



KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1054323

Form ACO-1

June 2009

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

Spud Date or
Recompletion Date

Date Reached TD

Completion Date or
Recompletion Date

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

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total 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

☐ Letter of Confidentiality Received

Date: _____

☐ Confidential Release Date: _____

☐ Wireline Log Received

☐ Geologist Report Received

☐ UIC Distribution

ALT ☐ I ☐ II ☐ III Approved by: _____ Date: _____

1054323

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ ☐ East ☐ West County: _____

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 <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey ☐ Yes ☐ No Cores Taken ☐ Yes ☐ No Electric Log Run ☐ Yes ☐ No Electric Log Submitted Electronically ☐ Yes ☐ No <i>(If no, Submit Copy)</i> List All E. Logs Run:	☐ Log Formation (Top), Depth and Datum ☐ Sample Name Top Datum
--	--

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

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
_____ Perforate _____ Protect Casing _____ Plug Back TD _____ Plug Off Zone				

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 <i>(Explain)</i> _____		
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: ☐ Vented ☐ Sold ☐ Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: ☐ Open Hole ☐ Perf. ☐ Dually Comp. <i>(Submit ACO-5)</i> ☐ Commingled <i>(Submit ACO-4)</i> ☐ Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
--	--	---

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/>

Thomas E. Wright, Chairman
Ward Loyd, Commissioner

Corporation Commission

Sam Brownback, Governor

April 21, 2011

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

Re: ACO1
API 15-051-26111-00-00
Engel 1
NE/4 Sec.21-15S-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

CONSULTING GEOLOGIST

HAYS, KS 67601

6.

Surface Casing 8 1/8" x 10 1/2" 1155' to 3500' ss. S.M.D.

Production Casing

Samples 6902'-5710'

Daily Penetration Rate

Date	Depth	Activity	Date	Depth	Activity
------	-------	----------	------	-------	----------

1-17-71		21.24g
1-18-71	20.1'	21.24g 24.1g 20.1g
1-19-71	11.57'	21.24g 20.1g
1-20-71	16.05'	21.24g
1-21-71	20.25'	21.24g
1-22-71	22.22'	21.24g 20.1g
1-23-71	24.10'	21.24g 20.1g 20.1g
1-24-71	26.00'	21.24g 20.1g 20.1g

[illegible]

Bit Record

REMARKS: [illegible] [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]

Der: ca.

Formation

Sample

Log

Datum

*

Formation

Sample

Log

Datum

*

* Structural Position to:

	■		■	
■		■		■
	■		■	
■		■		■
	■		■	



1000



	●	●
●		●
	●	●
●		●
	●	●



SCALE " = 100'

Lithology	Drilling time in minutes 1 2 3 4 5 6 7 8 9	DEPTH	Sample Description	Remarks, drill stem tests, etc.
		2850		Mud System - Gel Chemicals/ mud Co
		60		
		70		Slope Survey 1157' 1°
		80		
		90	1m off wht - BAN - gray FNX/N foss in part	
		2900	sh med gray	
		10	1m BAN - gray FNX/N	
		20	6h gray soft	
		30		
		40	1m sh BAN - gray FNX/N foss in part	
	2898 - 165	50	1m LT - med ban FNX/N foss in part	
		60		
		70	1m BAN - gray FNX/N stiff	
		80	1m TAN - BAN - gray FNX/N foss in part	
		90		

