



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1140916  
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: \_\_\_\_\_



1140916

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

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <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> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	TDI, Inc.
Well Name	Zimmerman Unit 1
Doc ID	1140916

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	3318'-3320'		
4	3324'-3327'	1250 gals., 15%	
4	3340'-3344'	1250 gals., 15%	
4	3472'-3476'	250 gals., 15%	
4	3486'-3488'		
4	3507'-3510'	1250 gals., 15%	



## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays KS 67601-9696

ATTN: Tom Denning

### **Zimmerman Unit #1**

### **22-15s-18w Ellis,KS**

Start Date: 2013.05.12 @ 20:00:33

End Date: 2013.05.13 @ 02:33:16

Job Ticket #: 52241                      DST #: 1

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

Printed: 2013.05.17 @ 15:35:53

TDI Inc  
22-15s-18w Ellis,KS  
Zimmerman Unit #1  
DST # 1  
Arbuckle  
2013.05.12



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays KS 67601-9696  
 ATTN: Tom Denning

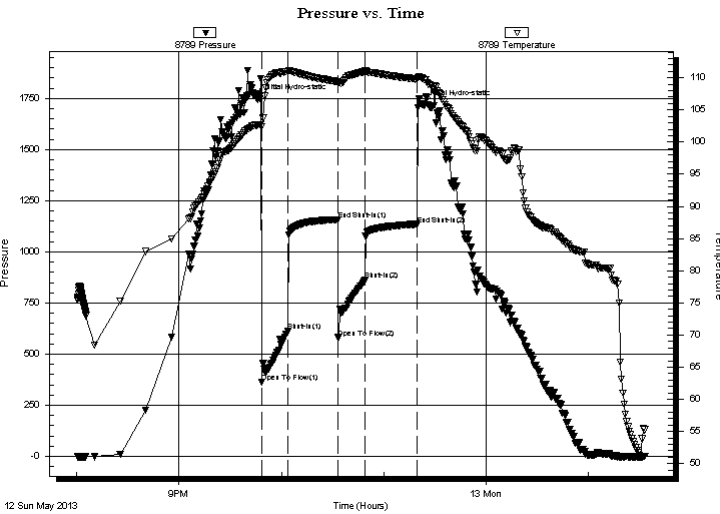
**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52241 **DST#: 1**  
 Test Start: 2013.05.12 @ 20:00:33

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:48:31  
 Time Test Ended: 02:33:16  
 Interval: **3524.00 ft (KB) To 3630.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Initial)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 8789 Inside**  
 Press @ Run Depth: 860.38 psig @ 3526.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.12 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 20:00:33 End Time: 01:33:16 Time On Btm: 2013.05.12 @ 21:45:46  
 Time Off Btm: 2013.05.12 @ 23:22:46

**TEST COMMENT:** 15-IFP-strong bl in 90 sec  
 30-ISIP-no bl  
 15-FFP-strong bl in 90 sec  
 30-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1747.25	102.65	Initial Hydro-static
3	362.14	102.38	Open To Flow (1)
18	613.49	110.98	Shut-In(1)
48	1154.98	109.39	End Shut-In(1)
48	580.74	109.17	Open To Flow (2)
64	860.38	110.93	Shut-In(2)
94	1132.89	109.80	End Shut-In(2)
97	1718.31	109.85	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
90.00	SOCM 4%O96%M	1.26
186.00	SOCWM 2%O45%W53%M	2.61
124.00	SOCMW 1%O20%M79%W	1.74
1240.00	SOCW 2%O98%W	17.39

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays KS 67601-9696  
 ATTN: Tom Denning

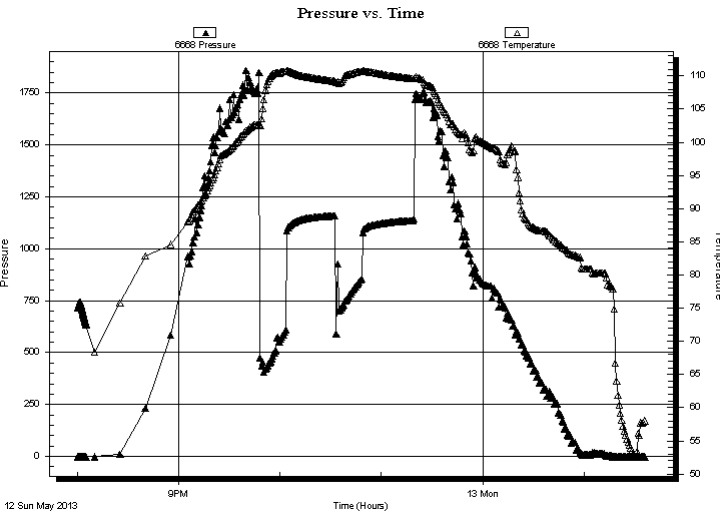
**22-15s-18w Ellis, KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52241 **DST#: 1**  
 Test Start: 2013.05.12 @ 20:00:33

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:48:31  
 Time Test Ended: 02:33:16  
**Interval: 3524.00 ft (KB) To 3630.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Initial)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

**Serial #: 6668 Outside**  
 Press @ Run Depth: psig @ 3526.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.12 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 20:00:24 End Time: 01:36:07 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 15-IFP-strong bl in 90 sec  
 30-ISIP-no bl  
 15-FFP-strong bl in 90 sec  
 30-FSIP-no bl



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
90.00	SOCM 4%O96%M	1.26
186.00	SOCWM 2%O45%W53%M	2.61
124.00	SOCMW 1%O20%M79%W	1.74
1240.00	SOCW 2%O98%W	17.39

**Gas Rates**

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

TDI Inc  
1310 Bison Rd  
Hays KS 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52241 **DST#: 1**  
Test Start: 2013.05.12 @ 20:00:33

**GENERAL INFORMATION:**

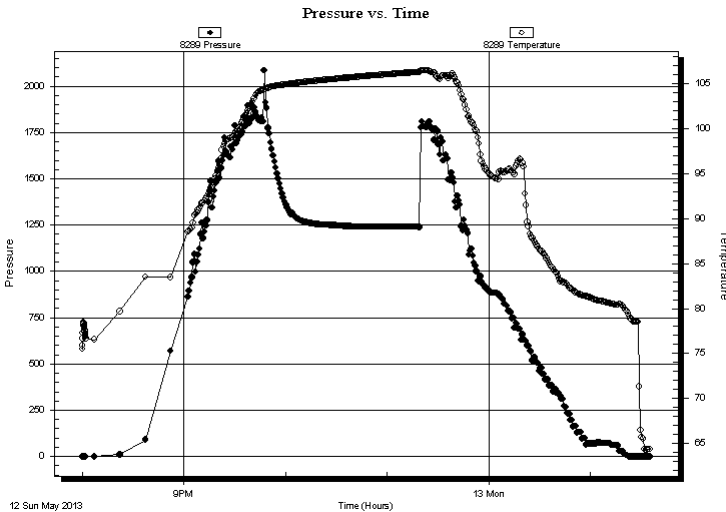
Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:48:31  
Time Test Ended: 02:33:16  
**Interval: 3524.00 ft (KB) To 3630.00 ft (KB) (TVD)**  
Total Depth: 3750.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 2034.00 ft (KB)  
2024.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8289 Below (Straddle)**

Press @ Run Depth: psig @ 3655.00 ft (KB)  
Start Date: 2013.05.12 End Date: 2013.05.13  
Start Time: 20:00:15 End Time: 01:34:58  
Capacity: 8000.00 psig  
Last Calib.: 2013.05.13  
Time On Btm:  
Time Off Btm:

**TEST COMMENT:** 15-IFP-strong bl in 90 sec  
30-ISIP-no bl  
15-FFP-strong bl in 90 sec  
30-FSIP-no bl

**PRESSURE SUMMARY**



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

**Recovery**

Length (ft)	Description	Volume (bbl)
90.00	SOCM 4% O 96% M	1.26
186.00	SOCWM 2% O 45% W 53% M	2.61
124.00	SOCMW 1% O 20% M 79% W	1.74
1240.00	SOCW 2% O 98% W	17.39

**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 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52241 **DST#: 1**  
Test Start: 2013.05.12 @ 20:00:33

## Tool Information

Drill Pipe:	Length: 3531.00 ft	Diameter: 3.80 inches	Volume: 49.53 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: 60000.00 lb
			<u>Total Volume: 49.53 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3524.00 ft			Final 46000.00 lb
Depth to Bottom Packer:	3630.00 ft			
Interval between Packers:	106.00 ft			
Tool Length:	251.00 ft			
Number of Packers:	3	Diameter:	6.75 inches	

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3504.00	
Shut In Tool	5.00			3509.00	
Hydraulic tool	5.00			3514.00	
Packer	5.00			3519.00	21.00 Bottom Of Top Packer
Packer	5.00			3524.00	
Stubb	1.00			3525.00	
Perforations	1.00			3526.00	
Recorder	0.00	8789	Inside	3526.00	
Recorder	0.00	6668	Outside	3526.00	
Blank Spacing	95.00			3621.00	
Perforations	5.00			3626.00	
Blank Off Sub	1.00			3627.00	
Blank Spacing	3.00			3630.00	106.00 Tool Interval
Packer	5.00			3635.00	
Stubb	1.00			3636.00	
Perforations	19.00			3655.00	
Recorder	0.00	8289	Below	3655.00	
Blank Spacing	96.00			3751.00	
Bullnose	3.00			3754.00	124.00 Bottom Packers & Anchor

**Total Tool Length: 251.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc  
1310 Bison Rd  
Hays KS 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52241  
Test Start: 2013.05.12 @ 20:00:33

**DST#: 1**

## 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:	24000 ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.74 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 1.00 inches			

## Recovery Information

Recovery Table

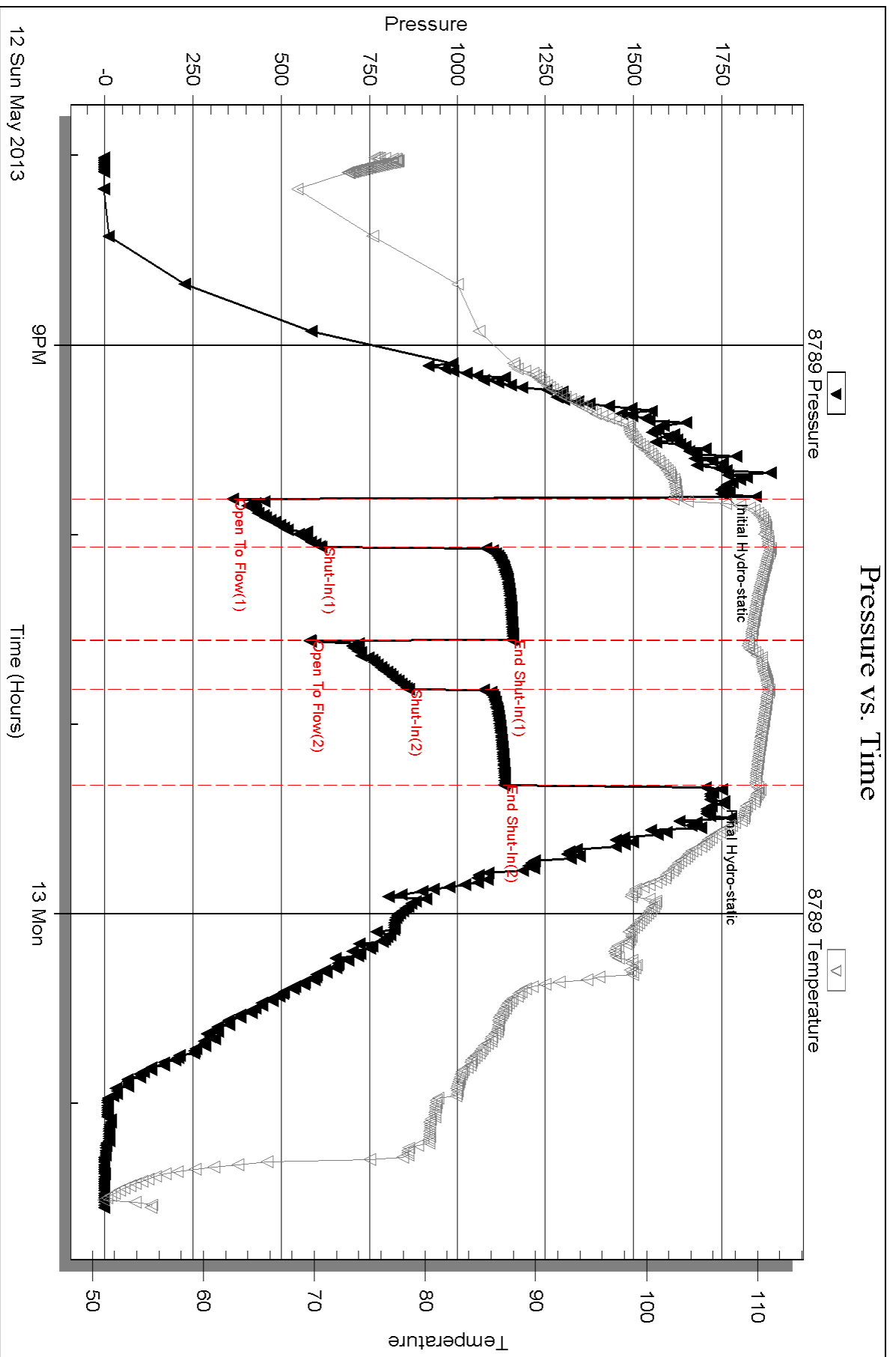
Length ft	Description	Volume bbl
90.00	SOCM 4%O96%M	1.262
186.00	SOCWM 2%O45%W53%M	2.609
124.00	SOCMW 1%O20%M79%W	1.739
1240.00	SOCW 2%O98%W	17.394

