

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas  DH  EOR

OG  GSW

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 EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

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

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to [kcc-well-logs@kcc.ks.gov](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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**OPERATOR**

Company: TDI, INC  
 Address: 1310 BISON ROAD  
 HAYS, KANSAS 67601-9696

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: THOLEN \$ 14  
 Location: S2 NE SE SE, SEC.22-T14S-R16W  
 API: 15-051-26,936-00-00  
 Pool: IN FIELD  
 State: KANSAS

Field: DREILING  
 Country: USA



Scale 1:240 Imperial

Well Name: THOLEN \$ 14  
 Surface Location: S2 NE SE SE, SEC.22-T14S-R16W  
 Bottom Location:  
 API: 15-051-26,936-00-00  
 License Number: 4787  
 Spud Date: 11/20/2018 Time: 9:00 AM  
 Region: ELLIS COUNTY  
 Drilling Completed: 11/25/2018 Time: 3:14 PM  
 Surface Coordinates: 870' FSL & 330' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1890.00ft  
 K.B. Elevation: 1895.00ft  
 Logged Interval: 2500.00ft To: 3510.00ft  
 Total Depth: 3510.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.0780768  
 Latitude: 38.8152717  
 N/S Co-ord: 870' FSL  
 E/W Co-ord: 330' FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 W 35TH  
 HAYS, KS 67601

Phone Nbr: (785) 639-1337  
 Logged By: GEOLOGIST

Name: HERB DEINES

**CONTRACTOR**

Contractor: WHITE KNIGHT DRILLING LLC  
 Rig #: 1  
 Rig Type: MUD ROTARY  
 Spud Date: 11/20/2018  
 TD Date: 11/25/2018

Time: 9:00 AM  
 Time: 3:14 PM

**ELEVATIONS**

K.B. Elevation: 1895.00ft  
K.B. to Ground: 5.00ft

Ground Elevation: 1890.00ft

**NOTES**

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON LOG ANALYSIS AND POSITIVE RESULTS OF DST # 1.

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

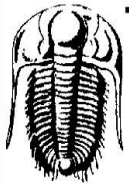
DRILL STEM TESTING BY TRILOBITE TESTING INC: ONE (1) CONVENTIONAL TEST.

<b>THOLEN # 14</b>	<b>THOLEN # 6</b>	<b>FURTHMYER # 1</b>
<b>S2 NE SE SE</b>	<b>SW NW SE SE</b>	<b>SW SW</b>
<b>SEC.22-14S-16W</b>	<b>SEC.22-14-16W</b>	<b>SEC.23-14-16W</b>
<b>KB 1895'</b>	<b>KB 1867'</b>	<b>KB 1895'</b>

	<b>LOG TOPS</b>		
<b>Anhydrite top</b>	<b>982+913</b>	<b>+ 913</b>	<b>+ 911</b>
<b>Anhydrite base</b>	<b>1020+875</b>	<b>+ 875</b>	<b>+ 873</b>
<b>Topeka</b>	<b>2866 -971</b>	<b>- 973</b>	<b>- 972</b>
<b>Heebner Sh.</b>	<b>3085-1190</b>	<b>-1193</b>	<b>-1190</b>
<b>Toronto</b>	<b>3106-1211</b>	<b>-1213</b>	<b>-1211</b>
<b>LKC</b>	<b>3135-1240</b>	<b>-1243</b>	<b>-1239</b>
<b>BKC</b>	<b>3367-1472</b>	<b>-1466</b>	<b>-1464</b>
<b>Arbuckle</b>	<b>3406-1511</b>	<b>-1495</b>	<b>-1500</b>
<b>RTD</b>	<b>3510-1615</b>	<b>-1590</b>	<b>-1580</b>

**SUMMARY OF DAILY ACTIVITY**

- 11-20-18** Spud 9:00AM, set 8 5/8" surface casing to 223.81' w/ 150 sxs common 2%gel 3%CC, plug down 2:30PM. slope 1/4 degree, drill plug at 10:30PM with PDC bit.
- 11-21-18** 1000', mud up 2619', drill to 2683', TOWB, winterize and shut down for Thanksgiving Holiday
- 11-22-18** 2683' Holiday
- 11-23-18** 2683', TIWB button bit, drilling
- 11-24-18** 3196' drilling, CFS 3360', short trip 15 stands, CFS 3425', DST # 1 3358'-3425' Arbuckle
- 11-25-18** 3425', finish DST # 1 in blizzard conditions, TIWB, RTD 3510' @ 3:14PM, CCH, TOWB, logs
- 11-26-18** 3510'. TIWB. LDDP. run production casing and cement. RD



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

TDI, Inc.  
1310 Bison Rd  
Hays KS 67601+9696  
ATTN: Herb Deines

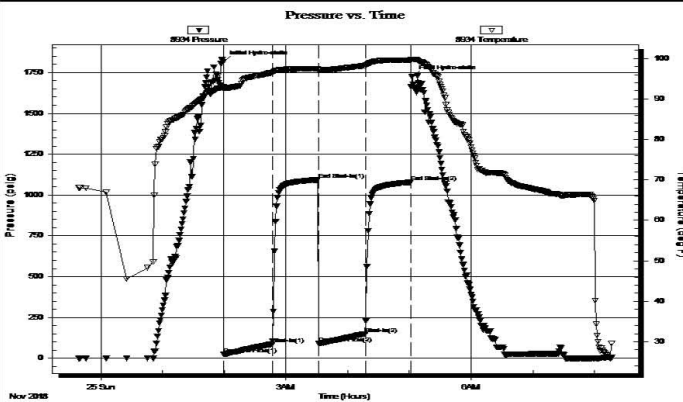
**22-14S-16W Ellis KS**  
**Tholen #14**  
Job Ticket: 64767 **DST#: 1**  
Test Start: 2018.11.24 @ 23:38:00

