



1109656

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: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
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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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DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

GR #1

14-15s-19w Ellis,KS

Start Date: 2012.12.04 @ 21:35:05

End Date: 2012.12.05 @ 02:22:50

Job Ticket #: 50766 DST #: 1

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

Printed: 2012.12.06 @ 15:45:33

TDI inc
14-15s-19w Ellis,KS
GR #1
DST # 1
LKC"C"
2012.12.04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
 Job Ticket: 50766 **DST#: 1**
 Test Start: 2012.12.04 @ 21:35:05

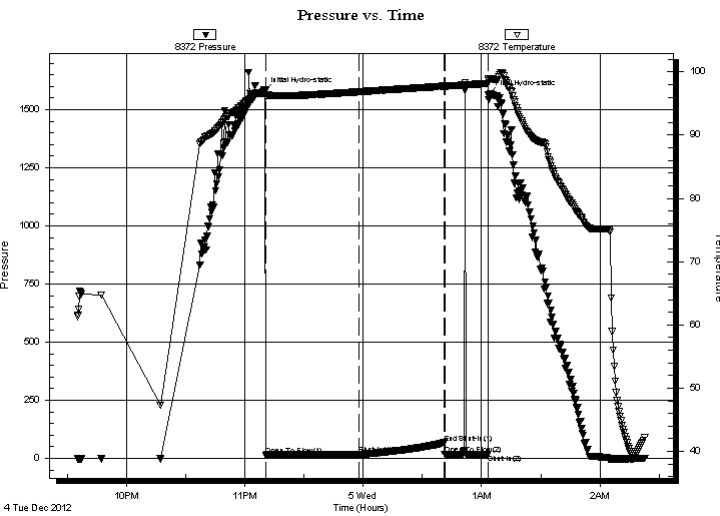
GENERAL INFORMATION:

Formation: **LKC"C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:10:40
 Time Test Ended: 02:22:50
 Interval: **3294.00 ft (KB) To 3349.00 ft (KB) (TVD)**
 Total Depth: 3349.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2021.00 ft (KB)
 2011.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 16.91 psig @ 3301.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.12.04 End Date: 2012.12.05 Last Calib.: 2012.12.05
 Start Time: 21:35:05 End Time: 02:22:50 Time On Btm: 2012.12.04 @ 23:09:20
 Time Off Btm: 2012.12.05 @ 01:03:20

TEST COMMENT: IF:(45min) Blow died in 19 min.
 IS:(45min) No Return
 FF:(20min) No Blow , Flushed, Surged, No Blow . Pulled Tool.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1577.76	96.61	Initial Hydro-static
2	14.88	96.15	Open To Flow (1)
49	16.91	96.84	Shut-In(1)
92	66.92	97.74	End Shut-In(1)
92	16.46	97.72	Open To Flow (2)
114	17.32	98.15	Shut-In(2)
114	1564.72	98.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.07

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50766 **DST#: 1**
Test Start: 2012.12.04 @ 21:35:05

Tool Information

Drill Pipe:	Length: 3294.00 ft	Diameter: 3.80 inches	Volume: 46.21 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	36000.00 lb
			<u>Total Volume: 46.21 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	30000.00 lb
Depth to Top Packer:	3294.00 ft			Final	30000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	55.00 ft				
Tool Length:	75.00 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			3275.00	
Shut In Tool	5.00			3280.00	
Hydraulic tool	5.00			3285.00	
Packer	5.00			3290.00	20.00 Bottom Of Top Packer
Packer	4.00			3294.00	
Stubb	1.00			3295.00	
Perforations	5.00			3300.00	
Change Over Sub	1.00			3301.00	
Recorder	0.00	8844	Inside	3301.00	
Recorder	0.00	8372	Outside	3301.00	
Drill Pipe	31.00			3332.00	
Change Over Sub	1.00			3333.00	
Perforations	13.00			3346.00	
Bullnose	3.00			3349.00	55.00 Bottom Packers & Anchor

Total Tool Length: 75.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc **14-15s-19w Ellis,KS**
 1310 Bison Rd **GR #1**
 Hays KS 67601 Job Ticket: 50766 **DST#: 1**
 ATTN: Herb Deines Test Start: 2012.12.04 @ 21:35:05

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.38 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4200.00 ppm			
Filter Cake: inches			

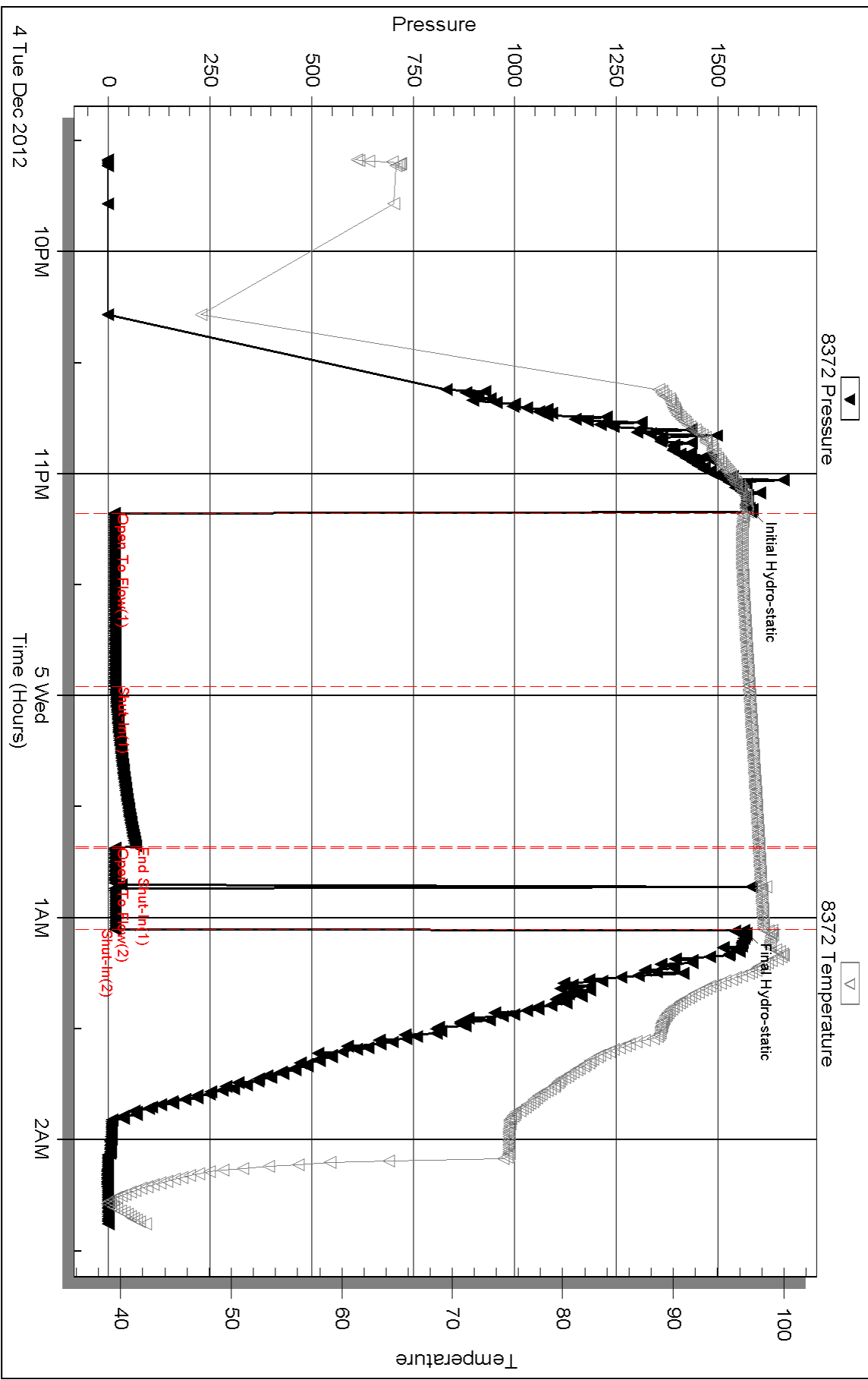
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud	0.070

Total Length: 5.00 ft Total Volume: 0.070 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time