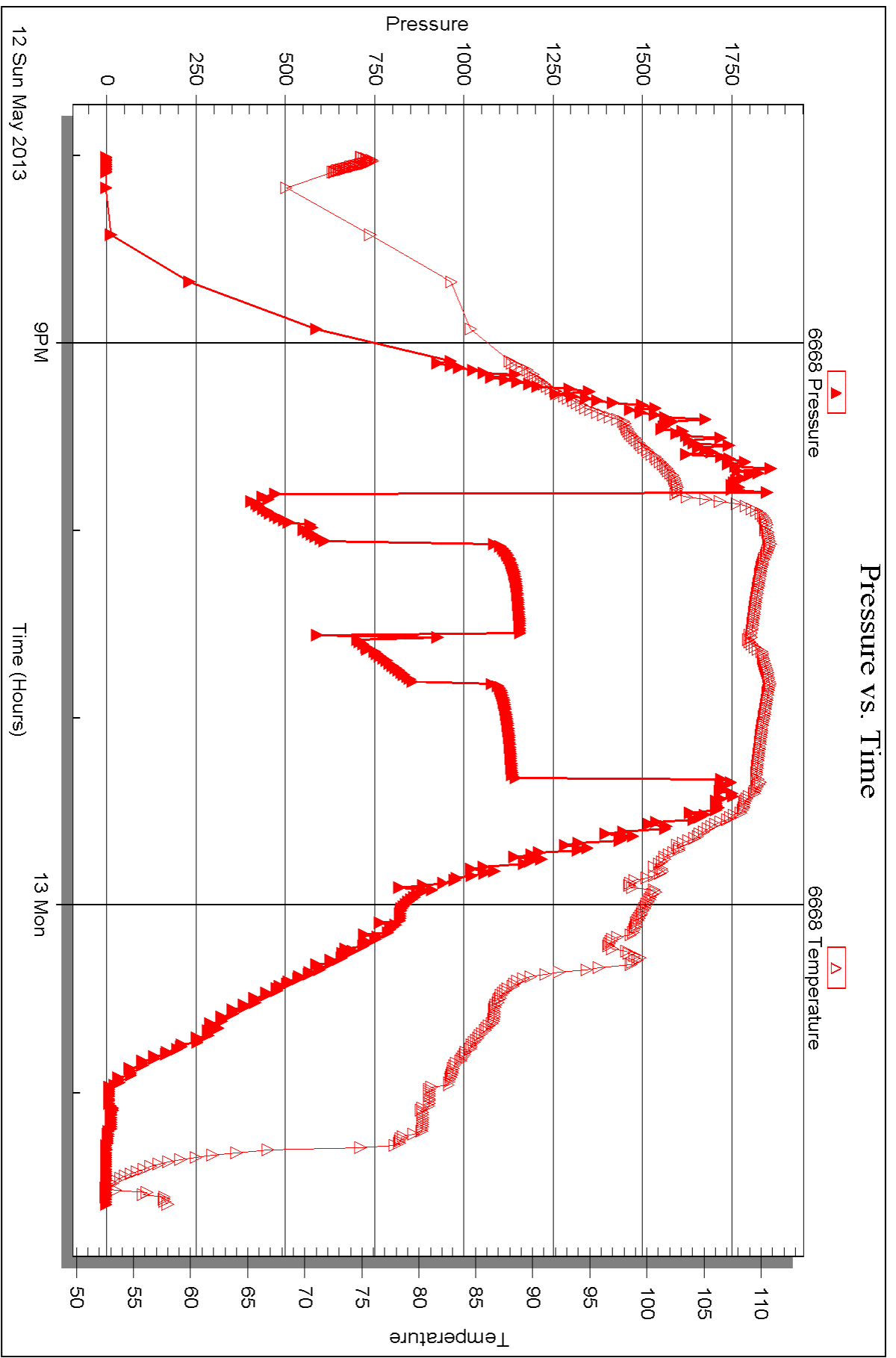
Total Length: 1640.00 ft      Total Volume: 23.004 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW .20 @ 53F



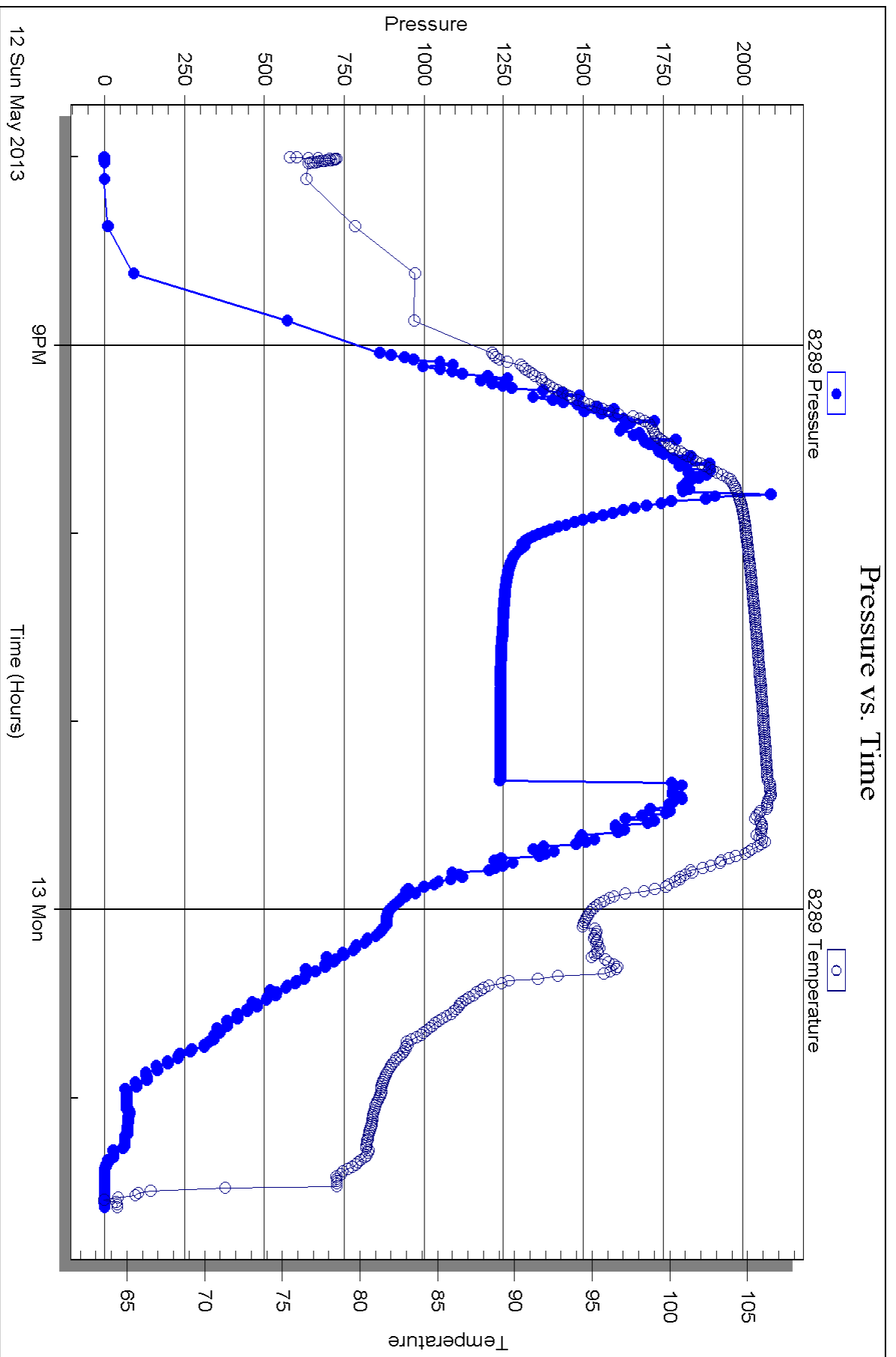


Serial #: 8289

Below (Straddle)

Zimmerman Unit #1

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays KS 67601-9696

ATTN: Tom Denning

### **Zimmerman Unit #1**

### **22-15s-18w Ellis,KS**

Start Date: 2013.05.13 @ 03:00:08

End Date: 2013.05.13 @ 08:49:36

Job Ticket #: 52242                      DST #: 2

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

Printed: 2013.05.17 @ 15:35:03

TDI Inc  
22-15s-18w Ellis,KS  
Zimmerman Unit #1  
DST # 2  
LKC  
2013.05.13



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays KS 67601-9696  
 ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52242 **DST#: 2**  
 Test Start: 2013.05.13 @ 03:00:08

## GENERAL INFORMATION:

Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 04:26:06  
 Time Test Ended: 08:49:36  
 Interval: **3415.00 ft (KB) To 3520.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

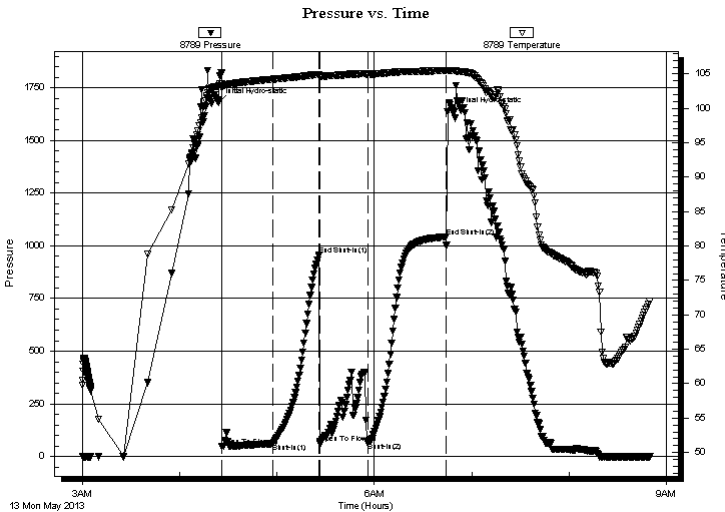
## Serial #: 8789

Inside

Press @ Run Depth: 69.18 psig @ 3417.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 03:00:08 End Time: 08:49:36 Time On Btm: 2013.05.13 @ 04:23:51  
 Time Off Btm: 2013.05.13 @ 06:48:51

TEST COMMENT: 30-IFP-w k to strg in 12 min  
 30-ISIP-no bl bk  
 30-FFP-strl thru-out  
 45-FSIP-no bl bk

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1680.27	103.22	Initial Hydro-static
3	47.51	102.99	Open To Flow (1)
34	61.52	104.22	Shut-In(1)
62	955.50	104.94	End Shut-In(1)
63	61.72	104.68	Open To Flow (2)
93	69.18	104.97	Shut-In(2)
141	1043.07	105.49	End Shut-In(2)
145	1634.72	105.50	Final Hydro-static

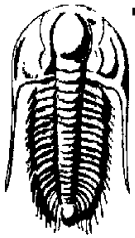
## Recovery

Length (ft)	Description	Volume (bbl)
0.00	1345'GIP	0.00
15.00	SOCM 5%O95%M	0.21
62.00	GMO 30%G25%M45%O	0.87

\* 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 67601-9696  
 ATTN: Tom Denning

**22-15s-18w Ellis, KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52242      **DST#: 2**  
 Test Start: 2013.05.13 @ 03:00:08

### GENERAL INFORMATION:

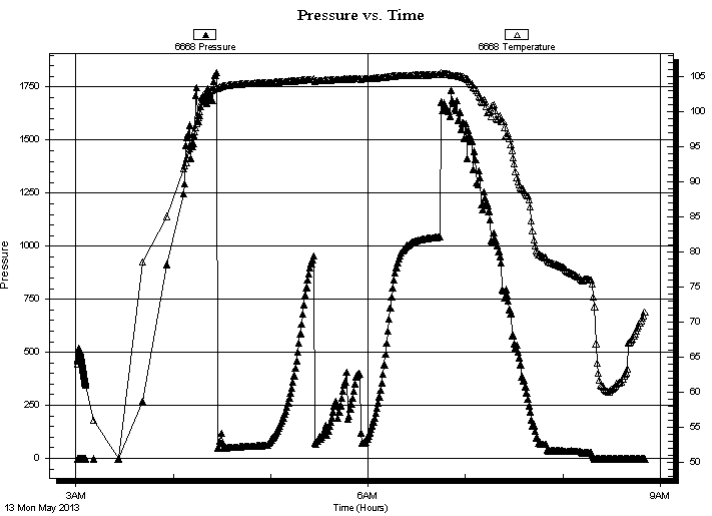
Formation: **LKC**  
 Deviated: No Whipstock: ft (KB)      Test Type: Conventional Straddle (Reset)  
 Time Tool Opened: 04:26:06      Tester: Ray Schwager  
 Time Test Ended: 08:49:36      Unit No: 54

**Interval: 3415.00 ft (KB) To 3520.00 ft (KB) (TVD)**      Reference Elevations: 2034.00 ft (KB)  
 Total Depth: 3750.00 ft (KB) (TVD)      2024.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair      KB to GR/CF: 10.00 ft

### Serial #: 6668 Outside

Press @ RunDepth: psig @	3417.00 ft (KB)	Capacity:	8000.00 psig
Start Date:	2013.05.13	End Date:	2013.05.13
Start Time:	03:00:59	End Time:	08:50:27
		Last Calib.:	2013.05.13
		Time On Btm:	
		Time Off Btm:	