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 01:59:15  
Time Test Ended: 08:16:45  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Spencer J. Staab  
Unit No: 84  
Interval: **3358.00 ft (KB) To 3425.00 ft (KB) (TVD)**  
Total Depth: 3425.00 ft (KB) (TVD)  
Reference Elevations: 1895.00 ft (KB)  
1890.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
KB to GR/CF: 5.00 ft

**Serial #: 8934 Inside**  
Press@RunDepth: 150.51 psig @ 3361.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2018.11.24 End Date: 2018.11.25 Last Calib.: 2018.11.25  
Start Time: 23:38:15 End Time: 08:16:45 Time On Btm: 2018.11.25 @ 01:59:00  
Time Off Btm: 2018.11.25 @ 05:02:45

TEST COMMENT: 45-IF-BOB 14mins; Built to 25"  
45-ISI-No Return  
45-FF-BOB 20mins; Built to 20"  
45-FSI-No Return



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Anotation
0	1817.29	92.94	Initial Hydro-static
1	23.94	92.42	Open To Flow (1)
48	87.19	96.47	Shut-In(1)
93	1092.58	97.50	End Shut-In(1)
93	91.67	97.11	Open To Flow (2)
139	150.51	98.24	Shut-In(2)
183	1078.35	99.53	End Shut-In(2)
184	1726.19	99.76	Final Hydro-static










**Recovery**

Length (ft)	Description	Volume (bbl)
100.00	MO 45%M 55%O	1.42
200.00	OO 100%O	2.84

**Gas Rates**

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


**ROCK TYPES**

 Clystcol	 Dolprim	 Lmst fw7>	 shale, gry	 shale, red
 Congl	 Lmst fw<7	 shale, grn	 Carbon Sh	

**ACCESSORIES**

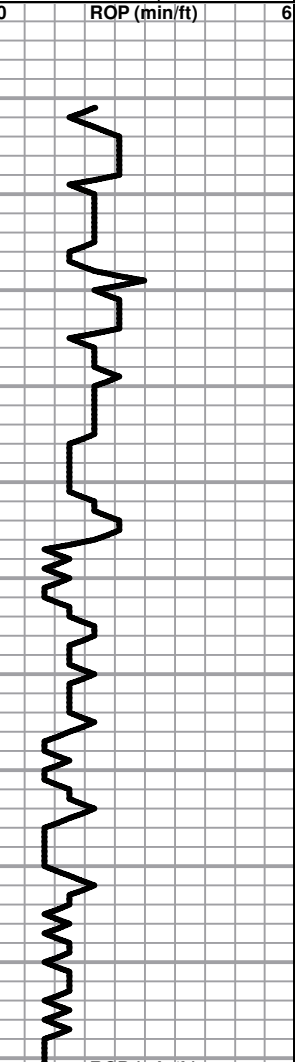
**MINERAL**

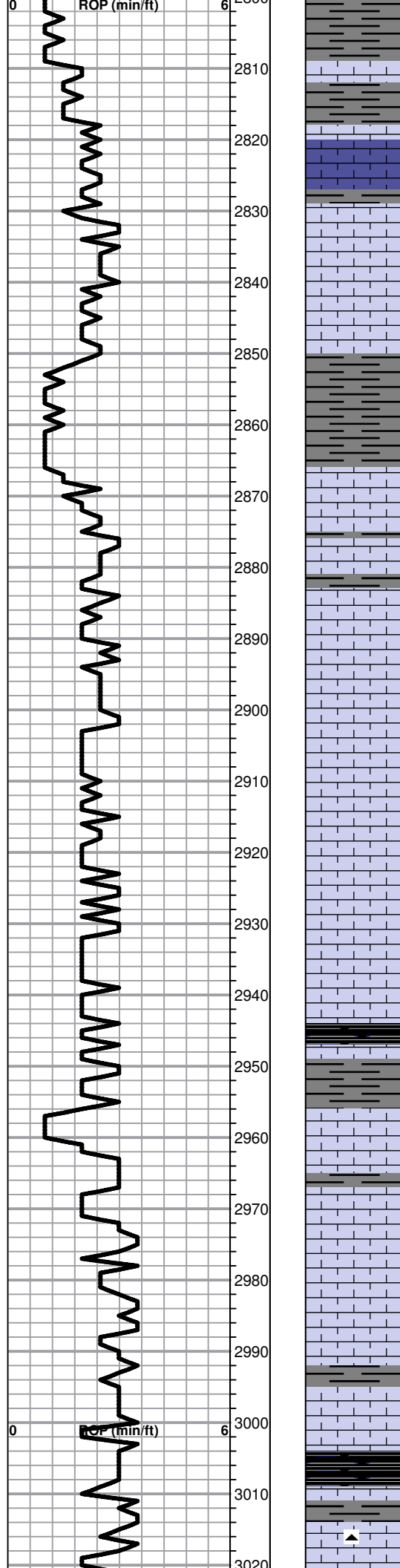
- ▲ Chert, dark
- P Pyrite
- △ Chert White

