

CONFIDENTIAL

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

ORIGINAL

Form ACO-1  
June 2009

Form Must Be Typed  
Form must be Signed  
All blanks must be Filled

8/26/12

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 4787

Name: TDI, Inc.

Address 1: 1310 Bison Road

Address 2: \_\_\_\_\_

City: Hays State: KS Zip: 67601 + 9696

Contact Person: Tom Denning

Phone: (785) 628-2593

CONTRACTOR: License # 33575

Name: WW Drilling, LLC

Wellsite Geologist: Herb Deines

Purchaser: Coffeyville Resources

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
- Conv. to GSW
- Plug Back: \_\_\_\_\_ Plug Back Total Depth \_\_\_\_\_
- Commingled    Permit #: \_\_\_\_\_
- Dual Completion    Permit #: \_\_\_\_\_
- SWD    Permit #: \_\_\_\_\_
- ENHR    Permit #: \_\_\_\_\_
- GSW    Permit #: \_\_\_\_\_

<u>07/01/2010</u>	<u>07/11/2010</u>	<u>08/10/2010</u>
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 051-25991-00-00

Spot Description: \_\_\_\_\_

NW SE NW SW Sec. 10 Twp. 15 S. R. 19  East  West

1,925 Feet from  North /  South Line of Section

910 Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

County: Ellis

Lease Name: Kraus Well #: 1

Field Name: wildcat

Producing Formation: Kansas City & Conglomerate

Elevation: Ground: 2022' Kelly Bushing: 2027'

Total Depth: 3730' Plug Back Total Depth: 3682'

Amount of Surface Pipe Set and Cemented at: 233 Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: 1254 Feet

If Alternate II completion, cement circulated from: 1254

feet depth to: surface w/ 135 sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: 48,000 ppm Fluid volume: 1,000 bbls

Dewatering method used: evaporation

Location of fluid disposal if hauled offsite:

Operator Name: Hertel Oil Company

Lease Name: Oldham License #: 33625

Quarter SW/4 Sec. 4 Twp. 15 S. R. 18  East  West

County: Ellis Permit #: D20214

**INSTRUCTIONS:** An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information of side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

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.

Signature: [Signature]

Title: President Date: 08/26/2010

KCC Office Use ONLY

- Letter of Confidentiality Received  
Date: 8/26/10 - 8/26/12
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: N/S Date: 9-3-10

RECEIVED

AUG 30 2010

KCC WICHITA

Operator Name: TDI, Inc. Lease Name: Kraus Well #: 1 AUG 24 2010

Sec. 10 Twp. 15 S. R. 19  East  West County: Ellis CONFIDENTIAL

**INSTRUCTIONS:** Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Submitted Electronically <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i>  List All E. Logs Run: Borehole Compensated Sonic Log Dual Induction Log Dual Compensated Porosity Log Microresistivity Log	<input checked="" type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Name</th> <th style="text-align: left;">Top</th> <th style="text-align: left;">Datum</th> </tr> </thead> <tbody> <tr> <td>Anhydrite</td> <td>1242'</td> <td>+785'</td> </tr> <tr> <td>Topeka</td> <td>2999'</td> <td>-972'</td> </tr> <tr> <td>Heebner</td> <td>3274'</td> <td>1247'</td> </tr> <tr> <td>Lansing/Kansas City</td> <td>3320'</td> <td>-1293</td> </tr> <tr> <td>Arbuckle</td> <td>3642'</td> <td>-1615'</td> </tr> <tr> <td>Reagan</td> <td>3718'</td> <td>-1691'</td> </tr> <tr> <td>Total Depth</td> <td>3730'</td> <td>-1703'</td> </tr> </tbody> </table>	Name	Top	Datum	Anhydrite	1242'	+785'	Topeka	2999'	-972'	Heebner	3274'	1247'	Lansing/Kansas City	3320'	-1293	Arbuckle	3642'	-1615'	Reagan	3718'	-1691'	Total Depth	3730'	-1703'
Name	Top	Datum																							
Anhydrite	1242'	+785'																							
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Reagan	3718'	-1691'																							
Total Depth	3730'	-1703'																							

CASING RECORD <input checked="" 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
surface	12 1/4"	8 5/8"	23#	233'	common	150sxs	3%CC & 2%Gel
production	7 7/8"	5 1/2'	14#	3726'	EA-2	150sxs	

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	1254'	SMD	135sxs	(circulated to surface)

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth
4 spf	3633'-37'	200 gal 7 1/2% INS w/ 10% solvent	
2 spf	3505'-08'	250 gal 15% MA	
2 spf	3477'-79'	250 gal 15% MA	

TUBING RECORD:	Size: <u>2 3/8"</u>	Set At: <u>3669'</u>	Packer At:	Liner Run: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR. <u>08/17/2010</u>	Producing Method: <input type="checkbox"/> Flowing <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain) _____
--	--

Estimated Production Per 24 Hours	Oil	Bbls.	Gas	Mcf	Water	Bbls.	Gas-Oil Ratio	Gravity
	12				35			32

DISPOSITION OF GAS: <input checked="" 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 checked="" type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other (Specify) _____	PRODUCTION INTERVAL: <u>3633'-37' (Conglomerate)</u> <u>3477'-3508' (Kansas City)</u>
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Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