TEST COMMENT: 30-IFP-w k to strg in 12 min  
 30-ISIP-no bl bk  
 30-FFP-strl thru-out  
 45-FSIP-no bl bk



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
0.00	1345'GIP	0.00
15.00	SOCM 5%O95%M	0.21
62.00	GMO 30%G25%M45%O	0.87

\* 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 67601-9696  
ATTN: Tom Denning

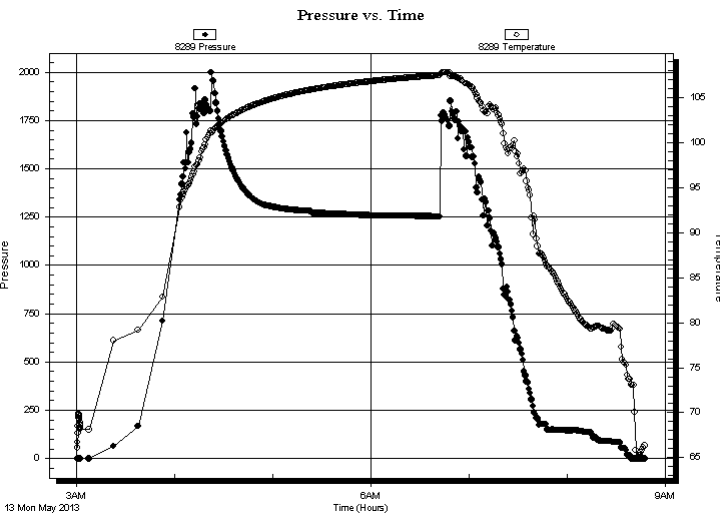
**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52242      **DST#: 2**  
Test Start: 2013.05.13 @ 03:00:08

## GENERAL INFORMATION:

Formation: **LKC**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 04:26:06  
Time Test Ended: 08:49:36  
**Interval: 3415.00 ft (KB) To 3520.00 ft (KB) (TVD)**  
Total Depth: 3750.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Straddle (Reset)  
Tester: Ray Schwager  
Unit No: 54  
Reference Elevations: 2034.00 ft (KB)  
2024.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8289 Below (Straddle)**  
Press @ Run Depth: psig @ 3528.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
Start Time: 03:00:56 End Time: 08:47:54 Time On Btm:  
Time Off Btm:

TEST COMMENT: 30-IFP-w k to strg in 12 min  
30-ISIP-no bl bk  
30-FFP-strl thru-out  
45-FSIP-no bl bk



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	1345'GIP	0.00
15.00	SOCM 5%O95%M	0.21
62.00	GMO 30%G25%M45%O	0.87

## 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 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52242      **DST#: 2**  
Test Start: 2013.05.13 @ 03:00:08

**Tool Information**

Drill Pipe:	Length: 3404.00 ft	Diameter: 3.80 inches	Volume: 47.75 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: 50000.00 lb
			Total Volume: 47.75 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3415.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	3520.00 ft			
Interval between Packers:	105.00 ft			
Tool Length:	360.00 ft			
Number of Packers:	3	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			3395.00	
Shut In Tool	5.00			3400.00	
Hydraulic tool	5.00			3405.00	
Packer	5.00			3410.00	21.00      Bottom Of Top Packer
Packer	5.00			3415.00	
Stubb	1.00			3416.00	
Perforations	1.00			3417.00	
Recorder	0.00	8789	Inside	3417.00	
Recorder	0.00	6668	Outside	3417.00	
Blank Spacing	94.00			3511.00	
Perforations	5.00			3516.00	
Blank Off Sub	1.00			3517.00	
Blank Spacing	3.00			3520.00	105.00      Tool Interval
Packer	5.00			3525.00	
Stubb	1.00			3526.00	
Perforations	2.00			3528.00	
Recorder	0.00	8289	Below	3528.00	
Blank Spacing	223.00			3751.00	
Bullnose	3.00			3754.00	234.00      Bottom Packers & Anchor

**Total Tool Length: 360.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc  
1310 Bison Rd  
Hays KS 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52242      **DST#: 2**  
Test Start: 2013.05.13 @ 03:00:08

## Mud and Cushion Information

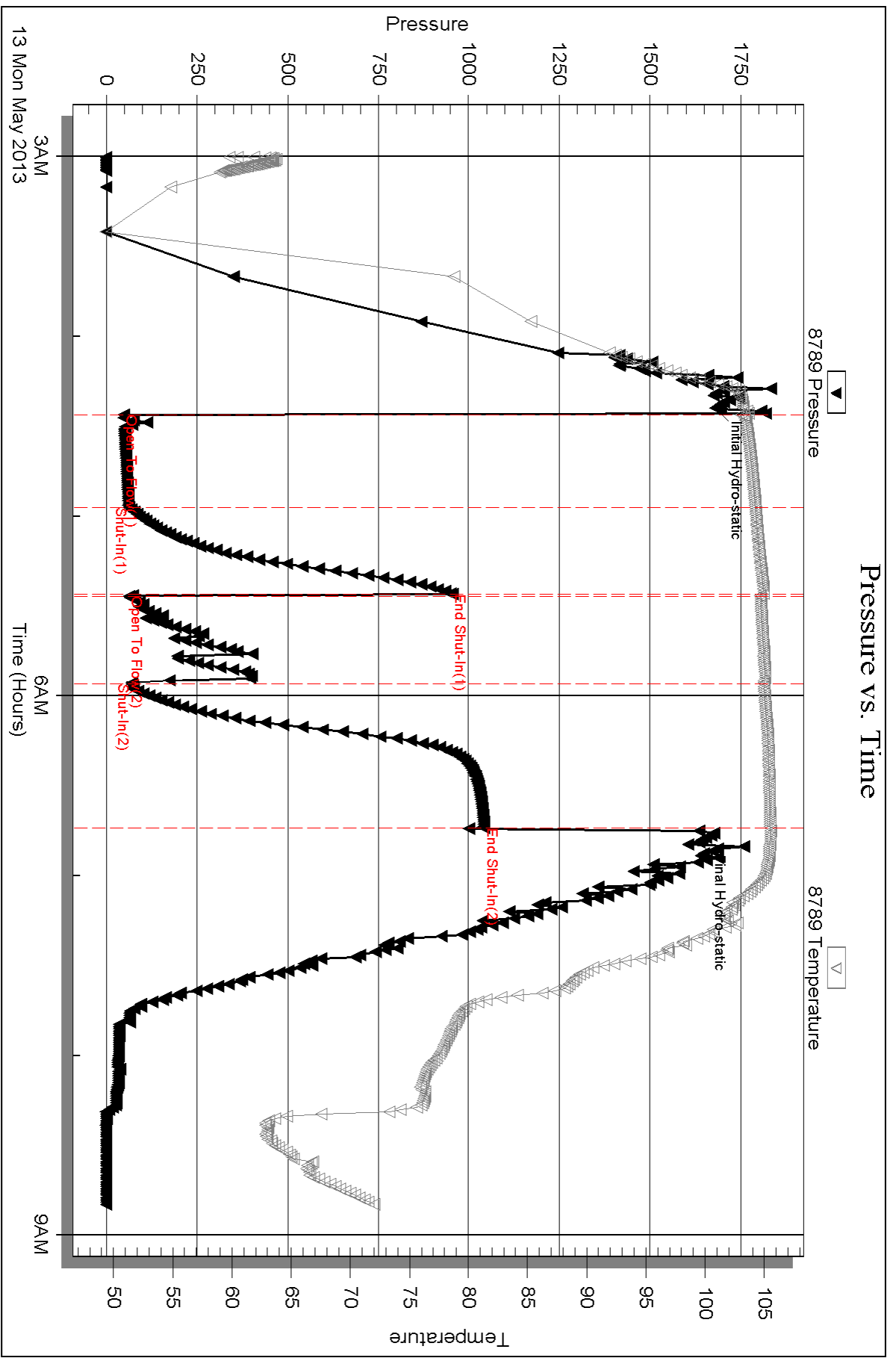
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.73 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 1.00 inches			