slifoss

3000

lm LTban - LTgray FNX/N
slifoss

10

lm TAN - LTban - LTgray
FNX/N slifoss

20

lm LTban FNX/N - granula
slifoss in part slifoss

30

40

lm LT-med ban FNX/N
slifoss

50

lm LT-med ban FNX/N
slifoss in part

60

lm TAN - LTban FNX/N - granula
slifoss slifoss

70

sh blk Comb

80

lm LTban - LTgray FNX/N

90

lm LT-med ban FNX/N
foss in part

3100

lm LT-med ban FNX/N
slifoss slifoss in part

10

lm TAN FNX/N - granula
sh LT-med gray

20

30

sh blk Comb

40

lm LT-med ban FN-VFX/N
slifoss

50

lm LT-med ban FNX/N
slifoss in part slifoss

60

lm offwhT - ban - gray FN-VFX/N

70

80

lm cam - LTban - LTgray
slifoss slifoss slifoss

90

lm cam - TAN FNX/N
slifoss granula in part
slifoss slifoss

3200

Hebburn Shale
3219-1232

Don't
3239-1252

LHC
3269-1282

10

lm TAN-LT BAN FN-VFX/N
Stiff soft St. Chalky

20

Sh blk Carb
lm BAN FN-VFX/N

30

Sh med. gray. gray

40

lm wht-CAM FNX/N

50

lm wht-CAM FNX/N Chalk in part

60

Sh red. ban. gray

70

lm CAM-LT BAN FN-VFX/N

80

Sh red. ban soft

90

3300

lm CAM-TAN FNX/N
Some granular in chalk NS

10

lm CAM FNX/N GRANULAR
St. Chalk LT BAN NFO No. 51N

20

lm wht-CAM FNX/N Scot. STN
IN VUGS LT BAN CANJONER?

30

Sh black Carb
lm wht-CAM FNX/N

40

lm offwht FD-VFX/N
Fungus Vugs Fresh oil STN
LT BAN

50

lm CAM-TAN FN-VFX/N

60

lm wht-CAM FNX/N GRANULAR
Chalk NS

70

lm CAM-LT BAN FNX/N Chalk in part

80

lm off wht-LT BAN FN-VFX/N
Chalk in part

90

Sh gray soft sticky

3400

lm offwht-LT BAN FN-VFX/N
Some red oil STN NFO No. 51N

10

lm CAM-LT BAN FN-VFX/N
Chalk in part

20

DST #1 3298'-3372'

30-45-15-0

Rec: 55' OSUM-50%w
50% m

ISIP: 360*

FP: 16-51, 34-41

1st open: wk blow died 25'
No blow back

2nd open: wk blow died 11"
Pulled Tool

Slope Survey: 3372' 1°

30

Lm cam - Lt TAN FN-UFX/N
Chalk in part

50

Lm cam - Lt TAN FN-UFX/N
Chalk in part None dead oil str

60

Lm cam - Lt TAN FN-UFX/N
Chalk in part

70

Lm cam - Lt TAN FN-UFX/N
Chalk

80

Lm cam - Lt TAN FN-UFX/N
US Chalk
Needle

90

Sh Red, tan

3500

10

Lm elastic Mix in Red shale

20

Sh Red, tan, soft, sticky

30

Sh Red, tan, gray
Chert orange

40

Sh Var. color

50

Sh white sticky

60

Sh Var. color Chert Var. color

70

Del Ivory-Lt TAN FN-CX/N
Succinic in part Lt TAN Soft-Silky

80

Good laminar x/n Dev.
Scot. sat str Lt TAN

90

Del Ivory-Lt TAN FN-CX/N
Lt TAN

3600

Del Ivory-Lt TAN FN-CX/N
FN-CX/N

10

Del Ivory CX/N

20

Del cam-TAN FN-CX/N
Chalky

30

Del cam-TAN FN-CX/N
Chalky

2

STaddle Test

DST # 2 3410'-3500'

