) Second Final Flow 51 Mileage 4 RT 33.60 Comments _____
 (G) Final Shut-In 459 Sampler _____
 (H) Final Hydrostatic 1619 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1158.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1158.60

Approved By _____ Our Representative Jason McJemou 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.

P.O. Box 1733 • Hays, Kansas 67601

RECEIVED
NOV 23 2011

Test Ticket

NO. 44696

4/10

BY: _____

Well Name & No. Bieker #1 Test No. 3 Date 11-25-11
 Company TDI, Inc. Elevation 2988 KB 1981 GL
 Address 1310 Bison Road, Hays, KS. 67601
 Co. Rep / Geo. Jeff Lawler Rig Southwind #1
 Location: Sec. 24 Twp. 15s Rge. 19w Co. Ellis State KS

Interval Tested 3470 - 3605 Zone Tested K - Conglomerate Sand
 Anchor Length 135 Drill Pipe Run _____ Mud Wt. 9.2
 Top Packer Depth 3465 Drill Collars Run 0 Vis 54
 Bottom Packer Depth 3470 Wt. Pipe Run 0 WL 6.8
 Total Depth 3605 Chlorides 20 ppm System LCM Nil
 Blow Description FFP - Good Blow, BOB in 10 min.
ISI - Dead
FFP - Good Blow, BOB in 7 min.
FSI - Dead

Rec	Feet of	%gas	%oil	%water	%mud
<u>50</u>	<u>Free oil</u>				
<u>60</u>	<u>Mud cut oil</u>	<u>30</u>	<u>40</u>		<u>30</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of <u>3601 GIP</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total _____ BHT 99 Gravity 4.3 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1753 Test 125 T-On Location 23:46
 (B) First Initial Flow 64 Jars _____ T-Started 24:24
 (C) First Final Flow 84 Safety Joint _____ T-Open 2:17
 (D) Initial Shut-In 1009 Circ Sub _____ T-Pulled 4:17
 (E) Second Initial Flow 83 Hourly Standby _____ T-Out 6:55
 (F) Second Final Flow 103 Mileage Start 33.60 Comments _____
 (G) Final Shut-In 983 Sampler _____
 (H) Final Hydrostatic 1690 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1158.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1158.60

Approved By _____ Our Representative Jason McJannet

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.

Thank You



Scale 1:240 Imperial

Well Name: BIEKER #1
Surface Location: NE NE SE 24-15-19
Bottom Location:
API: 15-051026204
License Number: 4787
Spud Date: 11/19/2011 Time: 1:00 PM
Region: ELLIS
Drilling Completed: 11/26/2011 Time: 2:07 PM
Surface Coordinates: 2310 FSL & 330 FEL
Bottom Hole Coordinates:
Ground Elevation: 1978.00ft
K.B. Elevation: 1988.00ft
Logged Interval: 0.00ft To: 3743.00ft
Total Depth: 3746.00ft
Formation:
Drilling Fluid Type: FRESH WATER/CHEMICAL GEL

OPERATOR

Company: TDI, INC.
Address: 1310 BISON ROAD
HAYS, KS 67601
Contact Geologist: TOM DENNING
Contact Phone Nbr: (785) 628-2593
Well Name: BIEKER #1
Location: NE NE SE 24-15-19 API: 15-051026204
Pool: Field: UNNAMED
State: KANSAS Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: -99.3761986 Latitude: 38.732216
N/S Co-ord: 2310 FSL
E/W Co-ord: 330 FEL

LOGGED BY



Company: SOLUTIONS CONSULTING
Address: 108 W 35TH
HAYS, KS 67601

CONTRACTOR

Contractor: SOUTHWIND
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 11/19/2011
 TD Date: 11/26/2011
 Rig Release: 11/27/2011

Time: 1:00 PM
 Time: 2:07 PM
 Time: 2:00 AM

ELEVATIONS


K.B. Elevation: 1988.00ft
 K.B. to Ground: 10.00ft
 Ground Elevation: 1978.00ft

NOTES

WITH THE ECONOMICAL RECOVERY ON DST #1 & DST #3 DECISION WAS MADE TO RUN PRODUCTIONS CASING. 5 1/2" x 14#

RESPECTFULLY SUBMITTED,
 JEFF LAWLER

DST #1 LKC " B,C,D "