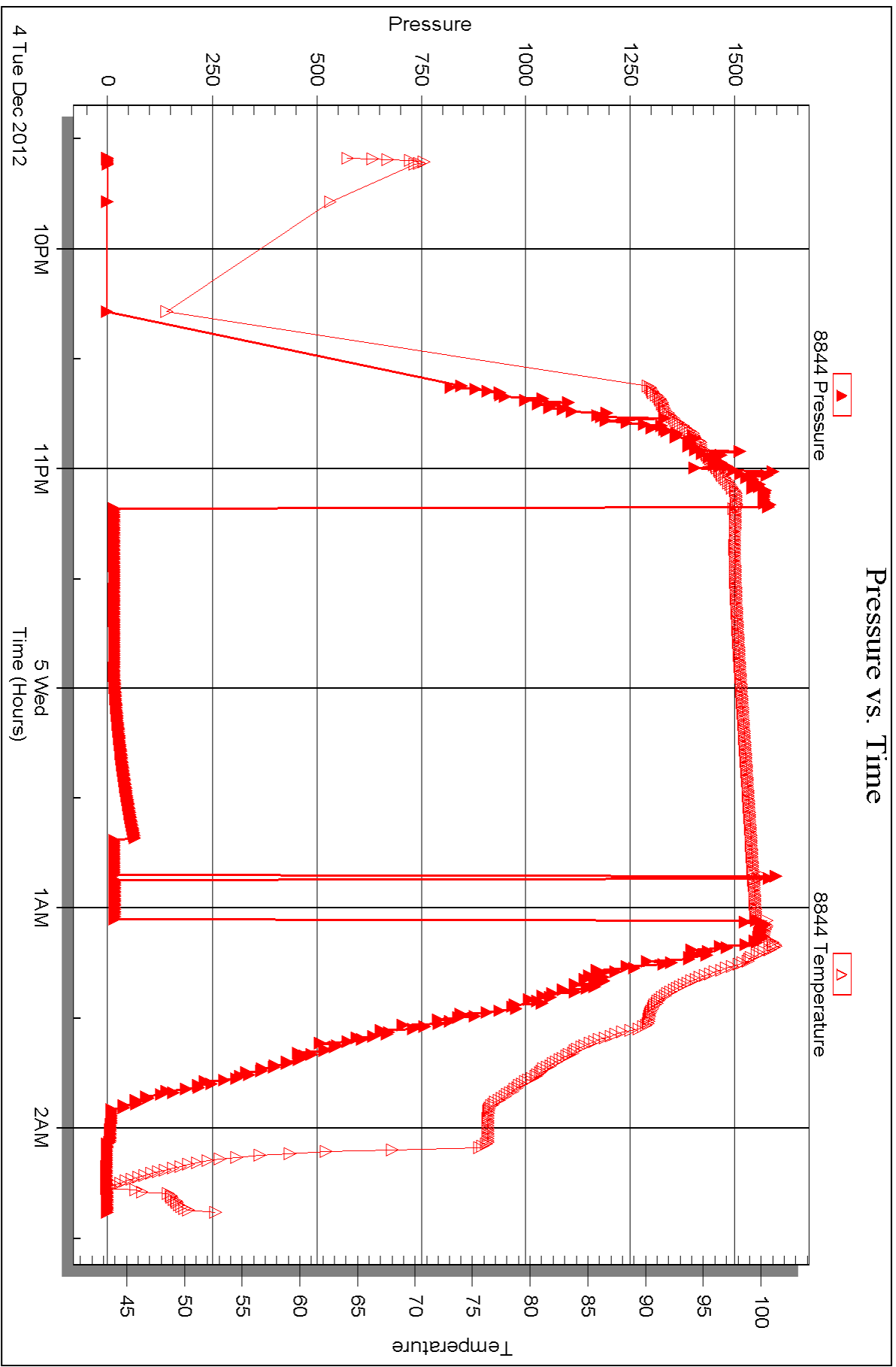
Serial #: 8844

Inside

TD/Inc

GR #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

GR #1

14-15s-19w Ellis,KS

Start Date: 2012.12.05 @ 18:08:05

End Date: 2012.12.06 @ 01:10:59

Job Ticket #: 50767 DST #: 2

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

Printed: 2012.12.06 @ 15:44:53

TDI inc
14-15s-19w Ellis,KS
GR #1
DST # 2
LKC-"H,I,J"
2012.12.05



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
 Job Ticket: 50767 **DST#: 2**
 Test Start: 2012.12.05 @ 18:08:05

GENERAL INFORMATION:

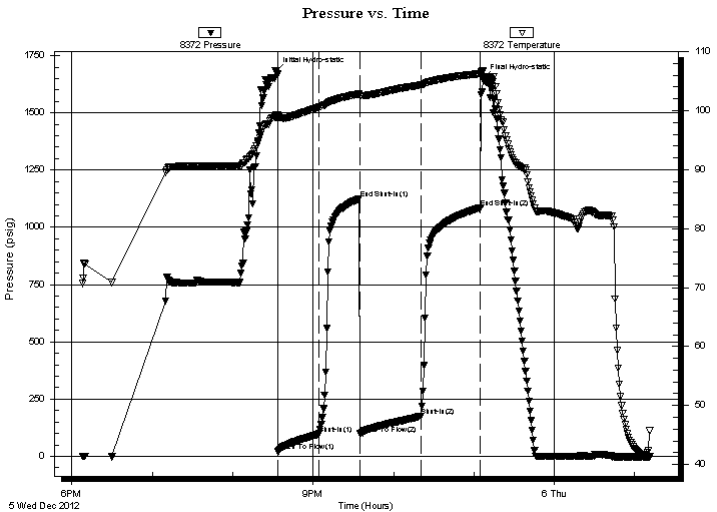
Formation: **LKC "H,I,J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:33:40
 Time Test Ended: 01:10:59
 Interval: **3430.00 ft (KB) To 3510.00 ft (KB) (TVD)**
 Total Depth: 3510.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2021.00 ft (KB)
 2011.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 175.35 psig @ 3437.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.12.05 End Date: 2012.12.06 Last Calib.: 2012.12.06
 Start Time: 18:08:05 End Time: 01:10:59 Time On Btm: 2012.12.05 @ 20:32:00
 Time Off Btm: 2012.12.05 @ 23:06:29

TEST COMMENT: IF:(30min) BOB in 5 min.
 IS:(30min) Return Blow built to 2"
 FF:(45min) BOB in 2 min.
 FS:(45min) Return Blow built to 4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1678.89	98.88	Initial Hydro-static
2	19.93	98.61	Open To Flow (1)
33	96.54	100.58	Shut-In(1)
63	1125.02	102.82	End Shut-In(1)
64	98.26	102.48	Open To Flow (2)
109	175.35	104.33	Shut-In(2)
153	1084.86	106.27	End Shut-In(2)
155	1650.49	106.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
315.00	GMCO g=20% m=20% o=60%	4.42
65.00	GMCO g=20% m=30% o=50%	0.91
30.00	GOCM g=5% o=15% m=80%	0.42
0.00	GIP = 1165 ft	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50767
Test Start: 2012.12.05 @ 18:08:05

DST#: 2

GENERAL INFORMATION:

Formation: **LKC"H,I,J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 20:33:40
Time Test Ended: 01:10:59

Test Type: Conventional Bottom Hole (Reset)
Tester: Andy Carreira
Unit No: 39

Interval: **3430.00 ft (KB) To 3510.00 ft (KB) (TVD)**
Total Depth: 3510.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches
Hole Condition: Poor

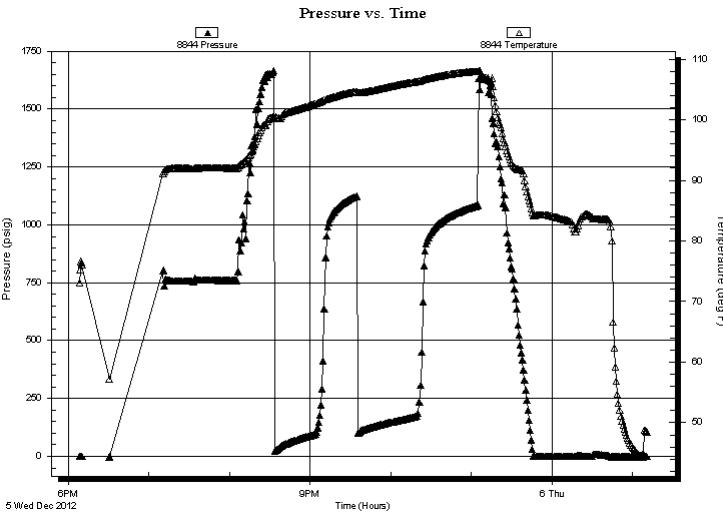
Reference Elevations: 2021.00 ft (KB)
2011.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8844 Inside