RECEIVED  
AUG 30 2010  
KCC WICHITA

# QUALITY OILWELL CEMENTING, INC.

Phone 785-483-2025  
Cell 785-324-1041

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

No. 4078

Date	7-1-2010	Sec.	10	Twp.	15	Range	19	County	Ellis	State	Ks	On Location		Finish	7:45 PM
Lease	Kraus		Well No.	#1		Location Antonino, Ks 2W, 2S, E/S									
Contractor	W W #6					Owner To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.									
Type Job	Surface					Charge To TDI									
Hole Size	12 1/4"		T.D.	233'		Depth 233'									
Csg.	8 5/8"		Depth			Street									
Tbg. Size						City State									
Tool						The above was done to satisfaction and supervision of owner agent or contractor.									
Cement Left in Csg.	15'		Shoe Joint	15'		Cement Amount Ordered 150 sbs Common 3% CC, 2% Gel									
Meas Line						Displace 13 3/4 BBLs									

**EQUIPMENT**

Pumptrk	9	No.	Cementor	Wente	3	Common	150
			Helper				
Bulktrk	8	No.	Driver	Cisco	3	Poz. Mix	
			Driver				
Bulktrk	pick up	No.	Driver	Rick	3	Gel.	3
			Driver			Calcium	5

**JOB SERVICES & REMARKS**

Remarks:	Cement did Circulate.						
Rat Hole							
Mouse Hole							
Centralizers							
Baskets							
DV or Port Collar							

used 8 5/8" Swedge

**FLOAT EQUIPMENT**

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	

Quality Oilwell Cementing

X Signature *Randy Blankenship*

Pumptrk Charge Surface  
Mileage 9

Tax  
Discount  
Total Charge

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KCC WICHITA

JOB LOG

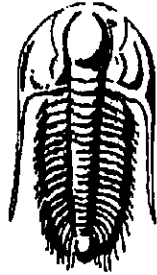
SWIFT Services, Inc.

DATE 07-10-10 PAGE NO. 7

CUSTOMER TDI WELL NO. 1 LEASE WRALS JOB TYPE 2 STAGE TICKET NO. 18032

CHART NO.	TIME	RATE (BPM)	VOLUME (BBLS/GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1130							ON LOCATION, CMT: BOTTOM 15050 EA2, TOP 165 SMD RTO 3730 SET PIPE @ 3727 SJ 42.95 INSET 3694 5/4 14" DI. ON TOP 58 1025 FT. CENT 1,3,5,7,9,11,57,72 BORE 2,12,58,73
	0210							START CIRC @ FLOW RATE CALL OUT TRUCK @ 0230
	0230							TAC BOTTOM, DRIP PLUG
	0400							BREAK CIRC & ROTATE PIPE
	0425		12.0		✓			MUD FLUSH 500 GALS
			20.0		✓			MCL FLUSH
	0440		36.5		✓			EA-2 CMT 15050
								DRIP BOTTOM PLUG L.D., WASH UNIT PL
	0445	6.2	0		✓		200	START DRIP w/ H <sub>2</sub> O
			59.0		✓		200	" " w/ RIG MUD
			70.0		✓		450	" " w/ MCL FLUSH
			80.0		✓		500	
			85.0		✓		650	
	0490		89.8		✓		1100	LAND PLUG, REVERSE B,
	0505							DRIP DIV. OPENING DACT
	0510		7					PLUG RH 73050
	0515				✓		1100	OPEN DIV.
	0520	5.0	0		✓		250	START SMD 13550
			30.6		✓			CMT ON DIV.
	0535		72.0		✓			END CMT
								DRIP DIV. CLOSING PLUG
	0540	5.5	0		✓		200	START DRIP
			20.0		✓		300	CIRC CMT TO PIT! 20500
	0545		30.6		✓		1100	LAND PLUG & CLOSE DIV.
	0630							JOB COMPLETE THANK YOU! DAVE, JOSH, JOHN

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AUG 30 2010  
KCC WICHITA



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

Prepared For: **TDI, Inc.**

1310 Bison Road  
Hays, KS 67601

AUG 23 2010  
KCC WICHITA

ATTN: Herb Deines

**10-15s-19w Ellis KS**

**Kraus #1**

Start Date: 2010.07.08 @ 01:16:15

End Date: 2010.07.08 @ 08:08:15

Job Ticket #: 38732                      DST #: 1

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Printed: 2010.07.20 @ 15:07:24

**RECEIVED**

**AUG 30 2010**

**KCC WICHITA**

TDI, Inc.