	DRILL STEM TEST REPORT	
	TDI Inc. 1310 Bison Road Hays, KS. 67601 ATTN: Jeff Lawler	24-15s-19w-Ellis Beiker #1 Job Ticket: 44694 DST#: 1 Test Start: 2011.11.24 @ 08:29:46

GENERAL INFORMATION:

Formation: **B-C-D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:48:46
 Time Test Ended: 16:08:46

Interval: 3284.00 ft (KB) To 3340.00 ft (KB) (TVD)
 Total Depth: 3340.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Good

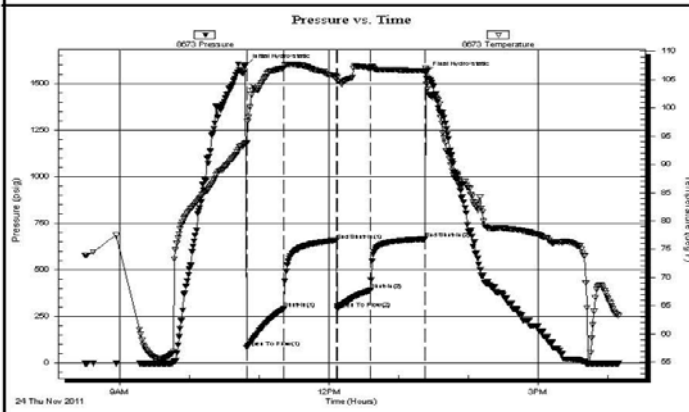
Test Type: Conventional Bottom Hole (Initial)
 Tester: Jason McLemore
 Unit No: 54

Reference Elevations: 1988.00 ft (KB)
 1981.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8673 Inside

Press@RunDepth: 392.78 psig @ 3322.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2011.11.24 End Date: 2011.11.24 Last Calib.: 2011.11.24
 Start Time: 08:29:48 End Time: 16:08:46 Time On Btm: 2011.11.24 @ 10:48:01
 Time Off Btm: 2011.11.24 @ 13:22:46

TEST COMMENT: IFF-Strong, BOB in 2 Min.
 ISI-Blow back BOB in 15 Min.
 FFP-Strong, BOB in 2 Min., Gas To Surface in 25 Min.
 FSI-Blow back BOB in 5 Min.



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1598.90	93.73	Initial Hydro-static
1	85.85	93.81	Open To Flow (1)
33	291.56	107.04	Shut-In(1)
79	660.13	105.67	End Shut-In(1)
79	293.60	104.72	Open To Flow (2)
108	392.78	107.01	Shut-In(2)
155	666.33	106.59	End Shut-In(2)
155	1557.12	107.07	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)

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

60.00	OCM-10%O-90%M	0.84
720.00	Muddy Oil-97%O-3%M	10.10
150.00	Muddy Water-95%W-5%M	2.10

Trilobite Testing, Inc

Ref. No: 44694

Printed: 2011.11.24 @ 22:49:13

DST #2 LKC " I,J "



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS. 67601
ATTN: Jeff Lawler

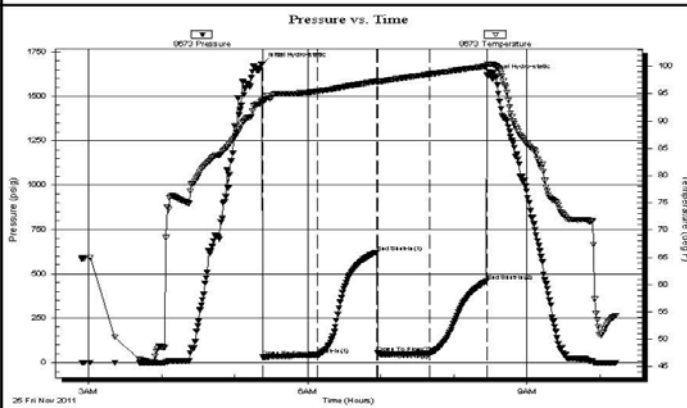
24-15s-19w-Ellis
Beiker #1
Job Ticket: 44695 **DST#: 2**
Test Start: 2011.11.25 @ 02:54:32