Press@RunDepth: psig @ 3437.00 ft (KB)
Start Date: 2012.12.05 End Date: 2012.12.06
Start Time: 18:08:25 End Time: 01:11:00

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

TEST COMMENT: IF:(30min) BOB in 5 min.
ISl:(30min) Return Blow built to 2"
FF:(45min) BOB in 2 min.
FSl:(45min) Return Blow built to 4"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
315.00	GMCO g=20% m=20% o=60%	4.42
65.00	GMCO g=20% m=30% o=50%	0.91
30.00	GOCM g=5% o=15% m=80%	0.42
0.00	GIP = 1165 ft	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50767 **DST#: 2**
Test Start: 2012.12.05 @ 18:08:05

Tool Information

Drill Pipe:	Length: 3430.00 ft	Diameter: 3.80 inches	Volume: 48.11 bbl	Tool Weight:	3000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	44000.00 lb
			<u>Total Volume: 48.11 bbl</u>	Tool Chased	5.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	32000.00 lb
Depth to Top Packer:	3430.00 ft			Final	34000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	80.00 ft				
Tool Length:	100.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments: Rig down 1 hr. on trip in. Work on draw works

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3411.00	
Shut In Tool	5.00			3416.00	
Hydraulic tool	5.00			3421.00	
Packer	5.00			3426.00	20.00 Bottom Of Top Packer
Packer	4.00			3430.00	
Stubb	1.00			3431.00	
Perforations	5.00			3436.00	
Change Over Sub	1.00			3437.00	
Recorder	0.00	8844	Inside	3437.00	
Recorder	0.00	8372	Outside	3437.00	
Drill Pipe	63.00			3500.00	
Change Over Sub	1.00			3501.00	
Perforations	6.00			3507.00	
Bullnose	3.00			3510.00	80.00 Bottom Packers & Anchor

Total Tool Length: 100.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

14-15s-19w Ellis,KS
GR #1
Job Ticket: 50767
Test Start: 2012.12.05 @ 18:08:05

DST#: 2

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 4000.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

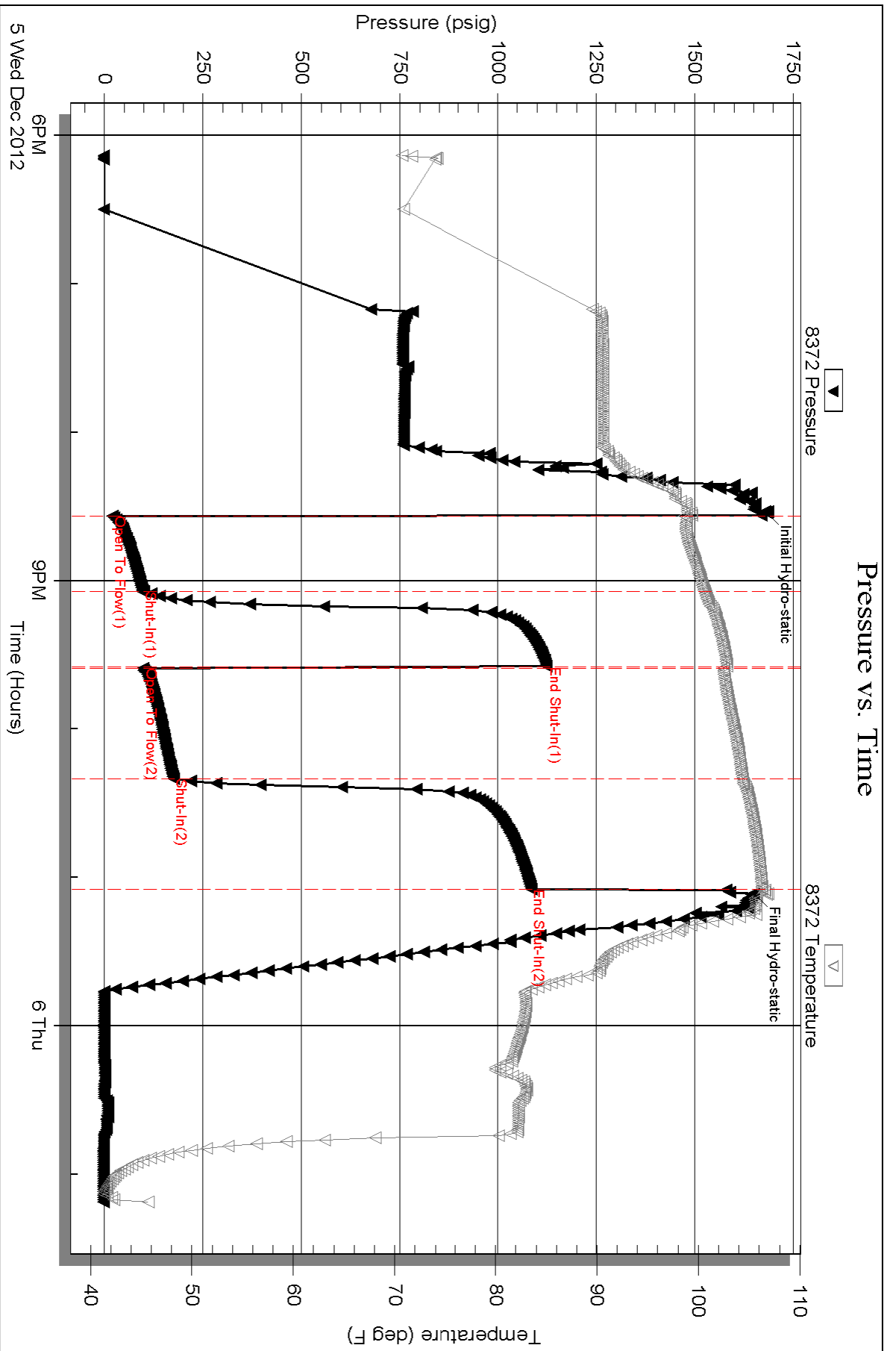
Length ft	Description	Volume bbl
315.00	GMCO g=20% m=20% o=60%	4.419
65.00	GMCO g=20% m=30% o=50%	0.912
30.00	GOCM g=5% o=15% m=80%	0.421
0.00	GIP = 1165 ft	0.000

Total Length: 410.00 ft Total Volume: 5.752 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments:



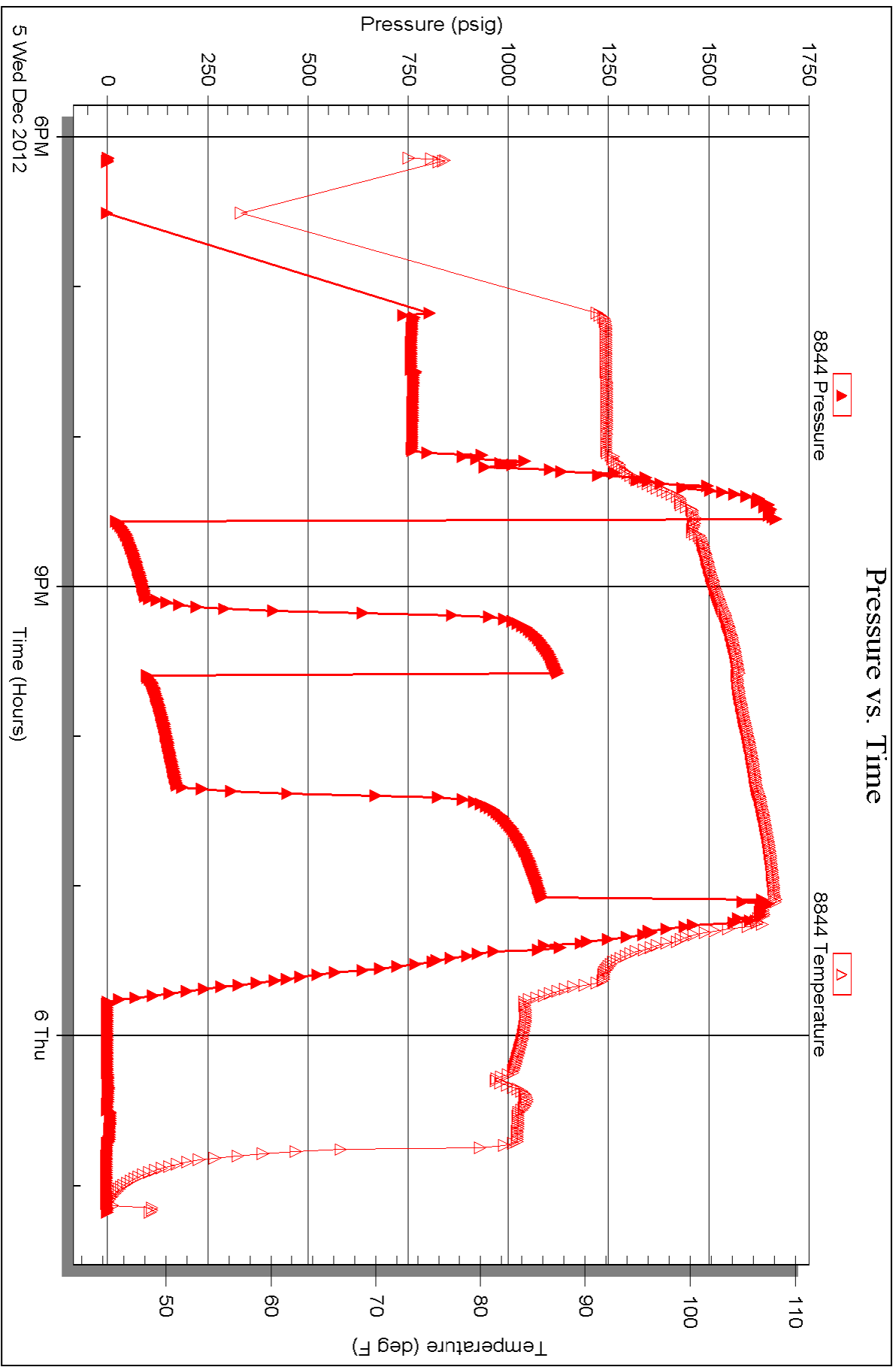
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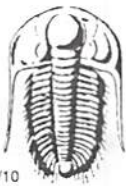
Inside

