

ORIGINAL

Form ACO-1

June 2009

Form Must Be Typed

Form must be Signed

All blanks must be Filled

11/1/12

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

**CONFIDENTIAL**

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 # 33350  
Name: Southwind Drilling, Inc.  
Wellsite Geologist: Herb Deines  
Purchaser: Coffeyville Resources

KCC  
NOV 01 2010  
CONFIDENTIAL

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: 3503' Plug Back Total Depth  
 Commingled Permit #:  
 Dual Completion Permit #:  
 SWD Permit #:  
 ENHR Permit #:  
 GSW Permit #:

09/16/2010 09/23/2010 10/14/2010  
Spud Date or Recompletion Date Date Reached TD Completion Date or Recompletion Date

API No. 15 - 15-051-26024-00-00  
Spot Description:  
NE SE SW SE Sec. 3 Twp. 15 S. R. 19  East  West  
583 Feet from  North /  South Line of Section  
1,490 Feet from  East /  West Line of Section  
Footages Calculated from Nearest Outside Section Corner:  
 NE  NW  SE  SW  
County: Ellis  
Lease Name: Mike Well #: 1  
Field Name: wildcat  
Producing Formation: Kansas City  
Elevation: Ground: 2049 Kelly Bushing: 2059  
Total Depth: 3749 Plug Back Total Depth: 3503  
Amount of Surface Pipe Set and Cemented at: 221 Feet  
Multiple Stage Cementing Collar Used?  Yes  No  
If yes, show depth set: 1270 Feet  
If Alternate II completion, cement circulated from: 1270  
feet depth to: surface w/ 200 sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: 21,000 ppm Fluid volume: 1,000 bbls  
Dewatering method used: evaporation  
Location of fluid disposal if hauled offsite:  
Operator Name:  
Lease Name: License #:  
Quarter Sec. Twp. S. R.  East  West  
County: Permit #:

**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: Tom Denning, President Date: November 1, 2010

RECEIVED  
KCC Office Use ONKANSAS CORPORATION COMMISSION  
 Letter of Confidentiality Received Date: 11/1/10 - 11/1/12 NOV 03 2010  
 Confidential Release Date: CONSERVATION DIVISION WICHITA, KS  
 Wireline Log Received  
 Geologist Report Received  
 UIC Distribution  
ALT  I  II  III Approved by: [Signature] Date: 11/1/10

Operator Name: TDI, Inc. Lease Name: Mike Well #: 1  
 Sec. 3 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  Yes  No  
 (Attach Additional Sheets)

Samples Sent to Geological Survey  Yes  No

Cores Taken  Yes  No

Electric Log Run  Yes  No

Electric Log Submitted Electronically  Yes  No  
 (If no, Submit Copy)

List All E. Logs Run:  
 Dual Compensated Porosity  
 Dual Induction  
 Microresistivity

Log Formation (Top), Depth and Datum  Sample

Name	Top	Datum
Anhydrite	1279'	+780'
Topeka	3024'	-979'
Heebner	3302'	-1243'
Lansing/KC	3349'	-1290'
Base KC	3589'	-1545'
Arbuckle	3676'	-1621'

**CASING RECORD**  New  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#	221'	common	150 sxs	3% cc 2% gel
production	7 7/8"	5 1/2"	14#	3738'	EA2	150 sxs	

**ADDITIONAL CEMENTING / SQUEEZE RECORD**

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input checked="" type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone	1270' to surface	SMD	200 sxs	DV tool set @ 1270. Cement 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	3507'-10' Bridge Plug set @ 3503'	none	
4 spf	3484'-87'	250 gals 15% MA & 1000 gals 15% NE	
4 spf	3418'-20'	250 gals 15% MA & 1000 gals 15% NE	

**RECEIVED**  
 KANSAS CORPORATION COMMISSION

TUBING RECORD: Size: 2 7/8" Set At: 3497' Packer At: \_\_\_\_\_ Liner Run:  Yes  No

NOV 03 2010

Date of First, Resumed Production, SWD or ENHR. 10/28/2010 Producing Method:  Flowing  Pumping  Gas Lift  Other (Explain) \_\_\_\_\_

CONSERVATION DIVISION  
 WICHITA, KS

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	65		5		40

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL:
<input checked="" type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease (If vented, Submit ACO-18.)	<input type="checkbox"/> Open Hole <input checked="" type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled (Submit ACO-5) (Submit ACO-4) <input type="checkbox"/> Other (Specify) _____	<u>3484'-87' &amp; 3418'-20' (KC)</u>



JOB LOG

SWIFT Services, Inc.

DATE 9-23-10

CUSTOMER **TDI** WELL NO. #1 LEASE **Mike** JOB TYPE **2-stage** TICKET NO. **18112**

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1000							on loc w/ FE RTD 3750' LTD 3749' 5 1/2" x 14# x 3752' x 42'
								cent. 1, 3, 5, 7, 9, 11, 13, 57, 73 Bask 2, 12, 58, 74 D.V. 58 @ 1285
	1140							start FE
	1335							Break Circ
	1410	4.5	0			250		start ProfFlash 500 gal / Mud Wash 20 bbl KCL Flush
	1417	5.5	32/0			300		Start Cement 150 sks EA-2
	1422		36					End Cement Wash P&L Drop LD Plug
	1425	6	0			100		Start Displacement
	1435	5	64			150		Catch Cement / add KCL last 20 bbl
	1440		90			200 400 1400		Land Plug Release Pressure Float Held
	1443							Drop Opening Plug
	1445	2.5	7 1/2					Plug RH & MH 25/15' sks SMD
	1455					1000		Open DV
	1456	6	0			100		Start Cement
	1517		100					End Cement Drop Closing Plug
	1520	5	0			100		start Displacement
	1524	4	26			500		Circ Cement
	1525		31			600 1500		Land Plug Close DV Release Pressure @ D.V. Closed