30-30-30-30

Rec: 945' mdy WTR w/ oil

ISIP: 1140*

FSIP: 1141*

FP: 39-274, 268-45

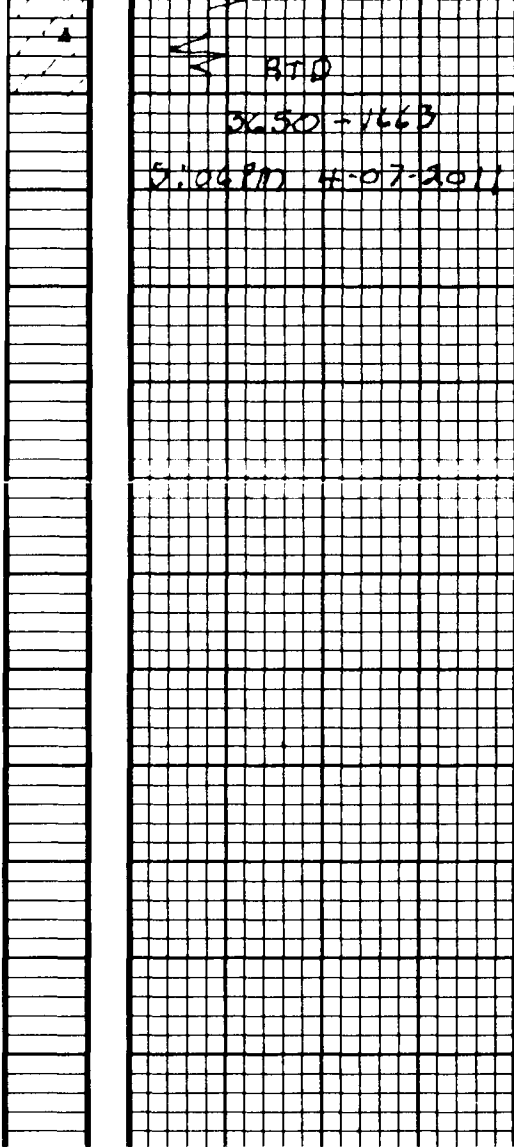
1st Open: Strong BOB 7'

No Blow back

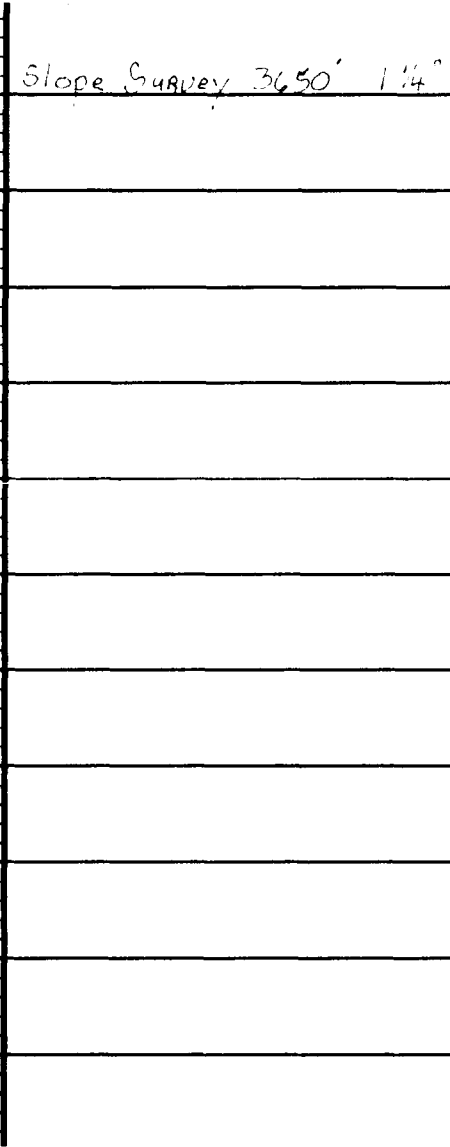
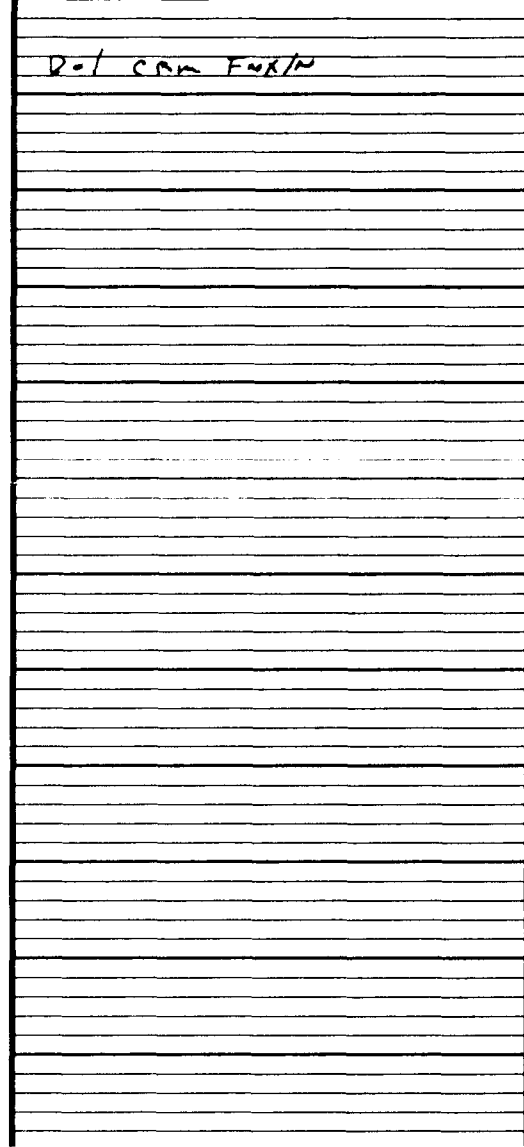
2nd Open: Strong BOB 6'