TD/Inc

GR #1

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50766

4/10

Well Name & No. GR #1 Test No. 1 Date 12-4-12
 Company T D I inc. Elevation 2021 KB 2011 GL
 Address 1310 BISON RD Hays Ks. 67601
 Co. Rep / Geo. Herb DEINES Rig Southwind #1
 Location: Sec. 14 Twp. 15 Rge. 19 Co. Ellis State Ks

Interval Tested 3294-3349 Zone Tested LKC "C"
 Anchor Length 55 Drill Pipe Run 3294 Mud Wt. 8.9
 Top Packer Depth 3289 Drill Collars Run 0 Vis 53
 Bottom Packer Depth 3294 Wt. Pipe Run 0 WL 7.4
 Total Depth 3349 Chlorides 4200 ppm System LCM 1

Blow Description IF: Blow died in 19min
FSI: NO Return
FP: NO Blow, Flushed, surged, NO Blow, Pulled Tool
FSI: NA

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</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 98° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 1577
- (B) First Initial Flow 1577 14
- (C) First Final Flow 16 16
- (D) Initial Shut-In 16 66
- (E) Second Initial Flow 16 16
- (F) Second Final Flow 16 17
- (G) Final Shut-In _____
- (H) Final Hydrostatic 1564

Initial Open 45
 Initial Shut-In 45
 Final Flow 20
 Final Shut-In _____

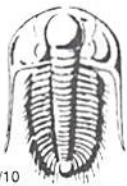
- Test 1150
- Jars _____
- Safety Joint _____
- Circ Sub _____
- Hourly Standby _____
- Mileage 49.60
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____

T-On Location 19:50
 T-Started 21:35
 T-Open 23:11
 T-Pulled 01:01
 T-Out 02:23

Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1199.60
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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. 50767

4/10

Well Name & No. GR #1 Test No. 2 Date 12-5-12
 Company TDI INC. Elevation 2021 KB 2011 GL
 Address 1310 BISON RD Hays Ks. 67601
 Co. Rep / Geo. Herb Deines Rig Southwind #1
 Location: Sec. 14 Twp. 15 Rge. 19 Co. Ellis State Ks

Interval Tested 3430-3510 Zone Tested LKC "H, I, J"
 Anchor Length 80 Drill Pipe Run 3430 Mud Wt. 9.0
 Top Packer Depth 3425 Drill Collars Run 0 Vis 55
 Bottom Packer Depth 3430 Wt. Pipe Run 0 WL 7.6
 Total Depth 3510 Chlorides 4000 ppm System LCM 1

Blow Description IF: BOB 5 min.
ISI: Return ~~before~~ blow built to 2"
FF: BOB, 2 min.
FSI: Return blow built to 4"

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>60 cm</u>	<u>5</u>	<u>15</u>	<u>80</u>	<u>0</u>
<u>65</u>	<u>GmCO</u>	<u>20</u>	<u>50</u>	<u>30</u>	<u>0</u>
<u>315</u>	<u>GmCO</u>	<u>20</u>	<u>60</u>	<u>20</u>	<u>0</u>
<u>1165</u>	<u>GIP</u>				

Rec Total 410' BHT 106° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1678 Test 1150 T-On Location 16:55
 (B) First Initial Flow 19 Jars _____ T-Started 18:08
 (C) First Final Flow 95 Safety Joint _____ T-Open 20:35
 (D) Initial Shut-In 1125 Circ Sub _____ T-Pulled 23:05
 (E) Second Initial Flow 98 Hourly Standby _____ T-Out 01:11
 (F) Second Final Flow 175 Mileage 32RT 49.60 Comments Rig down 1 hr
 (G) Final Shut-In 1084 Sampler _____ on trip in. work on
 (H) Final Hydrostatic 1650 Straddle _____ Drawworks

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 30 Ruined Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1199.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1199.60

Approved By _____ Our Representative [Signature]

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.

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: GR # 1
 Location: NE SW SW NW Sec.14-15s-19w
 Pool: WILDCAT
 State: KANSAS
 API: 15-051-26,429-00-00
 Field: UNNAMED
 Country: USA



TDI, Inc.
 1310 BISON ROAD
 HAYS, KANSAS 67601
 (785) 628-2593

Scale 1:240 Imperial

Well Name: GR # 1
 Surface Location: NE SW SW NW Sec.14-15s-19w
 Bottom Location:
 API: 15-051-26,429-00-00
 License Number: 4787
 Spud Date: 11/30/2012
 Region: ELLIS COUNTY
 Drilling Completed: 12/6/2012
 Surface Coordinates: 2060' FNL & 570' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2011.00ft
 K.B. Elevation: 2021.00ft
 Logged Interval: 2900.00ft
 Total Depth: 3750.00ft
 Formation: LANSING-KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

Time: 2:00 PM
 Time: 3:19 PM
 To: 3750.00ft

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 2060' FNL
 E/W Co-ord: 570' FWL

LOGGED BY

Company: SOLUTIONS CONSULTING
 Address: 108 W 35TH
 HAYS, KS 67601
 Phone Nbr: (785) 639-1337
 Logged By: Geologist
 Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING INC
 Rig #: 1
 Rig Type: MUD ROTARY

Rig Type: MUD ROTARY
Spud Date: 11/30/2012
TD Date: 12/6/2012
Rig Release: 12/7/2012

Time: 2:00 PM
Time: 3:19 PM
Time: 11:00 AM

ELEVATIONS

K.B. Elevation: 2021.00ft
K.B. to Ground: 10.00ft

Ground Elevation: 2011.00ft

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON RESULTS OF DST # 2

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 SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

GR # 1

2060' FNL & 570' FWL, NW/4

Sec. 14-15s-19w

2011' GL 2021' KB


<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1213+ 808	1215+ 806
B-Anhydrite		1253+ 768
Topeka	2991- 970	2991- 970
Heebner Shale	3264-1243	3262-1241
Toronto	3284-1263	3286-1265
LKC	3311-1290	3309-1288
BKC	3556-1535	3551-1530
Conglomerate Sand		3642-1621
Arbuckle		3660-1639
RTD	3750-1688	
LTD		3747-1726

SUMMARY OF DAILY ACTIVITY

11-30-12 RU, spud 2:00pm
12-01-12 1223', set 8 5/8" to 1221' w/ 375 sxs SMD, plug down 9:00AM,
slope 1 1/2 degrees, WOC 12 hours
12-02-12 1500', drilling
12-03-12 2480', drilling, displaced mud system @ 2796'-2827'
12-04-12 3125', drilling, DST # 1 3204' to 3240' "A" LKC

12-04-12 3155', drilling, DST # 1 3294' to 3349' "A-C" LKC
 12-05-12 3390', drilling, DST # 2 3430'-3510' "H-J" LKC
 12-06-12 3574', RTD 3750' @ 3:19PM, short trip, CCH 1 1/2 hours, TOWB, logs
 10-07-12 3750', lay down drill pipe, run 5 1/2" production casing, cement with
 plug down at 11:00 am, RD