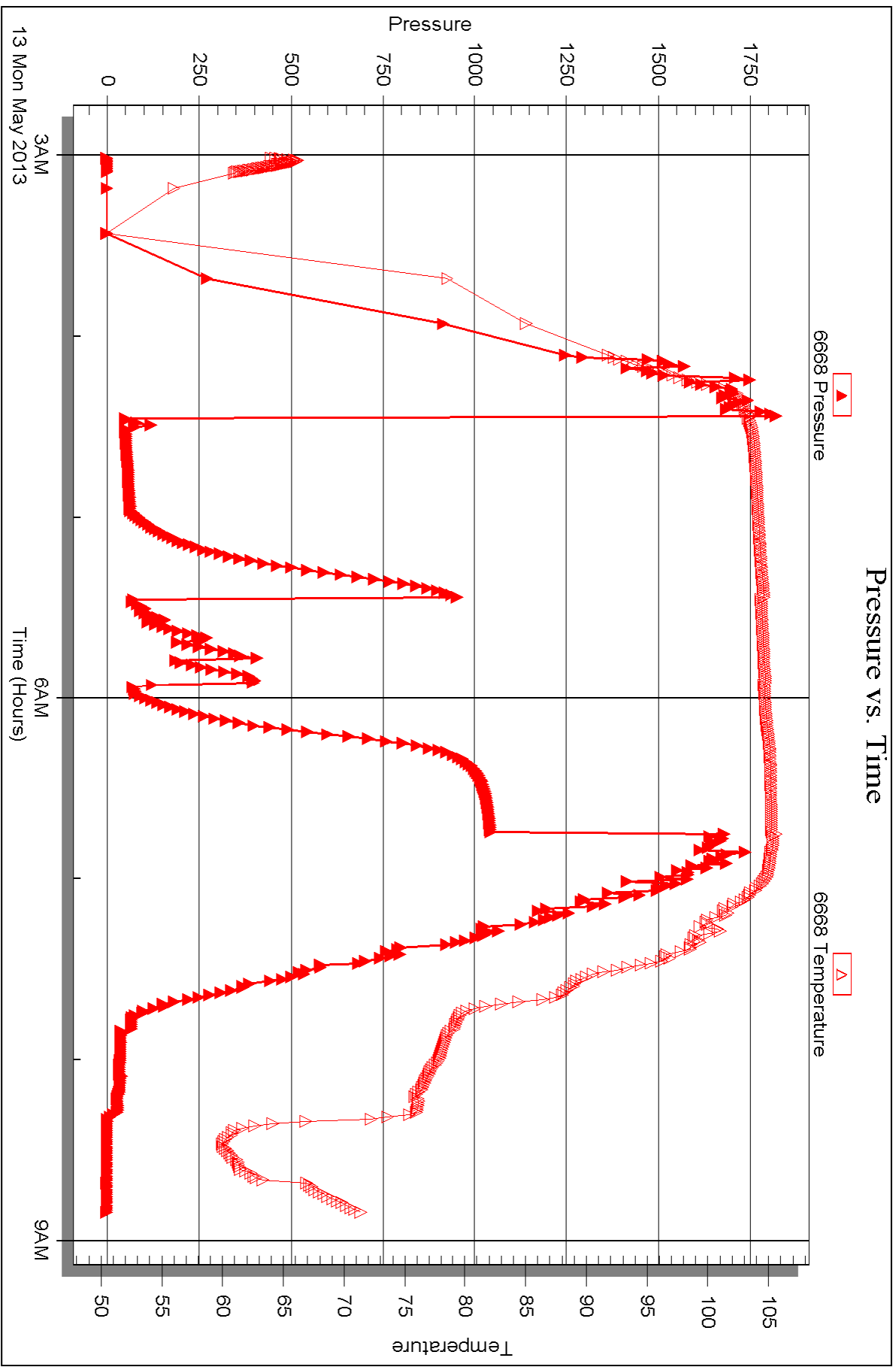
## Recovery Information

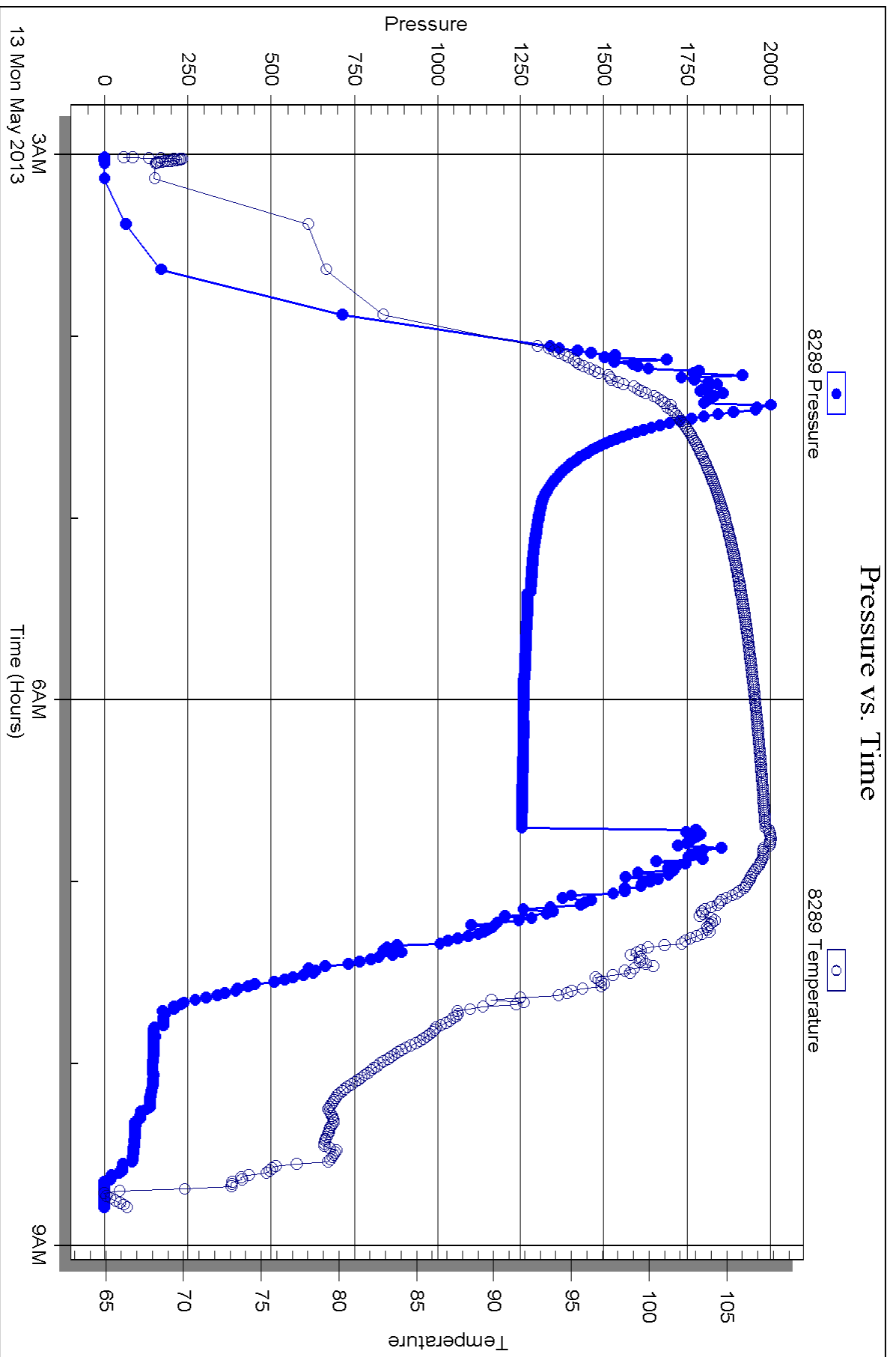
Recovery Table

Length ft	Description	Volume bbl
0.00	1345'GIP	0.000
15.00	SOCM 5%O95%M	0.210
62.00	GMO 30%G25%M45%O	0.870

Total Length: 77.00 ft      Total Volume: 1.080 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:









## DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd  
Hays KS 67601-9696

ATTN: Tom Denning

### **Zimmerman Unit #1**

### **22-15s-18w Ellis,KS**

Start Date: 2013.05.13 @ 13:55:28

End Date: 2013.05.13 @ 19:26:41

Job Ticket #: 52243                      DST #: 3

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

Printed: 2013.05.17 @ 15:34:05



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays KS 67601-9696  
 ATTN: Tom Denning

**22-15s-18w Ellis, KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52243 **DST#: 3**  
 Test Start: 2013.05.13 @ 13:55:28

## GENERAL INFORMATION:

Formation: **LKC C-D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:53:26  
 Time Test Ended: 19:26:41  
 Interval: **3324.00 ft (KB) To 3365.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

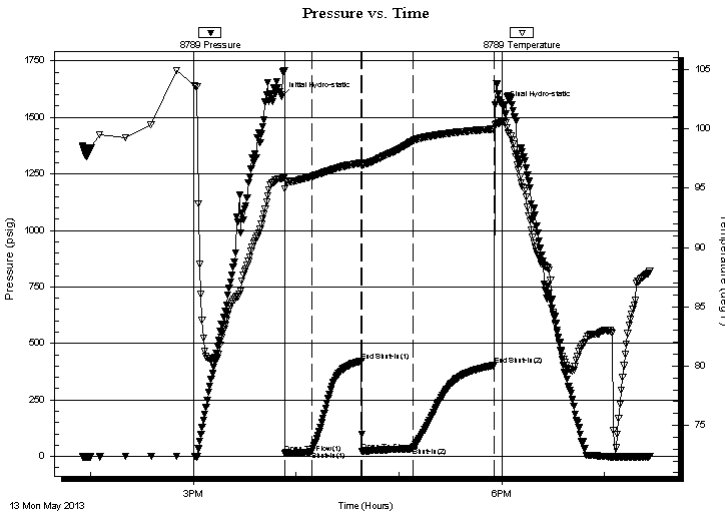
## Serial #: 8789

Inside

Press @ Run Depth: 40.34 psig @ 3326.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 13:55:28 End Time: 19:26:41 Time On Btm: 2013.05.13 @ 15:51:41  
 Time Off Btm: 2013.05.13 @ 18:00:41

TEST COMMENT: 15-IFP-w k to strg in 7 min  
 30-ISIP-no bl  
 30-FFP-w k to strg in 4 min  
 45-FSIP-no bl

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1592.74	95.82	Initial Hydro-static
2	14.68	94.95	Open To Flow (1)
18	23.12	95.97	Shut-In(1)
47	421.69	97.14	End Shut-In(1)
47	21.87	97.00	Open To Flow (2)
77	40.34	99.02	Shut-In(2)
124	404.64	100.00	End Shut-In(2)
129	1550.60	100.60	Final Hydro-static

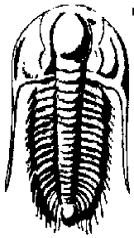
## Recovery

Length (ft)	Description	Volume (bbl)
500.00	GIP	7.01
55.00	SO&GCM 12%G1%O87%M	0.77

\* 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 67601-9696  
 ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52243 **DST#: 3**  
 Test Start: 2013.05.13 @ 13:55:28

### GENERAL INFORMATION:

Formation: **LKC C-D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:53:26  
 Time Test Ended: 19:26:41  
 Interval: **3324.00 ft (KB) To 3365.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair

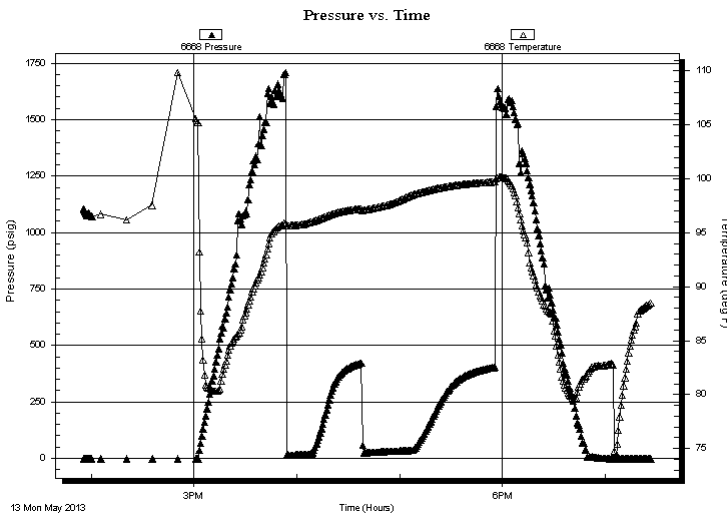
Test Type: Conventional Straddle (Reset)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

### Serial #: 6668 Outside

Press @ Run Depth: psig @ 3326.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 13:55:37 End Time: 19:26:50 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 15-IFP-w k to strg in 7 min  
 30-ISIP-no bl  
 30-FFP-w k to strg in 4 min  
 45-FSIP-no bl

### PRESSURE SUMMARY



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

### Recovery

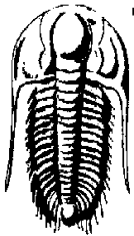
Length (ft)	Description	Volume (bbl)
500.00	GIP	7.01
55.00	SO&GCM 12%G1%O87%M	0.77

### Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI Inc  
 1310 Bison Rd  
 Hays KS 67601-9696  
 ATTN: Tom Denning

**22-15s-18w Ellis, KS**  
**Zimmerman Unit #1**  
 Job Ticket: 52243 **DST#: 3**  
 Test Start: 2013.05.13 @ 13:55:28

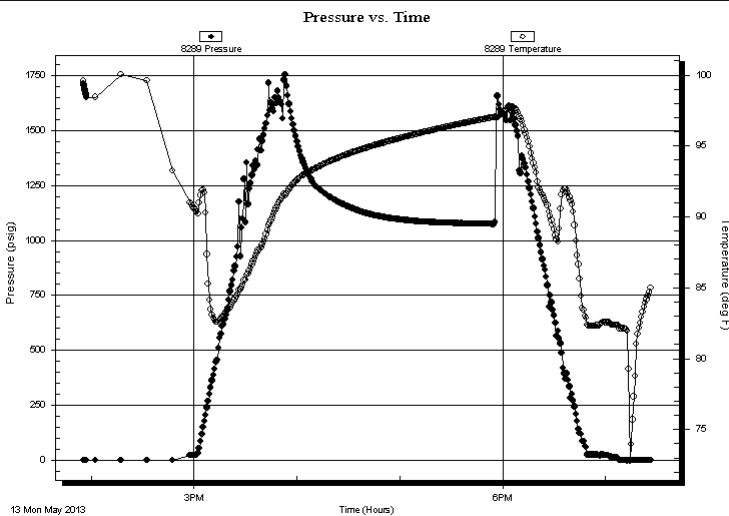
## GENERAL INFORMATION:

Formation: **LKC C-D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:53:26  
 Time Test Ended: 19:26:41  
**Interval: 3324.00 ft (KB) To 3365.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Reset)  
 Tester: Ray Schwager  
 Unit No: 54  
 Reference Elevations: 2034.00 ft (KB)  
 2024.00 ft (CF)  
 KB to GR/CF: 10.00 ft

### Serial #: 8289 Below (Straddle)

Press @ Run Depth: psig @ 3371.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
 Start Time: 13:55:30 End Time: 19:26:28 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 15-IFP-w k to strg in 7 min  
 30-ISIP-no bl  
 30-FFP-w k to strg in 4 min  
 45-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
500.00	GIP	7.01
55.00	SO&GCM 12%G1%O87%M	0.77

## 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 67601-9696  
ATTN: Tom Denning

**22-15s-18w Ellis,KS**  
**Zimmerman Unit #1**  
Job Ticket: 52243      **DST#: 3**  
Test Start: 2013.05.13 @ 13:55:28

**Tool Information**

Drill Pipe:	Length: 3313.00 ft	Diameter: 3.80 inches	Volume: 46.47 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: 70000.00 lb
			<u>Total Volume: 46.47 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3324.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	3365.00 ft			
Interval between Packers:	41.00 ft			
Tool Length:	451.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			3304.00	
Shut In Tool	5.00			3309.00	
Hydraulic tool	5.00			3314.00	
Packer	5.00			3319.00	21.00      Bottom Of Top Packer
Packer	5.00			3324.00	
Stubb	1.00			3325.00	
Perforations	1.00			3326.00	
Recorder	0.00	8789	Inside	3326.00	
Recorder	0.00	6668	Outside	3326.00	
Blank Spacing	30.00			3356.00	
Perforations	5.00			3361.00	
Blank Off Sub	1.00			3362.00	
Blank Spacing	3.00			3365.00	41.00      Tool Interval
Packer	5.00			3370.00	
Stubb	1.00			3371.00	
Recorder	0.00	8289	Below	3371.00	
Blank Spacing	380.00			3751.00	
Bullnose	3.00			3754.00	389.00      Bottom Packers & Anchor

**Total Tool Length: 451.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc **22-15s-18w Ellis,KS**  
 1310 Bison Rd **Zimmerman Unit #1**  
 Hays KS 67601-9696 Job Ticket: 52243 **DST#: 3**  
 ATTN: Tom Denning Test Start: 2013.05.13 @ 13:55:28

## Mud and Cushion Information

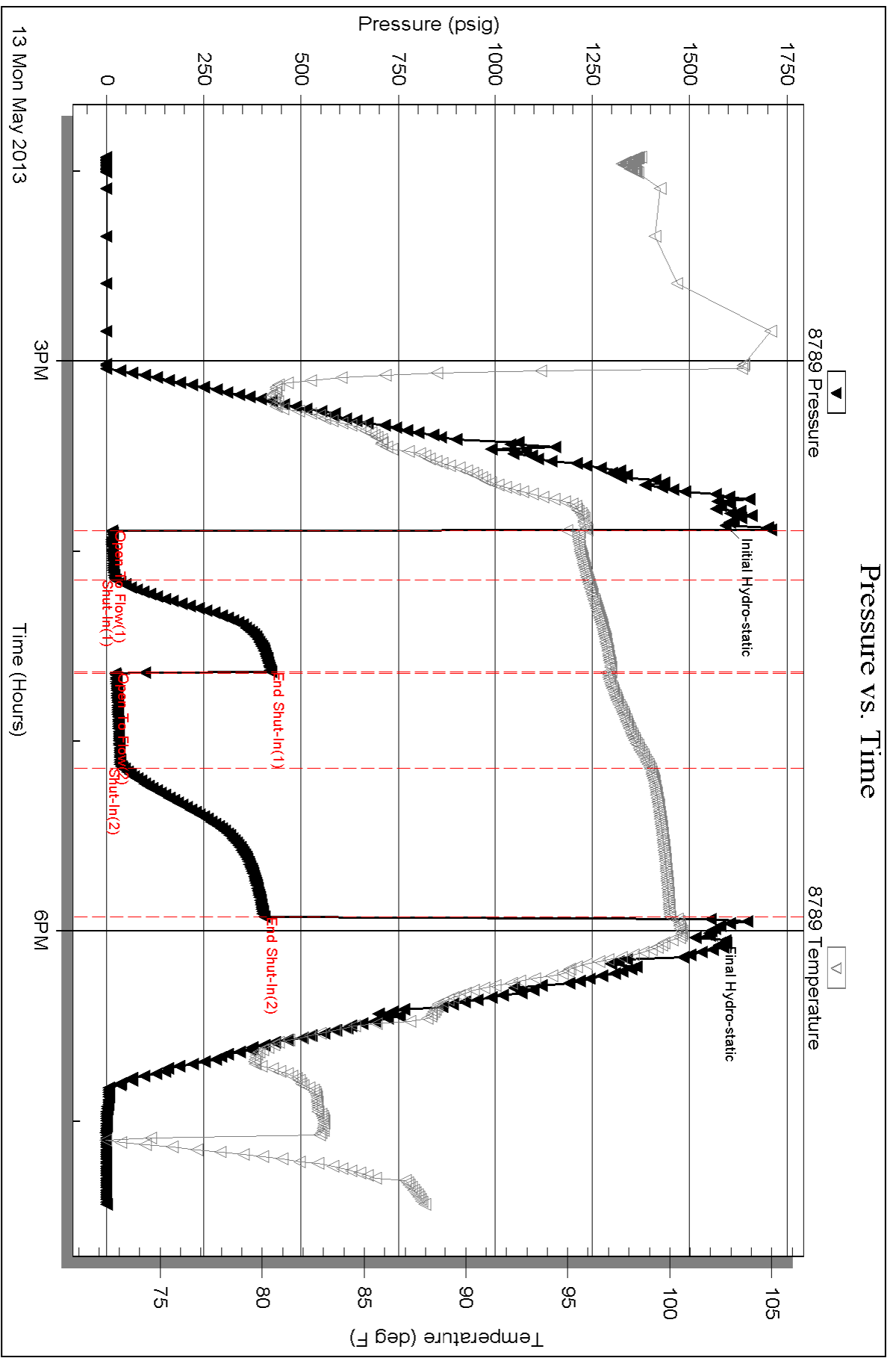
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 10.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.73 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: 1.00 inches			