KCC  
NOV 01 2010  
CONFIDENTIAL

RECEIVED  
KANSAS CORPORATION COMMISSION

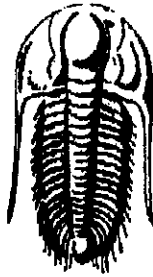
NOV 03 2010

CONSERVATION DIVISION  
WICHITA, KS

Circ 25 sks to pit

Thank you

Nick, Josh F. & Rob



**TRILOBITE  
TESTING, INC.**

**KCC  
NOV 01 2010  
CONFIDENTIAL**

**DRILL STEM TEST REPORT**

Prepared For: **TDI Inc.**  
1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**3-15-19 Ellis KS**

**Mike #1**

Start Date: 2010.09.19 @ 22:43:05  
End Date: 2010.09.20 @ 03:42:59  
Job Ticket #: 040391      DST #: 1

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

**RECEIVED  
KANSAS CORPORATION COMMISSION**

**NOV 03 2010**

**CONSERVATION DIVISION  
WICHITA, KS**

TDI Inc.

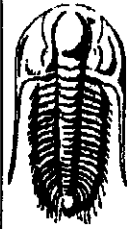
Mike #1

3-15-19 Ellis KS

DST # 1

Topeka

2010.09.19



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040391      **DST#: 1**  
Test Start: 2010.09.19 @ 22:43:05

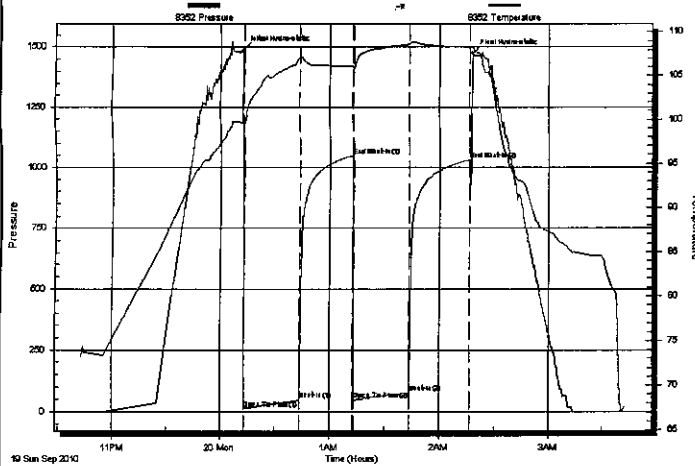
## GENERAL INFORMATION:

Formation: **Topeka**  
 Deviated: **No Whipstock**      ft (KB)  
 Time Tool Opened: 00:13:00  
 Time Test Ended: 03:42:59  
 Interval: **3176.00 ft (KB) To 3185.00 ft (KB) (TVD)**  
 Total Depth: **3185.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Fair**  
 Test Type: **Conventional Bottom Hole**  
 Tester: **Andy Carreira**  
 Unit No: **31**  
 Reference Elevations: **2059.00 ft (KB)**  
**2049.00 ft (CF)**  
**KB to GR/CF: 10.00 ft**

**Serial #: 8352**      **Outside**  
 Press@RunDepth: **76.83 psig @ 3177.00 ft (KB)**      Capacity: **8000.00 psig**  
 Start Date: **2010.09.19**      End Date: **2010.09.20**      Last Calib.: **2010.09.20**  
 Start Time: **22:43:05**      End Time: **03:42:59**      Time On Btm: **2010.09.20 @ 00:12:10**  
 Time Off Btm: **2010.09.20 @ 02:17:40**

**TEST COMMENT:** IF: 8 inch blow in 30 min.  
 IS: No Return  
 FF: 7 inch blow in 30 min.  
 FS: No Return

Pressure vs. Time



## PRESSURE SUMMARY

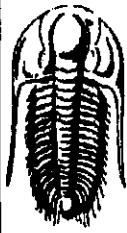
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1488.46	99.69	Initial Hydro-static
1	13.51	98.81	Open To Flow (1)
32	46.54	106.99	Shut-In(1)
61	1049.66	106.13	End Shut-In(1)
62	46.22	105.63	Open To Flow (2)
92	76.83	108.62	Shut-In(2)
125	1031.99	108.23	End Shut-In(2)
126	1475.83	108.25	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
165.00	W w / slight oil specks	2.31

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040391      **DST#: 1**  
Test Start: 2010.09.19 @ 22:43:05

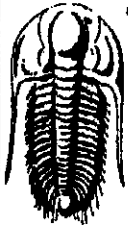
**Tool Information**

Drill Pipe:	Length: 3187.00 ft	Diameter: 3.80 inches	Volume: 44.71 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 35000.00 lb
			<u>Total Volume: 44.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3176.00 ft			Final 31000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	29.00 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			3157.00	
Shut In Tool	5.00			3162.00	
Hydraulic tool	5.00			3167.00	
Packer	5.00			3172.00	20.00      Bottom Of Top Packer
Packer	4.00			3176.00	
Stubb	1.00			3177.00	
Recorder	0.00	8017	Inside	3177.00	
Recorder	0.00	8352	Outside	3177.00	
Perforations	5.00			3182.00	
Bullnose	3.00			3185.00	9.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>29.00</b>				



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040391      **DST#: 1**  
Test Start: 2010.09.19 @ 22:43:05