GENERAL INFORMATION:

Formation: **I-J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:23:02
 Time Test Ended: 10:12:32
 Interval: **3428.00 ft (KB) To 3478.00 ft (KB) (TVD)**
 Total Depth: 3478.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Jason McLemore
 Unit No: 54
 Reference Elevations: 1988.00 ft (KB)
 1981.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8673 Inside
 Press@RunDepth: 51.48 psig @ 3465.00 ft (KB)
 Start Date: 2011.11.25 End Date: 2011.11.25
 Start Time: 02:54:34 End Time: 10:12:32
 Capacity: 8000.00 psig
 Last Calib.: 1899.12.30
 Time On Btm: 2011.11.25 @ 05:22:32
 Time Off Btm: 2011.11.25 @ 08:27:17

TEST COMMENT: IFF-Weak Blow , Built to 4-1/2"
 ISI-Dead
 FFP-Weak Blow , Built to 3"
 FSI-Dead



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1683.82	93.79	Initial Hydro-static
1	30.47	93.27	Open To Flow (1)
46	42.69	95.43	Shut-In(1)
95	623.00	97.25	End Shut-In(1)
95	55.22	97.10	Open To Flow (2)
138	51.48	98.54	Shut-In(2)
185	458.93	100.01	End Shut-In(2)
185	1619.33	100.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Free Oil	0.07
45.00	Muddy Water-60%W-40%M	0.63

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 44695

Printed: 2011.11.25 @ 14:18:44



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc.
1310 Bison Road
Hays, KS. 67601
ATTN: Jeff Lawler

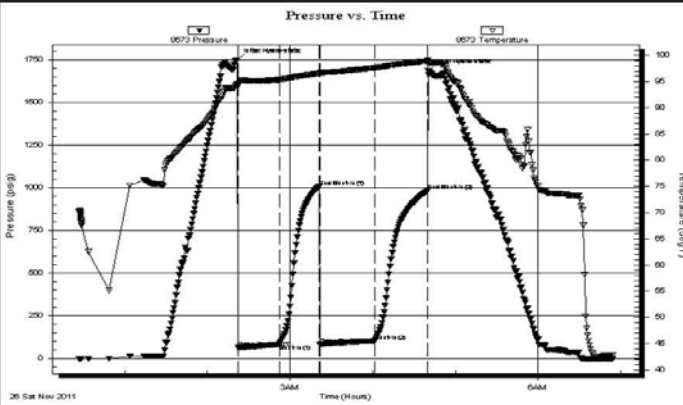
24-15s-19w-Ellis
Beiker #1
Job Ticket: 44696 **DST#: 3**
Test Start: 2011.11.26 @ 00:26:54

GENERAL INFORMATION:

Formation: **K-Conglomerate Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:22:09
Time Test Ended: 06:54:09
Interval: **3470.00 ft (KB) To 3605.00 ft (KB) (TVD)**
Total Depth: 3605.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Jason McLemore
Unit No: 54
Reference Elevations: 1988.00 ft (KB)
1981.00 ft (CF)
KB to GR/CF: 7.00 ft

Serial #: 8673 Inside
Press@RunDepth: 103.44 psig @ 3572.00 ft (KB)
Start Date: 2011.11.26 End Date: 2011.11.26
Start Time: 00:26:56 End Time: 06:54:09
Capacity: 8000.00 psig
Last Calib.: 2011.11.26
Time On Btm: 2011.11.26 @ 02:21:39
Time Off Btm: 2011.11.26 @ 04:40:09

TEST COMMENT: IFF-Good Blow ,BOB in 10 Min
ISI-Dead
FFP-Good Blow ,BOB in 7 Min.
FSI-Dead