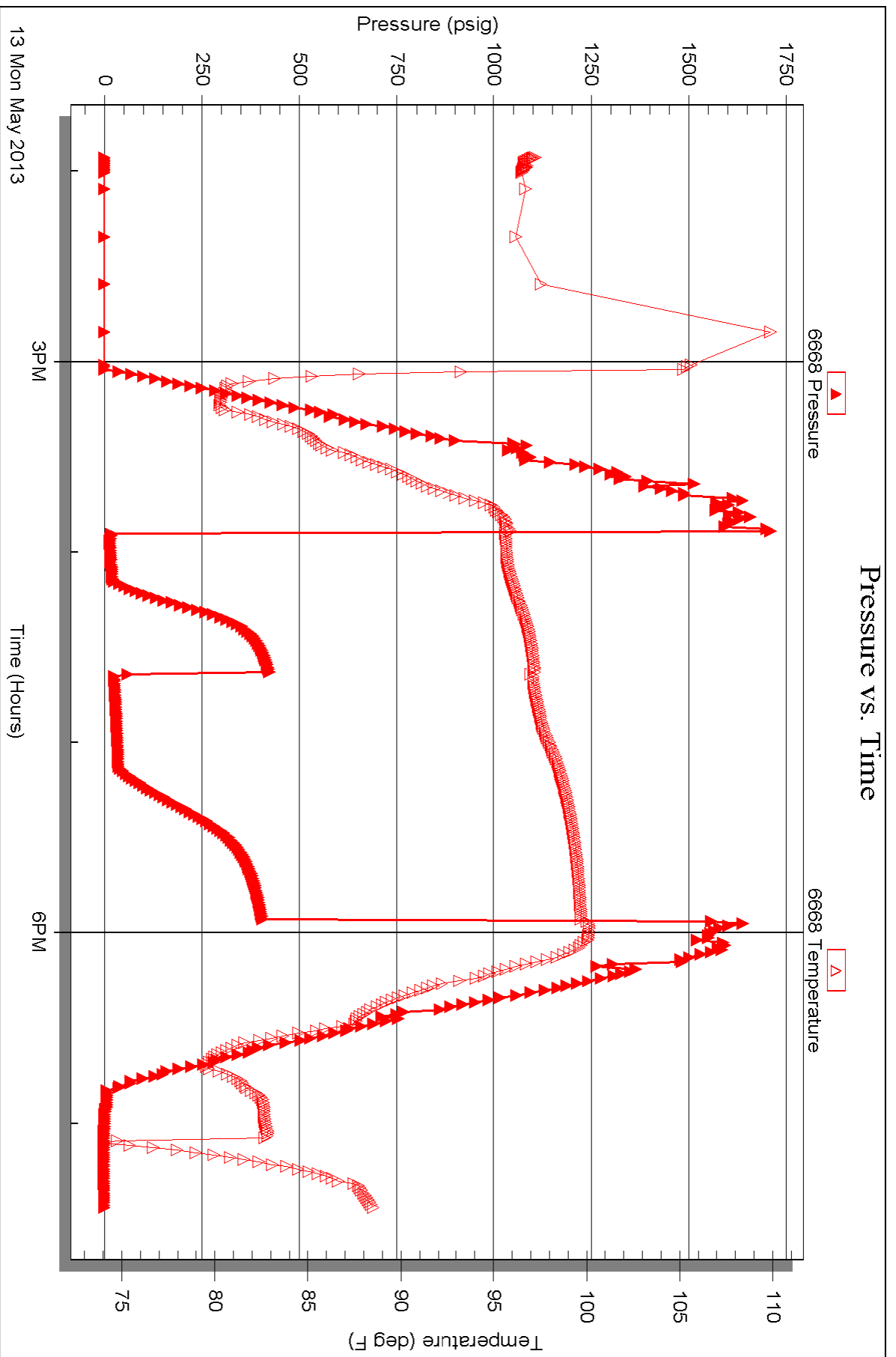
## Recovery Information

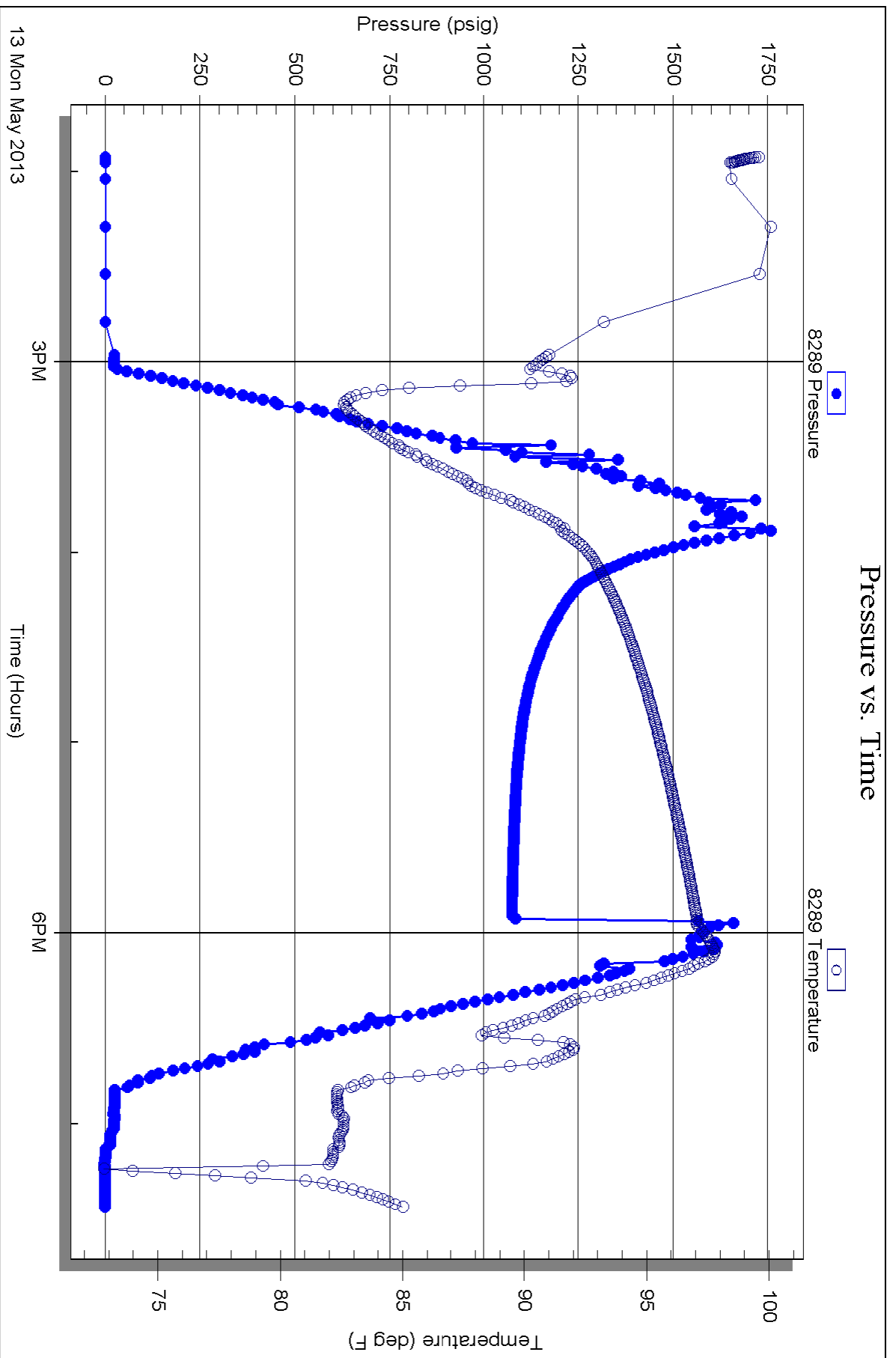
Recovery Table

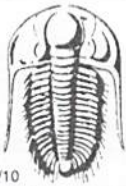
Length ft	Description	Volume bbl
500.00	GIP	7.014
55.00	SO&GCM 12%G1%O87%M	0.772

Total Length: 555.00 ft Total Volume: 7.786 bbl  
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:  
 Laboratory Name: Laboratory Location:  
 Recovery Comments:









# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52241

Well Name & No. Zimmerman Unit #1 Test No. 1 Date 5-12-13  
 Company TDI Inc Elevation 2034 KB 2024 GL  
 Address 1310 Bison Rd Hays, Ks 67601-9696  
 Co. Rep / Geo. Herb Dierkes Rig Southwind rig 1  
 Location: Sec. 22 Twp. 15<sup>s</sup> Rge. 18<sup>w</sup> Co. ELLIS State Ks

Interval Tested 3524-3630 Zone Tested Arbuckle  
 Anchor Length 106 Drill Pipe Run 3531 Mud Wt. 9.5  
 Top Packer Depth 3524-3519 Drill Collars Run - Vis 52  
 Bottom Packer Depth 3630 Wt. Pipe Run - WL 7.8  
 Total Depth 3750 Chlorides 3500 ppm System LCM 2#  
 Blow Description IFP - STRONG BLOW IN 90 seconds  
TSIP - NO BLOW  
FIFP - STRONG BLOW IN 90 seconds  
FSIP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>SOCM</u>	<u>4</u>		<u>96</u>	
<u>186</u>	<u>SOCWM</u>	<u>2</u>	<u>45</u>	<u>53</u>	
<u>124</u>	<u>SOCMW</u>	<u>1</u>	<u>79</u>	<u>20</u>	
<u>1240</u>	<u>SOCW</u>	<u>2</u>	<u>98</u>		
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1640 BHT 110 Gravity - API RW .20 @ 53 °F Chlorides 24000 ppm  
 (A) Initial Hydrostatic 1247  Test 1150 T-On Location 1910  
 (B) First Initial Flow 362  Jars T-Started 2100  
 (C) First Final Flow 613  Safety Joint T-Open 2245  
 (D) Initial Shut-In 1154  Circ Sub T-Pulled 0015  
 (E) Second Initial Flow 580  Hourly Standby T-Out 0233  
 (F) Second Final Flow 860  Mileage 40.30 Comments \_\_\_\_\_  
 (G) Final Shut-In 1132  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1718  Straddle 26RT 600  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1790.30  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1790.30

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.