DST # 1 "A-C" LKC TEST SUMMARY

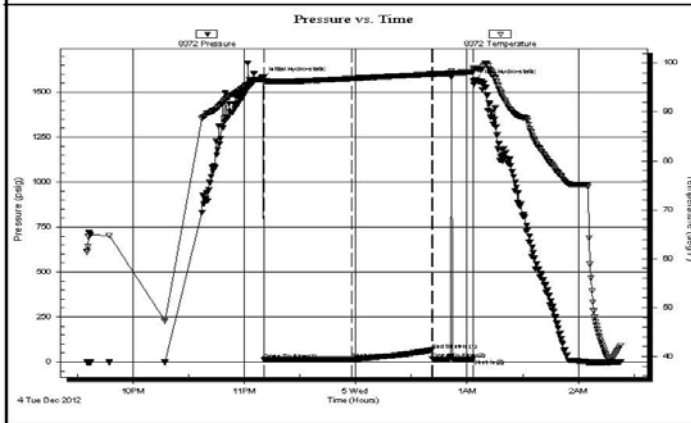
	DRILL STEM TEST REPORT	
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	14-15-19 Ellis GR #1 Job Ticket: 50766 DST#: 1 Test Start: 2012.12.04 @ 21:35:05

GENERAL INFORMATION:

Formation: LKC"C"	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Andy Carreira
Time Tool Opened: 23:10:40	Unit No: 39
Time Test Ended: 02:22:50	Reference Elevations: 2021.00 ft (KB)
Interval: 3294.00 ft (KB) To 3349.00 ft (KB) (TVD)	2011.00 ft (CF)
Total Depth: 3349.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.88 inches Hole Condition: Poor	

Serial #: 8372	Outside				
Press@RunDepth: 16.91 psig @ 3301.00 ft (KB)	Capacity: 8000.00 psig				
Start Date: 2012.12.04	End Date: 2012.12.05	Last Calib.: 2012.12.05			
Start Time: 21:35:05	End Time: 02:22:50	Time On Btm: 2012.12.04 @ 23:09:20			
		Time Off Btm: 2012.12.05 @ 01:03:20			

TEST COMMENT: IF:(45min) Blow died in 19 min.
 ISl:(45min) No Return
 FF:(20min) No Blow, Flushed, Surged, No Blow. Pulled Tool.



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1577.76	96.61	Initial Hydro-static
2	14.88	96.15	Open To Flow (1)
49	16.91	96.84	Shut-In(1)
92	66.92	97.74	End Shut-In(1)
92	16.46	97.72	Open To Flow (2)
114	17.32	98.15	Shut-In(2)
114	1564.72	98.93	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
5.00	Mud	0.07

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

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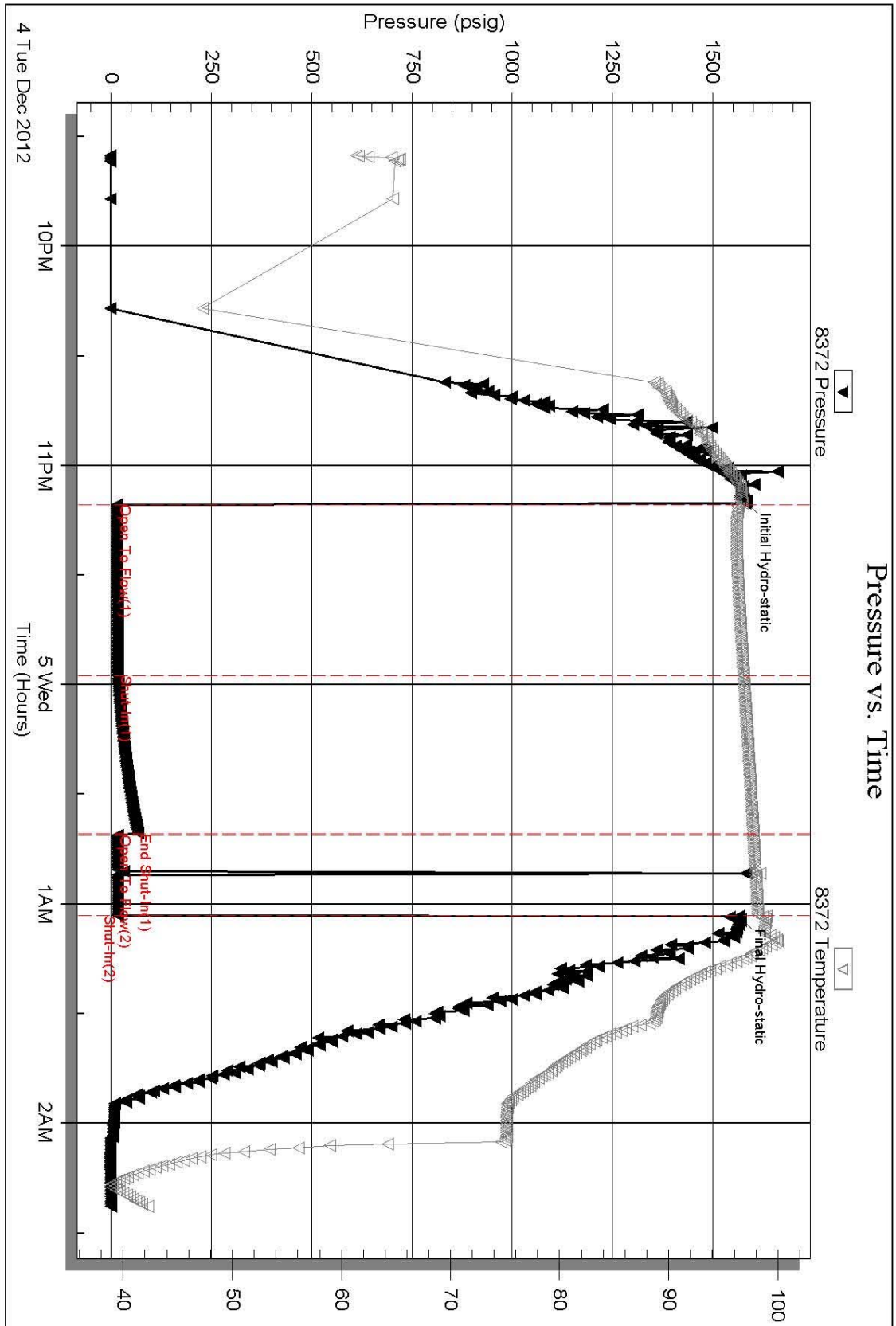
DST # 1 "A-C" EXPANDED CHART