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1752.79	94.54	Initial Hydro-static
1	64.26	94.13	Open To Flow (1)
31	83.59	95.39	Shut-In(1)
60	1008.85	96.52	End Shut-In(1)
60	83.25	96.59	Open To Flow (2)
100	103.44	97.61	Shut-In(2)
138	982.74	98.93	End Shut-In(2)
139	1689.52	99.18	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
50.00	Free Oil	0.70
60.00	Mud Cut Oil-30%G-40%O-30%M	0.84
0.00	360' Gas In Pipe	0.00

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

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 44696

Printed: 2011.11.26 @ 14:12:51

ROCK TYPES

- Cht
 Cht vari
 Chtcong
- Dolprim
 Dolsec
 Lmst fw<7
- Lmst fw7>
 shale, grn
 shale, gry
- Carbon Sh
 shale, red
 Shcol
- Ss

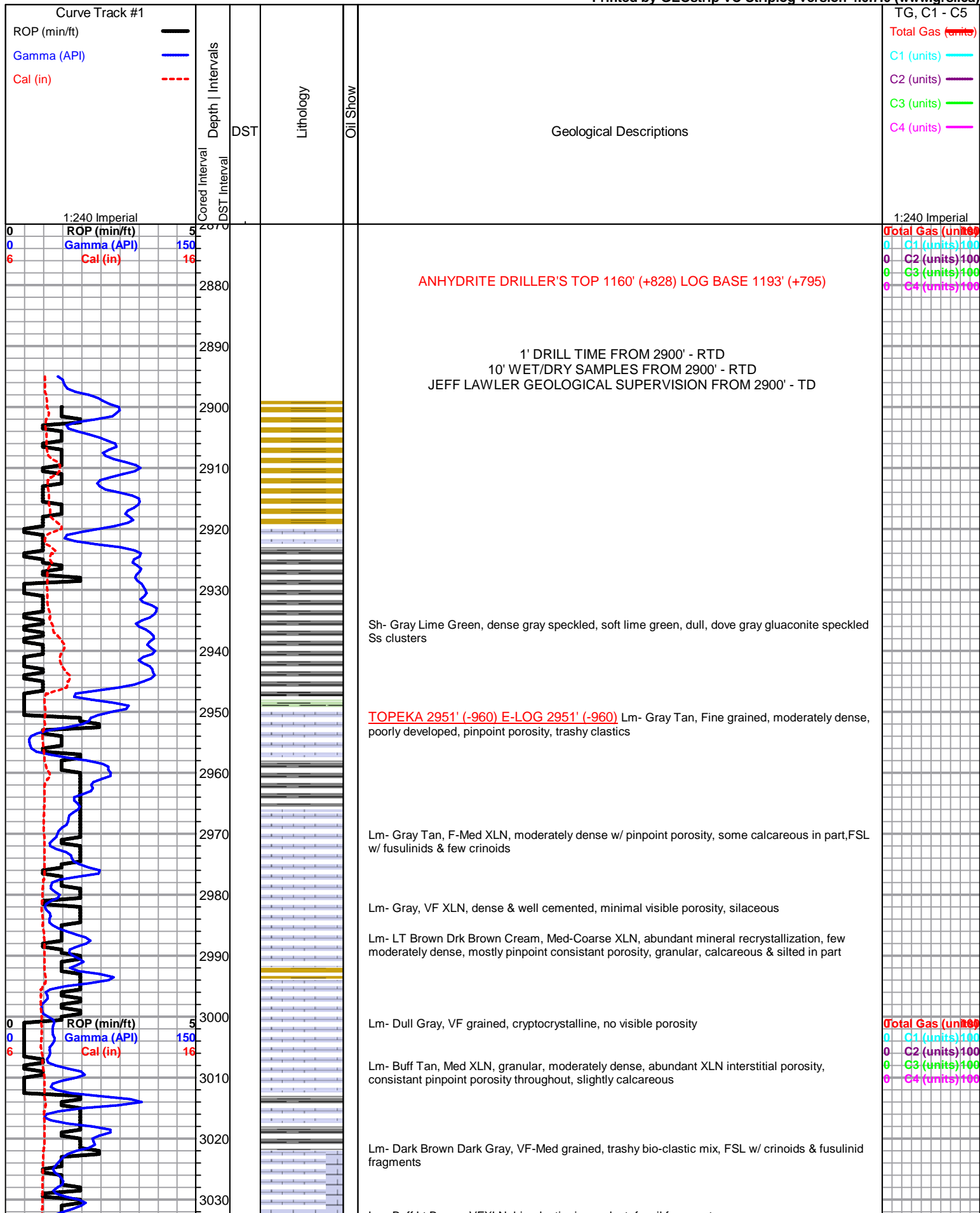
ACCESSORIES

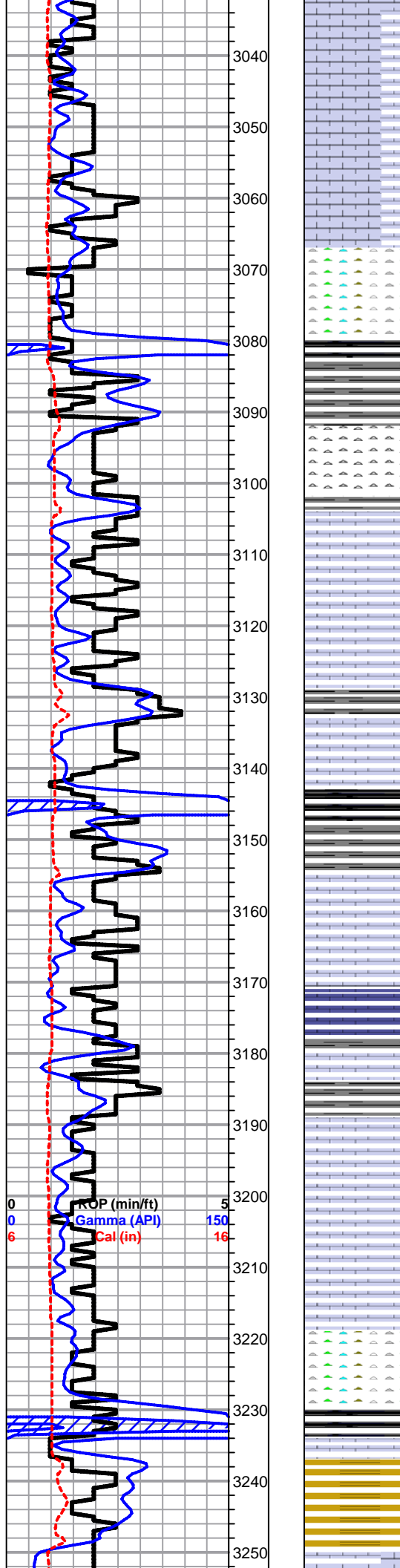
STRINGER
 Sandstone

OTHER SYMBOLS

- DST
- DST Int
- DST alt
- Core

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)





Lm- Buff Lt Brown, VFXLN, bio-clastic rip up clast, fossil fragments

Lm- Tan Cream, Med grained, granular, dense silted mud matrix, slightly dolomitic, few chips of reworked unconsolidated cherty Ls

Lm- Tan Gray, sticky argillaceous calcareous clumps

Chert- Dove Gray, VF, trashy bio-clastic dense bedded, massive, FSL

Sh-Black Gray Milky White, carbonaceous, fissile, soft, smooth round chips, abundant sticky argillaceous clumps

Chert- Brown Cream Gray, sharp angular bedded, some dense granular dolomitic chert, pinpoint porosity

Lm- Buff, Med grained, granular & gritty, moderately dense & well cemented, consistant pinpoint porosity, few chips w/ XLN porosity

Sh- Light Gray White, sticky argillaceous clumps, gray wash

Lm- Lt Brown Lt Gray, Med XLN, gritty & granular, semi-friable, good pinpoint porosity, mottled, NO STN, NO ODR