**FOSSIL**

- ⊕ Oomoldic

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #1 ROP (min/ft)	Depth   Intervals	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3
<p>1:240 Imperial</p> 	<p>Cored Interval DST Interval</p>				<p>BEGIN 1' DRILL TIME FROM 2700' TO RTD            BEGIN 10' WET AND DRY SAMPLES FROM 2850' TO RTD</p> <p><b>ANHYDRITE TOP 982+913</b>  <b>ANHYDRITE BASE 1020+875</b></p>	<p>1:240 Imperial</p> <p>SET 8 5/8" SURFACE CASING TO 223.8' W/ 150 SXS COMMON 2%GEL 3%CC, PLUG DOWN 2:30PM ON 11/20/2018, SLOPE SURVEY 1/4 DEGREE @223'</p>



Lime, med brn-gray, fnxln, sticky chalk in part

Lime, lt-med brn, fn-vfxln

Lime, crm-lt brn, fn-vfxln, slightly fossiliferous in part

Shale, lt gray, soft mud

**TOPEKA 2866-971**

Lime, lt brn-lt grayish brn, fn-vfxln

Lime, lt-med brn, fn-vfxln

Lime, lt brn-lt gray, fn-vfxln

Lime, lt brn-lt gray, fnxln, bedded chalk in part

Lime, lt brn-lt gray, fnxln, fusulinids and fossil casts

Lime, lt-med brn, fnxln to granular in part, chalky matrix, NS

Lime, lt-dark brn, fnxln-granular, chalk with lt white wash

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

Shale, black carbonaceous, blocky

Lime, crm, vfxln, lithographic

Lime, white-lt brn, fn-vfxln, few chips w/ fine ppt porosity and scattered fossil casts with lt staining, NFO or odor

Lime, crm-lt brn, fn-vfxln, scattered fusulinids

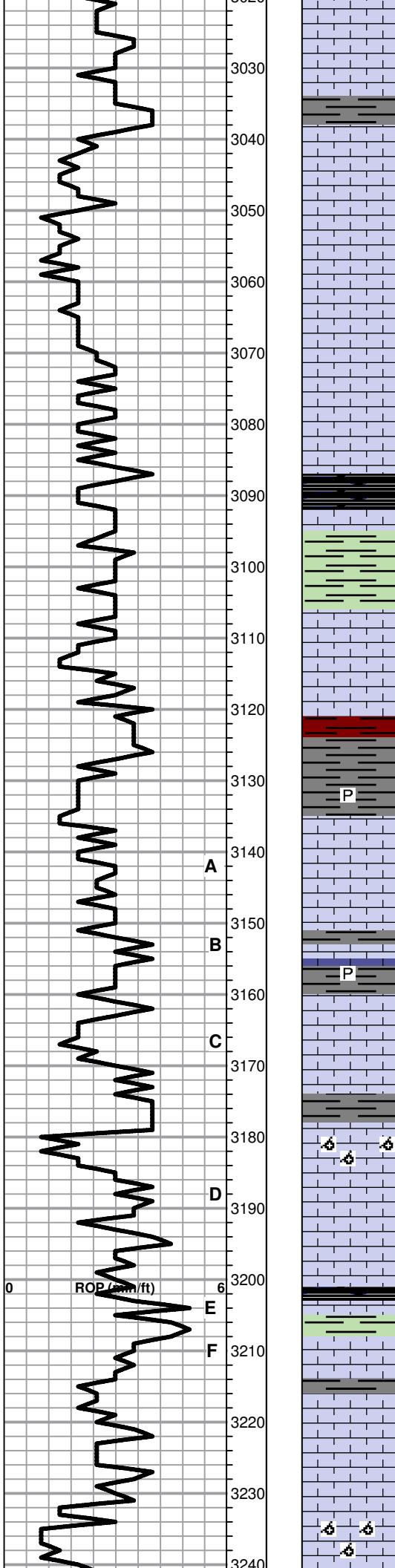
Lime, crm-lt brn-lt grayish brn, fn-micro xln

Lime, lt-med brn, fn-micro xln

Shale, black carbonaceous, blocky, fissile  
Lime, lt brn, micro xln

Lime, lt brn, fn-micro xln, lt brn chert, fresh, sharp





Lime, lt-med brn, fn-micro xln

Lime,lt brn-lt gray, fnxln-granular in part, NS

Lime, lt brn-lt gray, fn-vfxln, fusulinids and brachiopod casts

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

Lime, lt brn, chalky matrix with bed chalk, NS

Lime, crm-lt brn, fnxln-granular, chalk matrix with bed chalk

Lime, lt-med brn, fn-vfxln

**HEEBNER SHALE 3085-1190**

Shale, black carbonaceous, fissile, blocky, pyrite clusters  
Lime, lt brn, fn-micro xln

Shale, dove gray to lime green, soft sticky

**TORONTO 3106-1211**

○ Lime, white, fn-vfxln, trace of staining, NFO or odor, poorly developed

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

Shale, lt gray, soft mud grading into reddish brn shale, blocky

**LKC 3135-1240**

○ Lime, crm-lt brn, fn-vfxln, few chips fossiliferous w/ ppt porosity, spotty stain in vugs and fossil casts, very lt odor, VMSFO on crush