Serial #: 8372


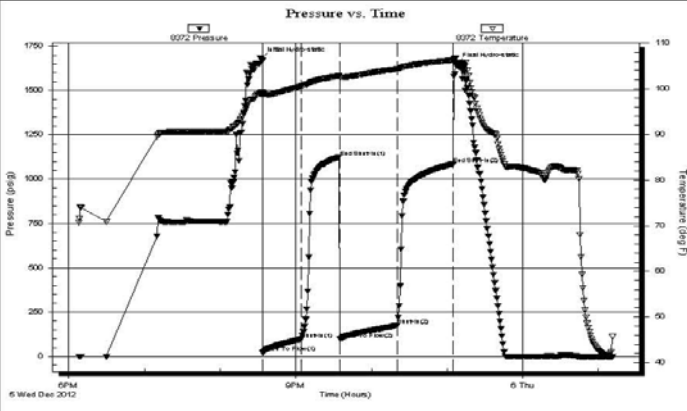
Outside TDI inc

GR #1

DST Test Number: 1



DST # 2 "H - J" LKC TEST SUMMARY

	DRILL STEM TEST REPORT																																										
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	14-15-19 Ellis GR#1 Job Ticket: 50767 DST#: 2 Test Start: 2012.12.05 @ 18:08:05																																									
GENERAL INFORMATION:																																											
Formation: LKC "H,I,J" Deviated: No Whipstock: ft (KB) Time Tool Opened: 20:33:40 Time Test Ended: 01:10:59		Test Type: Conventional Bottom Hole (Reset) Tester: Andy Carreira Unit No: 39																																									
Interval: 3430.00 ft (KB) To 3510.00 ft (KB) (TVD) Total Depth: 3510.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Poor		Reference Elevations: 2021.00 ft (KB) 2011.00 ft (CF) KB to GR/CF: 10.00 ft																																									
Serial #: 8372 Outside Press@RunDepth: 175.35 psig @ 3437.00 ft (KB) Capacity: 8000.00 psig Start Date: 2012.12.05 End Date: 2012.12.06 Last Calib.: 2012.12.06 Start Time: 18:08:05 End Time: 01:10:59 Time On Btm: 2012.12.05 @ 20:32:00 Time Off Btm: 2012.12.05 @ 23:06:29																																											
TEST COMMENT: IF:(30min) BOB in 5 min. ISl:(30min) Return Blow built to 2" FF:(45min) BOB in 2 min. FSl:(45min) Return Blow built to 4"																																											
	<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>1678.89</td><td>98.88</td><td>Initial Hydro-static</td></tr> <tr><td>2</td><td>19.93</td><td>98.61</td><td>Open To Flow (1)</td></tr> <tr><td>33</td><td>96.54</td><td>100.58</td><td>Shut-In(1)</td></tr> <tr><td>63</td><td>1125.02</td><td>102.82</td><td>End Shut-In(1)</td></tr> <tr><td>64</td><td>98.26</td><td>102.48</td><td>Open To Flow (2)</td></tr> <tr><td>109</td><td>175.35</td><td>104.33</td><td>Shut-In(2)</td></tr> <tr><td>153</td><td>1084.86</td><td>106.27</td><td>End Shut-In(2)</td></tr> <tr><td>155</td><td>1650.49</td><td>106.83</td><td>Final Hydro-static</td></tr> </tbody> </table>			PRESSURE SUMMARY				Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1678.89	98.88	Initial Hydro-static	2	19.93	98.61	Open To Flow (1)	33	96.54	100.58	Shut-In(1)	63	1125.02	102.82	End Shut-In(1)	64	98.26	102.48	Open To Flow (2)	109	175.35	104.33	Shut-In(2)	153	1084.86	106.27	End Shut-In(2)	155	1650.49	106.83	Final Hydro-static
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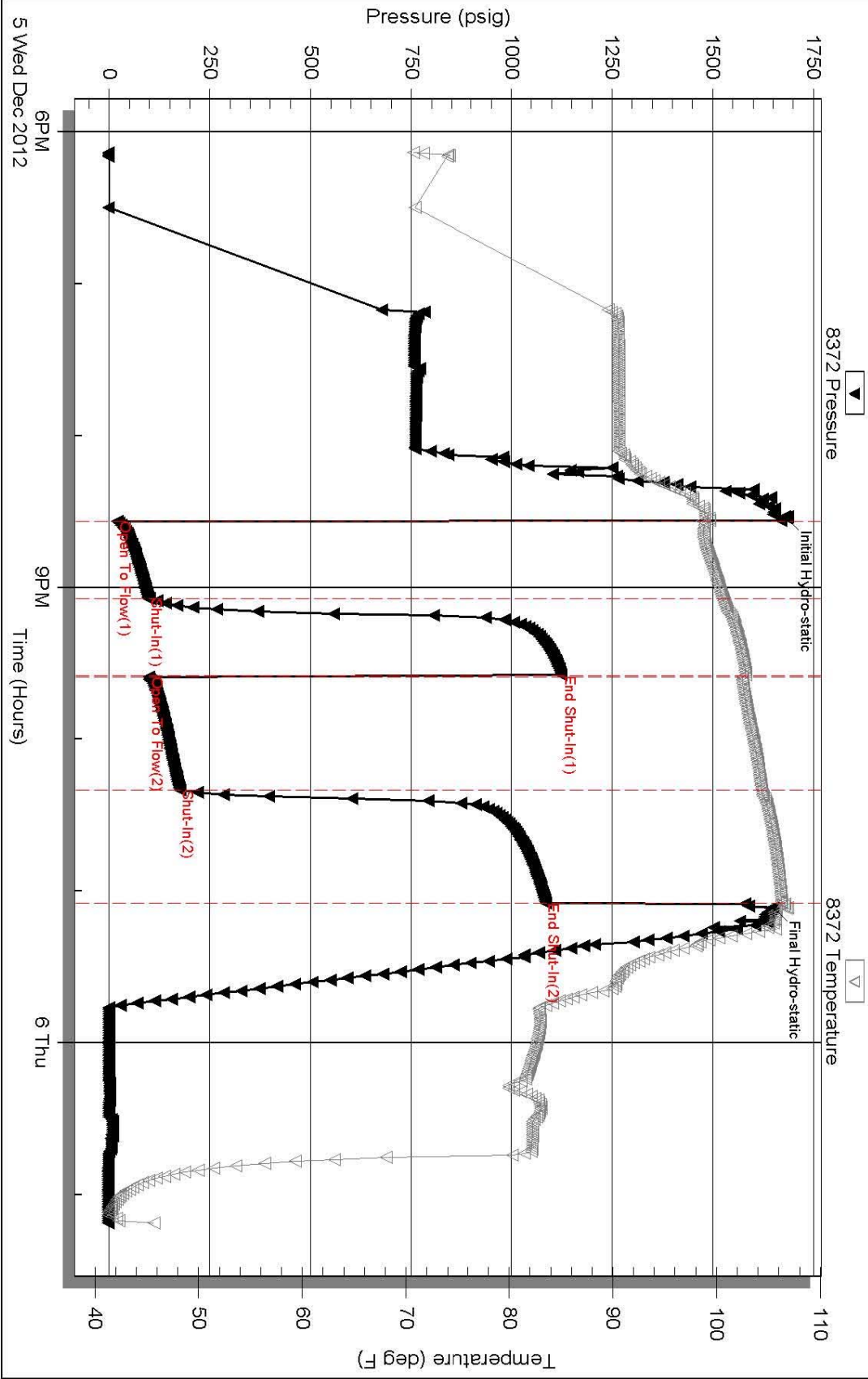
Trilobite Testing, Inc

Ref. No: 50767

Printed: 2012.12.06 @ 08:11:47

DST # 2 "H - J" LKC EXPANDED CHART

Pressure vs. Time



ROCK TYPES

- | | | | | |
|--|--|--|--|--|
| | | | | |
| | | | | |
| | | | | |

ACCESSORIES

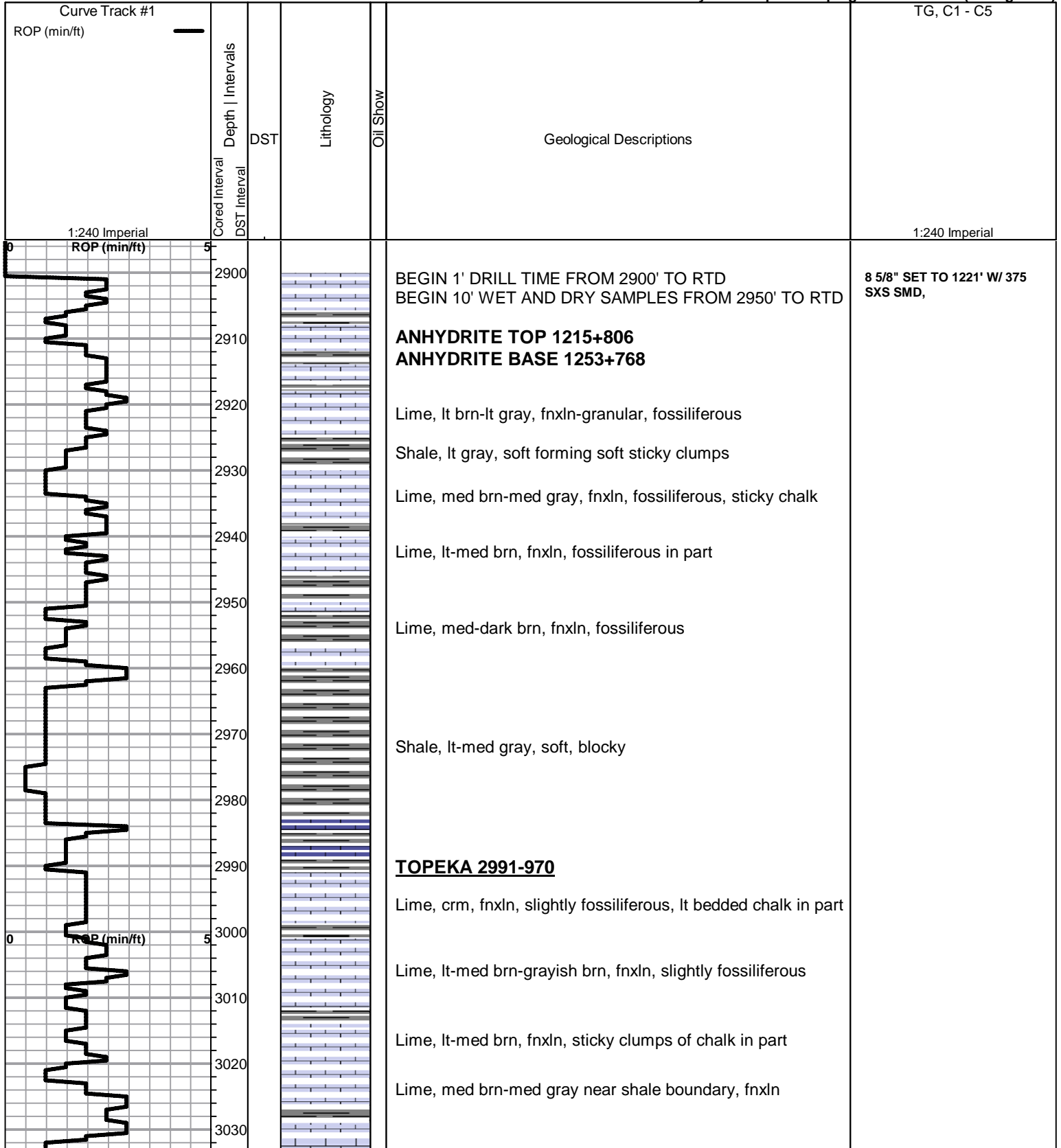
- MINERAL**
- ▲ Chert, dark
 - ⊞ Nodules
 - P Pyrite
 - Sandy
 - ◌ Varicolored chert
 - △ Chert White