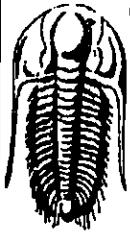
Kraus #1

10-15s-19w Ellis KS

DST # 1

Toronto-C

2010.07.08



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

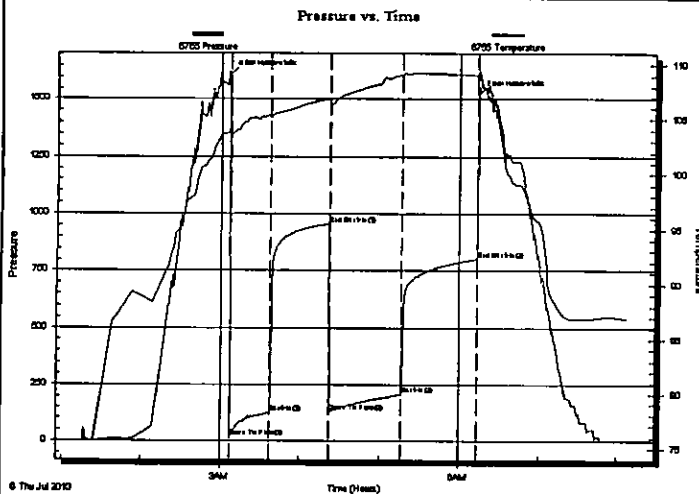
**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38732      DST#: 1  
Test Start: 2010.07.08 @ 01:16:15

## GENERAL INFORMATION:

Formation: **Toronto-C**  
Deviated: **No Whipstock:**      ft (KB)  
Time Tool Opened: 03:07:15  
Time Test Ended: 08:08:15  
Interval: **3270.00 ft (KB) To 3354.00 ft (KB) (TVD)**  
Total Depth: **3354.00 ft (KB) (TVD)**  
Hole Diameter: **7.80 inches** Hole Condition: **Good**  
Test Type: **Conventional Bottom Hole**  
Tester: **Jason McLemore**  
Unit No: **32**  
Reference Elevations: **2027.00 ft (KB)**  
**2022.00 ft (CF)**  
KB to GR/CF: **5.00 ft**

**Serial #: 6755**      **Inside**  
Press@RunDepth: **208.93 psig @ 3338.00 ft (KB)**  
Start Date: **2010.07.08**      End Date: **2010.07.08**  
Start Time: **01:16:17**      End Time: **08:08:15**  
Capacity: **8000.00 psig**  
Last Calib.: **2010.07.08**  
Time On Btm: **2010.07.08 @ 03:06:45**  
Time Off Btm: **2010.07.08 @ 06:14:00**

**TEST COMMENT:** IFF-Good Blow ,BOB in 14 Min.  
ISI-Dead  
FFP-Good Blow ,BOB in 24 Min.  
FSI-Dead



## PRESSURE SUMMARY

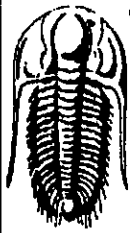
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1613.21	104.23	Initial Hydro-static
1	19.60	103.63	Open To Flow (1)
31	125.21	105.19	Shut-In(1)
75	953.45	106.83	End Shut-In(1)
76	129.53	106.44	Open To Flow (2)
130	208.93	109.05	Shut-In(2)
187	802.32	109.09	End Shut-In(2)
188	1527.18	109.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
390.00	Muddy Water W/Oil Cum on top	4.35

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38732      DST#: 1  
Test Start: 2010.07.08 @ 01:16:15

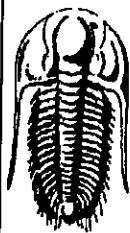
**Tool Information**

Drill Pipe:	Length: 3141.00 ft	Diameter: 3.80 inches	Volume: 44.06 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 44.66 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 28000.00 lb
Depth to Top Packer:	3270.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.00 ft			
Tool Length:	105.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3250.00	
Shut In Tool	5.00			3255.00	
Hydraulic tool	5.00			3260.00	
Packer	5.00			3265.00	21.00      Bottom Of Top Packer
Packer	5.00			3270.00	
Stubb	1.00			3271.00	
Perforations	2.00			3273.00	
Change Over Sub	1.00			3274.00	
Blank Spacing	63.00			3337.00	
Change Over Sub	1.00			3338.00	
Recorder	0.00	6755	Inside	3338.00	
Recorder	0.00	8360	Outside	3338.00	
Perforations	13.00			3351.00	
Bullnose	3.00			3354.00	84.00      Bottom Packers & Anchor

**Total Tool Length: 105.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38732      DST#: 1  
Test Start: 2010.07.08 @ 01:16:15

## 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:	72000 ppm
Viscosity: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.60 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
390.00	Muddy Water W/Oil Cum on top	4.350