Lime, lt-med brn, fn-vfxln

Lime, crm-lt brn, fn-vfxln, bedded chalk in mostly chalk matrix, no detectable odor or SFO

○ Lime, crm-lt brn, fnxln with oolmoldic and fossil cast porosity, spotty staining, NFO and very lt odor

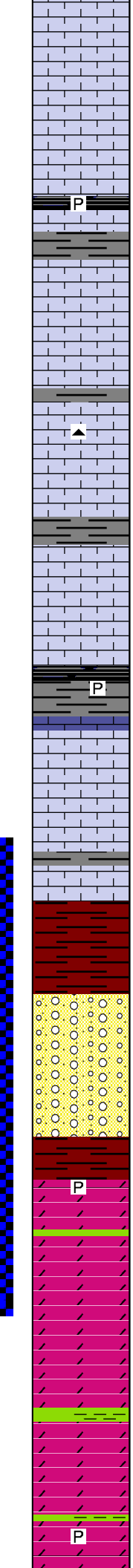
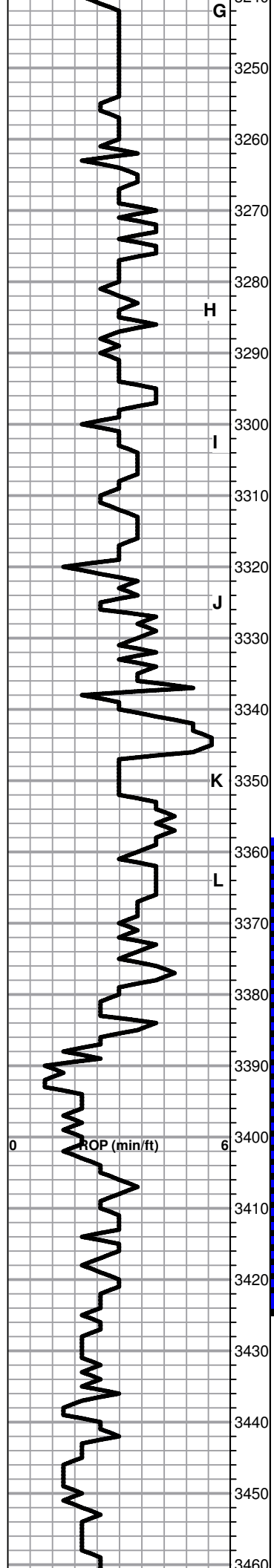
Lime, white-crm, fn-vfxln, bedded chalk

Shale, black carbonaceous  
Lime, very lt gray, fn-vfxln

Lime, white-crm, fnxln, thin fossil bed with casts and bedded chalk, NS

Lime, crm, fnxln, bedded chalk in chalk matrix, NS

Lime, white-crm, fnxln with scattered barren oolmoldic chips



Lime, white-crm, fn-vfxln

Lime, white-crm, fnxln, bedded chalk

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

Shale, gray-black carbonaceous, pyrite clusters  
Lime, med brn, fn-vfxln

Lime, crm-lt brn, fnxln, NS

Lime, crm-lt brn, fn-micro sln, scattered fossils, bedded chalk

Lime, lt-med brn, fn-micro xln

Lime, crm-tan-lt brn, fn-micro xln

Lime, crm-tan, fn-micro xln, trace stain in fine inter xln porosity, NFO or odor

Lime, crm-tan, fn-micro xln

Lime, lt brn, micro xln and hard on crush

Lime, white-crm-lt brn, fn-vfxln, NS or odor

Lime, white-crm, fn-vfxln

**BKC 3367-1472**

Shale, reddish brn, soft-firm blocky with lt red wash

Shale, red, soft with pyrite clusters and vari colored cherts

Shale, reddish brn, lt reddish brn wash, vari colored cherts with lot of red chert

**ARBUCKLE 3406-1511**

Dolomite, ivory-crm, pyritic, fnxln-granular, sucrosic in part, lt odor, SFO on crush, lt staining

Dolomite, ivory-crm, fnxln-granular, F-G odor with lt staining

Dolomite, ivory-crm, fnxln-granular, sucrosic in part, very lt odor

Dolomite, ivory-crm, fnxln-granular

Dolomite, crm-lt brn, fnxln with less sucrosic

Dolomite, crm-lt brn, fnxln, pyrite clusters and porosity in fill

CFS 3360'  
SHORT TRIP-15 STANDS

DST # 1 3358' TO 3425'  
SEE HEADER FOR TEST SUMMARY

CFS 3425'



# GLOBAL OIL FIELD SERVICES, LLC

0013285

REMIT TO 24 S. Lincoln  
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>11-20-19</u>	SEC. <u>22</u>	TWP. <u>14S</u>	RANGE <u>16W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>2:30 PM</u>
LEASE <u>Tholen</u>	WELL #. <u>10</u>	LOCATION <u>4 south of Walker KS</u>		COUNTY <u>Ellis</u>	STATE <u>KS</u>		
OLD OR NEW (CIRCLE ONE)			<u>West into</u>				