Sh- Black Gray, soft, semi-gritty, black dense & well compacted

Lm- Dark Gray Brown Tan, VF grained, dense & well cemented, minimal visible porosity, semi-cryptocrystalline

Lm- Buff Cream Tan, Fine - FXLN, gritty, slightly dolomitic, dense & well cemented, some chips silty mud matrix

Lm- Cream Lt Gray, VF-F, some XLN, mostly calcareous, some granular, moderately dense w/ pinpoint porosity, slightly FSL w/ fusulinids

Lm- Dark Gray, mostly dense, partly siliceous, FSL w/ fusulinids, little visible porosity

Lm- Cream Lt Gray, VF-F XLN, calcareous in part, some granular, mostly dense w/ minimal visible porosity, 1-2 chips dense w/ LT SCATTERED LT BRWN STN, NO ODR, edge recrystallization

Lm- Cream Tan, Med XLN, granular w/ consistant pinpoint porosity, some reworked trashy bio-clastics, FSL w/ crinoids

Chert- Smokey Gray Semi-Translucent Gray, mostly reworked, FSL w/ fusulinids, few chips of sharp angular bedded, dense w/ some pinpoint porosity

HEEBNER 3234' (-1246) E-LOG 3230' (-1242) Sh- Black Gray Lime Green, Carbonaceous & fissile, grainy, soft, clumps of argillaceous lime green

Sh- Cream, calcareous, soft

TORONTO 3253' (-1265) E-LOG 3250' (-1262) Lm- Tan Cream, VF-F XLN, calcareous in

Total Gas (units) 100
C1 (units) 100
C2 (units) 100
C3 (units) 100
C4 (units) 100

part, some granular & dense, well cemented, 1-2 chips, MED XLN, MOSTLY DENSE W/
 SCATTERED EDGE POROSITY, RARE DRK STN, RECRYSTALLIZATION, NO ODR,
 MINERAL FLOR, INSTANT HVY STREAMING WET CUT & FLOR

3260
3270
3280
3290
3300
3310
3320
3330
3340
3350
3360
3370
3380
3390
3400
3410
3420
3430
3440
3450
3460
3470

D
S
T

1

D
S
T

2

ROP (min/hr)
Gamma (API)
Calcium

LKC 3279' (-1291) E-LOG 3275' (-1287) Lm- Lt Gray Cream, VF-F XLN, moderately dense w/ minimal visible porosity, poorly developed, some institial recrystallization, FEW CHIPS MOSTLY DENSE W/ SCATTERED EDGE POROSITY, LT GSY STN, FNT ODR, CLOUDY WET CUT, 1 CHIP GRANULAR CONSISTANT PINPOINT POROSITY, SATURATED DRK BRWN STN

Lm-Cream Tan, VF grained, calcareous in part, silted & dense, soft, some VF XLN, dense w/ scattered recrystallization porosity

Lm- Tan Cream, Med-Coarse XLN, well developed, oolitic-oolomoldic, recrystallization w/in vugs, some w/ dark gilsonitic stn, mostly LT GSY SCATTERED STN, SFO, FR ODR, INSTANT SLOW STREAMING WET CUT, development & porosity lessen w/ depth

Lm- Cream Tan, F-Coarse XLN, moderately developed w/ scattered coarse XLN vuggy porosity w/ recrystallization w/in, mostly pinpoint porosity, LT GSY STN THROUGHOUT, SFO, GOOD ODR, INSTANT STREAMING WET CUT

Lm- Cream, VF grained, mostly dense w/ scattered edge porosity, recrystallization, SCATTERED LT GSY STN, NFO, FNT ODR

LM- Cream Tan, Coarse XLN, oolitic, well developed, vuggy porosity w/ recrystallization w/in, SCATTERED GSY STN, NSFO, NO ODR

Lm- Cream Tan, MedXLN -VF grained, mostly well developed w/ consistant small vuggy porosity, SATURATED GSY LT BRWN STN, RECRYSTALLIZATION W/IN VUGS, SLGSGYFO, few chips mostly dense w/ scattered micro-vuggy porosity, LT GSY STN in vugs, NSFO, porosity lessens w/ depth