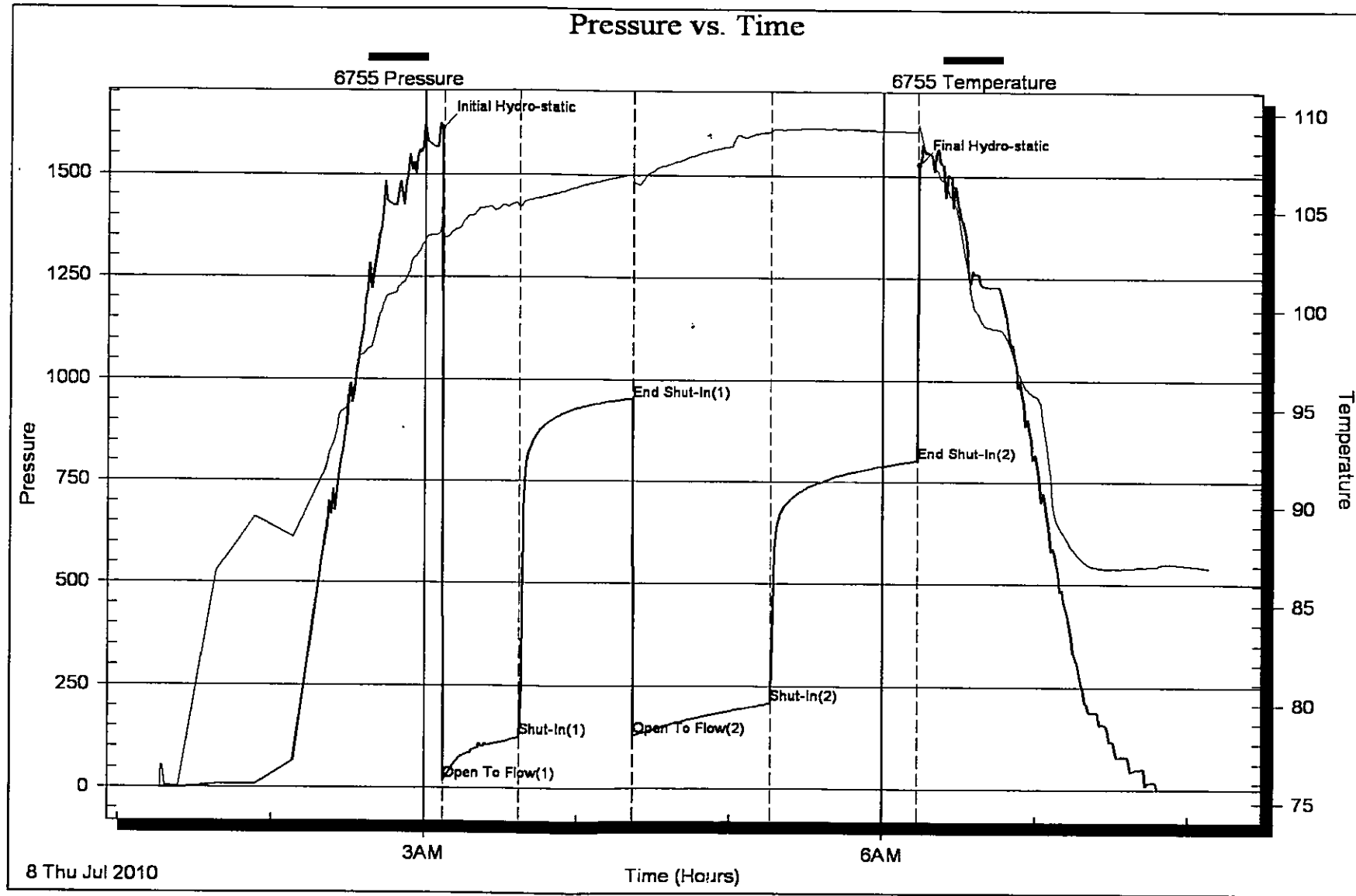
Total Length: 390.00 ft      Total Volume: 4.350 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments: RW .104 @ 67F = 72000 chlorides





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**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Road  
Hays, KS 67601

ATTN: Herb Deines

**10-15s-19w Ellis KS**

**Kraus #1**

Start Date: 2010.07.08 @ 02:02:17

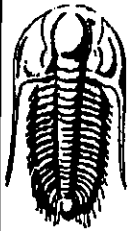
End Date: 2010.07.08 @ 06:35:02

Job Ticket #: 38733                      DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

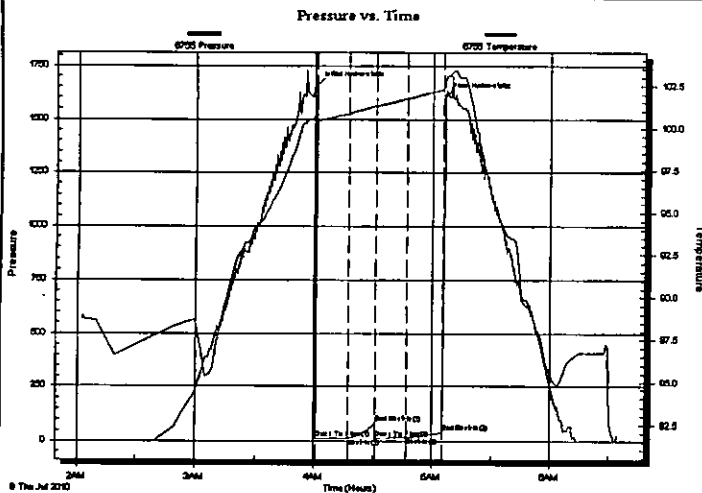
**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38733      DST#: 2  
Test Start: 2010.07.08 @ 02:02:17

## GENERAL INFORMATION:

Formation: "D"  
Deviated: No      Whipstock:      ft (KB)  
Time Tool Opened: 04:01:02  
Time Test Ended: 06:35:02  
Interval: 3358.00 ft (KB) To 3380.00 ft (KB) (TVD)  
Total Depth: 3380.00 ft (KB) (TVD)  
Hole Diameter: 7.80 inches      Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Jason McLemore  
Unit No: 32  
Reference Elevations: 2027.00 ft (KB)  
2022.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 6755**      Inside  
Press@RunDepth: 16.84 psig @ 3364.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2010.07.08      End Date: 2010.07.08      Last Calib.: 2010.07.08  
Start Time: 02:02:19      End Time: 06:35:02      Time On Btm: 2010.07.08 @ 04:00:47  
Time Off Btm: 2010.07.08 @ 05:06:02