CONTRACTOR White Knight Drilling Rig  
 TYPE OF JOB Surface  
 HOLE SIZE 12 1/4 T.D. 225'  
 CASING SIZE 8 5/8 DEPTH 223  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL DEPTH  
 PRES. MAX MINIMUM  
 MEAS. LINE SHOE JOINT  
 CEMENT LEFT IN CSG. 25'  
 PERFS  
 DISPLACEMENT

OWNER TDI INC  
 CEMENT AMOUNT ORDERED 1505x COM 30cc  
2% Gel

EQUIPMENT  
 PUMP TRUCK CEMENTER Cody  
 # 417 HELPER Jason  
 BULK TRUCK  
 # 411 DRIVER Kris  
 BULK TRUCK  
 # DRIVER

COMMON \_\_\_\_\_ @ \_\_\_\_\_  
 POZMIX \_\_\_\_\_ @ \_\_\_\_\_  
 GEL \_\_\_\_\_ @ \_\_\_\_\_  
 CHLORIDE \_\_\_\_\_ @ \_\_\_\_\_  
 ASC \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 HANDLING \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

REMARKS:  
Ran 515 of 8 5/8 casing + bit Halted  
to Rig + broke circulation + pumped 1502x  
of cement + displaced 12 3/4 hbls of  
H2O + shut #W.

Cement did circulate to surface

CHARGE TO: TDI  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SERVICE  
 DEPTH OF JOB \_\_\_\_\_  
 PUMP TRUCK CHARGE \_\_\_\_\_  
 EXTRA FOOTAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MILEAGE \_\_\_\_\_ @ \_\_\_\_\_  
 MANIFOLD \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

Global Oil Field Services, LLC  
 You are hereby requested to rent cementing equipment and furnish cement 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.

PLUG & FLOAT EQUIPMENT  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 \_\_\_\_\_ @ \_\_\_\_\_  
 TOTAL \_\_\_\_\_

PRINTED NAME \_\_\_\_\_  
 SIGNATURE Terry Austin

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES \_\_\_\_\_  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

JOB LOG

SWIFT Services, Inc.

DATE

11-26-15

PAGE NO.

CUSTOMER

TDF

WELL NO.

# 14

LEASE

Tholen

JOB TYPE

2 stage ls.

TICKET NO.

27429

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	430							On location
								Csg - 5 1/2 x 14 #
								TD - 3510
								TOTAL Pipe - 3509
								Baffle @ 3466.5
								D.V. Tool - # 59 @ 991'
								Centralizers - 1, 3, 5, 7, 9, 11, 13, 15, 17, 58
								Baskets - 2 @ 5'
	710							START Running Csg
	900							Circ on Bottom
	1100	5.5	12			400		pump mud flush - 500 bbl
		5.5	20			460		pump hcl spacer
		5.5	36			400		pump Cmt - 150 sks @ 15.8 ppg
								Drop plug - Wash Pol
		5.5	0			150		START Disp
	1200	4.5	84.5			800/1500		land plug - lift psi - 800
								land psi - 1500
	1205							Drop D.V. opening tool
	1210	2.5	7			0		plug Ret Hole - 30 sks
	1215					800		Open D.V. Tool
		5	0			500		START Cmt - 115 @ 11.2 ppg
		5	63			200		Raise Wgt to 14.5 ppg
	1230	5	70			150		END Cmt - Cmt Circulating
								Drop plug
	1235	5.5	0					START Disp
	1240	4	24			700/1500		land plug - lift psi - 700
								land psi - 1500
								Release psi - Dry
								Circulated 50 sks to Pit
								JOB Complete
								Thanks
								Davis Zach & Kirby



## DRILL STEM TEST REPORT

Prepared For: **TDI, Inc.**

1310 Bison Rd  
Hays KS 67601+9696

ATTN: Herb Deines

### **Tholen #14**

### **22-14S-16W Ellis,KS**

Start Date: 2018.11.24 @ 23:38:00

End Date: 2018.11.25 @ 08:16:45

Job Ticket #: 64767                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.11.27 @ 09:57:55



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

TDI, Inc.  
 1310 Bison Rd  
 Hays KS 67601+9696  
 ATTN: Herb Deines

**22-14S-16W Ellis, KS**  
**Tholen #14**  
 Job Ticket: 64767 **DST#: 1**  
 Test Start: 2018.11.24 @ 23:38:00

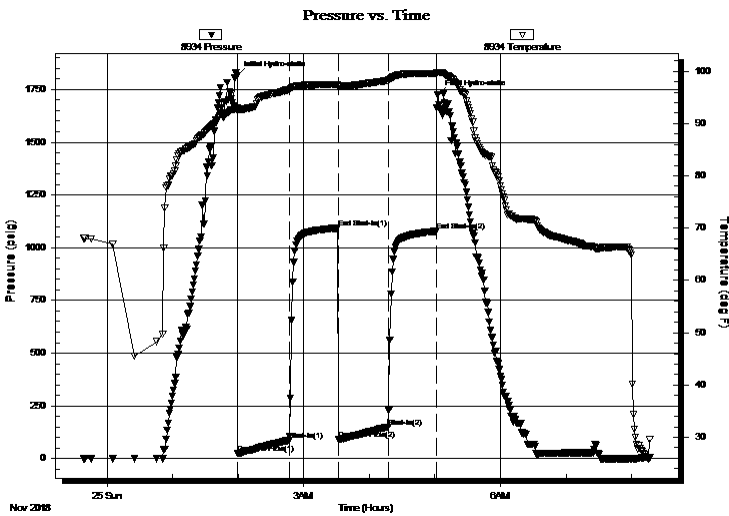
## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:59:15  
 Time Test Ended: 08:16:45  
 Interval: **3358.00 ft (KB) To 3425.00 ft (KB) (TVD)**  
 Total Depth: 3425.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Spencer J. Staab  
 Unit No: 84  
 Reference Elevations: 1895.00 ft (KB)  
 1890.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8934** **Inside**  
 Press@RunDepth: 150.51 psig @ 3361.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.11.24 End Date: 2018.11.25 Last Calib.: 2018.11.25  
 Start Time: 23:38:15 End Time: 08:16:45 Time On Btm: 2018.11.25 @ 01:59:00  
 Time Off Btm: 2018.11.25 @ 05:02:45