No blow back

BHT: 107°



50
60
70
80
90
3700



SWIFT Services, Inc.

DATE 04-25-11

PAGE NO
1

CUSTOMER T.O.Z. ZNC

WELL NO.

LEASE
ENGEL

JOB TYPE
JEEP SURFACE

TICKET NO. 19637

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0430							ONLOCATION CMT: 350 S/S 5.00 1/4" FUEL 10'4 @ 1157 8 3/4 24" @ 1155 SJ 215 INSERT 1133
	0445							START CMT Hookup BREAK CIRC 1/16
	0630							2000i HCL SPACER
	0645	6.0	20		✓		240	START CMT 100 S/S @ 11.8 1/4" S/L
			0		✓			100 S/S @ 12.7 1/4" S/L
			48		✓			100 S/S @ 13.5 1/4" S/L
			84		✓			50 S/S @ 14.5 1/4" S/L
			115		✓			END CMT 350 S/S TOTAL
			130		✓			DROP PLUG
	0715	5.5	0		✓		200	START DISP.
			35		✓		300	CIRC CMT TO PIT!
			60		✓		400	75 S/S
			65		✓		400	
			70		✓		500	
	0730		72		✓		500	LAND PLUG
								CLOSE IN HEAD
	0815							JOB COMPLETE THANK YOU! DAVE, JOSH B, LANGE

ALLIED CEMENTING CO., LLC. 038790

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31
RUSSELL, KANSAS 67665

SERVICE POINT:

G-ear + Bend 45

DATE 4-8-11	SEC. 21	TWP. 15S	RANGE 18W	CALLED OUT	ON LOCATION	JOB START 100 PM	JOB FINISH 200 PM
LEASE Engel	WELL # 1	LOCATION Hays 45 South 8miles			COUNTY Ellis	STATE KS	
OLD OR NEW (Circle one)			West into				

CONTRACTOR Southwind Rial

OWNER TDI

TYPE OF JOB Rotary Plug

HOLE SIZE 7 7/8 T.D. 3650

CASING SIZE DEPTH

TUBING SIZE DEPTH

DRILL PIPE 4 1/2 DEPTH 3545

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG.

PERFS.

DISPLACEMENT

EQUIPMENT

PUMP TRUCK CEMENTER Wayne

366 HELPER Gies

BULK TRUCK DRIVER Mark

BULK TRUCK DRIVER

REMARKS:

1st Plug 3545 mix 20SX

2nd Plug 1200 mix 50SX

3rd Plug 480 mix 90SX

4th Plug 40 mix 10SX

Rot Mix 800X moube 15 SX

CHARGE TO: TDI

STREET

CITY STATE ZIP

To Allied Cementing Co., 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 Torri Ronco