TEST COMMENT: IFP-Weak, Dead in 10 Min.  
ISI-Dead  
FFP-Dead  
FSI-Dead



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.27	100.92	Initial Hydro-static
1	13.45	100.27	Open To Flow (1)
17	14.67	100.88	Shut-In(1)
30	81.02	101.32	End Shut-In(1)
31	15.29	101.28	Open To Flow (2)
46	16.84	101.75	Shut-In(2)
65	41.48	102.28	End Shut-In(2)
66	1607.28	102.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
3.00	Drilling Mud	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc.

Kraus #1

1310 Bison Road  
Hays, KS 67601

10-15s-19w Ellis KS

Job Ticket: 38733

DST#: 2

ATTN: Herb Deines

Test Start: 2010.07.08 @ 02:02:17

### Tool Information

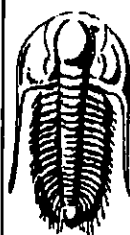
Drill Pipe:	Length: 3232.00 ft	Diameter: 3.80 inches	Volume: 45.34 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 45.94 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 34000.00 lb
Depth to Top Packer:	3358.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	45.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3336.00	
Shut In Tool	5.00			3341.00	
Hydraulic tool	5.00			3346.00	
Safety Joint	2.00			3348.00	
Packer	5.00			3353.00	23.00 Bottom Of Top Packer
Packer	5.00			3358.00	
Stubb	1.00			3359.00	
Perforations	5.00			3364.00	
Recorder	0.00	6755	Inside	3364.00	
Recorder	0.00	8360	Outside	3364.00	
Perforations	13.00			3377.00	
Bullnose	3.00			3380.00	22.00 Bottom Packers & Anchor

**Total Tool Length: 45.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38733      DST#: 2  
Test Start: 2010.07.08 @ 02:02:17

### Mud and Cushion Information

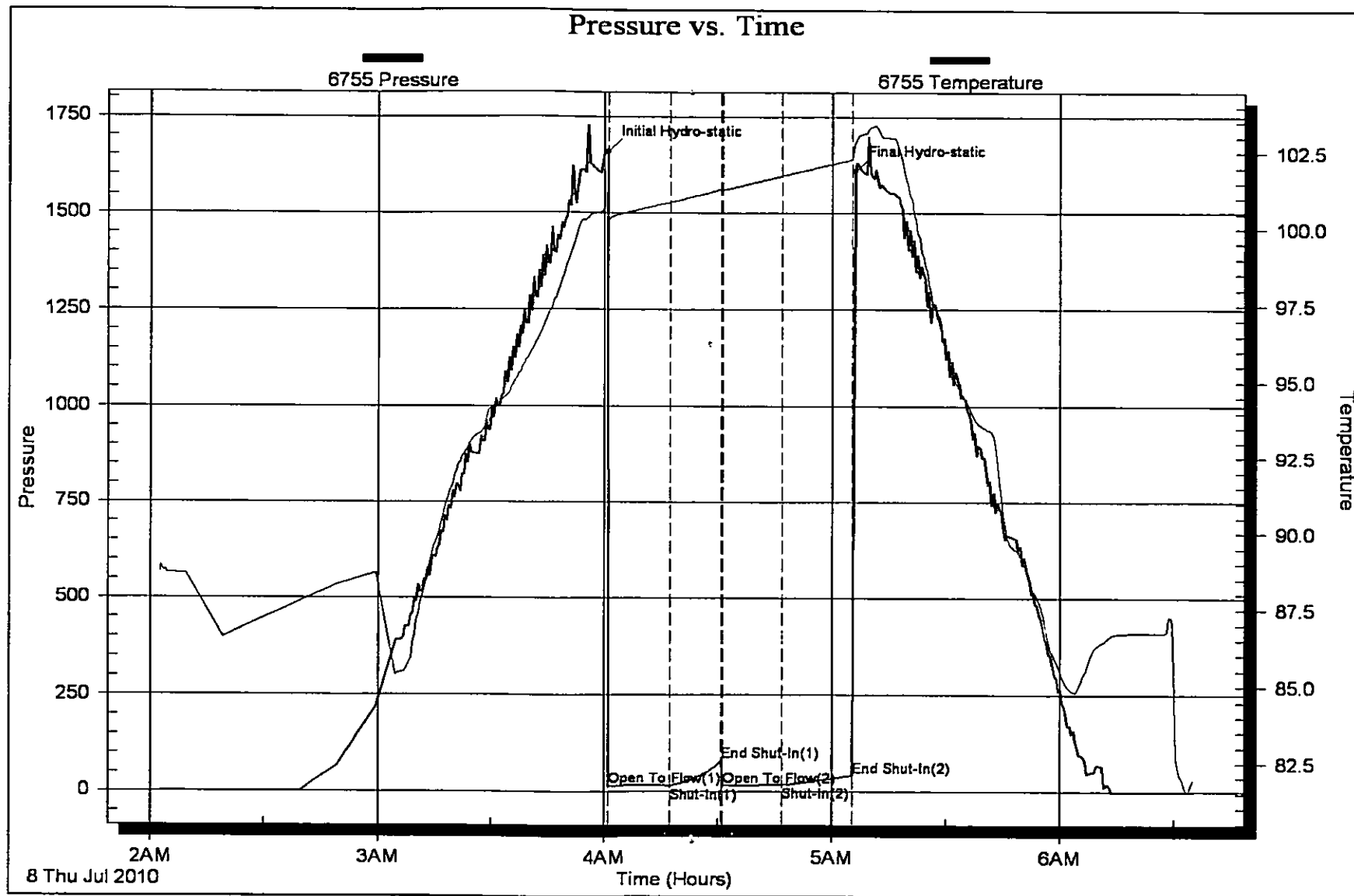
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: inches			

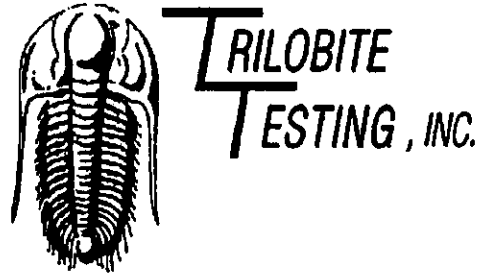
### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	Drilling Mud	0.015

Total Length: 3.00 ft      Total Volume: 0.015 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 Road  
Hays, KS 67601

ATTN: Herb Deines

**10-15s-19w Ellis KS**

**Kraus #1**

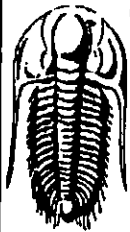
Start Date: 2010.07.09 @ 05:12:57

End Date: 2010.07.09 @ 11:59:27

Job Ticket #: 38734                      DST #: 3

Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

TDI, Inc.  
Kraus #1  
10-15s-19w Ellis KS  
DST # 3  
"LJ"  
2010.07.09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38734      **DST#: 3**  
Test Start: 2010.07.09 @ 05:12:57

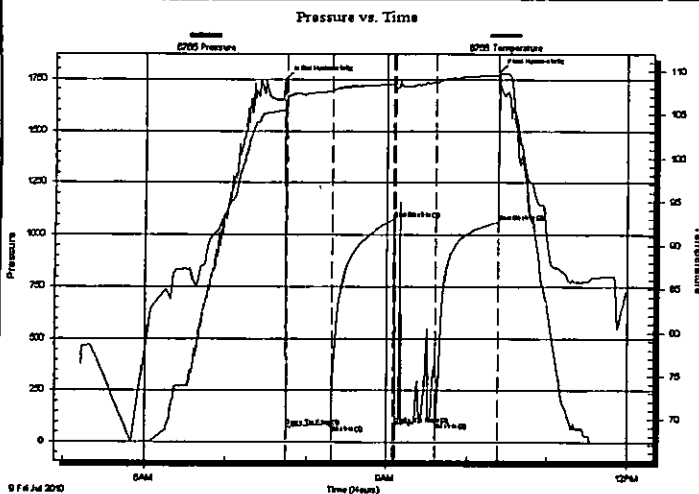
ATTN: Herb Deines

## GENERAL INFORMATION:

Formation: "I-J"  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 07:44:57  
Time Test Ended: 11:59:27  
Interval: 3470.00 ft (KB) To 3520.00 ft (KB) (TVD)  
Total Depth: 3520.00 ft (KB) (TVD)  
Hole Diameter: 7.80 inches Hole Condition: Good  
Reference Elevations: 2027.00 ft (KB)  
2022.00 ft (CF)  
KB to GR/CF: 5.00 ft  
Test Type: Conventional Bottom Hole  
Tester: Jason McLemore  
Unit No: 32

**Serial #: 6755**      **Inside**  
Press@RunDepth: 95.99 psig @ 3505.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2010.07.09      End Date: 2010.07.09      Last Calib.: 2010.07.09  
Start Time: 05:12:59      End Time: 11:59:27      Time On Btm: 2010.07.09 @ 07:43:57  
Time Off Btm: 2010.07.09 @ 10:23:42

**TEST COMMENT:** IFF-Tool Slid 10', Plugging action,Built to 1"  
ISI-Dead  
IFF-Plugging Action,Flush Tool, Good Surge, SURging Blow ,Built to 1/2"  
FSI-Dead



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1747.00	105.55	Initial Hydro-static
1	75.37	106.47	Open To Flow (1)
35	85.67	107.63	Shut-In(1)
81	1075.25	108.50	End Shut-In(1)
82	82.79	108.04	Open To Flow (2)
113	95.99	108.58	Shut-In(2)
159	1062.34	109.51	End Shut-In(2)
160	1786.08	109.71	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	Drilling Mud	0.98
20.00	Mud With Oil Spots	0.28

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc.

Kraus #1

1310 Bison Road  
Hays, KS 67601

10-15s-19w Ellis KS

Job Ticket: 38734

DST#: 3

ATTN: Herb Deines

Test Start: 2010.07.09 @ 05:12:57

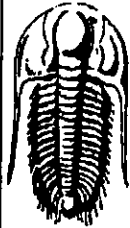
### Tool Information

Drill Pipe:	Length: 3356.00 ft	Diameter: 3.80 inches	Volume: 47.08 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 47.68 bbl</u>	Tool Chased 10.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 34000.00 lb
Depth to Top Packer:	3470.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	71.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3450.00	
Shut In Tool	5.00			3455.00	
Hydraulic tool	5.00			3460.00	
Packer	5.00			3465.00	21.00 Bottom Of Top Packer
Packer	5.00			3470.00	
Stubb	1.00			3471.00	
Perforations	1.00			3472.00	
Change Over Sub	1.00			3473.00	
Blank Spacing	31.00			3504.00	
Change Over Sub	1.00			3505.00	
Recorder	0.00	6755	Inside	3505.00	
Recorder	0.00	8360	Outside	3505.00	
Perforations	12.00			3517.00	
Bullnose	3.00			3520.00	50.00 Bottom Packers & Anchor

**Total Tool Length: 71.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38734      DST#: 3  
Test Start: 2010.07.09 @ 05:12:57

**Mud and Cushion Information**

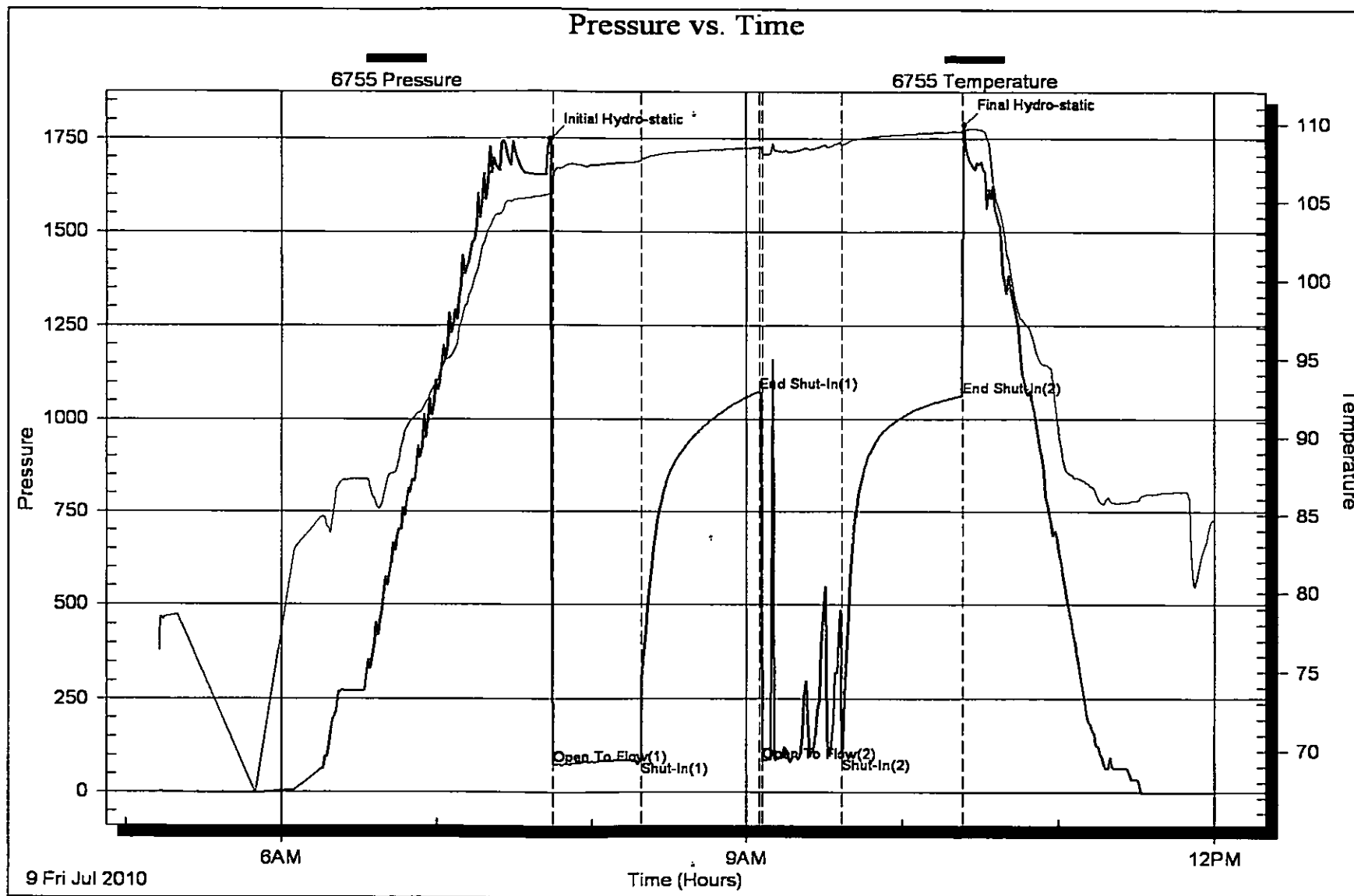
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.60 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: inches			

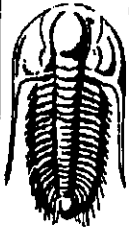
**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
150.00	Drilling Mud	0.984
20.00	Mud With Oil Spots	0.281

Total Length: 170.00 ft      Total Volume: 1.265 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:





**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601  
ATTN: Herb Deines

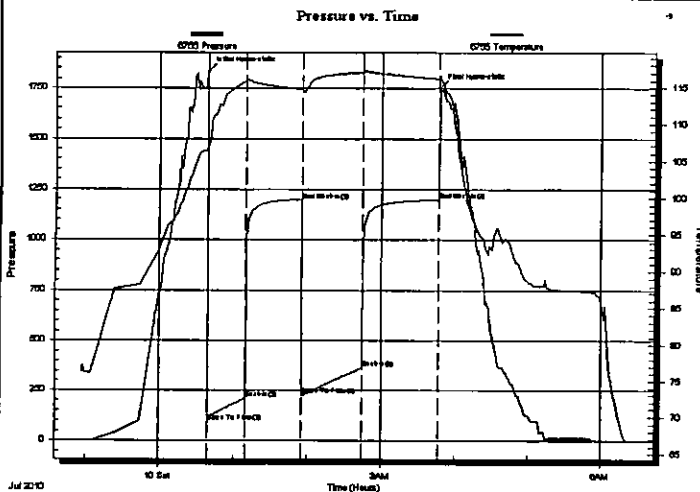
**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38735      DST#: 4  
Test Start: 2010.07.09 @ 22:56:59

### GENERAL INFORMATION:

Formation: Cong. Sand-Arbuckle  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 00:39:14  
Time Test Ended: 06:21:29  
Interval: 3560.00 ft (KB) To 3652.00 ft (KB) (TVD)  
Total Depth: 3652.00 ft (KB) (TVD)  
Hole Diameter: 7.80 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole  
Tester: Jason McLemore  
Unit No: 32  
Reference Elevations: 2027.00 ft (KB)  
2022.00 ft (CF)  
KB to GR/CF: 5.00 ft

Serial #: 6755 Inside  
Press@RunDepth: 363.73 psig @ 3629.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2010.07.09 End Date: 2010.07.10 Last Calib.: 2010.07.10  
Start Time: 22:57:01 End Time: 06:21:29 Time On Btm: 2010.07.10 @ 00:38:59  
Time Off Btm: 2010.07.10 @ 03:46:59

TEST COMMENT: IFF-Good Blow ,BOB in 12 Min.  
ISI-Dead  
FFP-Good Blow ,BOB in 13 Min.  
FSI-Dead



### PRESSURE SUMMARY

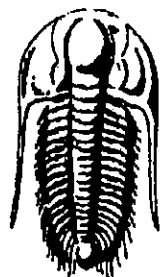
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1834.68	106.95	Initial Hydro-static
1	89.81	106.71	Open To Flow (1)
31	208.23	115.91	Shut-In (1)
76	1191.23	114.75	End Shut-In (1)
77	224.74	114.34	Open To Flow (2)
126	363.73	117.02	Shut-In (2)
188	1198.31	116.23	End Shut-In (2)
188	1754.06	116.55	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
180.00	VSOCMM-5%O-40%W-55%M	1.40
360.00	VSOCMM-5%O-5%W-90%M	5.05
150.00	VSOCM-5%O-95%M	2.10

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Road  
Hays, KS 67601

ATTN: Herb Deines

**10-15s-19w Ellis KS**

**Kraus #1**

Start Date: 2010.07.09 @ 22:56:59

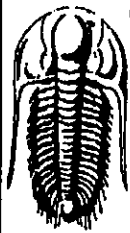
End Date: 2010.07.10 @ 06:21:29

Job Ticket #: 38735                      DST #: 4

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38735      DST#: 4  
Test Start: 2010.07.09 @ 22:56:59

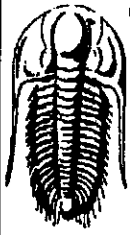
ATTN: Herb Deines

## Tool Information

Drill Pipe:	Length: 3421.00 ft	Diameter: 3.80 inches	Volume: 47.99 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 123.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 48.59 bbl</u>	Tool Chased 4.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3560.00 ft			Final 31000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	92.00 ft			
Tool Length:	113.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3540.00	
Shut In Tool	5.00			3545.00	
Hydraulic tool	5.00			3550.00	
Packer	5.00			3555.00	21.00      Bottom Of Top Packer
Packer	5.00			3560.00	
Stubb	1.00			3561.00	
Perforations	3.00			3564.00	
Change Over Sub	1.00			3565.00	
Blank Spacing	63.00			3628.00	
Change Over Sub	1.00			3629.00	
Recorder	0.00	6755	Inside	3629.00	
Recorder	0.00	8360	Outside	3629.00	
Perforations	20.00			3649.00	
Bullnose	3.00			3652.00	92.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>113.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Road  
Hays, KS 67601

**Kraus #1**  
**10-15s-19w Ellis KS**  
Job Ticket: 38735      DST#: 4  
Test Start: 2010.07.09 @ 22:56:59

ATTN: Herb Deines

## 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: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3500.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
180.00	VSOCMM-5%O-40%W-55%M	1.404
360.00	VSOCMM-5%O-5%W-90%M	5.050
150.00	VSOCM-5%O-95%M	2.104

Total Length: 690.00 ft      Total Volume: 8.558 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