**Mud and Cushion Information**

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: inches			

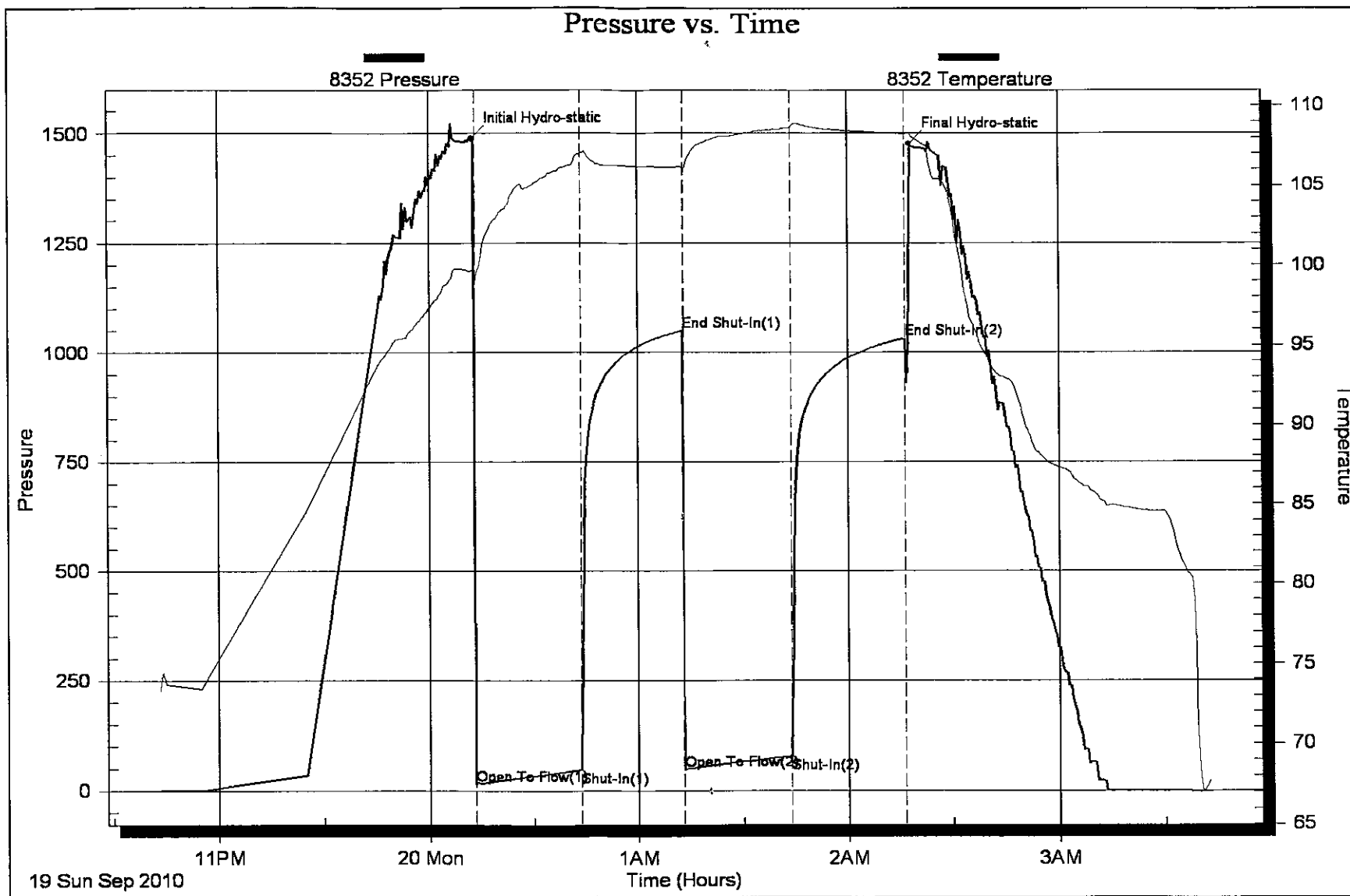
**Recovery Information**

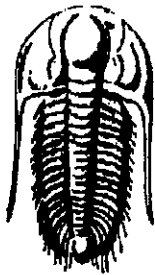
Recovery Table

Length ft	Description	Volume bbl
165.00	Ww/ slight oil specks	2.315

Total Length: 165.00 ft      Total Volume: 2.315 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:







**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**3-15-19 Ellis KS**

**Mike #1**

Start Date: 2010.09.20 @ 19:28:05

End Date: 2010.09.21 @ 00:55:20

Job Ticket #: 040392          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 Rd  
Hays KS 67601

ATTN: Herb Deines

**Mike #1**

**3-15-19 Ellis KS**

Job Ticket: 040392

**DST#: 2**

Test Start: 2010.09.20 @ 19:28:05

### GENERAL INFORMATION:

Formation: **LKC-"D,E,F"**

Deviated: **No Whipstock:** ft (KB)