SIGNATURE Tori Ronco

CEMENT

AMOUNT ORDERED 215 SX 60/40 4% Gcl
4 flo seal

COMMON 129 @ 16.25 2096.25

POZMIX 86 @ 8.50 731.00

GEL 7 @ 21.25 148.75

CHLORIDE @

ASC @

4 flo seal 54 @ 2.70 145.80

@

@

@

@

@

@

@

HANDLING 227 @ 2.25 504.00

MILEAGE 224 X 3.7 X .11 837.76

TOTAL 4463.56

SERVICE

DEPTH OF JOB 3545

PUMP TRUCK CHARGE 1250.00

EXTRA FOOTAGE @

MILEAGE 68 @ 7.00 476.00

MANIFOLD @

light truck mileage 68 @ 4.00 272.00

@

TOTAL 1998.00

PLUG & FLOAT EQUIPMENT

@

One hole plug @ 40.00 40.00

@

@

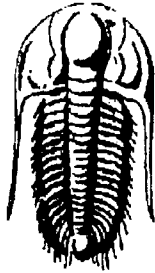
@

TOTAL 40.00

SALES TAX (If Any)

TOTAL CHARGES

DISCOUNT IF PAID IN 30 DAYS



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Prepared For: **TDI inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

21-15s-18w Ellis,KS

Engel #1

Start Date: 2011.04.06 @ 17:53:05

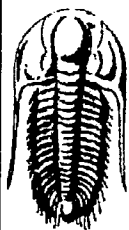
End Date: 2011.04.06 @ 22:45:39

Job Ticket #: 041803 DST #: 1

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

Engel #1

21-15s-18w Ellis,KS

Job Ticket: 041803

DST#: 1

Test Start: 2011.04.06 @ 17:53:05

GENERAL INFORMATION:

Formation: LKC"C-G"

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:54:30

Time Test Ended: 22:45:39

Test Type: Conventional Bottom Hole

Tester: Andy Carreira

Unit No: 39

Interval: 3298.00 ft (KB) To 3372.00 ft (KB) (TVD)

Total Depth: 3372.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1987.00 ft (KB)

1982.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8352

Outside

Press@RunDepth: 31.47 psig @ 3304.00 ft (KB)

Start Date: 2011.04.06

End Date:

2011.04.06

Start Time: 17:53:05

End Time:

22:45:40

Capacity: 8000.00 psig

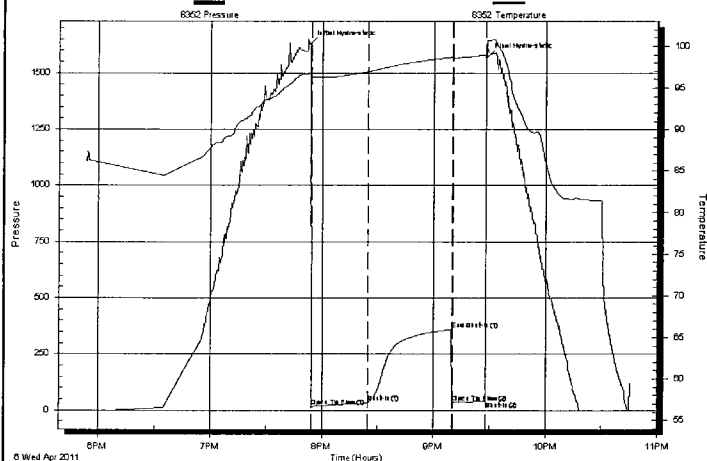
Last Calib.: 2011.04.06

Time On Btm: 2011.04.06 @ 19:53:20

Time Off Btm: 2011.04.06 @ 21:28:20

TEST COMMENT: IF: Weak, died in 25 min.
IS: No Return
FF: Weak blow, died in 11 min.
Pulled Tool

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1627.68	96.69	Initial Hydro-static
2	16.57	96.08	Open To Flow (1)
32	31.47	96.96	Shut-In(1)
77	360.05	98.71	End Shut-In(1)
77	34.68	98.59	Open To Flow (2)
95	41.06	99.01	Shut-In(2)
95	1570.44	99.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
55.00	OSWM w =50% m=50%	0.77