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52242

Well Name & No. Zimmerman Unit #1 Test No. 2 Date 5-13-13  
 Company TDI Inc Elevation 2034 KB 2024 GL  
 Address 1310 Bison Rd Hays, Ks 67601-9696  
 Co. Rep / Geo. Herb Dienes Rig Southwind rig 1  
 Location: Sec. 22 Twp. 15<sup>s</sup> Rge. 18<sup>w</sup> Co. Ellis State Ks

Interval Tested 3415-3520 Zone Tested LKC  
 Anchor Length 105 Drill Pipe Run 3404 Mud Wt. 9.5  
 Top Packer Depth 3415-3410 Drill Collars Run — Vis 52  
 Bottom Packer Depth 3520 Wt. Pipe Run — WL 7.8  
 Total Depth 3750 Chlorides 2500 ppm System LCM 2#  
 Blow Description IFP - Weak to Strong in 12 min  
ISIP - NO Blow  
FFP - Strong Blow thru-out  
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1345</u>	<u>GIP</u>				
<u>15</u>	<u>50CM</u>		<u>5</u>		<u>95</u>
<u>62</u>	<u>GMO</u>	<u>30</u>	<u>45</u>		<u>25</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

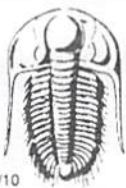
Rec Total 77 BHT 105 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1680</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>0230</u>
(B) First Initial Flow <u>47</u>	<input type="checkbox"/> Jars	T-Started <u>0300</u>
(C) First Final Flow <u>61</u>	<input type="checkbox"/> Safety Joint	T-Open <u>0430</u>
(D) Initial Shut-In <u>955</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>0645</u>
(E) Second Initial Flow <u>61</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0849</u>
(F) Second Final Flow <u>69</u>	<input checked="" type="checkbox"/> Mileage	Comments
(G) Final Shut-In <u>1043</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1634</u>	<input checked="" type="checkbox"/> Straddle <u>600</u>	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1750</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1750</u>	

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.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 52243

Well Name & No. Zimmerman Unit #1 Test No. 3 Date 5-13-13  
 Company TDT Inc Elevation 2034 KB 2024 GL  
 Address 1310 Bison Rd, Hays, Ks 67601-9696  
 Co. Rep / Geo. Herb Diercks Rig Southwind rig 1  
 Location: Sec. 22 Twp. 15<sup>s</sup> Rge. 18<sup>w</sup> Co. ELLIS State Ks

Interval Tested 3324-3365 Zone Tested LKC C-D  
 Anchor Length 41 Drill Pipe Run 3313 Mud Wt. 9.4  
 Top Packer Depth 3324-3319 Drill Collars Run - Vis 58  
 Bottom Packer Depth 3365 Wt. Pipe Run - WL 7.6  
 Total Depth 3750 Chlorides 3700 ppm System LCM 2<sup>th</sup>

Blow Description I FP - WEAK TO STRONG IN 7 MIN  
I STP - NO BLOW  
F FP - WEAK TO STRONG IN 4 MIN  
F 5 IP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>500</u>	<u>GIP</u>				
<u>55</u>	<u>50 x 6 CM</u>	<u>12</u>	<u>1</u>	<u>87</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 55 BHT 100 Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic	<u>1592</u>	<input checked="" type="checkbox"/> Test	<u>1150</u>	T-On Location	<u>1320</u>
(B) First Initial Flow	<u>14</u>	<input type="checkbox"/> Jars		T-Started	<u>1355</u>
(C) First Final Flow	<u>23</u>	<input type="checkbox"/> Safety Joint		T-Open	<u>1550</u>
(D) Initial Shut-In	<u>421</u>	<input type="checkbox"/> Circ Sub		T-Pulled	<u>1750</u>
(E) Second Initial Flow	<u>21</u>	<input type="checkbox"/> Hourly Standby		T-Out	<u>1926</u>
(F) Second Final Flow	<u>40</u>	<input checked="" type="checkbox"/> Mileage	<u>40.30</u>	Comments	
(G) Final Shut-In	<u>404</u>	<input type="checkbox"/> Sampler			
(H) Final Hydrostatic	<u>1550</u>	<input checked="" type="checkbox"/> Straddle	<u>600</u>	<input type="checkbox"/> Ruined Shale Packer	
		<input type="checkbox"/> Shale Packer		<input type="checkbox"/> Ruined Packer	
		<input type="checkbox"/> Extra Packer		<input type="checkbox"/> Extra Copies	

Initial Open 15  
 Initial Shut-In 30  
 Final Flow 30  
 Final Shut-In 45

Sub Total 1790.30

Sub Total 1790.30

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.

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: ZIMMERMAN UNIT # 1  
 Location: NW NE SW NE Sec 22-15s-18w  
 Pool:  
 State: KANSAS

API: 15-051-26,502-00-00  
 Field: SCHOENCHEN  
 Country: USA



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

Scale 1:240 Imperial

Well Name: ZIMMERMAN UNIT # 1  
 Surface Location: NW NE SW NE Sec 22-15s-18w  
 Bottom Location:  
 API: 15-051-26,502-00-00  
 License Number: 4787  
 Spud Date: 5/7/2013 Time: 11:30 AM  
 Region: ELLIS COUNTY  
 Drilling Completed: 5/12/2013 Time: 10:43 AM  
 Surface Coordinates: 1480' FNL & 1725' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2028.00ft  
 K.B. Elevation: 2038.00ft  
 Logged Interval: 2900.00ft To: 3750.00ft  
 Total Depth: 3750.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: Latitude:  
 N/S Co-ord: 1480' FNL  
 E/W Co-ord: 1725' FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC  
 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: 5/7/2013  
TD Date: 5/12/2013  
Rig Release: 5/14/2013

Time: 11:30 AM  
Time: 10:43 AM  
Time: 11:00 AM

### ELEVATIONS

K.B. Elevation: 2038.00ft  
K.B. to Ground: 10.00ft

Ground Elevation: 2028.00ft

### NOTES

DECISION TO RUN PRODUCTION CASING TO FURTHER TEST AND DEVELOP ARBUCKLE AND LANSING-KANSAS CITY ZONES.

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

OPEN HOLE TESTING BY TRILOBITE TESTING INC: THREE (3) STRADDLE TESTS

### FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

#### ZIMMERMAN UNIT # 1

1480' FNL & 1725' FWL, NE/4

Sec. 22-15s-18w

2028' GL 2038' KB

#### WILLARD # 1

480'FNL & 2190'FEL

Sec 22-15s-18w

Reference Well

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1191+ 847	1189+ 849	+ 843
B-Anhydrite	1226+ 812	1225+ 813	+ 808
Topeka	3007- 969	3002- 964	- 971
Heebner Shale	3269-1231	3268-1230	-1233
Toronto	3290-1252	3288-1250	-1253
LKC	3318-1280	3318-1280	-1283
BKC	3541-1503	3541-1503	-1506
Marmaton	3575-1537	3576-1538	-1542
Arbuckle		3620-1582	-1558
RTD	3750-1712		
LTD		3750-1712	

### SUMMARY OF DAILY ACTIVITY

5-07-13 RU, spud 11:30 AM, set 8 5/8" surface casing to 222.43' w/ 150 sxs common, 2% gel, 3%CC, plug down 4:15PM, slope ½ degree

5-08-13 850', drilling


5-09-13 2050', drilling,

5-10-13 2680, drilling, displaced 2524' to 2630'

5-11-13 3247'. drilling

- 5-12-13 3659', work on mud pump, RTD 3750' @10:43AM, short trip 25 stds, TOWB, logs, DST # 1 straddle test over Arbuckle 3524'-3630'
- 5-13-13 3750', finish DST # 1, start DST # 2 straddle test over "G" to "K" 3415'-3520', TIWB to condition well bore, DST # 3 straddle test over "C" & "D" 3324'-3365', finish test 7:26PM, TIWB, LDDP
- 5-14-13 3750' , finish running casing, cementing, RD

**DST # 1 TEST SUMMARY STRADDLE TEST COVERING UPPER ARBUCKLE- BOTTOM PACKER HELD**

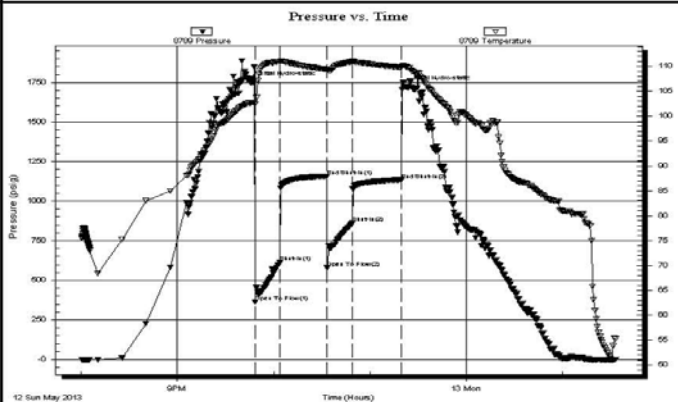
 <p><b>TRILOBITE TESTING, INC.</b></p>	<b>DRILL STEM TEST REPORT</b>	
	TDI Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning	<b>22-15s-18w Ellis</b> <b>Zimmerman Unit #1</b> Job Ticket: 52241 <b>DST#: 1</b> Test Start: 2013.05.12 @ 20:00:33

**GENERAL INFORMATION:**

Formation: <b>Arbuckle</b> Deviated: No Whipstock:                      ft (KB) Time Tool Opened: 21:48:31 Time Test Ended: 02:33:16 Interval: <b>3524.00 ft (KB) To 3630.00 ft (KB) (TVD)</b> Total Depth: 3630.00 ft (KB) (TVD) Hole Diameter: 7.85 inches Hole Condition: Fair	Test Type: Conventional Straddle (Initial) Tester: Ray Schwager Unit No: 54 Reference Elevations: 2034.00 ft (KB) 2024.00 ft (CF) KB to GR/CF: 10.00 ft
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<b>Serial #: 8789      Inside</b> Press@RunDepth: 860.38 psig @ 3526.00 ft (KB) Start Date: 2013.05.12      End Date: 2013.05.13 Start Time: 20:00:33      End Time: 01:33:16	Capacity: 8000.00 psig Last Calib.: 2013.05.13 Time On Btm: 2013.05.12 @ 21:45:46 Time Off Btm: 2013.05.12 @ 23:22:46
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**TEST COMMENT:** 15-IFP-strong bl in 90seconds  
 30-ISIP-no bl  
 15-FFP-strong bl in 90seconds  
 30-FSIP-no bl



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1747.25	102.65	Initial Hydro-static
3	362.14	102.38	Open To Flow (1)
18	613.49	110.98	Shut-In(1)
48	1154.98	109.39	End Shut-In(1)
48	580.74	109.17	Open To Flow (2)
64	860.38	110.93	Shut-In(2)
94	1132.89	109.80	End Shut-In(2)
97	1718.31	109.85	Final Hydro-static


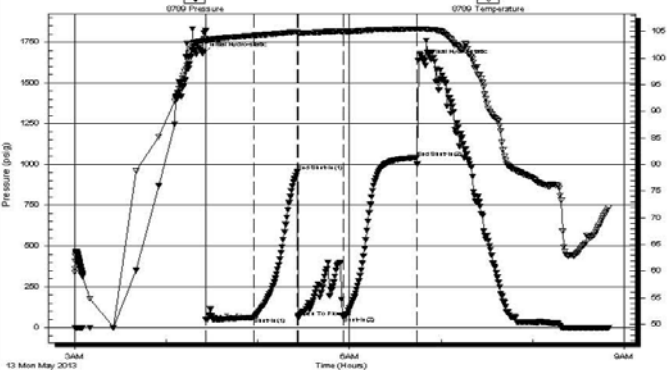
**Recovery**

Length (ft)	Description	Volume (bbl)
90.00	SOCM 4%O96%M	1.26
186.00	SOCVM 2%O45%W53%M	2.61
124.00	SOCMV 1%O20%M79%W	1.74
1240.00	SOCW 2%O98%W	17.39

**Gas Rates**

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

**DST # 2 STRADDLE TEST COVERING "H" TO "K" LKC - BOTTOM PACKER HELD**

 <p><b>TRILOBITE TESTING, INC.</b></p>	<p><b>DRILL STEM TEST REPORT</b></p>																																						
<p>TDI Inc 1310 Bison Rd Hays Ks 67601-9696 ATTN: Tom Denning</p>	<p><b>22-15s-18w Ellis</b> <b>Zimmerman Unit #1</b> Job Ticket: 52242      <b>DST#: 2</b> Test Start: 2013.05.13 @ 03:00:08</p>																																						
<p><b>GENERAL INFORMATION:</b></p>																																							
<p>Formation: <b>LKC</b> Deviated: No Whipstock:      ft (KB) Time Tool Opened: 04:26:06 Time Test Ended: 08:49:36</p>		<p>Test Type: Conventional Straddle (Reset) Tester: Ray Schwager Unit No: 54</p>																																					
<p>Interval: <b>3415.00 ft (KB) To 3520.00 ft (KB) (TVD)</b> Total Depth: 3750.00 ft (KB) (TVD) Hole Diameter: 7.85 inches Hole Condition: Fair</p>		<p>Reference Elevations: 2034.00 ft (KB) 2024.00 ft (CF) KB to GR/CF: 10.00 ft</p>																																					
<p><b>Serial #: 8789      Inside</b></p>																																							
<p>Press@RunDepth: 69.18 psig @ 3417.00 ft (KB) Start Date: 2013.05.13      End Date: 2013.05.13 Start Time: 03:00:08      End Time: 08:49:36</p>		<p>Capacity: 8000.00 psig Last Calib.: 2013.05.13 Time On Btm: 2013.05.13 @ 04:23:51 Time Off Btm: 2013.05.13 @ 06:48:51</p>																																					
<p><b>TEST COMMENT:</b> 30-IFP-w k to strg in 12 min 30-ISIP-no bl bk 30-FFP-strl thru-out 45-FSP-no bl bk</p>																																							
<p><b>Pressure vs. Time</b></p>		<p><b>PRESSURE SUMMARY</b></p>																																					
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>1680.27</td><td>103.22</td><td>Initial Hydro-static</td></tr> <tr><td>3</td><td>47.51</td><td>102.99</td><td>Open To Flow (1)</td></tr> <tr><td>34</td><td>61.52</td><td>104.22</td><td>Shut-In(1)</td></tr> <tr><td>62</td><td>955.50</td><td>104.94</td><td>End Shut-In(1)</td></tr> <tr><td>63</td><td>61.72</td><td>104.68</td><td>Open To Flow (2)</td></tr> <tr><td>93</td><td>69.18</td><td>104.97</td><td>Shut-In(2)</td></tr> <tr><td>141</td><td>1043.07</td><td>105.49</td><td>End Shut-In(2)</td></tr> <tr><td>145</td><td>1634.72</td><td>105.50</td><td>Final Hydro-static</td></tr> </tbody> </table>		Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1680.27	103.22	Initial Hydro-static	3	47.51	102.99	Open To Flow (1)	34	61.52	104.22	Shut-In(1)	62	955.50	104.94	End Shut-In(1)	63	61.72	104.68	Open To Flow (2)	93	69.18	104.97	Shut-In(2)	141	1043.07	105.49	End Shut-In(2)	145	1634.72	105.50	Final Hydro-static
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<p><small>* Recovery from multiple tests</small></p>																																							
<p>Trilobite Testing, Inc</p>		<p>Ref. No: 52242</p>																																					
		<p>Printed: 2013.05.13 @ 09:25:00</p>																																					

**DST # 3 STRADDLE TEST SUMMARY "C" AND "D" LKC - BOTTOM PACKER HELD**

 <p><b>TRILOBITE TESTING, INC.</b></p>	<p><b>DRILL STEM TEST REPORT</b></p>		
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TESTING, INC.

TDI Inc  
1310 Bison Rd  
Hays Ks 67601-9696  
ATTN: Tom Denning

22-15s-18w Ellis

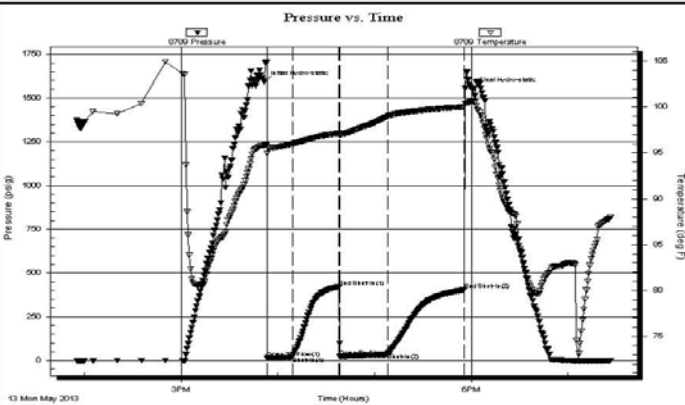
Zimmerman Unit #1  
Job Ticket: 52243 DST#: 3  
Test Start: 2013.05.13 @ 13:55:28

GENERAL INFORMATION:

Formation: LKC C-D  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 15:53:26  
Time Test Ended: 19:26:41  
Test Type: Conventional Straddle (Reset)  
Tester: Ray Schwager  
Unit No: 54  
Interval: 3324.00 ft (KB) To 3365.00 ft (KB) (TVD)  
Reference Elevations: 2034.00 ft (KB)  
Total Depth: 3750.00 ft (KB) (TVD) 2024.00 ft (CF)  
Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 8789 Inside  
Press@RunDepth: 40.34 psig @ 3326.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2013.05.13 End Date: 2013.05.13 Last Calib.: 2013.05.13  
Start Time: 13:55:28 End Time: 19:26:41 Time On Btm: 2013.05.13 @ 15:51:41  
Time Off Btm: 2013.05.13 @ 18:00:41

TEST COMMENT: 15-IFP-w k to strg in 7min  
30-ISIP-no bl  
30-FFP-w k to strg in 4min  
45-FSP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1592.74	95.82	Initial Hydro-static
2	14.68	94.95	Open To Flow (1)
18	23.12	95.97	Shut-In(1)
47	421.69	97.14	End Shut-In(1)
47	21.87	97.00	Open To Flow (2)
77	40.34	99.02	Shut-In(2)
124	404.64	100.00	End Shut-In(2)
129	1550.60	100.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbt)
500.00	GIP	7.01
55.00	SO&GCM 12%G1%O87%M	0.77

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (MMcf/d)
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\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 52243

Printed: 2013.05.13 @ 20:54:44

ROCK TYPES

Legend for rock types: Cht vari (green triangles), Clystgy (grey wavy), Dolprim (pink), Lmst fw<7 (blue horizontal lines), Lmst fw>7 (purple horizontal lines), shale, grn (green horizontal lines), shale, gry (grey horizontal lines), Carbon Sh (black horizontal lines), shale, red (red horizontal lines), Dol Lime (white wavy), Lscong (blue circles).

ACCESSORIES

MINERAL

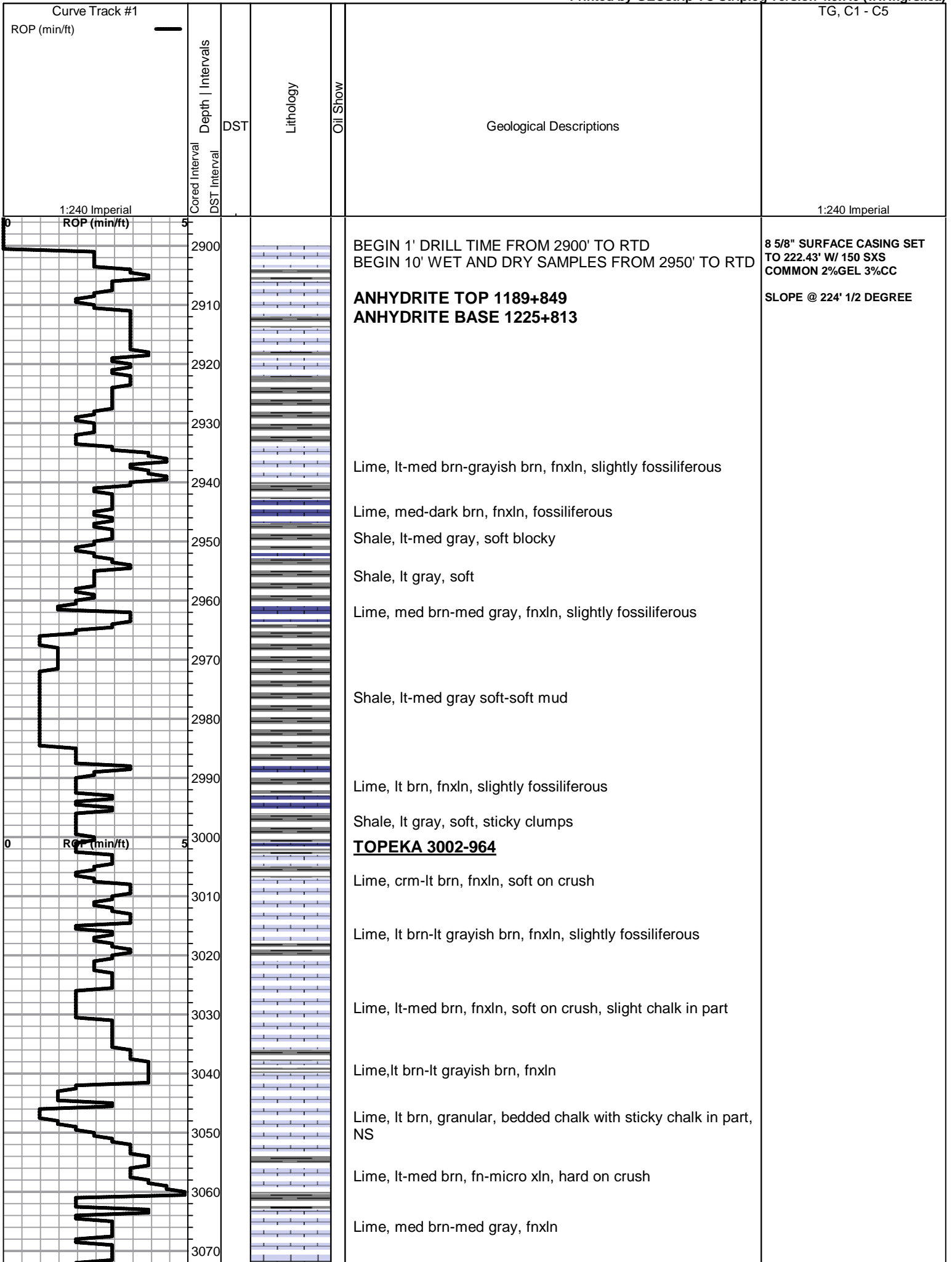
- P Pyrite
- \* Sandy
- Varicolored chert
- △ Chert White

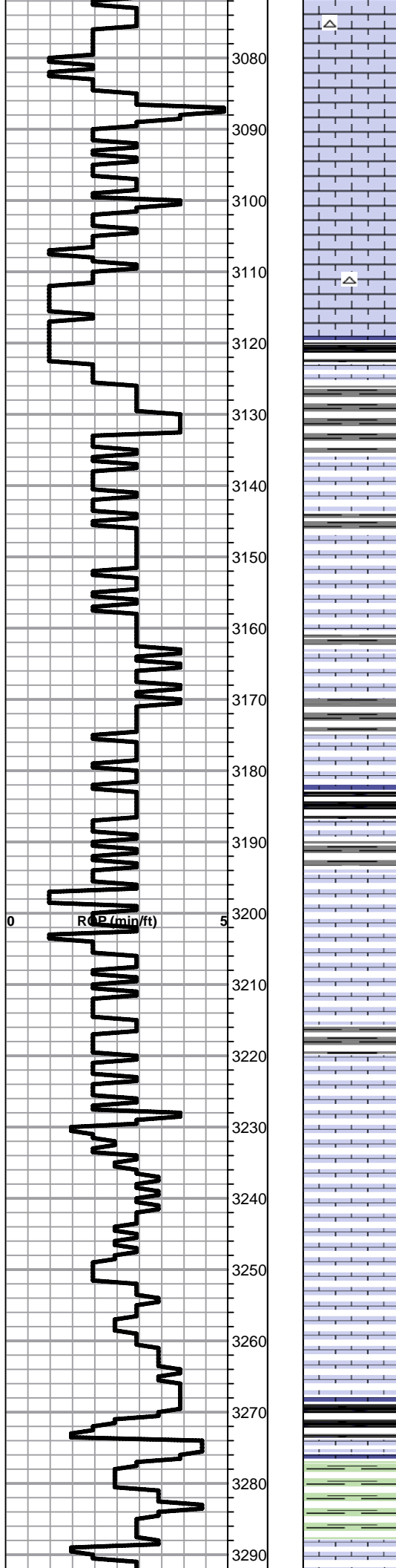
FOSSIL

- Oolite
- ⊕ Oomoldic

OTHER SYMBOLS

- DST
- DST Int
- DST alt





3080 Lime, med brn-grayish brn, fnxln-granular in part, slight bedded chalk

3090 Lime, lt-med brn, fnxln-granular in part, slightly fossiliferous

3100 Lime, lt-med brn, fnxln, bedded chalk w/ sticky chalk clumps

3110 Lime, lt-med brn, granular w/ chalky matrix, bedded chalk

3120 Shale, med-dark gray, soft granular, black carbonaceous in part

3130 Shale, lt-med gray, calcareous, soft-firm blocky

3140 Lime, lt brn, fnxln, chalk w/ sticky clumps in part, slightly lithographic in part

3150 Lime, tan-lt brn, fnxln

3160 Lime, lt-med brn, fnxln

3170 Shale, lt gray, soft sticky clumps

3180 Lime, lt-med brn, fnxln

3190 Shale, gray-black carbonaceous  
Lime, lt-med brn, fnxln

3200 Shale, med gray, soft-firm, calcareous

3210 Lime, lt-med brn, fnxln-granular in part, slight bedded chalk

3220 Lime, lt-med brn, fnxln, slight bedded chalk

3230 Lime, lt brn-lt grayish brn, fnxln, slight chalk, few fusulinids

3240 Lime, crm-lt brn, fnxln-granular in part, slight bedded chalk

3250 Lime, lt brn-lt grayish brn, fnxln-granular in part, slight chalk

3260 Lime, lt brn, fnxln-granular in part, slight chalk

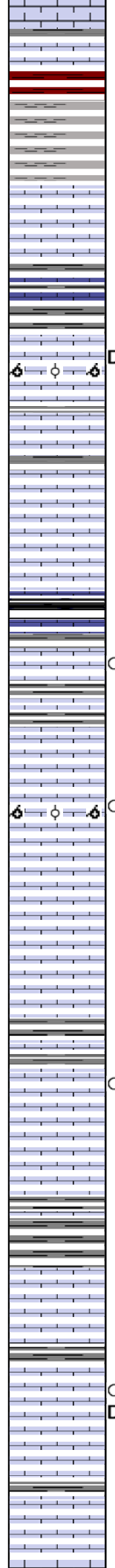
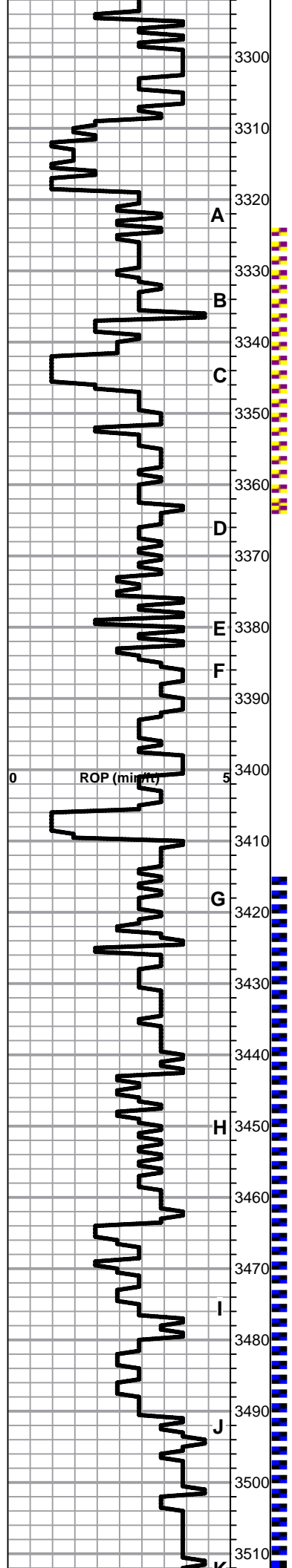
3270 Lime, lt-med brn, fnxln, slight chalk

**HEEBNER SHALE 3268-1230**  
Shale, black carbonaceous, fissile, blocky  
Lime, lt-med brn, fnxln, hard on crush

3280 Shale, lime green-dove gray, soft-soft sticky clumps

**TORONTO 3288-1250**  
Lime, crm-lt brn, fnxln, slight chalk, NS





Lime, crm-lt brn, fnxln, slight bed chalk, NS

Shale, reddish brn, soft-soft sticky clumps grading into lt gray, soft sticky clumps

**LKC 3318-1280**

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

Lime, lt-med brn, mostly fnxln, 1 chip granular w/trace of staining, NFO, No Odor, source ?

Lime, crm-tan, fnxln grading into oolitic/oolmoldic, trace of spotty staining, flaky gilsonite in part, NFO, No Odor

Shale, med brn, soft sticky clumps  
Lime, crm-tan, fnxln, bedded chalk, NS

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

Shale, gray-black carbonaceous, soft blocky  
Lime, lt gray, fnxln  
Shale, dove gray, soft sticky clumps

Lime, crm-lt brn, fnxln, slightly fossiliferous, fine scattered pinpoint vuggy porosity, trace of staining, NFO, No Odor

Lime, crm-tan, fnxln, bedded chalk

Lime, crm-lt brn, fn-vfxln, slight bedded chalk

Lime, crm-lt brn, mix of fnxln and oolmoldic/oolitic, trace spotty staining, NFO, No Odor

Lime, crm-lt brn, fn-vfxln, bedded chalk in part

Lime, lt brn-lt gray, fnxln-micro xln, slight bedded chalk

Lime, lt-dark brn, fn-micro xln  
Shale, med gray, soft blocky

Lime, crm-lt brn,fn-vfxln, trace of staining in poorly developed, fn inter xln, NFO, No Odor

Lime, crm-lt brn, fn-vfxln

Lime, crm-lt brn, fn-vfxln

Shale, lt gray, calcareous in part, firm blocky

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

Lime, lt-med brn, fn-micro xln,  
Shale, lt gray, soft blocky -soft sticky clumps in part

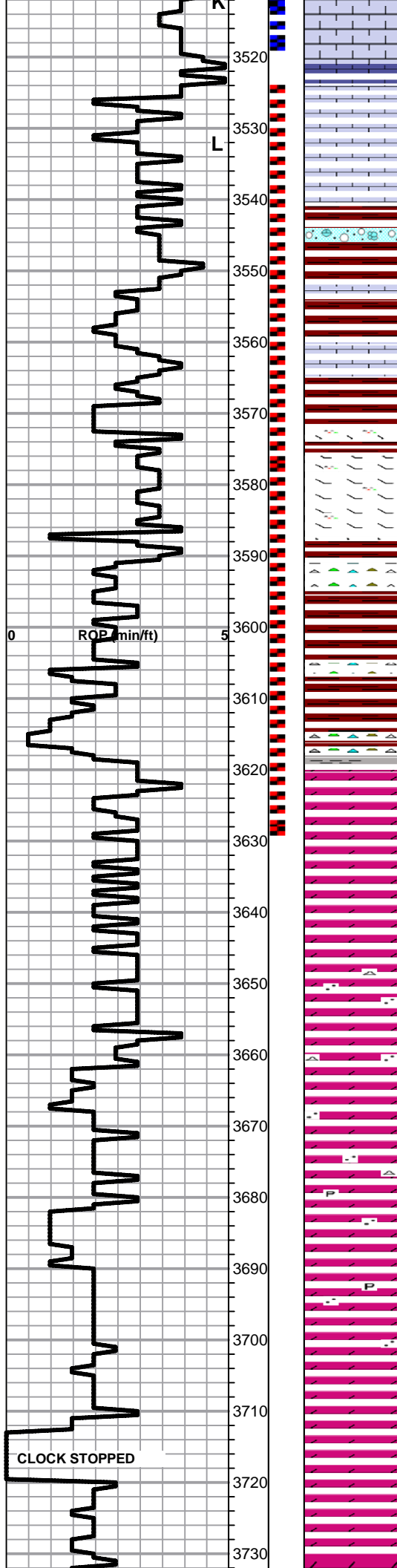
Lime, crm-tan, fnxln, bedded chalk, few chips w fine ppt vuggy porosity, spotty stain and gilsonitic around fossil remnants, NFO, No Odor

Lime, lt-med brn, fn-micro xln

DST #3 STRADDLE TEST 3324'-3365' SEE HEADER FOR TEST SUMMARY

MICROLOG SHOWS ZONE MAY HAVE LOW PERMEABILITY

DST # 2 STRADDLE TEST 3415'-3520' SEE HEADER FOR TEST SUMMARY



Lime, white-crm, fn-micro xln, bedded chalk, NS

Lime, crm-lt brn, fn-micro xln, hard on crush

Lime, crm-lt brn, fn-micro xln, slight bedded chalk, NS

**BKC 3541-1503**

Shale, reddish brn, lt red wash, clastic mix of lime, chert with red shale staining

Lime, crm, fnxln, hard on crush, slight chalk  
Shale, deep red w/red wash, soft blocky to soft mud

Lime, crm, fnxln, hard on crush

Shale, reddish brn-deep red, soft  
Lime, crm-lt brn, fnxln, hard, chert, tan-orange

**MARMATON 3576-1538**

Lime, crm-lt brn, fnxln, hard, cherty

D Chert, vari colored, gilsonitic in part, mixed with lime and dolomite rubble

Samples lost in this interval, log shows shale section

Reworked section of shale, cherts and lime rubble with thin bed of sticky white clay near boundary with dolomite

**ARBUCKLE 3620-1582**

Dolomite, crm, fn-cxln, lt odor with spotted to saturated stain

Dolomite, crm-ivory, fn-cxln, good odor, rhombic xln in part

Dolomite, crm-ivory, fn-med xln, granular, very lt odor

D Dolomite, ivory, cxln, gilsonitic, NFO, No Odor

Dolomite, ivory, fn-cxln, granular, oolitic chert and white chert, some fused and hard quartz sand clusters

Dolomite, ivory-lt brn, fnxln-granular, quartz grain inclusions

Dolomite, crm-lt brn, fn-cxln, quartz grain inclusions

Dolomite, lt brn, fnxln, quartz grain inclusions, xln te

Dolomite, ivory, fn-cxln

Dolomite, ivory-crm, fn-mdxln, granular and sucrosic in part quartz grain inclusions

Dolomite, crm, fn-cxln, harder on crush

Dolomite, tan-lt brn, fnxln, hard on crush

Dolomite, crm-tan, granular

**DST # 1 STRADDLE TEST  
3524'-3630' SEE HEADER FOR  
TEST SUMMARY**

CLOCK STOPPED

**RAN 14# 5 1/2" PRODUCTION  
CASING SET TO 3743' W/ 150  
SXS ASC, TOP STAGE THRU  
DV TOOL IN ANHYDRITE - 155**



Dolomite, white-crm, granular, sucrosic in part

RTD 3750-1712 LTD 3750-1712

SXS AMD, 30 SXS RATHOLE, 15  
SXS MOUSEHOLE

SLOPE @3750' 1 DEGREE

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 6792

Cell 785-324-1041

Date	Sec.	Twp.	Range	County	State	On Location	Finish
5-7-13	22	15	18	DELS	KS		4:15pm

Location *Hays MAX IE 1/25 Winto*

Lease	Well No.	Owner	
<i>Zimmerman Unit</i>	<i>1</i>	To Quality Oilwell Cementing, inc.	
Contractor	You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.		
<i>Southwind #1</i>			
Type Job	Charge To		
<i>Surface</i>	<i>T D J</i>		
Hole Size	T.D.		
<i>12 1/4</i>	<i>224</i>		
Csg.	Depth	Street	
<i>8 5/8</i>	<i>223</i>		
Tbg. Size	Depth	City	
		State	
Tool	Depth	The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	Shoe Joint	Cement Amount Ordered	
<i>15</i>		<i>150 com 3%CLL 2%GEL</i>	

Meas Line	Displace
	<i>13BC</i>

**EQUIPMENT**

Pumptrk	No.	Cement	Common
<i>16</i>		<i>Craig</i>	<i>150</i>
		Helper	Poz. Mix
Bulktrk	No.	Driver	Gel.
		<i>Carl</i>	<i>3</i>
Bulktrk	No.	Driver	Calcium
<i>1</i>		<i>Heath</i>	<i>5</i>

**JOB SERVICES & REMARKS**

Remarks:	Hulls
	Salt
Rat Hole	Flowseal
Mouse Hole	Kol-Seal
Centralizers	Mud CLR 48
Baskets	CFL-117 or CD110 CAF 38
D/V or Port Collar	Sand
<i>8 5/8 on bottom. Est. Circulation.</i>	Handling <i>158</i>
<i>Mix 150sk + Displace</i>	Mileage

**FLOAT EQUIPMENT**

<i>Cement Circulator?</i>	Guide Shoe
	Centralizer <i>8 5/8 swage</i>
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Pumptrk Charge	<i>Surface</i>
Mileage	<i>13</i>

X Signature <i>Heb</i>	Tax
	Discount
	Total Charge

# ALLIED OIL & GAS SERVICES, LLC

060174

Federal Tax I.D. # 20-8651475

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

SERVICE POINT:

*Dolly Ky*

DATE <u>5/14/13</u>	SEC <u>22</u>	TWE <u>15</u>	RANGE <u>18</u>	CALLED OUT	ON LOCATION	JOB START <u>8:00</u>	JOB FINISH <u>10:00</u>
<u>Zimmerman</u> LEASE UNIT	WELL # <u>1</u>	LOCATION <u>Hays 183 - by Pass 8 1/2 AS 1E 1/2 S</u>			COUNTY <u>Ellis</u>	STATE <u>KY</u>	
OLD OR <u>NEW</u> (Circle one)		<u>w - No Winto</u>					

CONTRACTOR Southwind #1  
 TYPE OF JOB Production 2 Stage  
 HOLE SIZE 7 1/8 T.D.  
 CASING SIZE 5 1/2 14 1/8 DEPTH 3743'  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL DU DEPTH 1151'  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT 1/2  
 CEMENT LEFT IN CSG. 40'  
 PERFS.  
 DISPLACEMENT Both 90 BBL 1/2 @ 700 80 BBL 1/2 @  
 EQUIPMENT

PUMP TRUCK CEMENTER Alan Ryan  
 # 372 HELPER Wayne McElroy  
 BULK TRUCK  
 # 5106 DRIVER Barrin Hobbs  
 BULK TRUCK  
 # DRIVER

REMARKS: MAX 1200 WFR II - 20 BBL HCL

Only Credits, Max 150 SK, ASC, Washup, Displace Plug w/ 90 AM H2O  
APR 15 1500 P.S. LET Land Plug @ 1600 P.S.  
Open Tool - 800 lb, Max 30 SK R.H. 15 SK MIT  
Max 155 SK, AMO 5 1/2, Washup  
Displace Plug w/ 20 BBL H2O w/ 1400 LFT  
Land Plug @ 1600. Tool Closed

Cement Did Circulate - 20 SK to P.T.  
T.M.K.W. May name  
British

CHARGE TO: TOF, inc  
 STREET  
 CITY STATE ZIP

Books on 3.15 ca. 77  
ax. 1-3-5-7-8-10-11-61  
DU 700 P.F. 22  
marker - 7-8

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

PRINTED NAME  
 SIGNATURE [Signature]

OWNER Same

CEMENT	AMOUNT ORDERED	150 ASC 1070502207gal
		5 <sup>th</sup> Gilonite 500 gal WFR II
		200 SK, AMO 14 Flossal 4 Gal Chopro
		COMMON AMO 200 SK @ 25 5180.00
POZMIX	@	
GEL	@	
CHLORIDE	@	
ASC	150 SK @ 20 30	2135.00
	@	
Sect	16 SK @ 26.35	421.60
Gilonite	250 16 @ .98	235.00
	@	
WFR II	12 BBL @ 58.00	698.40
	@	
Flossal	50 16 @ 2.92	146.00
Chopro	4 gal @ 24.40	97.60
HANDLING	40% of 2	1053.00
MILEAGE	2 <sup>nd</sup> 700 mile 18.247 ton	487.44
		TOTAL 11996.00

SERVICE

DEPTH OF JOB		
PUMP TRUCK CHARGE		2550.00
EXTRA FOOTAGE	@	
MILEAGE	40 @ 2.20	88.00
MANIFOLD	@	225.00
Lite Vehicle	10 @ 4.40	440.00
	@	
		TOTAL 2954.00

PLUG & FLOAT EQUIPMENT

DU Tool	1 @ 535.26	535.26
APV Float Shoe	1 @ 408.09	408.09
Latch Down Assembly	1 @ 324.37	324.37
Controlizers	9 @ 57.29	515.61
Gas Nits	4 @ 394.29	1577.16
		TOTAL 8160.81

SALES TAX (If Any)  
 TOTAL CHARGES 23,112.11  
 DISCOUNT 6,471.39 IF PAID IN 30 DAYS  
1,640.72 Net.

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



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

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

Sam Brownback, Governor

July 03, 2013

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

Re: ACO1  
API 15-051-26502-00-00  
Zimmerman Unit 1  
NE/4 Sec.22-15S-18W  
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