Time Tool Opened: 21:13:30

Time Test Ended: 00:55:20

Interval: **3398.00 ft (KB) To 3430.00 ft (KB) (TVD)**

Total Depth: **3430.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

Test Type: **Conventional Bottom Hole**

Tester: **Andy Carreira**

Unit No: **31**

Reference Elevations: **2059.00 ft (KB)**

**2049.00 ft (CF)**

KB to GR/CF: **10.00 ft**

**Serial #: 8352**

**Outside**

Press@RunDepth: **46.69 psig @ 3399.00 ft (KB)**

Start Date: **2010.09.20** End Date: **2010.09.21**

Start Time: **19:28:05** End Time: **00:55:20**

Capacity: **8000.00 psig**

Last Calib.: **2010.09.21**

Time On Btm: **2010.09.20 @ 21:12:10**

Time Off Btm: **2010.09.20 @ 23:15:40**

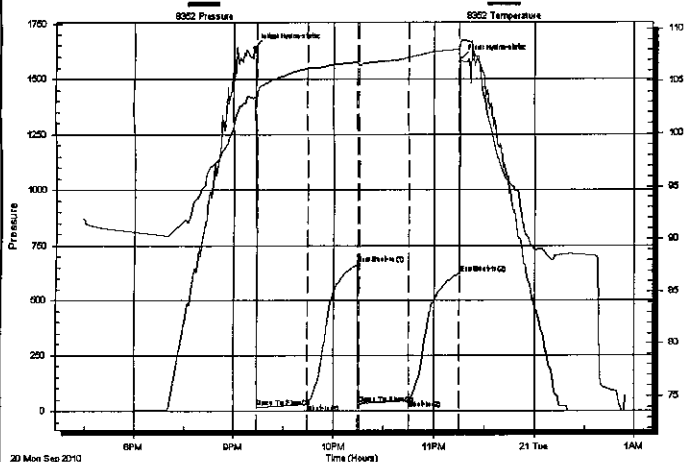
TEST COMMENT: **IF: BOB, 4 min.**

**IS: No Return**

**FF: BOB, 1 min.**

**FS: No Return**

Pressure vs. Time



### PRESSURE SUMMARY

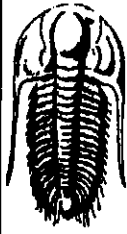
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1642.80	103.48	Initial Hydro-static
2	16.72	102.71	Open To Flow (1)
33	30.93	106.28	Shut-In(1)
63	663.91	106.86	End Shut-In(1)
64	31.31	106.52	Open To Flow (2)
93	46.69	107.30	Shut-In(2)
124	623.27	108.04	End Shut-In(2)
124	1592.05	108.41	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
90.00	HOCGM	1.26
0.00	560ft=GIP	0.00

### 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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040392      **DST#: 2**  
Test Start: 2010.09.20 @ 19:28:05

ATTN: Herb Deines

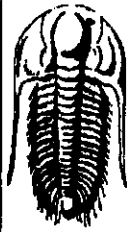
**Tool Information**

Drill Pipe:	Length: 3408.00 ft	Diameter: 3.80 inches	Volume: 47.81 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 34000.00 lb
			<u>Total Volume: 47.81 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3398.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	52.00 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			3379.00	
Shut In Tool	5.00			3384.00	
Hydraulic tool	5.00			3389.00	
Packer	5.00			3394.00	20.00      Bottom Of Top Packer
Packer	4.00			3398.00	
Stubb	1.00			3399.00	
Recorder	0.00	8017	Inside	3399.00	
Recorder	0.00	8352	Outside	3399.00	
Perforations	28.00			3427.00	
Bullnose	3.00			3430.00	32.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>52.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI Inc.  
1310 Bison Rd  
Hays KS 67601

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040392      **DST#: 2**  
Test Start: 2010.09.20 @ 19:28:05

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: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.99 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: inches			

## Recovery Information

Recovery Table

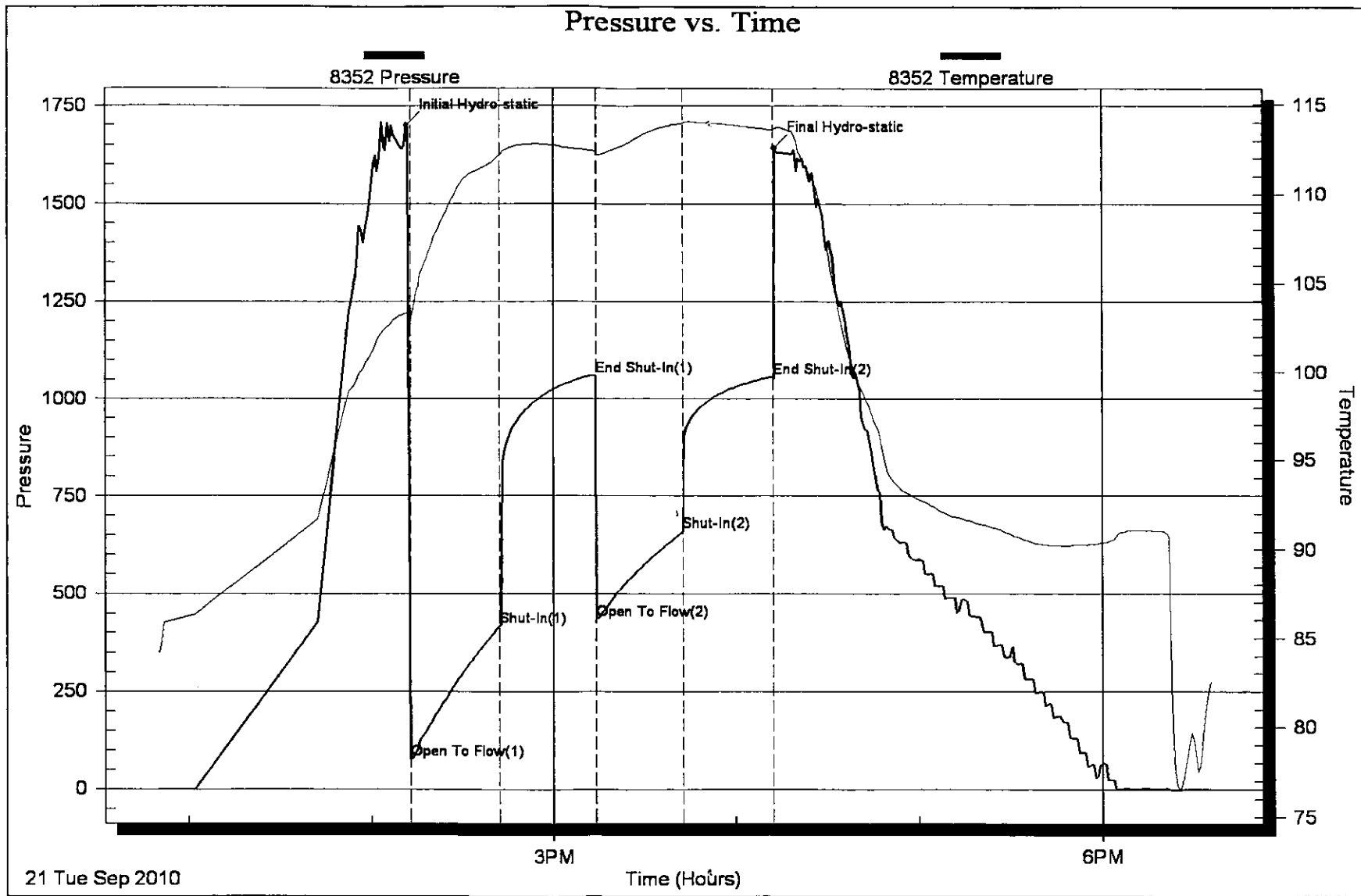
Length ft	Description	Volume bbl
90.00	HOCGM	1.262
0.00	560ft=GP	0.000