**TEST COMMENT:** 45-IF-BOB 14 mins; Built to 25"  
 45-ISI-No Return  
 45-FF-BOB 20 mins; Built to 20"  
 45-FSI-No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1817.29	92.94	Initial Hydro-static
1	23.94	92.42	Open To Flow (1)
48	87.19	96.47	Shut-In(1)
93	1092.58	97.50	End Shut-In(1)
93	91.67	97.11	Open To Flow (2)
139	150.51	98.24	Shut-In(2)
183	1078.35	99.53	End Shut-In(2)
184	1726.19	99.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
100.00	MO 45%M 55%O	1.42
200.00	CO 100%O	2.84

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

TDI, Inc.  
1310 Bison Rd  
Hays KS 67601+9696  
ATTN: Herb Deines

**22-14S-16W Ellis,KS**

**Tholen #14**

Job Ticket: 64767

**DST#: 1**

Test Start: 2018.11.24 @ 23:38:00

## GENERAL INFORMATION:

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 01:59:15 Tester: Spencer J. Staab  
 Time Test Ended: 08:16:45 Unit No: 84  
 Interval: **3358.00 ft (KB) To 3425.00 ft (KB) (TVD)** Reference Elevations: 1895.00 ft (KB)  
 Total Depth: 3425.00 ft (KB) (TVD) 1890.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

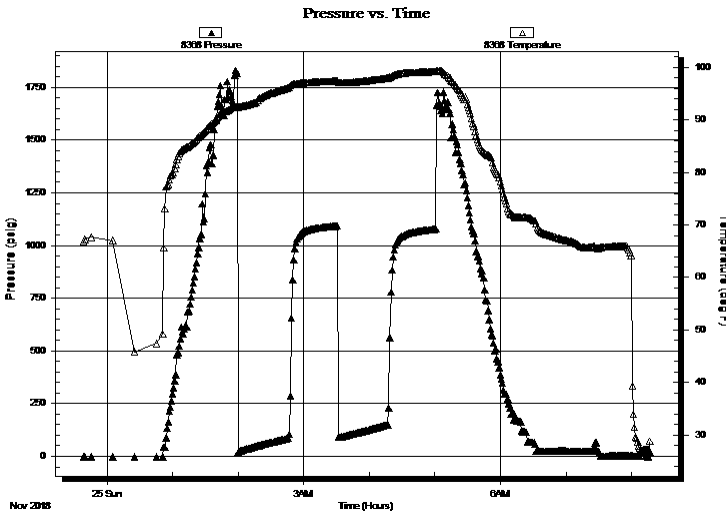
## Serial #: 8368

Inside

Press@RunDepth: psig @ 3361.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.11.24 End Date: 2018.11.25 Last Calib.: 2018.11.25  
 Start Time: 23:38:15 End Time: 08:16:45 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 45-IF-BOB 14 mins; Built to 25"  
 45-ISI-No Return  
 45-FF-BOB 20 mins; Built to 20"  
 45-FSI-No Return

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
100.00	MO 45%M 55%O	1.42
200.00	CO 100%O	2.84

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

TDI, Inc.  
1310 Bison Rd  
Hays KS 67601+9696  
ATTN: Herb Deines

**22-14S-16W Ellis,KS**  
**Tholen #14**  
Job Ticket: 64767      **DST#: 1**  
Test Start: 2018.11.24 @ 23:38:00

**Tool Information**

Drill Pipe:	Length: 3362.00 ft	Diameter: 3.82 inches	Volume: 47.66 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 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:	47000.00 lb
			<u>Total Volume: 47.66 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3358.00 ft			Final	43000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	67.00 ft				
Tool Length:	88.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Change Over Sub	1.00			3338.00	
Shut In Tool	5.00			3343.00	
Hydraulic tool	5.00			3348.00	
Packer	5.00			3353.00	21.00      Bottom Of Top Packer
Packer	5.00			3358.00	
Stubb	1.00			3359.00	
Perforations	1.00			3360.00	
Change Over Sub	1.00			3361.00	
Recorder	0.00	8934	Inside	3361.00	
Recorder	0.00	8368	Inside	3361.00	
Drill Pipe	32.00			3393.00	
Change Over Sub	1.00			3394.00	
Perforations	28.00			3422.00	
Bullnose	3.00			3425.00	67.00      Bottom Packers & Anchor

**Total Tool Length: 88.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

TDI, Inc.  
1310 Bison Rd  
Hays KS 67601+9696  
ATTN: Herb Deines

**22-14S-16W Ellis,KS**  
**Tholen #14**  
Job Ticket: 64767      **DST#: 1**  
Test Start: 2018.11.24 @ 23:38:00

## Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 31 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl	
Water Loss: 11.19 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 14100.00 ppm		
Filter Cake: inches		