Lm- White, abundant calcareous sticky lime

Lm- Tan Buff, VF-F XLN, mostly dense, poorly developed, few chips w/ solution veins w/ recrystallization, DRK STN w/in, SCATTERED EDGE POROSITY W/ DRK STN, ODR Chert- White Semi-Translucent, sharp, angular, fresh bedded chert

Lm- Tan Cream, Med-Coarse XLN, very well developed, slightly dolomitic, rhombedral crystals, consistant interconnected micro-vugular porosity, SATURATED GSY STN, FEW BLEEDING W/ LIVELY FO, INSTANT BRIGHT WET CUT

Lm- Cream Tan, Med XLN, oolitic, scattered pinpoint porosity, scattered vugs, recrystallization w/in vugs, LT GSY STN, NFO, STREAMING WET CUT

CFS @ 3340'
 SHORT TRIP
 SLOPE 1/2 dgr
 BOARD 3369.38
 STRAP 3367.34
 STRAP -2.04
 DST #1
 3284-3340

Total Gas (units) 100
 C1 (units) 100
 C2 (units) 100
 C3 (units) 100
 C4 (units) 100

3480
3490
3500
3510
3520
3530
3540
3550
3560
3570
3580
3590
3600
3610
3620
3630
3640
3650
3660
3670
3680
3690

D
S
T

3

Lm- Cream Tan, Med-Coarse XLN, scattered oolitic development, scattered micro-vugular porosity, calcareous in part, some moderately dense, , SL SCATTERED STN, SLFFO, GD ODR

Lm- Tan Cream, VFXLN, poorly developed, mostly dense w/ little to no visible porosity

BKC 3520' (-1532) E-LOG 3520' (-1532) Sh- Gray Blue-Green Gray, grainy, soft, some dense, calcareous white clumps

Lm- Cream, Med XLN, poorly developed, dense, tight interstitial XLN porosity

Lm- Cream Tan Red Mottled, VF, some XLN, mostly calcareous & silted, minimal porosity

Sh- Maroon, grainy, gritty & earthy, soft

Lm- Cream Buff, VF XLN, dense w/ little visible porosity

Cherty/Dolomitic Conglomerate- VF XLN, consistant pinpoint porosity dolomite, DRK BROWN SATURATED STN, SLOW CLOUDY WET CUT UPON CRUSH, SFO FEW CHIPS OF VF GRAINED PEBBLEY UNCONSOLIDATED CONGLOMERATE W/ SATURATED STN, INSTANT STREAMING WET CUT & FLOR, mult-colored sharp angular fresh bedded chert

Cherty Sand- Clusters of sub-rounded to sub-angular, slightly frosted, silicon cemented. Mostly conglomeritic clusters, few cleaner, semi-friable to friable. SCATTERED STN, HVY BRWN, STREAMING WET CUT, slightly efferevescent

E-LOG ARBUCKLE TOP 3630' (-1642)

Conglomerate- abundant multi-colored shales. Reworked chert, various colors, some oolitic, few pieces oolimidic w/ SATURATED DRK HVY BLACK OIL STN, NO ODR

Weathered Arbuckle- Coarse XLN, tan cream, rhombic crystalline, friable, efferevescences to nothing, some silted w/ pyrite inclusions. Clean on top and silted towards bottom of section

ARBUCKLE 3662' (-1674) E-LOG 3630' (-1642) Dolomite- Cream Tan, VF XLN, dense w/ consistant pinpoint porosity, scattered micro vugular porosity, NSO, NO STN, NO ODR

Dolomite- Cream Tan, Med-Fine XLN, pinpoint porosity throughout, moderately dense & well cemented, some recrystallization

Dolomite- A/A, Med-Coarse XLN

ROP (min/ft)
Gamma (API)
Cal (m)

5
150
16

Total Gas (units)
CFS @ 3605
DST #3
3470-3605'