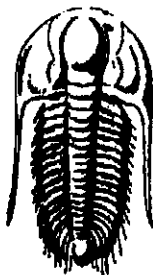
Total Length: 90.00 ft      Total Volume: 1.262 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:





**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**3-15-19 Ellis KS**

**Mike #1**

Start Date: 2010.09.21 @ 12:50:05

End Date: 2010.09.21 @ 18:35:09

Job Ticket #: 040393      DST #: 3

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

TDI Inc.

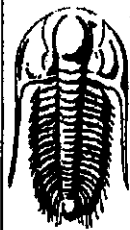
Mike #1

3-15-19 Ellis KS

DST # 3

LKC-"H,I,J"

2010.09.21



# TRILOBITE TESTING, INC

## DRILL STEM TEST REPORT

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

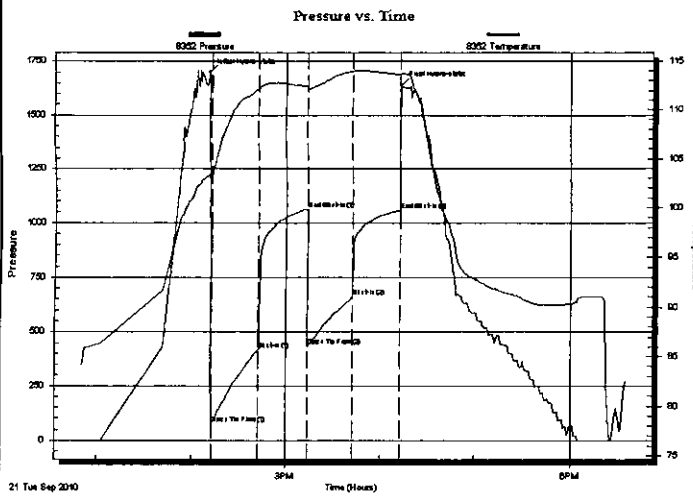
Mike #1  
3-15-19 Ellis KS  
Job Ticket: 040393      DST#: 3  
Test Start: 2010.09.21 @ 12:50:05

### GENERAL INFORMATION:

Formation: LKC-"H,I,J"  
Deviated: No Whipstock:                      ft (KB)  
Test Type: Conventional Bottom Hole  
Time Tool Opened: 14:12:40                      Tester: Andy Carreira  
Time Test Ended: 18:35:09                      Unit No: 31  
Interval: 3460.00 ft (KB) To 3550.00 ft (KB) (TVD)                      Reference Elevations: 2059.00 ft (KB)  
Total Depth: 3550.00 ft (KB) (TVD)                      2049.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair                      KB to GR/CF: 10.00 ft

Serial #: 8352      Outside  
Press@RunDepth: 660.69 psig @ 3461.00 ft (KB)                      Capacity: 8000.00 psig  
Start Date: 2010.09.21                      End Date: 2010.09.21                      Last Calib.: 2010.09.21  
Start Time: 12:50:05                      End Time: 18:35:10                      Time On Btm: 2010.09.21 @ 14:11:20  
Time Off Btm: 2010.09.21 @ 16:12:50

TEST COMMENT: IF: BOB, 3 min.  
IS: No Return  
FF: BOB, 4 min.  
FS: No Return



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1699.92	103.31	Initial Hydro-static
2	77.17	102.91	Open To Flow (1)
31	416.78	112.17	Shut-In(1)
63	1060.51	112.37	End Shut-In(1)
63	435.27	112.14	Open To Flow (2)
92	660.69	113.94	Shut-In(2)
121	1057.58	113.59	End Shut-In(2)
122	1642.77	113.68	Final Hydro-static

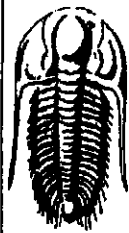
### Recovery

Length (ft)	Description	Volume (bbl)
1048.00	GOCMW	14.70

### 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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040393      **DST#: 3**  
Test Start: 2010.09.21 @ 12:50:05