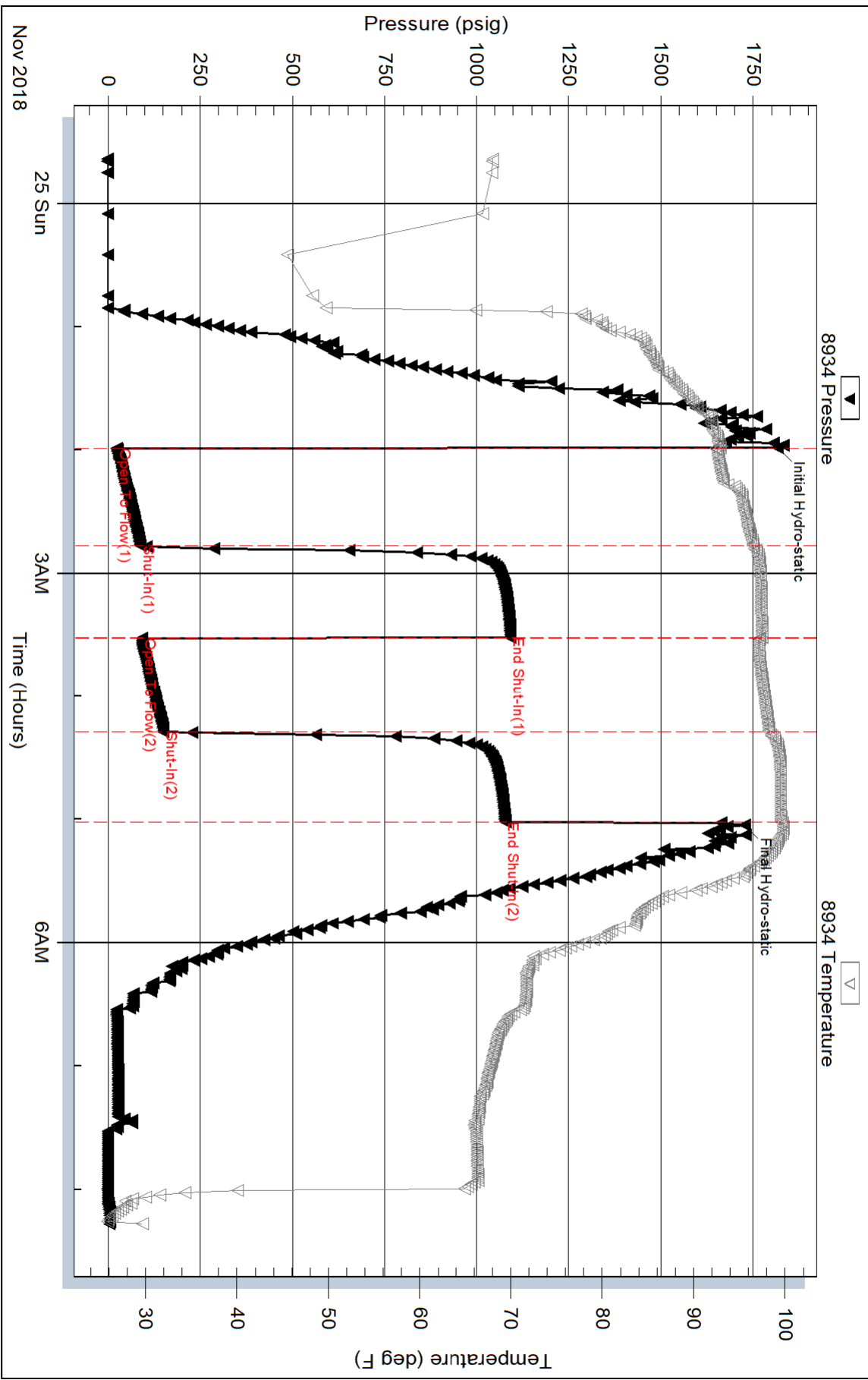
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	MO 45%M 55%O	1.418
200.00	CO 100%O	2.835

Total Length: 300.00 ft      Total Volume: 4.253 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: 2#LCM