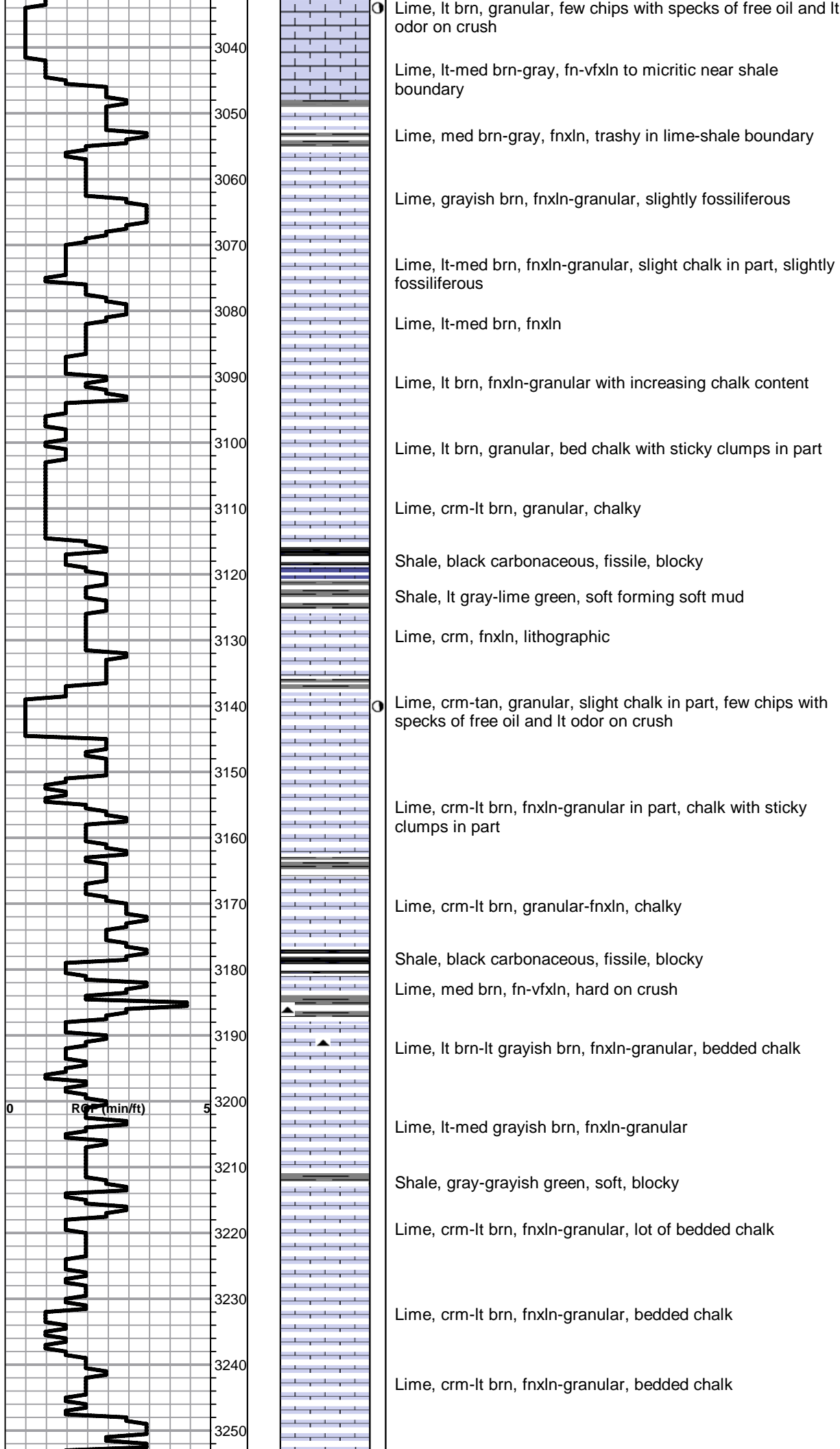
- FOSSIL**
- Oolite
 - ⊞ Oomoldic

OTHER SYMBOLS

- DST**
- DST Int
 - DST alt
 - Core

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





Lime, lt-med brn, fnxln-granular, bedded chalk

HEEBNER SHALE SPL 3264-1243 ELOG 3262-

Shale, black carbonaceous, fissile, blocky
Lime, lt grayish brn, fnxln, hard on crush
Shale, reddish brn-lt gray grading into lime green, soft, blocky shale forming soft mud clumps in part

TORONTO 3286-1265

Lime, crm-lt brn, fn-vfxln, bed chalk in part, NS
Lime, crm-lt brn, fn-vfxln, no visible porosity in section

LKC 3309-1288

Lime, pale gray-crm, fnxln, bedded chalk, NS
Lime, pale gray-crm, fnxln
Shale, med gray, soft forming soft mud clumps in part
Lime, crm, granular, lot of chalk, NS
Lime, crm, fnxln-granular, chalk in part
Lime, crm-lt brn, fnxln-granular, few chips with fnxln, scattered pinpoint vuggy porosity, lt scattered staining with very lite odor

DST # 1 3294' TO 3349' SEE HEADER FOR TEST SUMMARY

Shale, black carbonaceous, fissile, blocky
Lime, lt brn, fnxln, hard on crush
Lime, crm, fnxln with bed of oolitic/oolmoldic lime, trace of fresh oil staining, very lite odor, NFO, mixed with granular lime with interxln porosity and lite staining
Shale, med gray-grayish green, soft, blocky
Lime, crm-tan, fn-vfxln

Lime crm-tan, fn-vfxln, glassy appearance with white chert

Lime, crm-tan,fn-vfxln with increase in brn-lt gray lime

Lime, brn-gray, vfxln

Lime, brn-gray, fn-vfxln

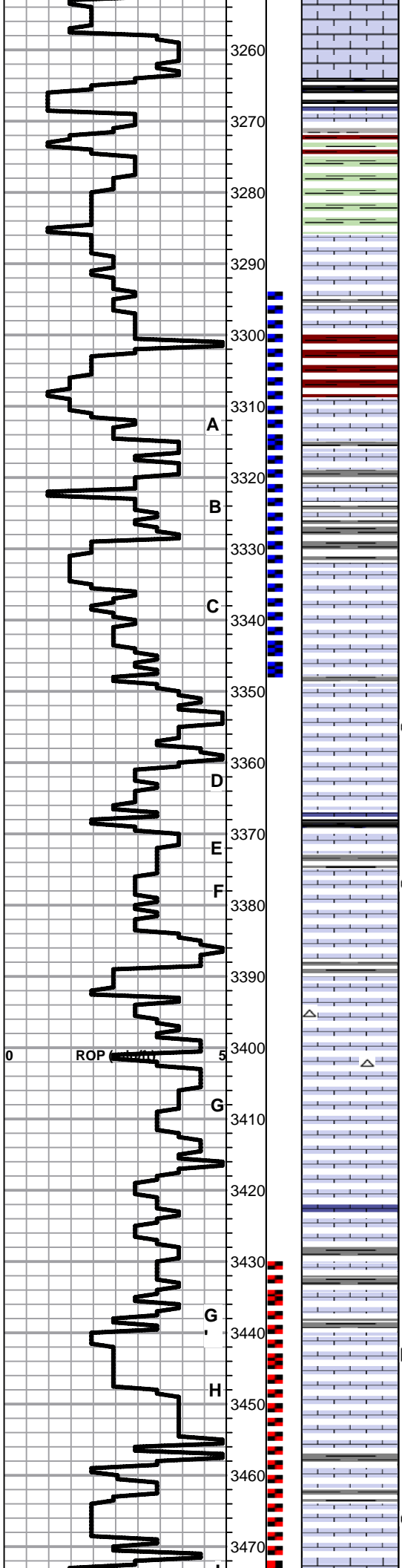
Lime, crm-tan, fnxln, dead oil stain, very lite odor, NFO