ATTN: Herb Deines

**Tool Information**

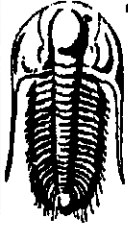
Drill Pipe:	Length: 3470.00 ft	Diameter: 3.80 inches	Volume: 48.67 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 34000.00 lb
			<u>Total Volume: 48.67 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 28000.00 lb
Depth to Top Packer:	3460.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.00 ft			
Tool Length:	110.00 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			3441.00	
Shut In Tool	5.00			3446.00	
Hydraulic tool	5.00			3451.00	
Packer	5.00			3456.00	20.00 Bottom Of Top Packer
Packer	4.00			3460.00	
Stubb	1.00			3461.00	
Recorder	0.00	8017	Inside	3461.00	
Recorder	0.00	8352	Outside	3461.00	
Perforations	3.00			3464.00	
Change Over Sub	1.00			3465.00	
Drill Pipe	61.00			3526.00	
Change Over Sub	1.00			3527.00	
Perforations	20.00			3547.00	
Bullnose	3.00			3550.00	90.00 Bottom Packers & Anchor

**Total Tool Length: 110.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040393      **DST#: 3**  
Test Start: 2010.09.21 @ 12:50:05

**Mud and Cushion Information**

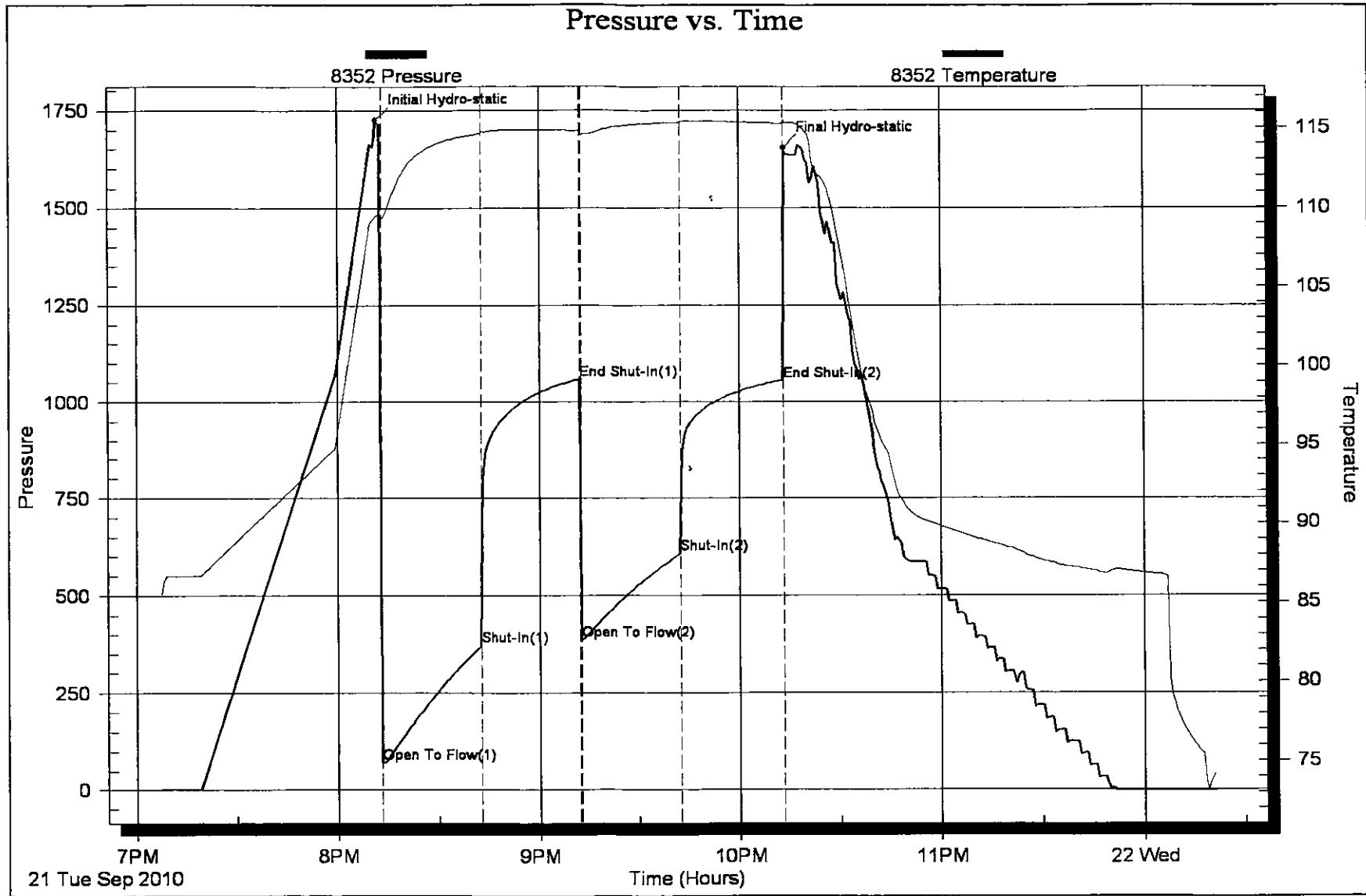
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	90000 ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5700.00 ppm			
Filter Cake: inches			

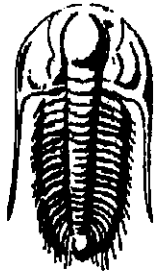
**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
1048.00	GOCMW	14.701

Total Length: 1048.00 ft      Total Volume: 14.701 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **TDI Inc.**