### Pressure vs. Time



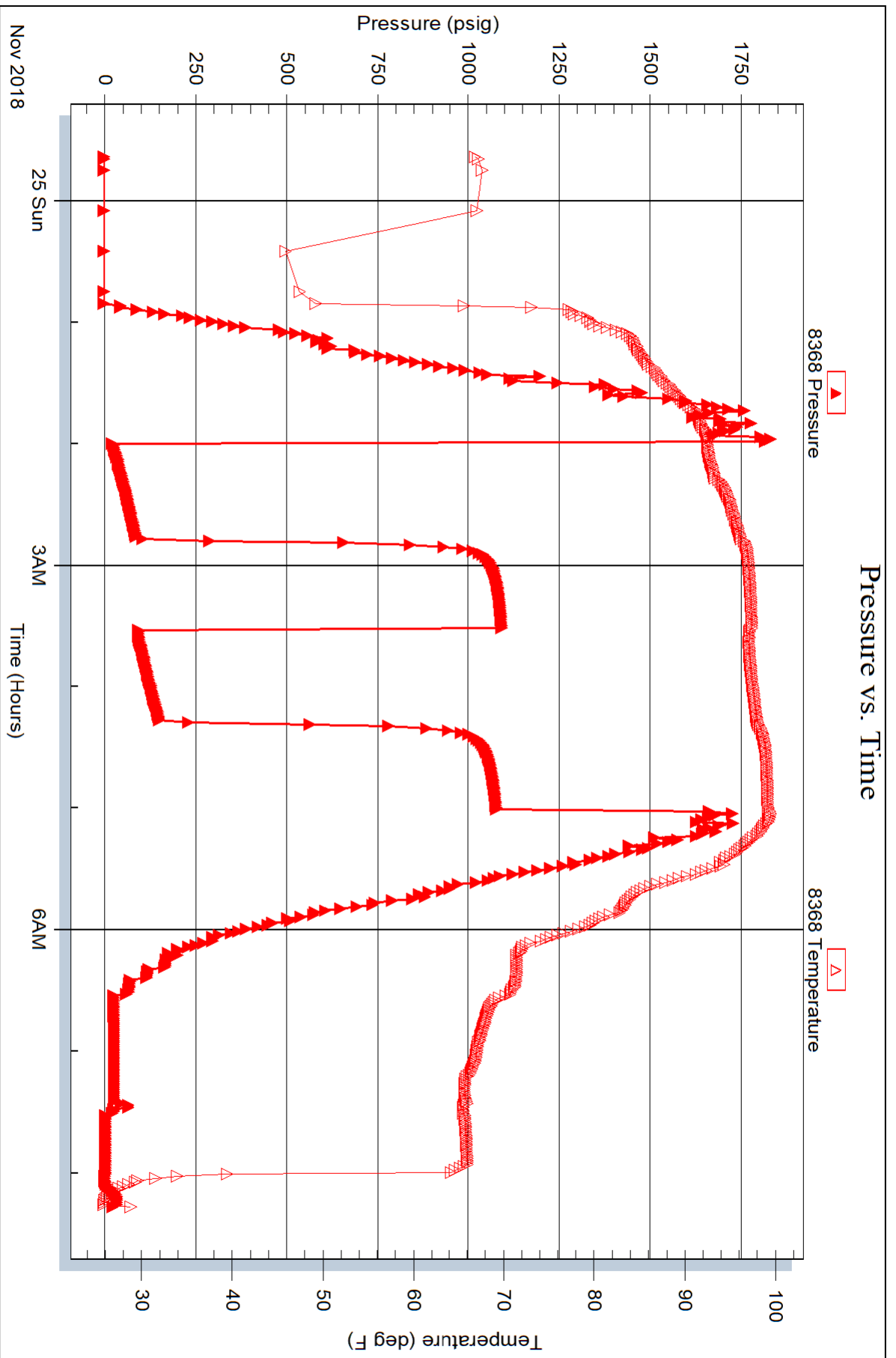
Serial #: 8368

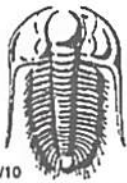
Inside

TDI, Inc.

Tholen #14

DST Test Number: 1





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64767

Well Name & No. Tholen #14 Test No. 1 Date 11/24/2018  
 Company 7SD, Inc. Elevation 1895 KB 1890 GL  
 Address 1310 Bison Rd Hays KS 67601 + 9696  
 Co. Rep / Geo. Herb Deines Rig White Knight  
 Location: Sec. 22 Twp 14S Rge. 16W Co. Ellis State KS

Interval Tested 3358' - 3425' Zone Tested Arbuckle  
 Anchor Length 67 Drill Pipe Run 3362' Mud Wt. 9.4  
 Top Packer Depth 3353' Drill Collars Run - Vis 60+  
 Bottom Packer Depth 3358' Wt. Pipe Run - WL 11.2  
 Total Depth 3425' Chlorides 14100 ppm System LCM 2#

Blow Description J7- BOB 14 min; Built to 25"  
J8- No Return  
J7- BOB 20 min; Built to 20"  
J8- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>100</u>	<u>MO</u>	<u>55</u>		<u>45</u>	
<u>200</u>	<u>CO</u>	<u>100</u>			

Rec Total 300' BHT 99° Gravity 31° API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1817  Test 1050 T-On Location 23:20  
 (B) First Initial Flow 23  Jars - T-Started 23:38  
 (C) First Final Flow 87  Safety Joint - T-Open 01:58 11/25/2018  
 (D) Initial Shut-In 1092  Circ Sub - T-Pulled 04:58  
 (E) Second Initial Flow 91  Hourly Standby - T-Out 08:15  
 (F) Second Final Flow 150  Mileage 3227x2 64 Comments loaded @  
 (G) Final Shut-In 1078  Sampler - 23:00 11/25/2018  
 (H) Final Hydrostatic 1726  Straddle -  
 EM Tool -  
 Ruined Shale Packer -  
 Ruined Packer -  
 Extra Copies -  
 Initial Open 45  Extra Packer -  
 Initial Shut-In 45  Extra Recorder -  
 Final Flow 45  Day Standby - Sub Total 0  
 Final Shut-In 45  Accessibility - Total 1114  
 Sub Total 1114 MP/DST Disc't -

Approved By \_\_\_\_\_ Our Representative Spencer J. Strub *Thanked*  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

785-259-0056