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

Engel #1

21-15s-18w Ellis, KS

Job Ticket: 041803

DST#: 1

Test Start: 2011.04.06 @ 17:53:05

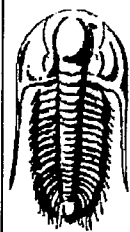
Tool Information

Drill Pipe:	Length: 3296.00 ft	Diameter: 3.80 inches	Volume: 46.23 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
		Total Volume: 46.23 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 35000.00 lb
Depth to Top Packer:	3298.00 ft			Final 35000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	94.00 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			3279.00	
Shut In Tool	5.00			3284.00	
Hydraulic tool	5.00			3289.00	
Packer	5.00			3294.00	20.00 Bottom Of Top Packer
Packer	4.00			3298.00	
Stubb	1.00			3299.00	
Perforations	4.00			3303.00	
Change Over Sub	1.00			3304.00	
Recorder	0.00	8017	Inside	3304.00	
Recorder	0.00	8352	Outside	3304.00	
Drill Pipe	32.00			3336.00	
Change Over Sub	1.00			3337.00	
Perforations	32.00			3369.00	
Bullnose	3.00			3372.00	74.00 Bottom Packers & Anchor

Total Tool Length: 94.00



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc.

Engel #1

1310 Bison Rd
Hays KS 67601

21-15s-18w Ellis, KS

Job Ticket: 041803

DST#: 1

ATTN: Herb Deines

Test Start: 2011.04.06 @ 17:53:05

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: 51.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2100.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
55.00	OSWM w=50% m=50%	0.772

Total Length: 55.00 ft

Total Volume: 0.772 bbl

Num Fluid Samples: 0

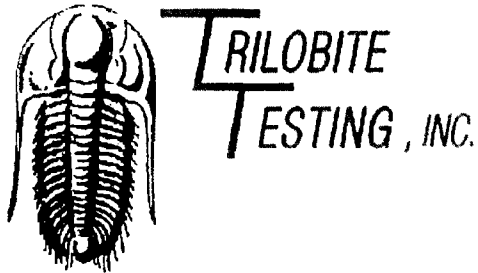
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



DRILL STEM TEST REPORT

Prepared For: **TDI inc.**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

21-15s-18w Ellis,KS

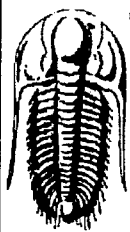
Engel #1

Start Date: 2011.04.08 @ 01:35:05

End Date: 2011.04.08 @ 06:44:09

Job Ticket #: 041804 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

Engel #1

21-15s-18w Ellis, KS

Job Ticket: 041804

DST#: 2

Test Start: 2011.04.08 @ 01:35:05

GENERAL INFORMATION:

Formation: Arbuckle

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:51:00

Time Test Ended: 06:44:09

Test Type: Conventional Straddle

Tester: Andy Carreira

Unit No: 39

Interval: 3470.00 ft (KB) To 3580.00 ft (KB) (TVD)

Total Depth: 3654.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1987.00 ft (KB)

1982.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8352

Outside

Press@RunDepth: 451.18 psig @ 3475.00 ft (KB)

Start Date: 2011.04.08

End Date:

2011.04.08

Capacity: 8000.00 psig

Last Calib.: 2011.04.08

Start Time: 01:35:05

End Time:

06:44:10

Time On Btm: 2011.04.08 @ 02:49:50

Time Off Btm: 2011.04.08 @ 04:51:20

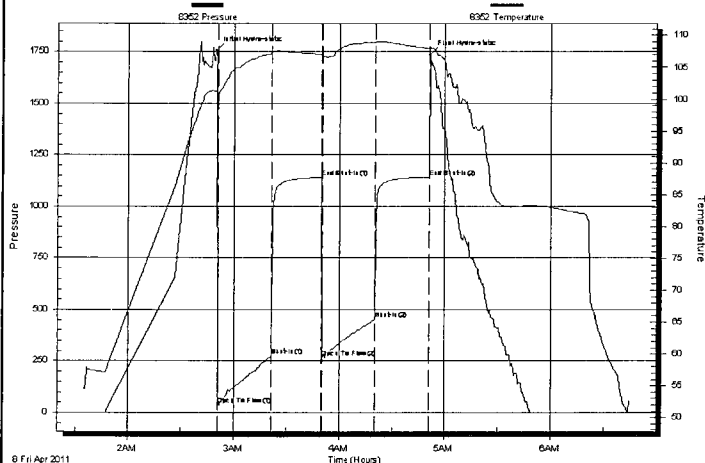
TEST COMMENT: IF: BOB, 7 min.