1310 Bison Rd  
Hays KS 67601

ATTN: Herb Deines

**3-15-19 Ellis KS**

**Mike #1**

Start Date: 2010.09.21 @ 19:07:05

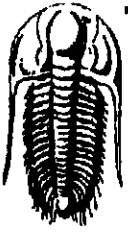
End Date: 2010.09.22 @ 00:21:09

Job Ticket #: 040394      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**

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

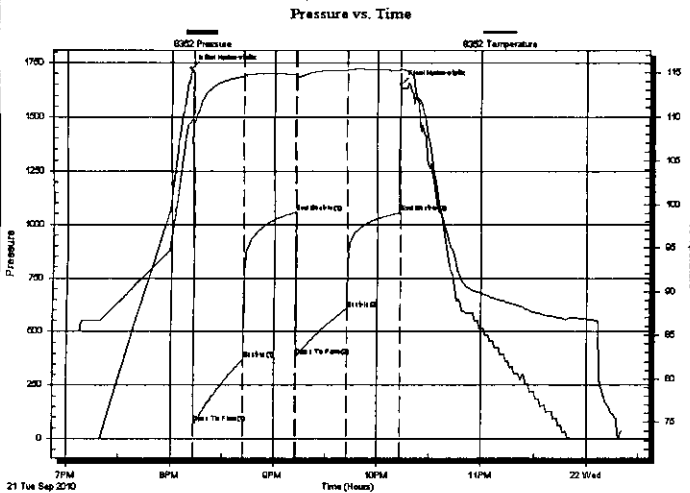
**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040394      **DST#: 4**  
Test Start: 2010.09.21 @ 19:07:05

**GENERAL INFORMATION:**

Formation: **LKC: "I&J"**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole  
Time Tool Opened: 20:12:50      Tester: Andy Carreira  
Time Test Ended: 00:21:09      Unit No: 31  
Interval: **3490.00 ft (KB) To 3550.00 ft (KB) (TVD)**      Reference Elevations: 2059.00 ft (KB)  
Total Depth: 3550.00 ft (KB) (TVD)      2049.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair      KB to GR/CF: 10.00 ft

**Serial #: 8352      Outside**  
Press@RunDepth: 607.38 psig @ 3491.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2010.09.21      End Date: 2010.09.22      Last Calib.: 2010.09.21  
Start Time: 19:07:05      End Time: 00:21:10      Time On Btm: 2010.09.21 @ 20:11:10  
Time Off Btm: 2010.09.21 @ 22:13:10

**TEST COMMENT:** IF: BOB, 1.5 min.  
IS: Surface blow back  
FF: BOB, 3 min.  
FS: Surface blow back



**PRESSURE SUMMARY**

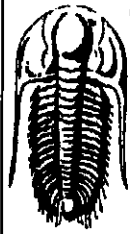
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1723.77	109.42	Initial Hydro-static
2	71.44	109.30	Open To Flow (1)
32	372.24	114.62	Shut-In(1)
62	1058.88	114.81	End Shut-In(1)
62	386.77	114.47	Open To Flow (2)
92	607.38	115.29	Shut-In(2)
122	1055.49	115.23	End Shut-In(2)
123	1652.50	115.47	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
1300.00	SW	18.24

**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

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040394      **DST#: 4**  
Test Start: 2010.09.21 @ 19:07:05

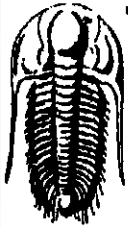
**Tool Information**

Drill Pipe:	Length: 3502.00 ft	Diameter: 3.80 inches	Volume: 49.12 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 35000.00 lb
			<u>Total Volume: 49.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3490.00 ft			Final 36000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	60.00 ft			
Tool Length:	80.00 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			3471.00	
Shut In Tool	5.00			3476.00	
Hydraulic tool	5.00			3481.00	
Packer	5.00			3486.00	20.00      Bottom Of Top Packer
Packer	4.00			3490.00	
Stubb	1.00			3491.00	
Recorder	0.00	8017	Inside	3491.00	
Recorder	0.00	8352	Outside	3491.00	
Perforations	4.00			3495.00	
Change Over Sub	1.00			3496.00	
Drill Pipe	30.00			3526.00	
Change Over Sub	1.00			3527.00	
Perforations	20.00			3547.00	
Bullnose	3.00			3550.00	60.00      Bottom Packers & Anchor

**Total Tool Length: 80.00**



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI Inc.  
1310 Bison Rd  
Hays KS 67601

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040394      **DST#: 4**  
Test Start: 2010.09.21 @ 19:07:05

ATTN: Herb Deines

**Mud and Cushion Information**

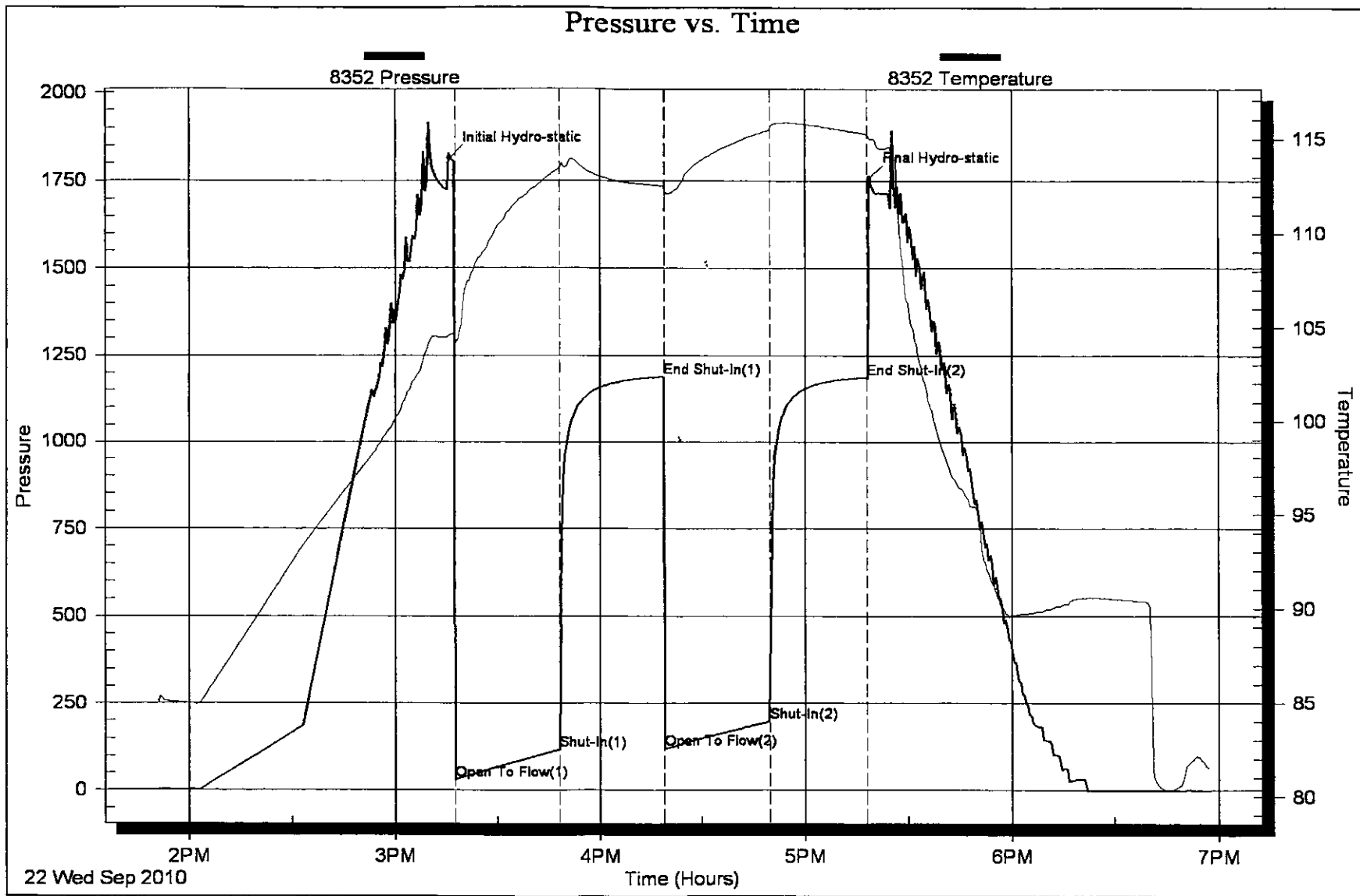
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.79 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: inches			

**Recovery Information**

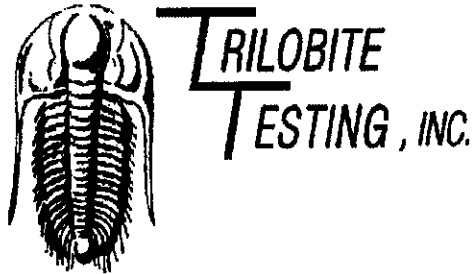
Recovery Table

Length ft	Description	Volume bbl
1300.00	SW	18.236

Total Length: 1300.00 ft      Total Volume: 18.236 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

ATTN: Herb Deines

**3-15-19 Ellis KS**

**Mike #1**

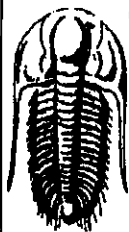
Start Date: 2010.09.22 @ 13:51:05

End Date: 2010.09.22 @ 18:57:29

Job Ticket #: 040395      DST #: 5

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 Rd  
Hays KS 67601

**Mike #1**  
**3-15-19 Ellis KS**  
Job Ticket: 040395      **DST#: 5**  
Test Start: 2010.09.22 @ 13:51:05

ATTN: Herb Deines

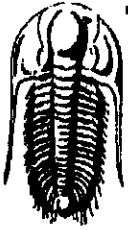
**Tool Information**

Drill Pipe:	Length: 3659.00 ft	Diameter: 3.80 inches	Volume: 51.33 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 32000.00 lb
		Total Volume: 51.33 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 26000.00 lb
Depth to Top Packer:	3646.00 ft			Final 28000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	39.00 ft			
Tool Length:	59.00 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			3627.00	
Shut In Tool	5.00			3632.00	
Hydraulic tool	5.00			3637.00	
Packer	5.00			3642.00	20.00      Bottom Of Top Packer
Packer	4.00			3646.00	
Stubb	1.00			3647.00	
Recorder	0.00	8017	Inside	3647.00	
Recorder	0.00	8352	Outside	3647.00	
Perforations	35.00			3682.00	
Bullnose	3.00			3685.00	39.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>59.00</b>				



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

TDI Inc.

**Mike #1**

1310 Bison Rd  
Hays KS 67601

**3-15-19 Ellis KS**

Job Ticket: 040395

**DST#: 5**

ATTN: Herb Deines

Test Start: 2010.09.22 @ 13:51:05

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

30000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
378.00	MW	5.302
30.00	WM w /slight oil specks	0.421

Total Length: 408.00 ft

Total Volume: 5.723 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