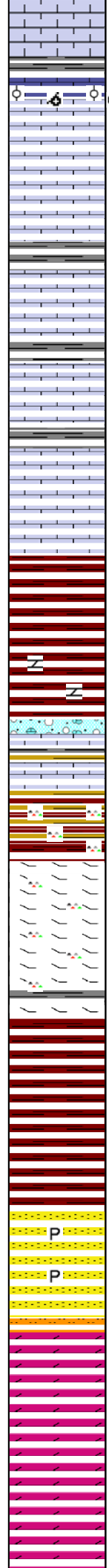
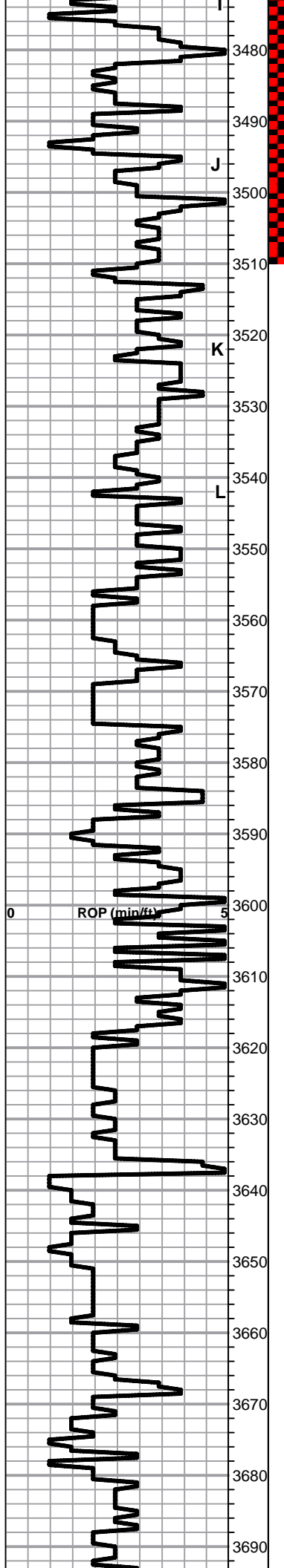
Lime, crm, fn-vfxln

Lime, crm-tan, fn-vfxln

Lime, lt tan-lt brn, fnxln-granular, scattered staining in fine interxln porosity with pinpoint vuggy porosity

DST # 2 3430' TO 3510' SEE HEADER FOR TEST SUMMARY





Lime, crm-tan, fnxln

Lime, crm, oolitic/oolmoldic with fossil fragments, scattered stain, lt oil sheen on chips

Lime, crm-lt brn, fnxln, slight chalk in part

Lime, crm, fnxln, bedded chalk

Lime, crm-tan, fnxln, bedded chalk in part

Shale, lt-med gray, soft
Lime, crm-tan, fnxln

Lime, crm-tan, fn-vfxln, bedded chalk in part

Lime, crm-tan, fnxln, bedded chalk

Lime, crm-tan, fn-vfxln, bedded chalk

BKC 3551-1530

Shale, reddish brn, soft with lt red wash

Shale, reddish brn, soft blocky, chert nodules

Lime, clastic mix with red staining in part
Shale, vari colored, soft, blocky

Shale, vari colored mixed with vari colored cherts

MARMATON 3594-1573

Lime, crm-tan, fnxln, dolomitic, hard on crush,
Chert, tan, orange, fresh, sharp

Lime, crm-tan, fnxln, dolomitic, hard on crush

Shale, med-dark brn, soft, blocky

Shale, red- deep red grading into soft shale with red wash near sand boundary

CONGLOMERATE SAND 3642-1621

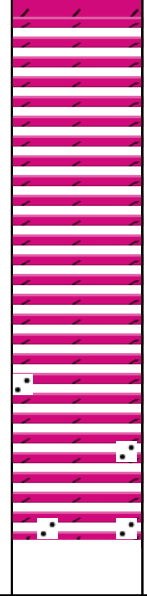
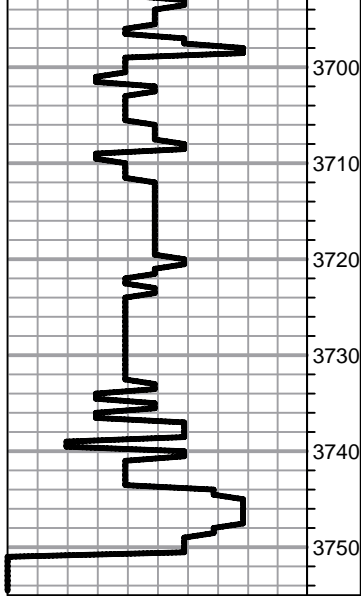
Sandstone, quartz, fn-coarse grained, well sorted, pyritic clusters with quartz inclusions, NS

ARBUCKLE 3660-1639

Dolomite, crm-tan, fn-cxln, sucrosic in part, NS

Dolomite, crm, fnxln-granular with fn-cxln sucrosic in part NS

Dolomite, crm, fnxln-granular, fn-cxln, sucrosic in part



Dolomite, crm, fnxln-granular, sucrosic in part

Dolomite, ivory-crm, fn-cxln, sucrosic in part

Dolomite, ivory-crm, fn-cxln, sucrosic in part

Dolomite, crm, fn-cxln with increasing content of quartz inclusions

RTD 3750-1729 LTD 3747-1726

RAN 5 1/2" PRODUCTION CASING SET TO 3739' WITH 150 SXS EA2

SLOPE @ 3750' 2 DEGREES

JOB LOG

SWIFT Services, Inc.

DATE 1 Dec 12 PAGE NO. 1

CUSTOMER TDI WELL NO. #1 LEASE GR JOB TYPE Cement deep surface TICKET NO. 23560

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								375 sk SMD w/ 1/4" floccs 8 5/8" 23" casing 29 joints TD = 1223' pipe = 1221. plug back 1209' Control valves, 1, 3, 15
	0500							on loc TRK 113
	0525							start 8 5/8" 23" casing in well
	0725							circulate well
	0758	4	12				250	pump 500 gal mud flush
		4	20				250	pump 20 bbl KCL flush
	0807	5 1/2	45				350	MIX SMD cement @ 11.8 ppg 100 sks
		5 1/2	41				350	MIX SMD cement @ 12.2 ppg 100 sks
		5	31				350	MIX SMD cement @ 13.5 ppg 100 sks
		4 1/2	20				400	MIX SMD cement @ 14.2 ppg 75 sks
	0825							Release plug
	0827	5					350	Displace plug
		5	50				350	— cement to surface —
	0845	3 1/2	80				800	Land ply shot in casing { 138 sk mixed } 40 top pt
	0855							wash truck
								Rack up
	0920							job complete Thanks Don Russ & Blaine

JOB LOG

SWIFT Services, Inc.

DATE 12-7-12 PAGE NO. 1

CUSTOMER TDI WELL NO. #1 LEASE G R JOB TYPE Longstring TICKET NO. 22985

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0520							on loc w/FE
								RTD 3250'
								5 1/2" x 14# x 3744' x #3'
								Cent 1,3,5,7,8,10,12
								Back 2,14
	0700							Start FE
	0900							Break Circ
	1005	2	7/4					Plug RH+MH 30/15 sks EA-2
	1015	5	0			200		Start 500gal Mudflush
		5	12/0			200		start 20 bbl KCL flush
		5	20/0			200		start Cement 105 sks EA-2
	1027		25					End Cement
								wash P+L
								Drop LD Plug
	1035	6	0			200		Start Displacement
	1046	5	65			250		catch Cement
	1055		90.3			650 / 1400		Land Plug
								Release Pressure
								Float Held
Thank you								
Nick, David E. & Isaac								

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

January 24, 2013

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

Re: ACO1
API 15-051-26429-00-00
GR 1
NW/4 Sec.14-15S-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