IS: No Return

FF: BOB, 6 min.

FS: No Return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1756.54	101.32	Initial Hydro-static
2	39.63	100.96	Open To Flow (1)
32	274.54	107.18	Shut-In(1)
60	1140.02	107.03	End Shut-In(1)
61	268.83	106.48	Open To Flow (2)
91	451.18	108.84	Shut-In(2)
122	1141.13	107.92	End Shut-In(2)
122	1736.26	108.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
945.00	MW	13.26

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (MMcf/d)
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TDI inc.

ATTN: Herb Deines

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21-15s-18w Ellis,KS

Job Ticket: 041804

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Unit No: 39

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Total Depth: 3654.00 ft (KB) (TVD)

Hole Diameter: 7.88 inchesHole Condition: Fair

Reference Elevations: 1987.00 ft (KB)

1982.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8650 Below (Straddle)

Press@RunDepth: psig @ 3586.00 ft (KB)

Start Date: 2011.04.08

End Date:

2011.04.08

Capacity: 8000.00 psig

Last Calib.:

2011.04.08

Start Time: 01:35:05

End Time:

06:42:29

Time On Btm:

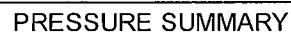
Time Off Btm:

TEST COMMENT: IF: BOB, 7 min.

IS: No Return

FF: BOB, 6 min.

FS: No Return



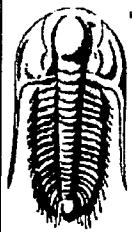
Recovery

Gas Rates

Trilobite Testing, Inc

Ref. No: 041804

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TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc.

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Engel #1

21-15s-18w Ellis, KS

Job Ticket: 041804

DST#: 2

Test Start: 2011.04.08 @ 01:35:05

Tool Information

Drill Pipe:	Length: 3457.00 ft	Diameter: 3.80 inches	Volume: 48.49 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 26000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 56000.00 lb
			Total Volume: 48.49 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3470.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	3580.00 ft			
Interval between Packers:	110.00 ft			
Tool Length:	208.00 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			3451.00	
Shut In Tool	5.00			3456.00	
Hydraulic tool	5.00			3461.00	
Packer	5.00			3466.00	20.00 Bottom Of Top Packer
Packer	4.00			3470.00	
Stubb	1.00			3471.00	
Perforations	3.00			3474.00	
Change Over Sub	1.00			3475.00	
Recorder	0.00	8017	Inside	3475.00	
Recorder	0.00	8352	Outside	3475.00	
Drill Pipe	95.00			3570.00	
Change Over Sub	1.00			3571.00	
Perforations	5.00			3576.00	
Blank Off Sub	1.00			3577.00	
Blank Spacing	3.00			3580.00	110.00 Tool Interval
Packer	4.00			3584.00	
Stubb	1.00			3585.00	
Change Over Sub	1.00			3586.00	
Recorder	0.00	8650	Below	3586.00	
Drill Pipe	63.00			3649.00	
Change Over Sub	1.00			3650.00	
Perforations	5.00			3655.00	
Bullnose	3.00			3658.00	78.00 Bottom Packers & Anchor
Total Tool Length:	208.00				



TRILOBITE
TESTING, INC

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc.

Engel #1

1310 Bison Rd
Hays KS 67601

21-15s-18w Ellis, KS

Job Ticket: 041804

DST#: 2

ATTN: Herb Deines

Test Start: 2011.04.08 @ 01:35:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
945.00	MW	13.256

Total Length: 945.00 ft

Total Volume: 13.256 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: